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University Lowbrow
Astronomers

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“The Birthplace of American Astronomy”:
**A Visit to the Cincinnati
Observatory**

By Doug Scobel

While visiting my wife’s sister and her husband in Cincinnati last November, I had the pleasure of visiting the historic Cincinnati Observatory. In previous visits with them, my brother in-law had mentioned the observatory and how I would probably enjoy being there. We never made the trip until this last visit, but I had no idea until we got there how historic Cincinnati Observatory actually is.



The second home of the observatory, dedicated in 1873, originally housed the 11-inch Merz and Mahler refractor. The dome is a relatively recent replacement of the brick turret with which the building was first constructed. *Photos by the author.*

History

Cincinnati Observatory calls itself “The Birthplace of American Astronomy”. And quite probably it is. It was the first public observatory in the western hemisphere. Its main building, classic brick with a silver dome (it was originally built with a brick turret rather than a dome), was dedicated on November 9, 1843. Former president John Quincy Adams presided over the dedication of the observatory and the laying of the cornerstone. The telescope, an 11-inch Merz and Mahler

refractor, saw first light on April 14, 1845. At that time the 11-inch was the largest refractor in the western hemisphere and the third largest in the world!



The new building, built in 1873, preserves the cornerstone from the first building (built downtown) that was dedicated in 1843. Former president John Quincy Adams presided over that dedication.

The observatory was ground-breaking in the way it was funded. Cincinnati professor Ormsby MacKnight Mitchel was one of if not the first American popularizer of astronomy, kind of the Carl Sagan of his time. In 1842 he founded the Cincinnati Astronomical Society to raise money for the observatory. He went door to door looking for stockholders, soliciting 25 dollars a share. Remarkable, considering \$25.00 was the equivalent of an average monthly salary in 1842! Equally remarkable, within a month and a half Mitchel raised enough money to start shopping around in England and Europe for a telescope. Finally, in Munich, he discovered a superb 11-inch lens that had never been installed in a telescope. He contracted to have a tube of brass and mahogany constructed, and the completed telescope was shipped across the Atlantic to New Orleans, and from there to Cincinnati via the Mississippi and Ohio Rivers. Back then, "shipping" really meant shipping!

Originally, the observatory sat on a four acre tract at the top of Mount Ida, near downtown Cincinnati. In 1873, to get away from the pollution of downtown, the telescope was moved to a new settlement four miles east of the city. All that remains of the original building is the cornerstone, which was laid in the new building. They named the new location Mount Lookout in recognition of the new observatory. Afterwards, Mount Ida was renamed Mount Adams in honor of the late president, who passed in 1848. Mount Adams can be seen from the downtown Cincinnati waterfront, the top of the hill now dominated by a Presbyterian church.



Mount Adams, the original site of the Cincinnati Observatory. To escape pollution from downtown, the observatory moved to Mount Lookout in 1873. This is today's view from the waterfront.

In 1904 a second telescope, a 16-inch Alvan Clark and Sons refractor, was installed into a second building at the campus atop Mount Lookout. Sometime later (exactly when I was not able to determine) the 16-inch and 11-inch refractors were swapped, the 11-inch being moved to the newer building and the 16-inch to the older.



This newer building, built in 1904, originally housed a 16-inch Clark refractor. The cone-shaped dome caps a room that was used for observing comets. Alas, both buildings were closed during my visit.

Mainly, the work that was done at Cincinnati Observatory was the study of double stars, computation of the orbits of minor planets, and astrometry. Its greatest claim to fame is that the companion star of Antares was “discovered” there. I put the word discovered in quotes because it depends on who you ask. According to the observatory’s web site it was indeed discovered there. Other sources say it was discovered during a lunar occultation of Antares in 1819 and later confirmed in 1846, presumably at Cincinnati. I’m not sure which is correct, nor am I taking sides – I’ll be happy to leave that determination as an exercise for the reader.

Today

From the beginning the Cincinnati Observatory was unique. Not only could stockholders look through the telescope, but the general public could as well. Countless times Mitchel had his research interrupted by visitors who wanted to look through the refractor.

This tradition of being “the people’s” observatory continues today, though not without experiencing some perilous times. For decades the observatory, owned by the University of Cincinnati, sat idle as a research institution, its telescopes and buildings slowly deteriorating. In the 1980s both telescopes were painstakingly brought back into working order through the passion of the late astronomer Paul Nohr. Signs of the times, in the 1990s the University of Cincinnati contemplated plans to sell the land to developers who were interested in leveling the site and erecting condos. A coalition of neighbors, historians, and amateur and professional astronomers took action to save the observatory. In 1999, the Cincinnati Observatory decided to no longer try to compete as a research facility, but resurrected itself as a center for astronomy education.

