



REFLECTIONS

of the University Lowbrow Astronomers

November 2000



The University Lowbrow Astronomers is a club of Astronomy enthusiasts which meets on the third Friday of each month in the University of Michigan's Physics and Astronomy building (Dennison Hall, Room 130 or 807). Meetings begin at 7:30 pm and are open to the public. Public star parties are held twice a month at the University's Peach Mountain Observatory on North Territorial Road (1.1 miles west of Dexter-Pinkney Road; further directions at the end of the newsletter) on Saturdays before and after the new Moon. The party is canceled if it's cloudy or very cold at sunset. For further information call (734) 480-4514.



October 28th Open House - Last night was an Open House that won't soon be forgotten, by both members and guests. Besides being an incredibly clear evening (maybe a little on the cool side), it featured Venus, Uranus, Saturn and Jupiter all of which provided spectacular sights in all the scopes, and there were plenty of telescopes to look through, I counted 16 (it's getting crowded on the hill). The real high point of the evening started almost as soon as 7:00pm when I noticed what appeared to be a reddish glow in the northern sky, someone said that it was just Lorna setting fire to the cars in the parking lot, (don't you just hate when people can't parallel park), but when we realized it was an Aurora Display we knew this night would be special. And it did not disappoint anyone who was lucky enough to be there. The aurora display went on most of the evening and came in waves that lasted twenty to thirty minutes. The displays would start with a very pronounced brightening of the northern horizon and then sometimes rise into a green luminescent curtain that would extend all the way to the zenith. Most of the time these would fade slowly into deep red and leave a reddish afterglow to that area of the sky. Then a brilliant shaft of blue-green light would climb into the sky in a matter of a few seconds, this shaft would be no more than 2 or 3 degrees in width at first then it would gradually widen and slowly turn red. The aurora activity was somewhat confined to the northern quarter of the sky, with the widest display ranging from about 280 degrees (in the northwest) to about 70 degrees (in the northeast). There were at least three of us on the hill that brought cameras, so get ready for a color issue of the Newsletter. **Text and foto by Mark Deprest**

This Month:

Thursday Night November 16

Starting at Sunset - Leonid Meteor Shower Star Party at Hudson-Mills Metropark. Check with Bernard for details.

November 17 - Meeting at 130 Dennison - Mark Deprest presents the Skygazer's Almanac & Lowbrow's present Astrofest 2000.

November 18 - Public Star Party at Peach Mountain Observatory - Will it be clear? I'll bet it will be cold. Stick around and maybe we will see Orion tonight.

November 25 - Public Star Party at Peach Mountain Observatory - Night of the new Moon, therefore it should be dark.

Next Month

December 15 - Meeting at 130 Dennison - We'll keep you informed just as soon as we figure it out.

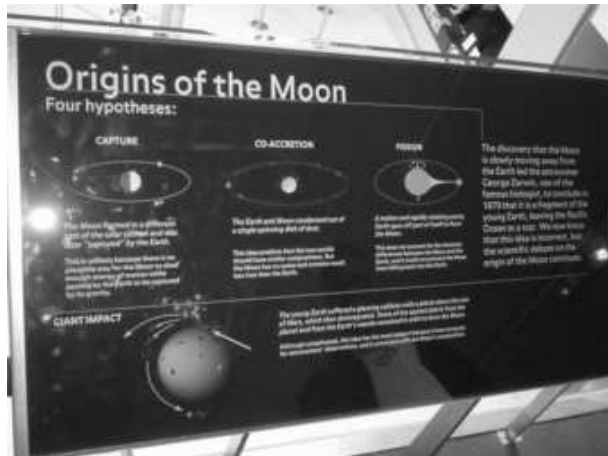
December 23 - Public Star Party at Peach Mountain Observatory - It now officially winter. Burr! Baby it's cold outside

