



REFLECTIONS

of the University Lowbrow Astronomers

August 2001



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 may be canceled if it's cloudy or very cold at sunset. For further information call (313) 480-4514.

- Simple Astrophotography: by Clay Kessler**
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- The Busy Lowbrows: by Mark Deprest**

The Horsehead Nebula; taken by Clayton Kessler (see his article on page 2)



- This Month:** Aug 11 Open House at Peach Mt. Mars' moon, Deimos is discovered 1877 by A. Hall. Can we find it in the 24"?
- Aug 17 Meeting at 7:30pm at Peach Mt. Observatory Speaker John Kirchoff of Ryder's Hobby Shops - shows us the latest astro gadgets.
- Aug 18 Open House at Peach Mt. New Moon = Dark Skies
- Aug 24 & 25 Astronomy on the Beach at Kensington Metro Park Starts at dusk both nights, but come early and bring the kids make a day and night of it .
- Next Month:** Sept 14 Leslie Science Center Star Party - Always lots of Fun!
- Sept 15 Open House at Peach Mt.
- Sept 16 Radio Telescope Open House 2:00 - 4:30 PM
- Sept 21 Meeting at 7:30pm in Rm. 130 of the Dennison Bldg. Speaker - TBA
- Sept 22 Open House at Peach Mt.

Simple Astrophotography

By Clayton Kessler

April 4, 2001

Almost everyone that owns a telescope gets the desire to take some astrophotos at one time or another. This can be a simple task and provide very satisfying results. While taking long exposures tracking the stars can require some equipment and specialized skills, taking colorful "star trail" photographs, or pictures of the northern lights, requires only a camera and tripod. In fact, taking pictures of the moon or the sun may only require a camera and the telescope that you already have (suitably filtered for the sun), no other fancy stuff required!

There are several common methods of using a camera or camera/telescope combination for astrophotography. These are as follows:

Camera on Tripod:

Your camera is mounted on a photo tripod and a "normal" or "wide angle" lens is used to take non-tracked widefield shots of the sky. This is useful in several ways. A "star trail" shot is a long time exposure that allows the stars to move across the film. This results in a very colorful image of the various stars visible at the time. If you point the camera north or south the curved track of the stars is very apparent. You can also take shorter duration exposures (10 to 30 seconds depending on the lens used) and take very nice constellation shots that show bright stars and very little or no star movement. Photos of the northern lights are also wonderful candidates for the "camera on tripod" method. I like 400 to 800 speed film with a 20 to 45 second exposure for the aurora. Remember to use a "cable release" to trip the camera shutter without shaking the setup.



Try this method to get some satisfying shots without lots of equipment.



Camera "Piggyback" on telescope:

Assuming that you have a telescope that tracks the stars in equatorial mode, you can attach your camera to the outside of the scope and use the camera lens to image the sky. This would be a long duration photograph (10 minutes or longer) similar to the "star trails" previously mentioned except the telescope will move the camera to counteract the motion of the earth and the stars will remain pinpoints on the film. A lifetime could be spent taking wonderful astrophotos using this method and various camera lenses. What about those that do not have a tracking telescope? You can build a very simple device called a "Scotch Mount" or a "Barn Door Tracker" and track your camera with this. This is simply two pieces of wood and a sturdy hinge. A small threaded rod is positioned and turned by hand to provide the tracking. The device is mounted on a camera tripod and the hinge is pointed at the north star. This is a very simple device that can be built for about \$10.00. There are many sets of plans available on the internet, just visit the "Amateur Telescope Makers" archives (<http://astro.umsystem.edu/atm/>) and search on "scotch mount" or "barn door mount".



Afocal Projection:

Afocal projection is a method that uses both the camera lens and the telescope eyepiece. The camera is focused on infinity and merely held up to the eyepiece. This can be a wonderful way to take pictures of the moon and sun with film or with that new digital camera that you just bought. If you are taking pictures of the sun you **MUST** use a full aperture solar filter or you could ruin your camera, your telescope or YOUR EYES!!!

