University Lowbrow Astronomers
Ann Arbor, Michigan

REFLECTIONS / REFRACTIONS

University Lowbrow Astronomers

June 2018

VOLUME 42, ISSUE 6

8" Cave Telescope
Digital Setting Circle Upgrade

by Don Fohey

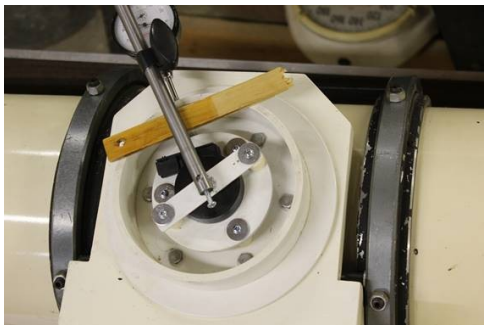
The telescope is a vintage Cave-Astrola 8-inch f/7 with beautiful optics. (http://www.cave-astrola.com/) The original German equatorial mount was wobbly, and the RA drive didn't work, so several years ago the club built a DOB mount for it. It retains the rotating rings from the original mount. A project to make it a SkySafari Push-To system was approved at the April meeting with a budget of $300.

The work group that had formed for the ServoCat upgrade of the Club 17-1/2 inch telescope came up with the idea to add encoders to the Cave 8" telescope when they delivered the 17-1/2 to the observatory and saw the Cave Telescope standing in the corner. With the completion of the ServoCat upgrade, the digital encoder adapter box was no longer required for the 17-1/2 telescope. It was hoped that the Cave Telescope would get more use if the encoder box was used with it to provide a blue tooth connection to SkySafari.

The telescope was moved to Dave Jorgensen's work shop for the upgrade. There were email discussion as to the best approach by the work group. Doug Scobel donated two 6 Volt batteries to the project. He ordered two 10,000 step optical encoders, an Altitude encoder reference bar and a battery charger from AstroSystems. (https://www.astrosystems.biz/) Dave built the adapters for both the Azimuth and Altitude encoders and the reference arm for the azimuth encoder. Dave and I fabricated the encoder cables. I made a junction box that holds the charging connector and an On/Off switch for the encoder box. I also donated an eyepiece holder. A laminated card hanging from the telescope give instruction on how to connect to Sky Safari on Andriod devices. Unfortunately Apple devices do not have the required blue tooth serial port protocol.

Members are welcome to use this very nice telescope. The f/7 optics make it good for planetary observations. All of the messier catalog objects can be seen in an 8" telescope. You can use 1-1/4 inch eyepieces available in the observatory drawer which also holds the McMath eyepieces. A chair is available in the observatory storage room. You of course can use your own eyepieces and observing chair. The telescope is easy to move and transport. It can of course be used with only the finder scope. If you have always wanted to try your hand at observing, it doesn't get any easier than with this DOB.

Inside of base showing batteries, azimuth encoder, encoder bluetooth box, switch box, and encoder reference bars.



Centering the altitude encoder in the workshop.

A Fool-Resistant* Cable System

*nothing can be made foolproof – fools are too ingenious!

by Doug Scobel

Have you ever been out in the field and needed to connect electronic component A to battery B but you didn't have such a cable? You don't typically connect those components that way but you did need to this particular night because you forgot to bring the correct battery. "Oh, crap! I don't have a cable to go from the automotive accessory jack on my jump-starter to the RCA jack for my anti-dew heater! How could I leave that other battery at home? Oh, no! DEWWWWWW!!!".

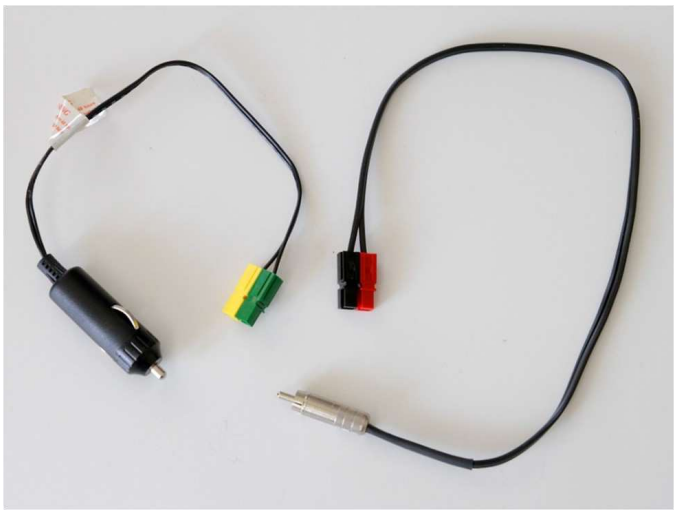
All hypothetically, of course.