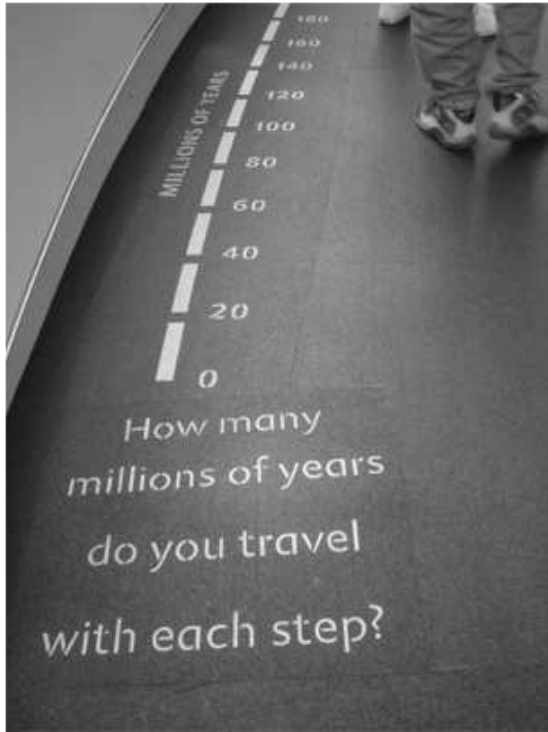
December 30 - Public Star Party at Peach Mountain Observatory - eve of the last day of the Millennium. Observe it with us.

Frederick Phineas &
Sandra Priest Rose Center
for Earth and Space

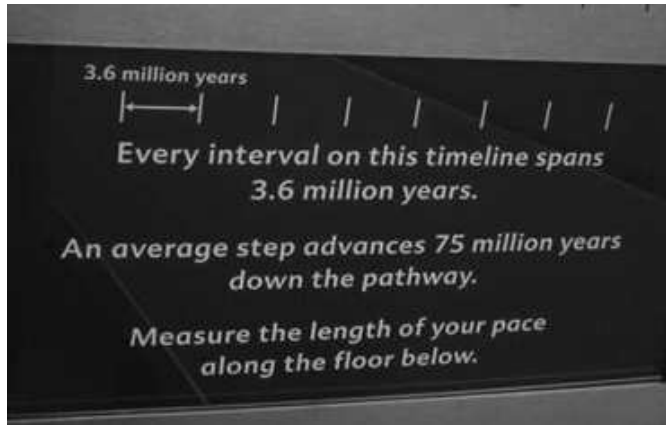
Hayden Planetarium New York City

A photo essay
by John Causland





**Harriet and Robert Heilbrunn
Cosmic Pathway -- a walkway through 13 billion years of cosmic evolution**



The Cullman Hall of the Universe, on the lower level of the Rose Center, is a permanent exhibition hall that illuminates the stunning discoveries of modern astrophysics. The hall features exhibits on the universe, galaxies, stars, and planets



A Medium Sized Crayford Focuser

By Clay Kessler

As I have worked with my 4" f6 refractor over the fall and winter I have noticed some vignetting on my astrophotos. This condition is caused by the use of a manual 2" draw tube to take up large focal distance differences between eyepieces, camera etc. This is a handy design and it keeps the over all tube length very short. The problem is that when you install an accessory that requires the 2" tube to be pushed a good way towards the objective you "cut" into the light cone and get vignetting.

This was not too bad at first, but after I added the Taurus Tracker I had to push the extension tube almost all the way into the refractor and the amount of vignetting became unacceptable to me. I began to investigate ways to increase the "hole" in the end of the scope and not loose the very handy short tube length. I made a list of things that I did not like about the current focus setup.

- The JMI NGF-S focuser that I currently use has only about .4" of focus travel.
- The motor for the focuser is too slow to see the proper focus change while you try to set up a camera.
- There is no focus "lock".
- The 2" extension tube is too small on the I.D. especially since mine has an area that is no more than 1 3/4" in diameter.

I took a look at several commercial focusers and I decided that the easiest one for me to build would be a crayford style. In looking at commercial focusers I really liked the Astro-Physics 2.7" on Greg Burnett's refractor. It seemed to be quite large and I liked the screw in adapters. I made some sketches and decided on a 3" crayford with 1 1/4" of focus distance. In this I would make a manual "draw-tube" that would have a 2.7" I. D. and would accept threaded adapters.

First problem - where do I get bearings for the crayford? I looked at in-line skate bearings but they are quite large and the front set will have to go inside my tube. I made a trip to my local Riders Hobby Shop where John (telescope guru) suggested I try some R/C car bearings. I looked at a very large selection of bearings and settled on some that were 1/4" I.D. by 3/8" O.D. and 1/8" thick.