This method is very easy and is especially applicable to those of you who have a dobsonian mount telescope. The exposures of the moon and sun are short so no tracking is necessary.

If you use film to take photos like this I need to stress the necessity to "bracket" your exposures. This means to try different shutter speeds. Many different shutter speeds will make it easier to find the speed that gives you a nicely exposed photo. Don't be afraid to use up some film here - film is cheap but good astrophotos are priceless!

Prime Focus:

Here we go! Prime Focus - use that wacking big telescope of yours for a lens! For "prime focus" photography you remove the camera lens and the telescope eyepiece and mechanically couple the camera body to the telescope. Usually a "T" ring and "T" ring adapter is used to attach the camera to the telescope focuser. The telescope must have a robust equatorial mount and a very accurate drive system to be successful with prime focus astrophotography. How much magnification do you get with a telescope? This depends on the telescope focal length but it is easy to figure out. For a 35mm camera a 50mm lens is considered "normal" or 1X. If you divide the telescope focal length in millimeters by 50mm the result is the magnification. As an example, my 4" refractor has a 600mm focal length. Therefore the magnification at prime focus with a camera is 600mm divided by 50mm or 12 times magnification.



Eyepiece Projection:

Taking prime focus pictures of the planets can be somewhat disappointing. The images that you get are VERY tiny and have poor resolution due to their image scale. To make the image scale larger a special "T" adapter is acquired that allows you to insert an eyepiece into the optical path between the camera and the telescope. This "projects" a larger image onto the film effectively increasing the focal length of the system. There are tradeoffs.... By spreading the available light out over a larger film area the exposure must become much longer and by increasing the system focal length small guiding errors are magnified along with the image. Despite these problems, robust mechanical systems and a lot of practice will allow you to take some very nice planetary photographs.

If you are considering prime focus or eyepiece projection photography you have progressed beyond the scope of this article on "simple" astrophotography. Not that prime focus is "hard" mind you but it requires specialized equipment and much practice. The skills that you develop taking camera on tripod and piggyback astrophotos will provide a firm footing for a foray into prime focus and eyepiece projection astrophotography.

Good reference material for simple astrophotography is available. I suggest the following books:

"Splendors of the Universe" by Terrence Dickinson and Jack Newton

"Astrophotography for the Amateur - 2nd Edition" by Michael A. Covington

"Widefield Astrophotography" by Robert Reeves

FOR MOSQUITOES; TRY TYVEC!

by Harry L. Juday

One possible help to preventing mosquito bites over much of the body is a Paint Suit made from Tyvec, a DuPont mat'l. The mosquitoes do not seem to be able to bite thru this light-weight, somewhat breathable material. They are available at Home Depot (and probably other similar stores) for about \$8.00. I have had one for 2 seasons and it is still useable. They come in 2 or 3 sizes, have a zipper, no pockets and are washable on a gentle cycle. They are slightly warm, but not as nearly as bad as plastic would be. I do not find the slight extra warmth objectionable on the cooler nights, and it does keep the mosquitoes from biting the areas it covers. One mfg. is Ace Drop Cloth Co. of the Bronx, NY.

For the head, a hospital gauzy head cover cap (like a shower cap) helps greatly. I can not tell you where to get these as I have a friend who supplies me, but probably a good medical supply drug store would have them. The outfit may look a little odd, but as we practice our pursuit in the dark anyway, who cares. But, remember to get the Tyvec Paint Suit, not a plastic one.



The Spider That Ate Antares

By Bob Gruszczynski

Those of you who have been at the latest Open Houses at Peach Mountain know my wife and I as the folks with the Meade ETX-70. The ETX-70 is a neat little "go to" 70mm refractor which is highly portable. Enough so that, in its carry case, will fit in the overhead of an airplane. We live in a country setting, which affords us fairly dark skies, although we have quite a number of trees on our property, and in the immediate area, limiting our views near the horizon. It also has its share of critters, large to small, deer to bugs.

