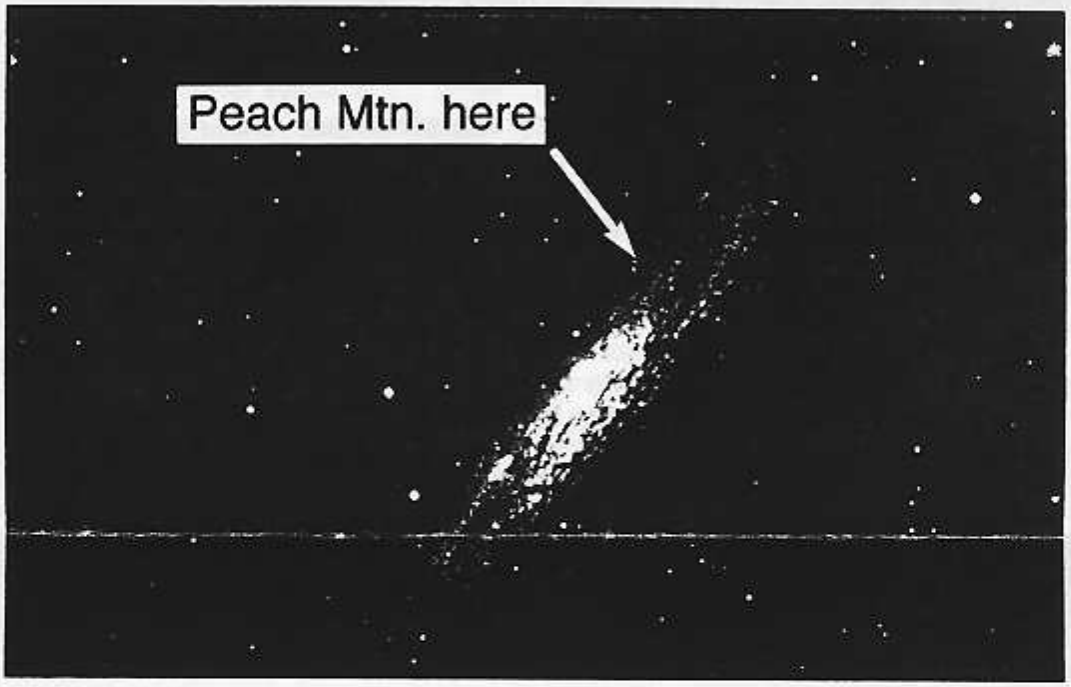
Reflections

of the University Lowbrow Astronomers

April, 1998



Believe it or not, there are members of the Lowbrows who've never been to the Peach Mountain Observatory. For their benefit, this month we have a picture of the observatory. For information on how to find this place contact the Observatory Director (with apologies to Kurt Hillig's REFLECTION February, 1994 edition).

The University Lowbrow Astronomers

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 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 (313)480-4514.

This Month:

April 17 - Meeting at 807 Dennison - Various Lowbrows speak on the February '98 Eclipse.
April 25 - Public Star Party at Peach Mountain Observatory - See the Virgo cluster tonite.
April 26 - New Moon - 7:41 am EDT

Next Month:

May 1 & 2 - Kensington Metropark's Spring Festival Star Party - See flyer inside for more info.
May 2- Public Star Party at Peach Mountain Observatory - The Moon is approaching 1st quarter.
May 25 - New Moon - 3:32 pm EDT
May 23 & 30 - Public Star Party at Peach Mountain Observatory - Mosquitos alert ! ! !

Confessions of an Eclipse Chaser

by William Hughes

Saturday, February 21, 1998 - It has been over 6 1/2 years since I have stood in the umbral shadow of the Moon, my eyes beholding the spectacle of a Total Solar Eclipse. Yet I remember that event like it was yesterday. I was a passenger on the cruise ship *Viking Serenade*. It was a special 7-day cruise from Los Angeles, California to the Sea of Cortez, Mexico to view the total eclipse of July 11, 1991. The service was wonderful, the food delicious, and the eclipse exceeded my expectations. It was my first total eclipse, and it wasn't 15 minutes after third contact that I was anticipating viewing ANOTHER total eclipse, in the foreseeable future. It was at this time I made another decision. I had made a promise to someone many years earlier and I decided to carry out this promise. Reading articles in *Astronomy* and *Sky & Telescope* Magazines, it became evident that the next eclipse I had a reasonable chance of attending was one whose path slashed a diagonally across the Caribbean Sea. The date of this eclipse was February 26, 1998.

