Calendar Notes

Enough of this summer. The coming of fall is welcome this year, offering not only cooler temperatures but those extra evening hours of darkness for extended viewing. The W-shape of Cassiopeia dominates the autumn sky, and provides aids to navigation in locating the square of Pegasus, the Andromeda Galaxy, and the Double Cluster. Autumn is also a good time to view the zodiacal light, an elusive but beautiful phenomenon. Look for a faint, whitish glow in the predawn sky to the east, away from skyglow and on a moonless night. The light will appear to extend from the vicinity of the

Seeing through the Clouds

Observing in the Rain

President’s Message: The summer of 2009 was a great time for amateur astronomers in the Pacific Northwest. Those who took full advantage of the record breaking high night-time temperatures and night after night of clear skies suffered severely from the effects of sleep deprivation. But we all know that this cannot last and the clouds and rain will return. Knowing this I thought I would offer some comments on how we might continue to

Use Your Home PC for Remote Astrophotography

Sometimes it’s hard to not be envious of Southwestern astronomers, with observatories in places where cloudy nights are rare and light pollution is almost nonexistent. Well, we can’t
Sun along the ecliptic. Fall also brings opportunities for viewing meteor showers. The best bets are the Orionids, peaking on October 21, and the Leonids, peaking on November 17, both at a peak rate of 15–20 meteors per hour.

Another interesting phenomenon: the vanishing rings of Saturn. Amateur astronomers around the world have been observing the narrowing of the rings for over a year. On September 4 the rings will vanish completely. This phenomenon occurs once about every 15 years, as Saturn goes around the sun, and turns its rings edge-on to Earth. It was observed by Galileo in 1612, not long after he discovered Saturn’s rings in 1610.

Our monthly planetarium showtimes are 7:30 p.m. in September and 7:00 p.m. in October and November. The monthly members meetings are on the second Friday of each month, starting at 7:00 p.m. As I write, we have no speakers scheduled, but that may change. We are also beginning to schedule work parties. Look for activity announcements on our Web site, in member email, and in the local newspapers.

—Diane Colvin, Events Manager

**Telescopes, Improved and New**

**Improving the 16-Inch String Telescope**

Three score and three moons ago some club members got together and built a 16 inch string telescope. You ask, what is a 16 inch string scope? A string telescope is a combination of poles and nonstretching bowstrings (as in bow and arrows) for the support system of the secondary cage. The benefit of the strings is that they are lighter than a truss system, it packs easier, and it is easier to transport and set up.

Except for the actual primary and secondary mirror everything was home-made. The members created the design and had some innovative ideas built into the telescope, such as the Styrofoam secondary cage, and multiple fans on the secondary and primary mirrors. They also built the 3-vane spider, primary mirror cell and main mirror cell. And thus began the problems of the 16-inch telescope. The telescope sat in the

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On September 4 the rings vanish completely.
First Light for New 20-Inch Dobsonian

First light (at the end of the tunnel) was held on June 27, 2009. This was the first time the telescope had ever been totally assembled in working condition. Malcolm Saunders, Nels Johansen, Jim Young, his daughter Margaret Hansche, George McCullough and I were attending.

We started the setup with plenty of daylight left, so we could see what we were doing and allow plenty of time for glitches. Thankfully everything went relatively smoothly and we had the telescope collimated and ready to go well before any stars were visible.

Since this was the telescope's maiden voyage the red dot finder had not been aligned, and while we waited for a bright star to align it on, someone pointed out that the waxing crescent moon was visible to the west in the still-bright sky, so I pointed the scope in that direction. After figuring out how to turn the red dot finder on and adjust its aim (this really was a first light/maiden voyage experience) I pointed the red dot at the Moon and then searched for it using our 35mm wide-angle Panoptic eyepiece.