One week, during our unusually long stretch of clear nights, I took to storing my telescopes in the garage for ease of access. One particular night, I hauled the ETX and our Celestron G-5 SCT out to the patio for a long night of viewing. I pulled out the extension cords and set up the appropriate electrical connections to the scopes, set up my patio furniture, and started to align the telescopes. I set the ETX in its place and started the Autostar. Let's see, Date, Time, Daylight Savings Time, Two Star alignment. There's Deneb, good, now Antares. My plan is to work all of the cool stuff in Sagittarius for binocs and small scopes. Go do quick polar align on the SCT to prepare for some real deep sky stuff. This looks like a real good seeing night! Spot up on "The Ring" and turn on the tracking motor. Let's go back and see how the ETX is tracking tonight.

YIKES! Antares is gone, and where it was is a huge black spot in my eyepiece that looks like...a spider. It ate Antares! Those things look really ugly at 25mm!! Now the questions begin. How do I get it out of there? Is it in the eyepiece? How did it get in there? First, I removed the eyepiece, looked into the opposite end, not in there. Looked into the focuser tube. Yep, there he is. Must have awakened it from a nap while slewing the scope. Sounds like a cappuccino machine could be after caffeine. How do I get it out without disassembling the scope? Interesting idea, upright vacuum with a low suction tube for upholstery. Let's try it. Down the focuser tube, very carefully. Boy is he holding on tight. No luck. Hmm... There's the flip mirror/camera T assembly access on the back. Unscrew the access cover, in goes the vacuum, out comes the spider. Whew! Reassemble everything, Antares is back, the scope tracking never skipped a beat. Bottom line is - if you're going to store your equipment anywhere near outside, be sure to seal it as best you can against all of the elements that it may encounter. Clear Skies!!

10 Questions asked Amateur Astronomers

by Christopher Sarnecki

Talk about a sure thing. At every open house I can always count on being asked some of these questions by star starved public. See if you agree with this un-scientific compilation of the 10 most asked questions of amateur astronomers. Arranged in no specific order...

How much does your telescope cost?

This is undoubtedly is the most asked question. I can count on this question at 90% of all star parties. I believe the real question being asked is "How much does it cost to get started in Astronomy?" So I try an respond by indicating that while my scope may cost a few hundred dollars any one can get started in astronomy by using that pair of binoculars and tripod that every household has laying around. Get a cheap steel angle bracket from the hardware store to mate the binoculars to the tripod and together with a low cost star chart from a bookstore or out of *Astronomy* magazine and you are ready to start observing. In a year or two, if you are still interested in the hobby, consider getting a good 6-inch or 8-inch Newtonian reflector on a Dobsonian mount with Telrad for around \$500. Don't forget to mention that the telescope should come from a reputable telescope manufacture such as Meade, Celestron, or Orion. The cost of a first telescope can also be lowered if purchased used.

How far away is that object?

Another popular question. With most common objects many of us might remember approximately how far away it is; but when it comes to most other objects, I always respond by saying; "I be honest with you. It is very, very far away. So far away that none of us really understands the concept of astronomical distances. I could tell you any distance and you would probably agree with me and be satisfied with the answer." I then watch for their reaction, which is a tough thing to do in the dark, and sure enough they usually agree. I then indicate an approximate distance, such as 3,000 light years for a near-by Milky Way object, or 10-20 million light years for a galaxy. I suggest that it is almost futile to try and conceive how far away a light year is, let alone 3,000 or 10 million light years away are. What happens next is a revelation that we begin to understand that astronomical distances are really, well, ASTRONOMICAL!

Are you an Astronomer or a Professor of Astronomy?

Well, I must admit, this question really waxes my ego. I respond by say "No, we are amateurs." Sometimes a follow up question is "How do you know so much about the stars or the universe?" I respond that as an inter

ested amateur perusing the subject of our interest, many amateur astronomers do a lot of reading and studying about astronomy. It's like golfing or fly-fishing, or any other hobby; the interested amateur will glean an awful lot of facts about their pursuit. Our natural social tendency is to want to share this with anyone who wants to begin to understand our place in the cosmos.