Eclipse chasing is not a cheap hobby. Totality occurs in only a limited area which never seems to occur anywhere near where you live. You must plan to attend these events years before they occur. You spend countless hours researching your destination. How do you plan to get there? What kinds of accommodations are available, and what kind of facilities are there? Do you plan to take any photos or are you going to observe? Oh yes, then there is a little something called weather. What kind of climate is the Moon's shadow going to be cast upon? There is no doubt about it, eclipse chasing is a gamble, and the stakes are high. It is apparent that you are going to spend a great deal of money and the last thing you want is to experience totality under cloudy skies. You cannot control the weather and there are no guarantees on what conditions are going to be like during the big day. You CAN, however increase the odds to be in your favor. This is where research can make all of the difference. Do you have a good atlas? Break it out and bone up! Why? Let's look at two major facts. First of all you're typical eclipse path is thousands of miles long. This means that the path will cross many different climate zones. Some areas are going to be wetter than others are. It makes for some common sense that arid areas are bound to offer a better chance of viewing an eclipse than moist areas. Second, the Earth's surface is 3/4 covered with water. What does this mean? It means you have a choice on how you are going to experience an eclipse. Will you attempt to observe it from land or sea? Maybe I am opinionated at this point, but I feel the best odds of successfully chasing an eclipse are from sea. You got it! I'm talking about going on an eclipse cruise! If an eclipse occurs over a large body of water you can be sure somebody is going to offer a cruise there, no matter how remote. There have even been "Cruises to Nowhere" where the cruise ship leaves and returns to the same port, spending several days to get to and from the eclipse centerline. Oh yes, there is one MAJOR advantage cruise ships have over land-based observing, MOBILITY. If you have the misfortune of having clouds at your planned site the ship can maneuver to avoid them! Try doing that on a land-based site. If your site is crowded last-minute maneuvering may not be possible. If you want more information on this just talk to someone who was in Hawaii for the 1991 eclipse. To me there was no dispute. I was going to see my second total eclipse the same way I saw my first, from a cruise ship. If you have never been on a cruise I just cannot say enough about the experience! For starters read the article in the February 1997 issue of *Astronomy* magazine.

For the 1998 eclipse I chose to go on a cruise sponsored by *Sky & Telescope* magazine and *Scientific Expeditions*. I booked my trip on Holland America's *Veendam* which Departs from Fort Lauderdale, Florida. After boarding the ship and locating my cabin the lifeboat drill was held. Dinner followed this and the first of the production shows in the ship's nightclub. The next two days were at sea. Many activities kept us busy. There were scientific presentations held in the ship lounges, games to play, talent shows, and karioke. You name it, they had it. At night many of us would set up our scopes on deck to observe the southern skies. For many of us this trip would present us with the opportunities to observe deep-sky objects that were not visible from Michigan skies. For me these included the Eta Carinae Nebula, Omega Centauri, the Jewel Box, the Coal Sack and NGC 5128, amongst others. It was also interesting to see familiar constellations from a different angle. Orion was nearly straight overhead, Leo was upside down, and the Little Dipper almost seemed poised to scoop up a little bit of the Caribbean Sea. In the wee hours of the morning it was fascinating to see Scorpius rising straight up. Not all of us were fascinated at seeing the Southern Constellations. A family from Australia looked with amazement when I pointed out Polaris to them, which they had never seen before. Later someone showed them the Whirlpool Galaxy and the Owl Nebula through their telescope. Although we were in open seas, there was little difficulty in observing objects with my telescope. I used powers up to 44x. For all intents and purposes this cruise was a mobile star party. Everything that I have seen occur during a regular star party occurred here also. We shared views through each other's scopes or binoculars and we helped beginners identify objects they hadn't seen before. Every now and then a shout would come out from someone alerting everyone that a fireball had Just streaked across the skies. When not attending activities during the daytime a popular pastime was sightseeing. During the cruise we could see various points of land, including many of the Bahamas Islands, Cuba, Aruba, Guadaloupe and Montserrat. Many of us would also set up our scopes and filters and observe the Sun, for all intents and purposes a