The proximity to an urban area now provides a huge new audience, and provides cutting-edge astronomy education and outreach. The observatory staff and volunteers provide tours for school groups and scouts, weekly classes, telescope training, and star parties. It also provides a venue for weddings, art shows, fund raisers, business meetings, concerts, and even movies. It makes me wonder what would happen if the same kind of thing happened to our own Detroit Observatory in Ann Arbor.

My Visit

The observatory is tucked away in a quiet, pleasant, Victorian neighborhood at the end of a cul-de-sac. Unfortunately for me, Deb, and her sister and brother-in-law, the observatory was closed the day we visited. So I have no photos of the telescopes. Still, it was a nice, sunny day, making for a nice photo-op. The buildings are restored beautifully. Next time we visit Deb's sister I'll make sure we plan it so that we can get a tour, and hopefully have the chance to look through the historic instruments.



A look through one of the windows of the older building.

If you are ever in Cincinnati, you should make time to take a little detour (like I said it's only four miles from downtown) to the top of Mount Lookout and the Cincinnati Observatory. It is a splendid example of what can result from the vision, dedication, and passion of folks for the advancement of science, whether they lived in the 19th century, or live today in the 21st.

The Cincinnati Observatory's web page can be found at <http://www.cincinnatiobservatory.org/>

More pictures from Doug's visit can be found here: <https://www.flickr.com/photos/djscobelfam/sets/72157650140302002/>

Lowbrow Monthly Meeting

February 20, Room G115 Angell Hall, 7:30 PM: Carl Akerlof (Professor of Physics, University of Michigan). "Radio Astronomy on the Roof – Two Undergrad Experiments in Astrophysics & Cosmology."

Sometimes Lowbrows Are Just Plain Insane:

Coping with the Cold

By John Manney

In the middle of the winter, a clear night is a great opportunity to enjoy some of the most beautiful sights in the sky. In Southern Michigan, these nights do not come very often, so I try to make the best of them. For several years, I have tried to improve my gear and techniques so that I can work well in cold conditions. I would like to share a few things I have learned, and a few things I am trying out.

Planning

If the wind-chill is much below 20° F, I know that I need to make every minute count, so I try to do as much indoors as I can.

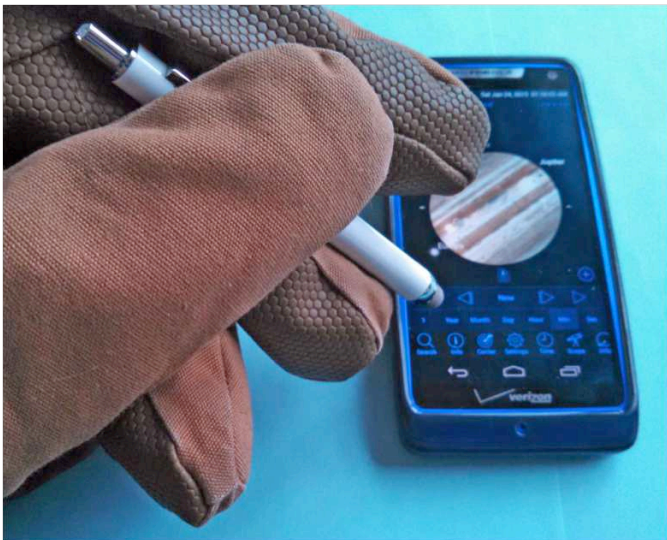
In the past, I hadn't used observing lists, but I now realize that observing time can be used more efficiently with a written plan. I now make a list with a broad-tipped pen on card stock, with the highest-priority objects in viewing order. If books or loose papers have to be used, I try to put tabs on the pages, so I can use them with my gloves on.

As much as possible, I assemble the scope indoors, and load my coat pockets with all of the items I will be carrying. I am trying to keep my gadget bag tidy, and free of unneeded items.

Last week, I was well prepared to keep warm, but I neglected to consider the wind speeds. The telescope shook too much for viewing, so binoculars may have been a better choice. "Check wind speed" has been added to my planning checklist.

Equipment

I bought a lawn mower battery to power my Go-To scope. In the past, I had used a set of AA batteries, but they often failed in the cold. Changing them in the cold was painful, and valuable time was lost in realigning the Go-To drive. I am now able to keep my gloves on for 99% of the observing time. The diagonal on my scope is secured with some very small thumbscrews. With a short piece of tubing pressed over each screw, they can now be turned without removing my gloves.