Where in the sky is the object shown in the scope?

Believe it or not, this is a question we all can relate to. The most knowledgeable and learned cosmologist, the most experienced amateur astronomer, and the uninitiated all want to know where we are in the cosmos. Being able to see for yourself were an object is relative to the naked eye field of stars helps us begin to understand just where we are in the big picture. It helps us understand our place in the cosmic neighborhood. We begin to see our place next to our local star, in our local galaxy, and in this universe. If the Milky Way is observable, I point out the position of the object relative to the galactic center. Is the object above or below the plane of the galaxy, or are we looking towards or away from the center of the Milky Way out to deep space? But so much for the sermon. I then respond by showing them how the Telrad works and point out the location in the sky.

How big is your scope?

There is a tendency for the public to want to engage in conversation about an object, such as a telescope, which is not commonly seen in every day life. This is the equivalent of an ice breaker question at a party. "Come here often? How about them Wolverines? How big is your scope?" This question gets a discussion going. As, does the next question...

What magnification is your scope?

This question is probably is a reflection by the general population that high magnification of a telescope is equated with a great scope. When I explain that may of us observe distant objects at low magnifications in order to get the best view or resolution I notice that their expectations have all of a sudden gone south. I then explain how important it is to take your time when looking through a telescope for the 2 seconds of good seeing in 20 seconds of viewing. Starting with low power viewing lets us notice features to look at later with higher, but not necessarily high, magnification. This is a good point to discuss that any scope that advertises it self with X600 MAGNIFICATION is probably a "department store junk yard scope" and doesn't warrant a purchase. I mention much of the same dialog about getting started in astronomy with

the use of binoculars and a future purchase of a good 6-inch or 8-inch Dobsonian telescope as indicated in question 1 above.

Do you guys come out here often?

Hey is this the party part of a star party? My guess is NOT! When anyone gets out under the nighttime sky on a night of decent seeing I think they want to come back out and do it again. This is an opportunity to explain our bi-monthly open house star party.

What type of telescope is this?

With the popularity of Cassegrain telescopes, alt-az mounts, and newts on dob mounts, it is a small wonder the public doesn't recognize what an astronomical telescope is. Our obligation is to explain the different types of scopes used by amateurs. I start with indicating the type of scope I using, where the optics are, and how they function to bring the faint light to focus in the eyepiece. How a Newtonian design telescope reflects the object and bounce the view into the eyepiece. A Newtonian scope on a Dobsonian mount is often tracked by manually pushing the optical tube periodically. I can use a finderscope to explain the workings of a traditional looking refractor, how it bends the light and introduces color to bright objects. Eyepieces are really small versions of a refracting telescope. Usually there is a Cassegrain on the hill to point out how some amateurs are using folded scope designs with sophisticated go-to computers and motorized mounts that can locate and object with the touch of a few buttons.

Have you seen any UFO's?

Most often this question is asked as a conversation starter, but once in a while someone asking this question is interested in the possibility of alien life. Sadly we live in a time were much of the population does not understand why the seasons occur on our planet, some believe the Apollo Moon landing is a government cover-up, and pseudo-science is on the increase. Our mission, and we do accept it, is to fight ignorance of the night sky whenever we encounter it. Reinforce the scientific method by reminding our public that all of main stream astronomical and cosmological knowledge is based on observable and testable methodologies, which if disproved, will no longer be science fact. We must also challenge the promoters of pseudo-science on their facts while not offending their beliefs. From my perspective I think this is something the Lowbrows do very well.

What type of object is that?

The star party going public depends on us to be knowledgeable of the objects we encounter in the night sky. It is important for each of us to have the basic information

about objects we encounter in our scopes. What is a planetary nebula, why did the classical astronomers name these objects so, and why our Sun will become one in about 4 billion years from now are examples of basic knowledge we all need to know. A basic knowledge of star colors, binary stars, stellar formation, variable stars, planets, asteroids, comets, open and globular clusters, galaxies, and cosmology is a requirement. The emphasis is on basic. Our guests are mostly looking for a brief understanding of what they see in a telescope. As I listen in on conversations and explanations on the hill I know the Lowbrows do an excellent job at this and help everyone to have a good time as well.