I have a good friend who, when something extraordinary happens, likes to say, “That’s a Wow,” and when I finally found the moon I couldn’t help but saying, “Wow!” The image was especially startling because I was initially just using the Moon as something to align on until it got darker and we could look at more “important” objects like galaxies, nebulae and star clusters. I was not expecting to see an image with such clarity and high resolution, and as the others took their turns looking I think everyone said the same thing, “Wow!”

The most meaningful “Wow,” though, came from Jim Young. For those that don’t know him, he’s without a doubt the most knowledgeable lunar observer I have ever met, by a wide margin. Jim knows the names of more geological features on the Moon than I know geological features here on Earth. After observing for a while he said he thought the image was as good as photographs he’s seen. And this was with a mirror that hadn’t yet reached...
New 20-Inch Dobsonian con't

ambient temperature, whose heat waves were making a very shimmery image.

After looking at the moon we caught a brief glimpse of Saturn before it set behind the trees, but the warm mirror, combined with poor seeing conditions, produced a mediocre image at high power. Then a thin cloud cover began to creep in and after trying a few more objects we decided to put the scope away for the night. It has been used two more times since then but both nights were clouded over, so the scope still has not had a chance to show its full potential. But its initial performance on the moon shows both the primary and secondary mirror to be of exceptional quality.

While the telescope is now in a functional state, there are still many small things that need to be done. (Not necessarily in order of importance.):

1. Finish the wiring for the fans and dew heaters.
2. Attach the dew heaters to the red dot finder and finderscope.
3. Finalize the placement and drilling the holes for the beautiful finderscope bracket that Malcolm machined.
4. Finish the collimation rod system.
5. Attach the Kydex (black plastic sheet) to the inside of the secondary cage.
6. Make a light baffle for the secondary cage and focuser.
7. Make cargo ramps so it can be pushed wheelbarrow-style into the back of a van or SUV. Note: We have metal brackets made to attach to the ends of 2x6 lumber but it would be nice if the 2x6’s could fold up and be more compact for travel. If anyone knows of a way to do this without compromising the strength of the 2x6’s and without adding excessive weight please contact me (dtanaka@seanet.com).
8. Wrap the truss poles with bicycle handlebar tape so they’re friendlier to grip when it’s cold.
9. Make a small box that can temporarily attach to the outside of the mirror box to hold extra eyepieces, the 1.25”/2” eyepiece adapter, Barlow lens, etc.
10. Apply spar varnish to the wooden battery holders and corner gusset covers.
11. Discover more things that need doing.
12. Wow!

—Doug Tanaka

Observing in the Rain

con't from p.1.

practice observational astronomy through the fall and winter months.

I do realize that not all amateur astronomers have observational goals. Some prefer scanning the night sky with friends, building telescopes, reading or writing about astronomy, doing virtual astronomy via the Internet, or teaching astronomy. All these are rewarding activities in which clouds, light pollution, and rain have little impact. This message is more for those of us who have an obsessive urge to
scan, hunt, observe and “bag” as many NGC objects, galaxies, and asteroids as possible.

Of course the most direct way to continue pursuit of the hobby is to move to Arizona or New Mexico during the winter months. In the Southwest there are residential developments designed just for astronomers. There is also the option of developing your own remote site in a high desert in the middle of nowhere. Sounds great, but issues of road access, power, water, and Internet connections present real challenges. And for many BPAA members leaving the Seattle area for the winter is not an option.

Another possibility is to observe remotely using robotic telescopes that are sited in dark sky areas and controlled via Internet connections. The BPAA is promoting this concept in its capital planning documents and is actively seeking funding for robotic systems that would be operated from the Ritchie Observatory. It is also possible to “rent” time on commercial telescopes. I have used these several times in my attempts to image Einstein’s Cross. These systems do work but the cost per hour of observing is beyond many hobby budgets.

So if most of us can’t move to a more favorable viewing area for the winter and remote systems are not available, what do we do? Complaining about the clouds, light pollution, and rain does not work. I have tried.