Next I made an unsuccessful search for some alumi

num tubing of the proper size for the focuser body and focus tube. Not finding any suitable tubing I dipped into my carefully hoarded box of aluminum pieces and turned on the lathe. The lathe work was easy although I did make a large pile of aluminum "chips" turning these from solid.

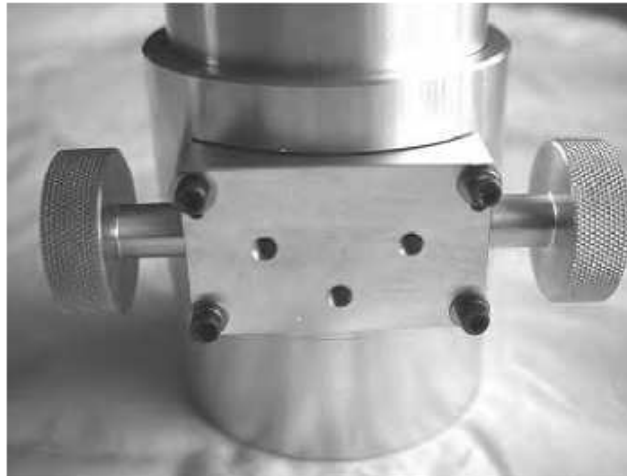
(Figure 1)



The millwork took a little more thought. The object was to allow the focus tube to slide on four bearings in a "v" block arrangement. Opposite the bearings a shaft must bear against a milled flat on the focus tube. Some method of adjusting the bearing force must be devised to allow for positive motion without excessive force. There must also be something to apply a breaking force to the focus shaft to prevent the focus tube from moving under the force of gravity or a light bump. Finally I needed a positive lock for photography. All of these features have been incorporated into the focuser block that bolts to a prepared area of the focuser body.



"A picture is worth a thousand words" – so look at some of these pictures and maybe my explanation will make some sense. Figure 1 and 2 show the focuser assembled and extended/retracted. You can see the three tapped holes in the bottom of the focus block. (see figure 3) The two in-line holes are for nylon or brass screws to put some friction on the focus shaft. This will keep the focuser from moving under gravity or a small bump.



(Figure 3)

The other tapped hole is for a manual focus lock. In order to adjust the amount of force the focus shaft puts against the focus tube flat I cut a slight angle on the mating surface of the focus block. This allows me to pull the shaft tight with the rear mounting bolts. I also installed a couple of set screws to give a positive stop after the adjustment is made. (see figure 4) Figure 5 shows the flat and focus lock keyway cut in the focus tube



(Figure 4)

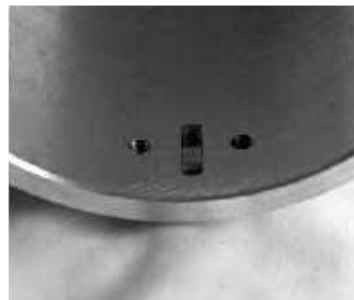


(Figure 5)



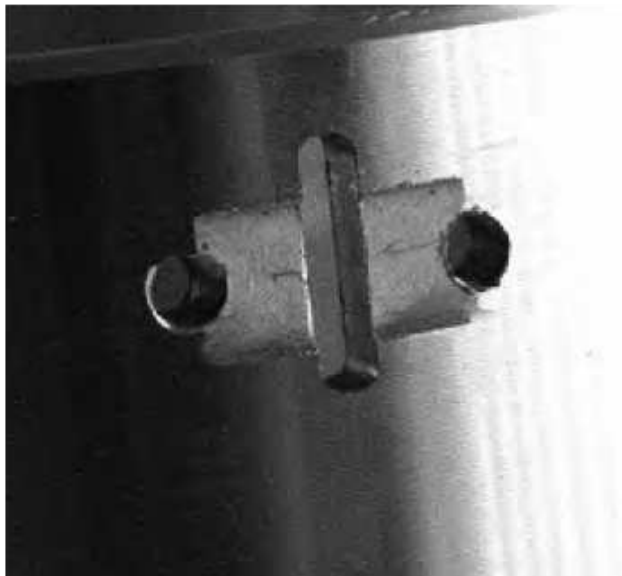
(Figure 6)

Figure 6 shows the main body with the four Crayford bearings mounted. These provide the "V" type slide and move very smoothly. These bearings stick about .010" into the inside of the main body (see figure 7).