So what questions would you add to this list? I am sure each of you has your own most popular list of questions. Perhaps you can expand on this list with a list of your own in a future article.



Lowbrow's are a Busy Group

By Mark Deprest

July has come to an end and the "Dog Days" of summer are quickly approaching, but the Lowbrow's schedule shows no sign of easing up. On July 10th and 11th a small group of Lowbrows did some mid-week impromptu observing at a "dark-site" in the Manchester area. John Causland's friends Eric & Trudi provided a mowed section of a nice field just south of their home on Pleasant Lake Road. It was a very nice site and beside John and myself, Mike Radwick, Doug Scobel and a friend of Doug's showed up with their equipment , for an evening that was very clear and dark.

July 14th brought the first of two successful Public Open Houses at Peach Mt. , where attendees were treated to the summer skies' best. Chris Sarniecki thought there might be a "possible-nova" like object just west of the central bulge of M5, but it turned out to be just a bright star not shown very well on photos of the object. Comet Linear 2001 A2 was bright and easily visible in both scopes and binoculars. The mosquitoes dined heavily on the both the public and unprotected Lowbrows. As the night went on it was very apparent that the tem

perature of the everything was quickly dropping below the dewpoint so as we ended the evening and Chris Sarnecki showed us, the VERY red T Lyra in his scope we dried and packed up the rest of the equipment at 2:30 am.

The afternoon of July 17th brought thickening clouds but that didn't stop Bob Gruszczynski, Jim Wadsworth, Doug Warshow, Charlie Nielsen, Bernard Friberg, John Causland and myself from setting up some scopes at the Leslie Science Center to view the Venus / Moon occultation. We did get to show some of the kids there, a few sunspots, but the clouds never afforded us even a small glimpse of the Moon. John Causland provides some photos of this event. (see page 8) I did manage to take a few pictures early that morning of the unique grouping of moon, planets and stars, that preceded the event. (see back page)

July 20th, brought our monthly meeting but due to the Ann Arbor Art Fairs, we end up having it at the observatory on Peach Mt. A group of about 15 Lowbrows showed up and D.C. provided the refreshments. John Ridley brought out his "brand-spanking" new scope for "first-light" on Mars. We all are patiently waiting for the article on how John built his "Obsession-Type" scope and all the tedious little problems he ran into during it construction.

On July 21st we had our second successful Public Open House of the month. Although some early clouds and the last day of the Ann Arbor Art Fairs kept the public's attendance rather low, the ones who did make it out got to see Mars, Comet 2001 A2, and many other celestial treats.

July 28th was the Matthaei By Moonlight event. This is a very nice charity event that the Lowbrows have been asked to participate in for the past three year. Although the skies did not cooperate Chris Sarnecki and myself managed to hold our own thanks to the pages of the "Wonders of the Universe" calendar Chris attached to a couple of tripods along with two flashlights. We were able to show those who wandered over, Saturn and The Hour-Glass nebula through our scopes. Occasionally the clouds would part long enough for the Moon to show through and that was a big hit. Isolde, Chris' lovely wife and Terri, my best-half had a wonderful time wandering the gardens and enjoying the warm evening.

On August 11th the Lowbrows will host the first of two Public Open houses at Peach Mt., the other will be the following Saturday, August 18th. We hope you can make it to one of these events, but if you can't, you won't want to miss the monthly meeting on Aug. 17th. John Kirchoff of Rider's Hobby Shops will be bringing some of the latest in astro-toys for us to drool over. We will be meeting at Peach Mt., so bring a chair and whatever method you use to combat the bugs.