Although I have not been a life-long amateur astronomer, my observational experience using visual and CCD methods in the Pacific Northwest has taught me that planning, technology, and preparation are essential if you wish to meet observational goals during the fall and winter nights. Clear nights generally occur in a series of two or three, sometimes without warning. Email notification from the clear sky clock Web site helps but is not always accurate. To prepare for a night of viewing:

• Set up telescope equipment before it gets dark, dress properly, and if possible get some rest during the day before a night of viewing.
• Alcohol and observing just do not mix, so don’t try.
• Know where the objects on the viewing list will appear and when.
• If you are using star hopping to find objects, plan where the star hop will start, the number of hops needed and the star patterns that will get you to the object.
• Be efficient and group objects by their location to avoid long sky slews.
• Know when the moon will rise and where.
• Determine the sky magnitude and avoid long searches for objects that are too faint to observe under current conditions.
• Being prepared for dew can save an entire night of viewing, so have dew heaters and hair dryers ready to deploy.

Use technology when it serves your observational goals. For example I used paper star charts when completing the Messier list but found that electronic charts were essential when working the Herschel 400 list. I found an equatorial tracking platform for my Dobsonian mounted 10” essential when star hopping to very faint objects. I did not use a go-to telescope system when working the Herschel 400 because the challenge was in “the hunt.” I later used a go-to telescope when completing the Galaxy Groups and Clusters project because the goal was to image and document over 1500 very faint galaxy objects. Observing mag 15 galaxy clusters in mag 3 light-polluted Seattle area skies is not possible visually. CCD imaging techniques were essential to complete the project.

So can you do astronomy during long periods of cloudy weather? Yes. Virtual astronomy using the Internet is a very good substitute. Instead of using your own images and observations you use those available from web sources. One example is Galaxy Zoo (galaxyzoo.com) where you can sign up to classify galaxies from the Sloan Digital Sky Survey. Another advantage of the Internet is that it offers opportunities for collaborations and communications with other astronomers worldwide. Several years back I received invaluable help with my auto guider system from another amateur astronomer in Australia who had a similar system. In the current September issue of Sky & Telescope (p. 73) there is an article devoted to how online networks are changing backyard astronomy.

I hope some of my comments will help those of you with obsessive urges to observe this winter get the most out of the limited observing nights. Good luck and remember planning, technology, and preparation will get you through.

—Harry Colvin
Remote Astrophotography

move the Ritchie Observatory to the Southwest, but we can bring Southwestern skies to the Northwest. The BPAA is laying plans to become an institutional member in a network of remote-controlled telescopes, allowing visitors to observe the night skies using automated telescopes located in drier climes, such as New Mexico and Australia. Observers will have full control over the telescope of their choice, and will be able to take images in real-time for several hours a night. Until this is a reality at the Observatory, however, any interested astronomer can use a remote telescope to take images from their home computer for free, albeit with certain restrictions.

The BPAA has received a $1000 grant from NASA’s Science Mission Directorate to fund a public exhibit based on “MicroObservatory” images taken by visitors. The MicroObservatory Robotic Telescope Network, developed through a collaboration between NASA and the Harvard Center for Astrophysics, allows anyone to use one of several small robotic telescopes to take an image of various astronomical objects. Telescope control is geared toward the beginning astronomer and takes place via a straightforward online interface: no special programs or prior knowledge needed.

Telescope use is not in real time, so there’s no need to be online when it is dark where you’re observing—the telescopes themselves are located in Amado, Arizona and Cambridge, Massachusetts.

The user is given a choice of 36 planets, nebulae, and galaxies to photograph; objects which will not be present in that night’s sky are noted. Following the selection of an object, the user can specify the size of the field of view, the exposure time (the site suggests a recommended exposure time), and the color of the filter to take an image through, if a filter is desired. Finally, the site will require an e-mail address to send the image to. As soon as it’s dark where the telescope is, it will point to your object, take an image according to your specifications, and e-mail a download link to you within 48 hours. You will have the choice of downloading the image as a .gif or a .fits image. .fits is a high-quality image format used in astronomy.