At best a situation like that can be annoying, and at worst infuriating. Especially if it prevents a good night's observing. Since that incident (yes, it was me) I've implemented a solution that I've been able to use to good effect. But I can't take credit for it. I got the idea from fellow Lowbrow Mike Radwick who had been using such a system himself for some time. In fact, Mike and his system rescued me from the situation I found myself in that night, by providing me a custom-built cable right then and there. This let me continue observing rather than having to pack up and go home.

Virtually all my scopes are home made, and most all electronic components I use are 12 volt DC powered. Things like anti-dew heaters, fans, tracking and go-to drives, batteries and chargers, and the like. But there are many jack and plug styles and sizes, such as RCA (phono), banana, DC coax, automobile accessory (cigarette lighter), and so on. If I want the ability to connect anything to anything, then I would need a couple dozen cables. Who has room to carry all of that?

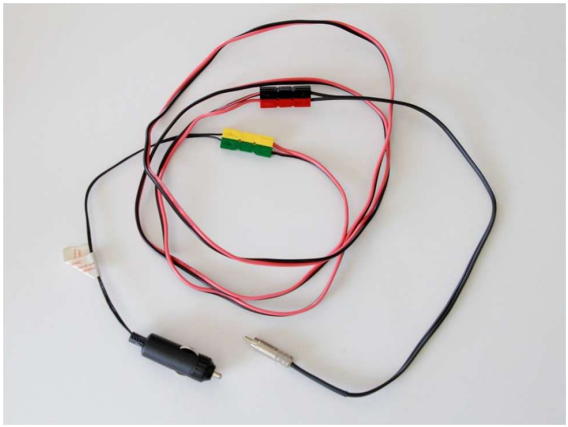
So the question is - to be prepared for any eventuality how does one avoid needing to have such a multitude of cables on hand? The answer is to make a number of "pigtails", one for each type of jack and plug. Each pigtail consists of a short length of wire, about a foot long, with the plug or jack on one end and some kind of common electrical connector to the other end. To create a custom cable simply plug any two pigtails together at the common connector end. It's that simple. If it's not long enough then just insert an "extension" cable, one that has the same common connector at each end, between the pigtails. You say you just purchased a component with yet another kind of connector on it? Easy - just make one more pigtail for that style connector and you're ready to go!

I've made up about 8 or 9 pigtails, and three extensions providing a boatload of flexibility. In an "emergency" I can connect virtually any of my 12 volt components to any other. And because the pigtails are relatively short, they don't take up a whole lot of room in my equipment case.

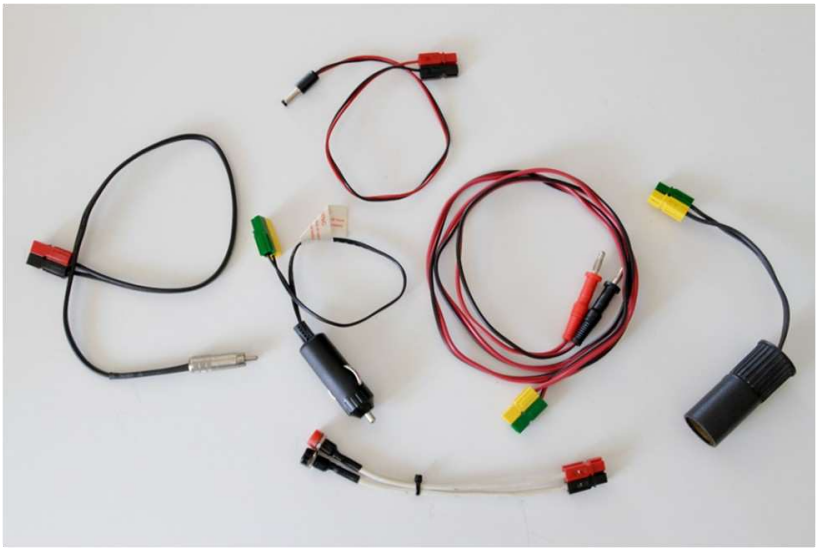


A couple pigtails – one for plugging into an automotive-style jack, and one with an RCA (phono) plug.

Plug them together and you have a "custom" cable.