I was perplexed by the problem of operating my smart phone with gloves on. I was told that the screen was "heat sensitive", but I wasn't able to get it to respond to warm objects. After some research, I found that my screen uses capacitive, rather than thermal technology. In addition to the bare finger, the screen can be operated by a special glove or by an inexpensive capacitive stylus. When I started using a stylus, I realized that I can push the buttons on my controller with the eraser end of a #2 pencil. What a breakthrough! For years, I had used my gloved finger, often depressing the wrong buttons.

This capacitive stylus has a wire mesh tip which, so far, hasn't scratched my screen. There are a large variety of styli available for specific devices. This one is by Boxwood, and is priced at \$12 for a pair at Amazon. Staples and OfficeMax also carry them. I should have ordered a longer one, so I could grip it more comfortably

Photo: John Manney

Clothing

Without spending a lot of money, I have built up a decent cold-weather wardrobe. Here it is, from top to bottom: A thin wool balaclava, a heavy hoodie, a “bomber” hat with chin strap, long sleeve shirt, jacket, two pairs of jeans, heavy wool socks, insulated boots, gloves with Thinsulate lining and chemical hand warmers. This works decently well, keeping most of my body warm and allowing free movement.

The Warm-up

I used to stay outside as long as I could, and then called it a night. I have only recently started to come inside to take a warm-up break. The advantage of a warm-up is kind of obvious - much more observing time is obtained. Also, I can see my family, and try to coax them out for a look.

Extra-Cold Weather

Often, the night is so cold that comfort is impossible, so I don't bother with all of the layers of clothing. I will put on a jacket, hat and gloves, and run outside with my small scope. In a few minutes, I can look at the Moon, Jupiter, and the Orion Nebula and then run back indoors

For the Future

To stay outside in sub-zero weather, I would need to get some better clothing. For more warmth, I would consider thin thermal underwear and warmer gloves.

The chemical hand warmers are effective for the palms, but my fingers still get cold. Electrically heated gloves would probably work well, but they are pricey. I am trying to make a “hot box” for warming a second pair of gloves. This way, the cold gloves could be exchanged for warm ones when needed. Some heat sources could be stones warmed in a conventional oven, uncooked rice heated in a microwave oven, or a 12-volt defroster.

I am always interested hearing everyone's ideas and success stories. It is a great satisfaction to be able to step outside confidently!



Mike Radwick took this photo of the rising sun on his way to work last month. The solar disc, seemingly rocketing into the sky, is creating a “Sun Pillar.” Sun pillars form when sunlight reflects off the surfaces of falling ice crystals associated with thin, high-level clouds. (The extra sun is not a world shattering cosmic event you somehow missed, but a reflection created by the camera optics and Mike's car window.)

Sky Safari and Bluetooth and Android (Oh My!)

By Clayton Kessler

My trip to the Arizona Science and Astronomy Expo resulted in several additions to my equipment pile. One of these was my purchase of a used iOptron Smart EQ Pro mount. This was purchased mainly to support the Lunt 50mm solar scope I purchased (but that is another article).

Once I came far enough into the present to own an Android Tablet I purchased and loaded Sky Safari because so many club members have so many good things to say about it. As I was messing around with Sky Safari I noticed that the Smart EQ was listed as one that could be controlled by the program. Immediately I realized that I had never had a GOTO scope to try this with. Of course I wanted to try it. The first problem was figuring out how to attach the tablet (currently a Samsung Tab S 8.4"). While I was contemplating the issue I got an e-mail from Sky Safari (Simulation Curriculum) with an offer for the Android Bluetooth adapter. Better and better I clicked and purchased



Photos: Clayton Kessler



In a week or so I received a box in the mail. Inside the box was the relatively small device.

The controls consist of a single red button. There is also a small four pin dip switch which the instructions say you should "leave in the default position" – I guess this means DO NOT TOUCH!!! It seems simple enough, push the button, pair to your device, plug into the serial port on your mount and start controlling the mount. Let's see, serial port..... hmmm..... some small wacko connector that will not mate directly with the Sky BT. Well – off to see Jeff Thrush. Jeff has more great electronic stuff than anyone

I know. He took a single look at the connector, delved into a drawer with "old cables" in it and pulled out an RJ9 to DB9 adapter he made several years ago. (He did check the pin out and did a quick modification). He then used the cable to update the mount firmware and sent me on my way with the adapter.

The rest was so simple it is anticlimactic. The tablet paired with the Sky BT, the Sky BT hooked up to the iOptron and Sky Safari easily controlled the mount. I was quite pleased with how intuitive the control is – especially as I have no prior experience with GOTO mounts. Should we get some clear weather soon I will even try it out at night!