When you receive your image, it will not be as spectacular as a Hubble photograph, but you can make a full-color image of your object. The MicroObservatory site provides a free image processing program, MicroObservatory Image, located under the “Download Software” tab at the top of the page. Color images require three images of the same object: one image per red, green, and blue filter. After you have taken these three images (either by requesting images of an object through three different filters, or by selecting the “Multiple Filters” option), open them in the image processing program. They will all appear to be in grayscale. First, adjust each image so that faint elements are visible by using the Adjust Image tool under the Process menu. To associate each image with its color, click on Process, then Color Tables, then select the color of the filter used to take the photo. For example, for the image taken through the red filter, click on Red. Repeat this for the green and blue images.

To make a single full-color image, the program will “stack” the three images on top of each other, so it’s important that they are aligned. To do this, click on Process, then Shift. By selecting each of your three images from the drop-down menu at the top of the window, and moving each image around using the i,j,k, and l keys, make sure that each image lines up with the others. It’s often easiest to use background stars for reference. After the three images are aligned, click on Process, then Stack, then Convert Images to Stack. Finally, click on Convert Stack to RGB to create your final, full-color image. It might not look as good as a magazine photograph, but it’s yours, made from scratch! It could also be put on public display in an exhibit at the Ritchie Observatory. The September star party at the Ritchie Observatory will feature the opportunity for visitors to take images for the exhibit. Until then, feel free to take lots of images and send your best ones to bpaaimages@gmail.com for inclusion in the exhibit.

You can find MicroObservatory at mo-www.harvard.edu/cgi-bin/OWN/Own.pl, or by Googling “Observing with NASA Harvard.”

—Jeff Acquino
I attended the NASS annual conference held from August 20 through 23, in Portland, Oregon. Friday, the 21st we were taken on a bus tour of local area sundials. Mr. Colby Lamb manufactures sundials from chip trays. He had a beautiful metal sundial on a curly base in his garden. Next we saw Rob & Julie Brown’s “sprinkler” sundial. Then to Stephenson Elementary to see Julie Brown’s mosaic wall dial (which was also a school project she lead).

Reed College was next, with their traditional wall dial, on a traditional looking campus, where some radical thinkers traditionally hang-out...!!?? Then we went across the border to Clark College in Vancouver, Washington to see a large bow-string Sundial that the college built in 1984 and recently modified by adding an analemma feature to the gnomon (the bulbous form on the gnomon rod).

The Sundial Society is a great resource of information for both professional builders and amateurs. Members came from as far away as the UK, Japan, and Italy. Go to www.sundials.org for more.

—Russ Heglund

All photos by Russ Heglund
The 2009 Table Mountain Star Party, held on Table Mountain in the Wenatchee Heights area above Ellensburg, Washington, took place from July 23rd through July 25th. I went up Wednesday, July 22nd to get an early start on observing. I linked-up with Dave Warman, another BPAA member, on the Bainbridge Ferry and we headed over Snoqualmie Pass. It was a fairly hot day. Table Mountain is at 6300 foot elevation, and it is a grueling drive up the mountain on a one- and-a-half car wide road.

I took the BPAA’s Losmandy Mount with me to try to learn how to operate it. We attached an Celestron 8 inch SCT to the mount. (see photo). The mount has lots more capacity, and it had no problem slewing it and tracking.

I also had my personal Televue 85 refractor on a Vixen alt/az mount, for fun and pleasure. Wednesday, the first night, was the clearest. Jupiter was outstanding, very clear and lots of bands. The Milky Way stretched from horizon to horizon. The space station flew over, and its rectangular shape was readily observable. Brian Harley, an amateur astronomer from Maple Valley, said he had seen a very bright aurora a couple nights before we arrived.