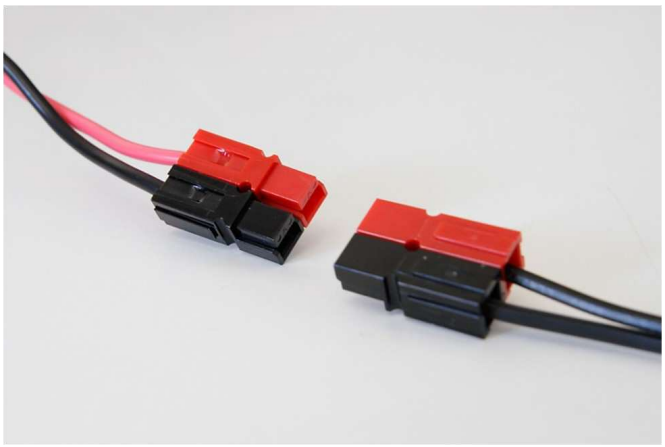


You say it isn't long enough? Simply insert an extension between the pigtails and now it's longer. Add as many extensions as you need (I made up three of them).

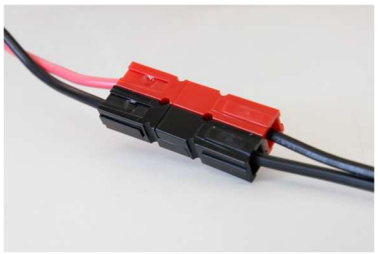


Here's my collection of pigtails. Not shown are a couple duplicates.

So what's a good two-conductor connector you can use between pigtails? For my money the Anderson Power-Pole connector is the one to go with. That's what Mike was using and now I am too. They're super easy to connect and disconnect (even in the dark), they're gender-less, and it's impossible to reverse the polarity once you install them (consistently of course) on your cables and pigtails. There may be other connectors that work just as well, but both Mike and I have found that out in the field, they are pretty hard to beat. I use them not only for connecting external components, but also inside the scope. For example, I use them to help provide 12 volts from the mirror box to the upper cage of my truss tube Dob. I even put a pair on my battery charger so that I can connect it to virtually anything.



As you can see here, the Anderson Power-Pole connectors are genderless and self-polarizing.



They slide together easily and make a positive connection.

As can be seen here you cannot accidentally reverse the polarity. They simply will not slide together in this orientation.

Is the system foolproof? Well, no. You do have to remember to bring your supply of pigtails and extensions with you when you go observing. Just make sure they're always in one of your equipment cases and you'll always have them with you. If you don't then you'll have to hope either Mike or I are there to bail you out. :D

Member Photos

Doug Bock wrote to member in April16th email:

"I'm playing around with a piece of software called starstax, which will take a series of images and create a star trail image. This series of 653 images was half a night (5 hours), last April 2017 during a small aurora at Boon Hill observatory, which is west of Cadillac Michigan. Each image is 15 seconds. Canon T3i, 18mm lens @ f/3.5, ISO 6400. I recently purchased a 10mm lens for a wider FOV in my time lapse, but haven't been to Boon since I got it. It covers just about horizon to zenith, so I'll be doing some more videos once I get some new data. Anyway, this was a fun experiment. What else is there to do with our weather. "

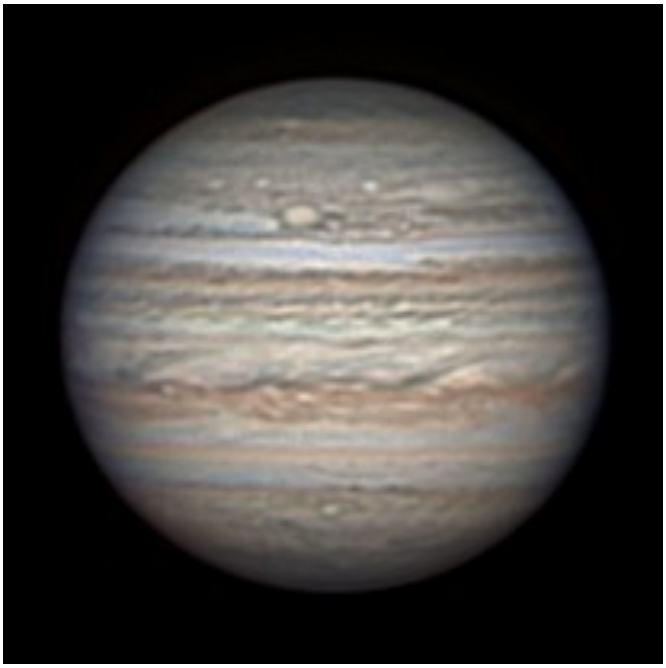
Awni Hafedh wrote in an email to members on May 5th.
"Hi All Just a follow up on Lake Hudson State Park Astrophotography on Friday night May 4th, it was a blast. I seriously was not expecting much but the sky was simply beautiful, not a single cloud, perfect seeing and not even a breeze, arrived there around 10:00pm, I began to setup my telescope and started my imaging session to capture Luminous data of the Needle Galaxy (NGC4565). Joy was there and we were able to spots lots of Objects with her telescope, we had lots of fun and to add up to this perfect night, after the moon start rising around 1:00am I stopped my imaging session and we started to slew to all the objects that we saw through her telescope and capture one image of each one (Please find attached images) " (Editor selected two images of the 10 in the email)