dress rehearsal for the eclipse day that was rapidly approaching. The afternoon observing sessions were also an opportunity to stake out a spot on deck for observing the eclipse. Although this would prove to be unnecessary, there was more than enough deck space for everyone. Finally, eclipse day arrived. As the morning progressed, everyone showed up on deck with whatever equipment he or she brought to observe the eclipse. It seemed there were two kinds of participants, those who observed the eclipse, and those who photographed it. After thinking it out I decided against trying to photograph the Eclipse myself. A veritable forest of telescopes, binoculars, telephoto lenses and camcorders sprouted from the deck. I set up my rig, a Criterion 6 inch Schmidt Cassegrain with a piggybacked Lumicon 80mm Superfinder. The smaller scope was equipped with a 12-power eyepiece, the larger scope with a 44-power eyepiece. The suspense was so thick you could cut it with a knife. Especially with a thick band of clouds that hovered near the centerline. Fortunately for us, we were able to maneuver away from the clouds. "Whew"! Shortly after lunch many of us glued ourselves to our eyepieces jockeying to be the first to notice first contact, the beginning of the eclipse. A party mood prevailed. I went to my room to don a costume I had made in preparation for the cruise. The main feature, a cardboard sign with four words scrawled on it. "Will Work for Eclipses". As the eclipse progressed people began showing creative methods of observing the eclipse. A popular activity was seeing how many images of the eclipsed Sun one could project using whatever device they could think of. Objects used included straw hats, room keys, crackers and even ones fingers. Some passengers used mirrors to project images on the ship's funnel. This was followed by the "Spot Venus Contest" to see who would be first to spot Venus in the darkening sky. There were no prizes, the "Winner just had the honor of spotting the item first. Some of us scanned the horizon, looking to see what other cruise lines had sent ships to observe the eclipse. I spotted three other cruise ships at sea along with a couple of freighters. Suddenly a humming sound filled the air followed by a sudden WHOOSH! A hotshot pilot in the Dutch Air Force buzzed the ship with his plane. As the Moon encroached on the Sun it began to get noticeably dimmer outside. Shadows grew sharper and the temperature began to drop. Now everyone was glued to his or her eyepieces watching the Sun fade away. As second contact approached the sliver of a crescent began to break up into several segments, the phenomena known as "Bailey's Beads". I made a quick scan to see if I could spot any shadow bands, but failed to spot them. After the eclipse a few passengers said they did spot them. I removed my filters from my scopes and looked skyward with my naked eyes. The timing was perfect. The "Diamond Ring" was underway! Howls and screams filled the air. It was the moment everyone had waited for, TOTALITY!!! Wasting no time, I looked at the Sun with my 6 incher. WOW!! Loop prominence protruded from the surface like little pink horseshoes stuck to a large black beach ball. Now to the 3 inch scope. WHAT A SIGHT!! Three coronal streamers projected from the Moon, one on top, two from the bottom. Then it struck me. An image that the late Gene Roddenbery would have been proud of. The trio of coronal streamers was a spitting image of the triangular Image that graces the insignia of all the "Star Trek" crew members. This was the "Trekker" eclipse! Now for the naked eye view, two bright "stars" could be seen above and below the eclipsed Sun. These were the planets Mercury and Jupiter. Now it was back to the 3 incher for more views of the corona. Then to the 6 incher for more prominence viewing. Several loops could now be seen projecting from the other side of the Moon. A bright red band spread from the bottom of the Moon. This was the chromosphere and its appearance indicated the imminence of totality's end. A few seconds later and a bright flash signaled third contact. Aiming my scope away from the Sun, I briefly glimpsed the 'Diamond Ring" effect again. Cheers erupted from the deck followed by people hugging and high-fiveing one another. I now looked off the side of the ship. Why? During the 1991 eclipse, shortly after third contact, several hundred Dolphins began breaching the surface of the ocean. It was only recently that I read I had witnessed a feeding frenzy triggered by the rapidly changing light of the eclipse. No luck this time. There were no dolphins in the area. That evening we came ashore at Curacau. Four other cruise ships were also docked there. I was able to share experiences with some of the passengers from them. I have known from previous experience that eclipse chasers are not your ordinary group of cruisers. But one group of cruisers really took the cake. Stepping ashore I noticed one group wearing T-shirts that read "The Great 1998 Nude Eclipse Tour". If any of these naturalist got sunburned I do NOT envy them".

Now the island hopping began. Each island offered many different options for touring. Some would go ashore for a historical tour, others would head to a beach for swimming or snorkeling, while others would go shopping. It was a pity we only had one day at each island. I could have easily spent a week at each stop. Each Island had something different to offer. Bonaire offered premiere snorkeling and arid terrain. Grenada and Dominica featured lush tropical scenery and many geological points of interest. A visit to the Carib Indian Trust Lands featured a little bonus, a tribal dance featuring eclipse folklore. Shopping and snorkeling were tops in the U.S. Virgin islands while Half Moon Bay in the Bahamas was a beach day.