The next couple nights were spotty...clouds and breaks in clouds. The last night (Saturday night) it clouded over and rained up until about 10pm, so I went to bed. But about 2 am I got up, looked out, and it was clear! I set-up the TV85 and saw Jupiter, Venus, and Mars just before sunrise. The Table Mountain people did a fine job of setting up the site, and feeding us, mostly dinners, (however Saturday we had a special breakfast). They had a snack bar and espresso stand, as well as a shower truck (how they got a big long-haul semi truck and trailer up that road, I don’t know). The next Table Mountain Star Party will be August 12 through 14, 2010.—Russ Heglund
Bill’s Astronomy

Bill Edmonds, past publisher of the BPAA Newsletter, 1994-2004, died at the age of 83 on July 20, 2009. Bill was introduced to telescopes and astronomy during the summer of 1950 in Izmir, Turkey. The particular telescope was one that had been rescued from Euphrates College in Harput, Turkey when that school was closed at the turn of the 20th century. It had (at a guess) a 6” primary and a brass tube about five feet long. It was balanced with a stone weight, bringing the weight of the whole telescope up to about 100 pounds. With it was a tall, wooden tripod that lifted the eyepiece about two feet off the ground after Bill had managed to get the telescope mounted. Astronomy was of somewhat less interest to him then than the young woman who inveigled him into the exercise. And his experience was complicated by the unromantically inclined hordes of mosquitoes that night.

The inveigling young woman became Bill’s wife, and they worked together Turkey as educators and publishers from 1949 to 1991. Bill and Anna retired to Bainbridge Island, and when the trio of Mac Gardiner, Ed Ritchie, and John Rudolph founded the Battle Point Astronomical Association in 1994 they volunteered their publishing expertise, founding the BPAA Newsletter.

But Bill had had little opportunity to improve on his study of astronomy until Anna convinced him to audit a college Astronomy 101 course at Olympic College in the fall of 1995. By great good fortune the course was taught by Paul Middents, and from him Bill caught an excitement and understood a breadth in this science that used both chemistry and engineering, and that had several roots in the work of Islamic scholars.

Bill helped Ed Ritchie as he was grinding the 27” mirror, and took a number of the pictures of the first years of BPAA. But his greatest time and effort went into preparing the Newsletter. What he did would seem tedious and elementary today when scanners and the internet are now at everyone’s fingertips. Typing the articles onto the computer and later learning to use Microsoft Publisher to set up the page format were only part of it. He also edited them for spelling and grammar mistakes and fitted them into the eight or twelve pages of each issue. Often he added a filler of a picture or a joke to balance or add interest to a page. The picture meant pasting a black and white photo on an already printed page where he had left a blank space. It was not unusual for that picture to come unglued as the actual copies were being printed, with the resulting loss of time and temper.

The undependability of the printer in the Observatory office brought another set of problems, of which sufficient ink and paper were the most easily solved. More than once that printer baulked half way through and Bill had to take the rest of the job to the printer at the Eagle Harbor Congregational Church. Then John Rudolph offered the printer at his office, whereupon the printing was completed more efficiently and with the added pleasure of John’s company. Several others, including Don Trantow, came to help with collating and folding the pages.

Once the 250 copies were ready Bill and Anna always took them to Mac and Helen Gardiner’s home where the four of them pasted the addresses on each one and separated them into the required post office categories. Those hours were always enlivened with coffee and conversation.

Finally either Mac or the Edmondses took the copies to the post office for the final (and often baffling) formalities of deciding whether they could be mailed at a bulk rate or not.

Bill found it all fun, and frustrating, and satisfying once the copies were in the mail. And immediately he began working on the next edition, until with great relief he turned the fun and frustration (and satisfaction) over to Vicki Saunders.—Anna Edmonds
IN THIS ISSUE

COLUMNS
1 Calendar & Notes: Seasonal Wonders
1 President’s Message: Observing in the Rain

In Brief
2 BPAA Telescopes New and Improved
7 North American Sundial Convention
8 Table Mountain 2009

Features
1 Remote Astrophotography with MicroObservatory
9 Bill’s Astronomy

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