North American Nebula (NGC7000) (H Alpha)

Needle Galaxy (NGC4565) (Editor Cropped Photo)

Member Photos Continued

Email May22nd from Jodi McCullogh: Images were taken May 9 and 10th during the opposition of Jupiter. We used our 10 inch TEC refractor with a ZWO ASI290 MM camera, ZWO RGB filters and ZWO ADC corrector. Images were taken with Firecapture, processed using Autostakkert, Registax, Winjupos and Images Plus. Jupiter and moon is a combo of 15 videos 30 seconds long. The other was 9 videos, each 120 s long. Jodi and Roy McCullough, Lowbrows from NE Ohio



Hi all, more information about our images...The camera we used is a monochrome "webcam" taking multiple frames (movies). Each frame is on the order of 6 milliseconds, producing thousands of frames during a 30 second exposure... We stacked these keeping only the best 40% of each of the three colors. We used the free software programs Jodi mentioned to combine and de-rotate these images. With final sharpening in a commercial program. If anyone is interested in the process, we can refer you to a website that guided us or you can contact us directly.

Prior to obtaining the ZWO camera, we had used a Canon DSLR in movie mode to capture images that we then stacked and processed with moderate success. If your Nikon has a movie mode you might try that. Check to make sure the format it saves is one that the stacking program (Autostackkert) can handle. Be aware that the exposure time per frame and frame rate for a DSLR will provide you with grainier images, but, when stacked, should be considerably better than a single image. By the way, the ZWO ASI 290 mm camera is a fairly popular planetary camera at a reasonable price, though it does require a filter wheel and filters to get quality color images… If we can be of further help let us know

Upcoming Events

Open House at Peach Mt. Saturday June 9th Coordinator: TBD

Lowbrow Monthly Meeting Friday June 15th, 7:30pm Angel Hall

Speaker:

Ethan Siegel, Update on the James Webb Space Telescope

Open House at Peach Mt. Saturday May 16h. Coordinator: TBD

University Lowbrow Astronomers
Meeting Minutes May 18, 2018

President Charlie Nielsen introduced Professor Sally Oey, U/M Astronomy Dept. She spoke to us about the detrimental impact of light pollution on astronomy viewing and on migratory birds and sea animals. She spoke of the methods to reduce light pollution and some successes to reduce it around the world. A lively Q & A followed her talk.

Charlie presented her with a Lowbrow T-Shirt as a Thank You for her talk.

Business Meeting

- President, Charlie Nielsen, reported event requests were down so far this year. Doug Warshow provided us with 4 speaker leads. We are working on them and Dave Jorgensen has already signed one up for 2019. John Wallbank was sent a Thank You card from a Boy Scout event he did near Howell.

- Observatory Director, Jack Brisbin, reported that the upgrade's to the Cave 8" f7 telescope are complete and returned to the Observatory, ready for the next Open House.

- VP, Dave Jorgensen, reported that the 2018 speaker schedule is complete. And now we have 3 confirmed speakers for 2019.

- VP, Jim Forrester, had nothing to report.

- VP, Larry Halbert, had nothing to report.

- VP, Adrian Bradley, reported that we have almost 700 likes on Facebook, and that through our Facebook page we have been invited to a star party in Virginia from July 11-14th. For more info, members can go here: http://www.greenbankstarquest.org/.

- Treasurer, Doug Scobel, reported that we have 141 memberships and (not counting money collected at the meeting) $6097.82 in the treasury. We paid $235.77 for the project to add digital setting circles to the club's Cave Astrola 8-inch f/7 Dob. Under budget! Dues to join/rejoin the Astronomical League through the Lowbrows are coming up end of June. Dues are $7.50 for a year. Check your email!