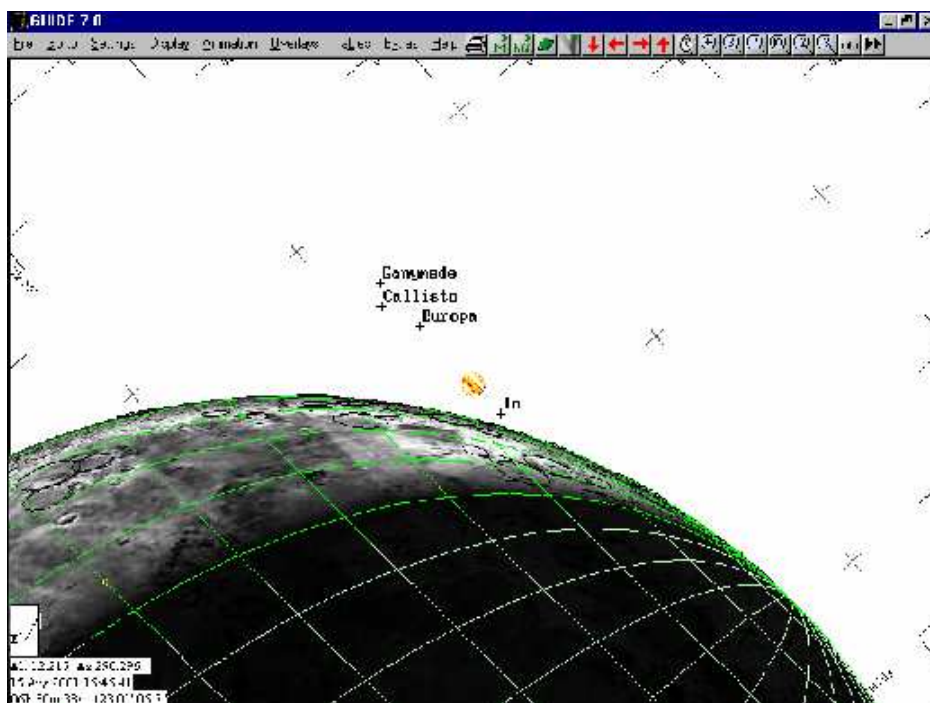
August 15th at about 4:45pm low in the western sky you should be able to see the Moon occult the planet Jupiter with some luck and optical aid. (see the chart below)

August 24th and 25th are the dates for The 5th Annual Astronomy at the Beach, held at Kensington Metropark and Co-sponsored by the Great Lakes Amateur Astronomy Clubs (Lowbrows are members of this group), The Discovery Channel Stores, Riders Hobby Shops and Kensington Metropark. For more info on this event go to: <http://www-personal.umich.edu/~dgs/kensington/>

The chart on the right shows the Moon, Jupiter and the Galilean moons just before occultation on August 17th. To witness this event you will need three very important things:

1. A telescope or binoculars
2. A clear, low western horizon
3. CLEAR SKIES

Okay, I realize that could be asking for too much. But we astronomers are a optimistic lot and we'll patiently wait hours for a little "sucker-hole" to form just long enough to get a glimpse of something like this. So don't miss this opportunity to see a rather unique event.





Top: Mark Deprest, Judy (one of the kids at Leslie Science Center), Bernard Friberg and Doug Warshow quickly decide that they are looking in the wrong end.

Middle: Charlie Nielsen and his "Sun-Spot" set up shows a small group of kids, what the magnified bottoms of clouds look like.

Bottom: While Bob Gruszczynski sets up his equipment and Jim Wadsworth takes a look at cloud bottoms, Charlie explains the proper way to do the Sgt. Sacto salute to his young friend.