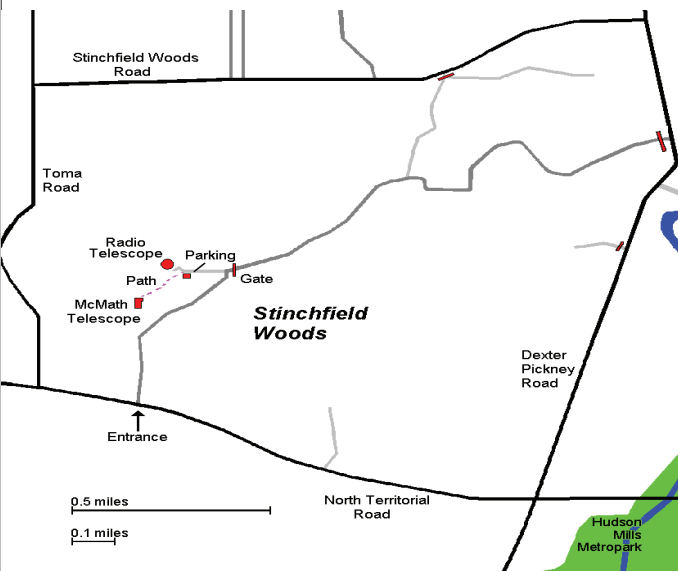


Pretty cool stuff! Everything seemed to work first time with no hiccups. It was intuitive enough that I was able to use the system with very little "reading the manual" time. I am looking forward to using this in the field. I can see using it to find the major planets during the day after viewing the sun and switching to a regular refractor. I am expecting it to be a hoot!

Places & Times

Monthly meetings of the University Lowbrow Astronomers are held the third Friday of each month at 7:30 PM. The location is usually Angell Hall, ground floor, Room G115. Angell Hall is located on State Street on the University of Michigan Central Campus, between North University and South University Streets. The building entrance nearest Room G115 is the east facing door at the south end of Angell Hall. A club observing session at the Peach Mountain Observatory, weather permitting, often follows the meeting.

Peach Mountain Observatory is the home of the University of Michigan's 25 meter radio telescope as well as the University's McMath 24" telescope, maintained and operated by the Lowbrows. Located northwest of Dexter, MI; the entrance is off North Territorial Road, 1.1 miles west of Dexter-Pinckney Rd. A maize and blue sign marks the gate. Follow the gravel road to the top of the hill to a parking area south of the radio telescope, then walk About 100 yards along the path west of the fence to reach the McMath Observatory.



Public Open House / Star Parties

Public Open Houses / Star Parties are generally held on the Saturdays before and after the New Moon at the Peach Mountain observatory, but are usually cancelled if the sky is cloudy at sunset or the temperature is below 10 degrees F. For the most up to date info on the Open House / Star Party status call: (734)332-9132. Many members bring their telescope to share with the public and visitors are welcome to do the same. Peach Mountain is home to millions of hungry mosquitoes, so apply bug repellent, and it can get rather cold at night, please dress accordingly.

Membership

Membership dues in the University Lowbrow Astronomers are \$30 per year for individuals or families, \$20 per year for students and seniors (age 55+) and \$5 if you live outside of the Lower Peninsula of Michigan.

This entitles you to the access to our monthly Newsletters on-line at our website and use of the 24" McMath telescope (after some training).

A hard copy of the Newsletter can be obtained with an additional \$18 annual fee to cover printing and postage. Dues can be paid at the monthly meetings or by check made out to University Lowbrow Astronomers and mailed to:

The University Lowbrow Astronomers

P.O. 131446

Ann Arbor, MI 48113

Membership in the Lowbrows can also get you a discount on these magazine subscriptions:

Sky & Telescope - \$32.95 / year \$62.95/2 years

Astronomy - \$34.00 / year or \$60.00 for 2 years

For more information contact the club Treasurer at:

lowbrowdoug@gmail.com

Newsletter Contributions

Members and (non-members) are encouraged to write about any astronomy related topic of interest.

Call or Email the Newsletter Editor: **Jim Forrester (734) 663-1638 or jim_forrester@hotmail.com** to discuss length and format. Announcements, articles and images are due by the 1st day of the month as publication is the 7th.

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Reflections & Refractions



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*Brian Ottum shot this image of C/2014 Q2 (Lovejoy) the night of January 10/11 with a 10" f/5 Newtonian reflector housed in his remotely controlled New Mexico observatory. The above is a single 500 second exposure taken with a Canon EOS 5D Mark III DSLR camera. Last November, Brian gave a talk to the club about his observatory but was unable to image due to clouds at his site near the Arizona state line. **Brian will give the imaging demonstration another try at this month's club meeting after Professor Akerlof's talk (details page 4).***