- Webmaster, Krishna Rao, reported that Ethan Siegel will be speaking to us in June via Google Hangouts. Since Krishna will not be attending, he asked for support for the communication link. Krishna also mentioned that we should think about our social media presence from the angle of privacy, given the recent Facebook privacy breach revelations. He noted that the current Lowbrow practices are responsible and that there is still a lot of value in keeping our current social media presence. He may include an "online privacy corner" during upcoming meetings and/or newsletters where he discusses tips for how to keep safe on the internet.

- NewsLetter Editor, Don Fohey, requested member articles for the upcoming NewsLetter.

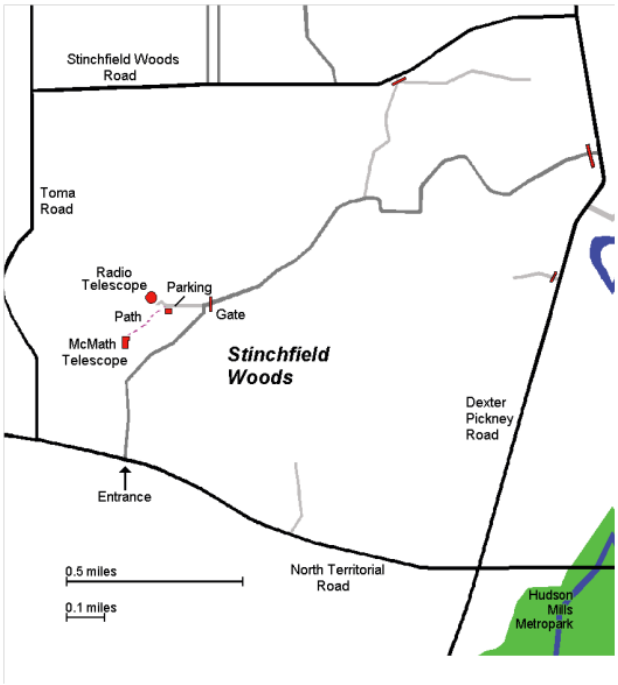
The meeting was closed by Charlie about 9:30PM.

Submitted by Dave Jorgensen

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 Angel 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.

Peach Mountain Observatory is the home of the University of Michigan's 25 meter radio telescope and McMath 24" telescope which is maintained and operated by the Lowbrows. The entrance is addressed at 10280 North Territorial Road, Dexter MI which is 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 Mt. Observatory, but are usually cancelled if the forecast is for clouds or temperature below 10° F. For the most up to date info on the Open House / Star Party status call: (734) 975-3248 after 4pm. Many members bring their telescope to share with the public and visitors are welcome to do the same. Mosquitoes can be numerous, so be prepared with bug repellent. Evening can be cold so dress accordingly

Lowbrow's Home Page

http://www.umich.edu/~lowbrows/

Membership

The University Lowbrow Astronomers membership dues 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. Membership entitles you 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, by PayPal, or be check made out to University Lowbrow Astronomers and mailed to:

The University Lowbrow Astronomers
P.O. Box 131446
Ann Arbor, MI 48113-1446

Lowbrow members can obtain a discount on these magazine subscriptions:
Sky & Telescope -$32.95/year or $62.95/2 years
Astronomy -$34.00/year, $60.00/2 years of $83.00/3 years
For more information about dues or magazines contact the club treasurer at: lowbrowdoug@gmail.com

Newsletter Contributions

Members and non-members are encouraged to write about any astronomy related topic. Contact the Newsletter Editor: Don Fohey donfohey@gmail.com to discuss format. Announcements, articles and images are due by the 1st day of the month as publication is the 7th.

Telephone Numbers

President:	Charlie Nielsen	(734) 747-6585
Vice President:	Adrian Bradley	(313) 354 5346
	Jim Forrester	(734) 663-1638
	Larry Halbert	
	Dave Jorgensen	
Treasurer:	Doug Scobel	(734) 277-7908
Observatory Director:	Jack Brisbin	
Newsletter Editor:	Don Fohey	(734) 812-3611
Key-holders:	Jim Forrester	
	Jack Brisbin	
	Charlie Nielsen	
Webmaster	Krishna Rao	

A NOTE ON KEYS: The club currently has three keys each to the Observatory and the North Territorial Road gate to Peach Mountain. University policy limits possession of keys to those who they are issued. If you desire access to the property at an unscheduled time, contact one of the key-holders. Lowbrow policy is to provide as much member access as possible.

Email to all members

Lowbrow-members@umich.edu

University Lowbrow Astronomers

Member Club

Astronomical League Member Society
#201601, Great Lakes Region

University Lowbrow Astronomers
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STAMP