The total solar eclipse was not the only celestial event visible during the cruise. As luck would have it six days later the Moon would be involved in another example of an astronomical phenomena, this time the occultation of a bright star. At 7:25 pm the first-magnitude star Aldebaran was covered up by the dark side of the nearly first quarter Moon. As the star winked out of view another round of cheers erupted from the deck.

Sadly all good things must come to an end, and now it was time for the cruise to end. Many began discussing plans to chase their next eclipse. Some will go to Europe to attend next year's eclipse, while others, (myself included) looked a little further down the road at future eclipses in the next millennium. Remember the promise I mentioned earlier? It was a promise I had made to my Mother while I was in high school. Back then I promised her I was going to treat her to a major vacation in the future. It took some time, but I finally carried out that promise. I treated her to this cruise. I now make this promise. There will not be another total eclipse in the United States until August 21, 2017. Between now and then I WILL attend AT LEAST ONE more total solar eclipse. I must warn those of you who have never attended a total eclipse. These events are EXTREMELY ADDICTIVE. Totality is a very potent drug and one dose, no matter how small, will hook you for life. Fortunately there is no cure, and I can only wait for the day when I can get my next "fix". My name is William Hughes and I am an Eclipseaholic! ECLIPSE ADDICTION: JUST SAY YES!

An Amateur's View of Occultations, Transits and Eclipses

By Mark Deprest

Recently I upgraded my main astronomical software, from Guide 5.0 plus downloaded enhancements to Guide 6.0 (yes Ö Paul, I went and did it too). The main reason I upgraded was to gain some increased accuracy in planetary positioning. I have recently purchased equipment to do some astrophotography and my scope has had some problems with it's tracking speed. It is very important that the positions of the objects I want to photograph are plotted accurately on the charts I use. Guide 6.0 accomplishes this by using the *VSOP Theory* to compute and plot the planet's position to a theoretical accuracy of 0.01 arc sec. This is providing that you have entered your observing location as accurate as possible (within a couple of minutes). While reading through the operation manual for Guide 6.0, I came across an interesting function under the Animation menu. Guide 6.0 gives you the option to lock onto an object and watch that object as it moves through the sky. This is a very useful option for those of you who like to see occultations, transits and eclipses. The operation manual mentioned that transits of Venus and Mercury across the face of the Sun were indeed things that could be computed and animated by Guide 6.0. The manual also mentioned that Venus would transit the Sun in 2004 and 2012 but did not provide a specific date. I guess the author wanted me to find those dates and times for myself. The author did say that these events are rare but he did not say anything about Mercurial transits. So it was time to fire up the PC and do some investigating.

Well, the first thing I found out was that Mercury's orbit and the orbit of the Earth are enough offset to each other that this type of phenomenon does not occur as often as I would have thought. In fact I had trouble finding a single incident until November 15th 1999 at 16:45 EST, and then only just barely crossing the limb of the Sun. Now I was only looking for an instance that would be visible from Michigan. There was one other time that a transit happened in the 12 years that I ran my simulation for but it will not be visible from Michigan.

The transits of Venus are almost as rare. They will happen on June 8th 2004 at 07:00 EDT and then again on June 5th 2012 at 18:30 EDT. Both of these should be visible from Michigan providing there is an absence of clouds (which is almost as rare as these events). In order to witness any of these events you must have a telescope outfitted with a solar filter and an ocular yielding at least 50 power. NEVER LOOK AT THE SUN WITHOUT AN APPROVED SOLAR FILTER. Galileo went blind because he thought it would be safe to observe the Sun through clouds.

These events are wonderful ways to provide a visual demonstration of the differences in the sizes of the two bodies. I anticipate being around for all of these events and photographing them as their rarity makes them days to remember. Just a foot note to this article, while running through these animations on my computer I also simulated a partial solar eclipse on Christmas day in 2000 and a total lunar eclipse on January 21st 2000, both of which will be visible from Michigan. I will continue to look for more unusual events, like conjunctions, occultations, eclipses and transits. I will keep you posted.