(Figure 7)

The cutouts to mount the bearings were done on a Bridgeport milling machine (see figure 8).



(Figure 8)

Finally figure 9 shows the 1/4" shaft that holds the bearing in place.



(Figure 9)

So, what's next? I need to polish the outside of the focus tube and glass bead blast the inside. Then I need to make the manual draw tube and the threaded adapters, one for a 2" eyepiece and one to hold my Taurus Tracker. I will extend the threads the full length of this tube for anti-reflection purposes. Then everything has to be anodized black.

I will also need to make a small adapter ring to adapt the body of the focuser to my refractor tube. This will probably be brass to match the focus knobs. I will post more pictures of the completed assembly and give a complete operation report after the project is finished.

OK, I finally finished the project and I am ready to give the final report. The focuser worked out better than I expected. I was able to make a 3" I.D. system that can focus precisely and smoothly and can be locked down to avoid all motion while taking astrophotos. The vignetting that I noticed while using my Taurus Tracker - gone completely! I did make a change to my plans, instead of making a screw in insert for the 2" adapter I made the manual draw tube to fit a 2" eyepiece. This was simpler and seems to work very well. The pictures tell the tale on the system looks. The only thing that I will say is that I am going to have to re-finish the rest of the telescope to make it look as good as the focuser!

Final touches included black anodize finishing of the aluminum, brass thumb screws and a nice brass adapter ring. All in all I am very pleased with this project.



Seasonal "Stuff"

Charlie Nielsen,
Treasurer



Greetings fellow Lowbrows. All of our usual end of year publications (Stuff) have been ordered. I have already received the Royal Astronomical Society of Canada Observer's Guide. I hope the other items will come in before Friday's meeting. All items should be in by December's meeting. Everything is first come first served basis. We can probably order more if we run out of some things, depending on quantity of course. Remember, please write checks to "University Lowbrow Astronomers" if at all possible. Hope to see you all at the meeting next Friday. I will bring the "Stuff".

Scope for Sale



I am selling my Meade LX200 10" Schmidt-Cassegrain. Included is a focal reducer, extra eye-piece, dew shield, narrow band filter. Asking price is \$3,000. E-mail inquiries to lynchchristopher@peoplepc.com or call 662-4026 (hope phone). Thank You; Christopher Lynch

Gordon P. Bugbee, brother of Lowbrow Lorna Simmons, died October 25, 2000. Gordon Bugbee was an architect, maritime history author, associate professor of architectural history at Lawrence Technological University. He was active in preservation activities in Detroit's historic Corktown neighborhood. And considered the dean of the Detroit area architectural historians.

More Astrofest 2000 fotos

By John Causland



"Been Obser'n Long" ?



A forest of Bino mounts.

"You want mounts?"

We got mounts".

Obsession Telescope proprietor David Kriege with the midget of his line - a 15 incher.



How is this for a set of binoculars ?

A set of 6 inch Japanese WW2 bins

John Ridley's pall. A walking stick!

More foto's next page...





Paul Walkowski looks happy shopping at the astro-mart



Doug Scobel shows off a photograph of a previous Astrofest ATM telescope winner



This is what somebody thought was a sufficiently stable mount for an 8 inch Cass.

The morning after, the morning after (that's Sunday morning) and time for the last cup of Joe before hitting the road for home.



Saturday night door prizes in the Dining Hall.

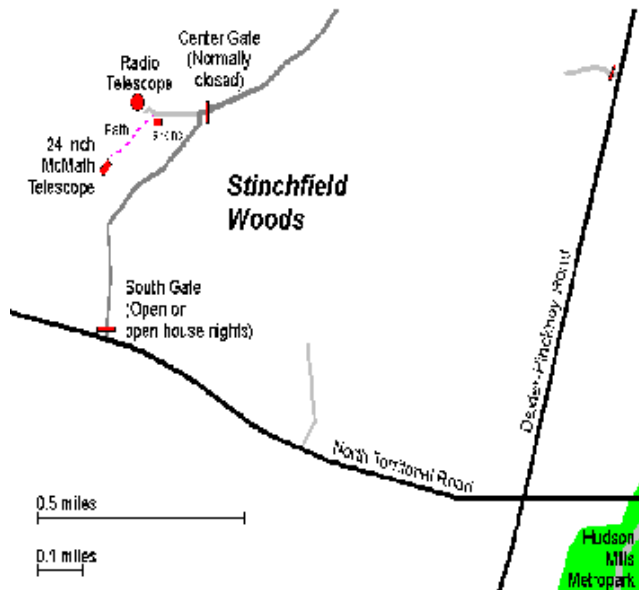


John Causland takes notice of the this beefy equatorial platform under the ET scope.