13" Telescope - FOR SALE

Parting with this telescope will be tough to do, but its time to move on to the next scope. It has served me well as it will do its next owner. Many upgrades on this rebuilt COULTER Odyssey I, 13" Newtonian f4.5 reflector on a Dobsonian mount:

- Primary and 3.1" secondary recoated April '01 by *Clausing*
- *Cray* primary mirror cell
- *Cray* secondary spider
- 16" dia. X 58" l. Sono tube w/ 10" altitude bearings
- 2" *Meade* rack and pinion focuser w/ 1 1/4" adapter
- Teflon azimuth bearings on FRP board
- Large *Cray* 85 mm finder w/ 90° star diagonal
- *Telrad* base

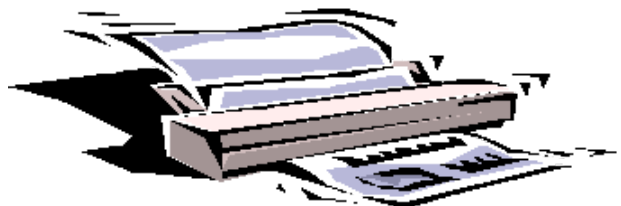
Price: \$800 Chris Sarnecki (734) 426-5772

Wanted: Newsletter articles, and/or pictures suitable for publishing in this newsletter. Have someone take a photo of you and your scope, Tell us how you got started in astronomy, or what your most memorable astronomic experience was. Do you have a favorite astronomical object, tell us about it. I promise, if you write it, I will print it. Send your articles or photos to:
 Mark Deprest, Newsletter Editor
 3138 Bolgos Cr.

Ann Arbor, MI 48105

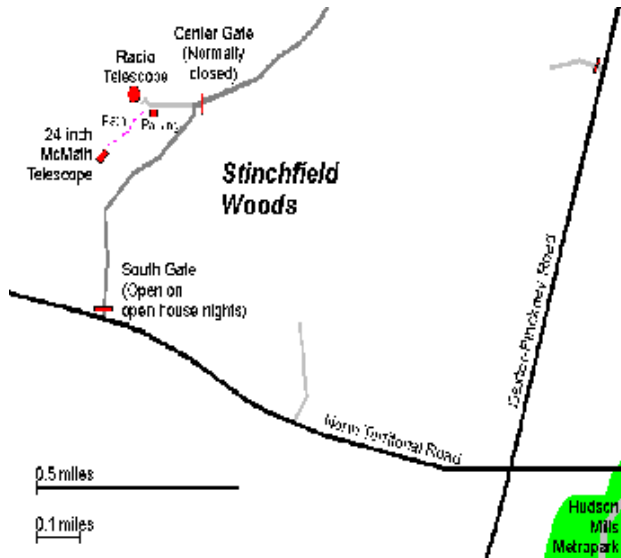
Or E-mail: msdpresed@mediaone.net

Support your Newsletter!!!



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-Pinckney 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:

Mark Deprest (734)662-5719 msdpressed@mediaone.net
Bernard Friberg (743)761-1875 bfriberg@aol.com

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

Telephone Numbers:

President:	D.C. Moons	
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	Paul Walkowski	(734)662-0145
	Doug Warshow	(734)998-1158
Treasurer:	Charlie Nielsen	(734)747-6585
Observatory Dir.:	Bernard Friberg	(734)761-1875
Newsletter Editors:	Mark Deprest	(734)662-5719
	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

<http://www.personal.umich.edu/~dgs/lowbrows/>

Next month we should have reports on:
Astronomy at the Beach
Constellation of the Month: Delphinus
Astronomy Camp: by Kristina Nyland
And much more...

Photo by
John
Causland



Airplane
trail

Pleiades

Saturn
Moon
Jupiter
Aldeberan

Street light
By
Mark
Depest



On the morning of July 17th 2001 the Moon, Saturn, Venus and Aldeberan formed a celestial trapezoid. Later that day the Moon would occult Venus. Some of the Lowbrows were set up to show and view this unique event at Leslie Science Center, but the clouds had other plans. This Photo was taken from the top of the hill in Sugarbush Park, just off Green Rd. in Northwest Ann Arbor. It was a 10 second exposure using Fujicolor 800 Superia X-tra in a 35mm manual focus Pentax camera w/35mm f3.5 lens. Note the Pleiades in the middle.



UNIVERSITY LOWBROW
ASTRONOMERS
3684 Middleton Drive
Ann Arbor, Michigan 48105



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

Check your membership expiration date on the
mailing label !