Places and Times:

Dennison Hall, also known as The University of Michigan's Physics and Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. It is found in Ann Arbor on Church Street about one block north of South University Avenue. The meeting is held in room 130. Monthly meetings of the Lowbrows are held on the 3rd Friday of each month at 7:30 PM. During the summer months, and when weather permits, a club observing session at Peach Mountain will follow 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 inch telescope which is maintained by the Lowbrows. The observatory is located northwest of Dexter. The entrance is on North Territorial Road, 1.1 miles west of Dexter-Pickney Road. A small maize-and-blue sign marks the gate. Follow the gravel road one mile to a parking area near the radio telescopes. Walk along the path between the two fenced in areas (about 300 feet) to reach the McMath telescope building.



Public Star Parties:

Public Open House/Star Parties are held on the Saturday before and after each new Moon at the Peach Mountain Observatory. Star Parties are canceled if the sky is cloudy at sunset or the temperature is below 10 degrees F. Call 480-4514 for a recorded message on the afternoon of a scheduled Star Party to check on the status. Many members bring their telescopes and visitors are welcome to do likewise. Peach Mountain is home to millions of hungry mosquitoes - bring insect repellent, and it does get cold at night so dress warmly!

Amateur Telescope Making Group meets monthly, with the location rotating among member's houses. See the calendar on the front cover page for the time and location of next meeting.



Membership:

Membership dues in the University Lowbrow Astronomers are \$20 per year for individuals or families, and \$12 per year for students and seniors (age 55+). This entitles you to the monthly REFLECTIONS newsletter and the use of the 24" McMath telescope (after some training). Dues can be paid to the club treasurer Charlie Nielsen at the monthly meeting or by mail at this address:
6655 Jackson Road #415
Ann Arbor, MI 48103



Magazines:

Members of the University Lowbrow Astronomers can get a discount on these magazine subscriptions:
Sky and Telescope: \$29.95 / year
Astronomy: \$29.00 / year

For more information contact the club Treasurer. Members renewing subscriptions are reminded to send your renewal notice along with your check when applying through the club Treasurer. Make the check payable to "University Lowbrow Astronomers".



Newsletter Contributions:

Members and (non-members) are encouraged to write about any astronomy related topic of interest. Call or E-mail to Newsletter Editors at:

Bernard Friberg (734)761-1875 Bfriberg@aol.com
Chris Samecki (734)426-5772 chrisandi@aol.com

to discuss length and format. Announcements and articles are due by the first Friday of each month.



Telephone Numbers:

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Paul Walkowski (734)662-0145
Doug Warshow (734)998-1158
Treasurer: Charlie Nielsen (734)747-6585
Observatory Director: Bernard Friberg (734)761-1875
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Bernard Friberg (734)761-1875
Parking Enforcement: Lorna Simmons (734)525-5731
Keyholders: Fred Schebor (734)426-2363
Mark Deprest (734)662-5719



Lowbrow's Home Page:

<http://www.astro.lsa.umich.edu/lowbrows.html>
Dave Snyder, webmaster

Monthly Meeting
November 17th, 7:30 pm
Room 130 Dennison Hall
Physics & Astronomy Building
The University of Michigan

Skygazer's Almanac
Explained
By Mark Deprest
&
Lowbrow's president
Astrofest 2000



"OK - Now that we have taken this scope apart, what do we do with it now?" Lowbrows giving the newly acquired 17 1/2" scope a tune-up.

"The great thing about this ATM project is that with all the parts left over we can build two - maybe three more additional scopes."



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Lowbrow's WWW Home Page:
www.astro.lsa.umich.edu/lowbrows.html

Check your membership expiration date on the mailing label!