Great Space Adventures

submitted by Bernard Friberg

Congresswoman Debbie Stabenow is sponsoring a Great Space Adventures Day in cooperation with Michigan Space Grant Consortium on Saturday, April 25, 1998 here at the University of Michigan, North Campus. The goal of these "adventures" is to bring the excitement of science in general and space research in particular to life for children in a family-focused event. Activities will include presentations made by astronauts, a lecture on "Toys in Space", hands on activities on rocket building and launching, glider design, optics, shuttle flight, and egg dropping, as well as an exhibition of informational booths, student science fair projects, small science experiments, and the winners of Congresswoman Stabenow"s High School Art Competition. We are hoping to reach up to 1500 individuals at this event. Lowbrows - This is your big chance to participate in Space Day on April 25th at 11:00 am to 4:00 pm. I have committed us to providing astronomy type stuff, charts, pictures, write ups, telescopes etc. If you can help, please E-mail me at Bfriberg@aol.com.

Kensington Metropark's

Spring Festival Star Party

Friday & Saturday Evenings - May 1st & 2nd

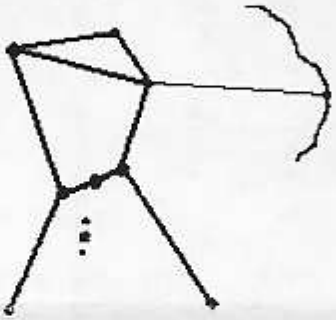
(5:00 PM until Midnight)

Kensington Metropark's Martindale Beach Milford, MI (Just North of I-96 - Kent Rd Exit) 1-800-477-3178

Observe the Night Sky through Dozens & Dozens of Telescopes & Binoculars - Free!!!

Vehicle Permit Required - $2.00 Friday and $3.00 on Saturday

- ★ View Sun Spots
- ★ See Real Meteorites
- ★ Attend the Astronomy Presentations
- ★ Watch Comet Making Demonstration
- ★ Learn about CCD Digital Camera Imaging
- ★ Take a Guided Tour of the Constellations
- ★ Walk Though the Astronomy Displays



A Program will Be Put On Rain or Clear!!

Listen to and Meet David Levy!!!
Co-Discoverer of
Comet Shoemaker-Levy 9!

Food and Beverages are Available for Purchase
No White Light Flashlights. Please!!!

Hosted By the Great Lakes Amateur Astronomy Clubs Including:

- ★ The Amateur Astronomers of Jackson
- ★ The Detroit Astronomical Society
- ★ The Eastern Michigan University Astronomy Club
- ★ The Ford Amateur Astronomy Club
- ★ The Genessee Astronomical Society
- ★ The Northern Cross Observatory
- ★ The Oakland Astronomy Club
- ★ The Royal Astronomical Society of Canada - Windsor Centre
- ★ The Seven Ponds Astronomy Club
- ★ The Sunset Astronomy Club
- ★ The Warren Astronomical Society
- ★ The University Lowbrows Astronomers

and

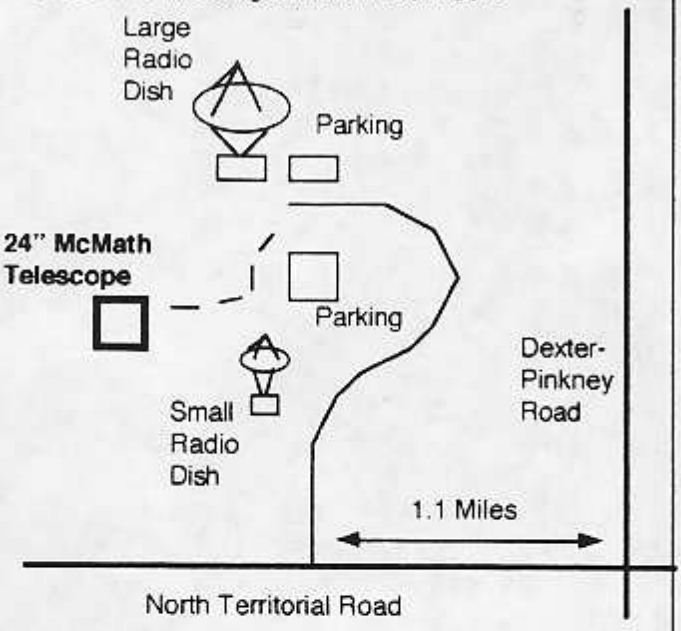
Riders Hobby Shops & The Nature Company

May 1st & 2nd Kensington Spring Festival Star Party

Activity/ Presentation	Location	Time	Presenter(s)	Clear Sky Agenda	Alternative Cloudy Sky Agenda
Sun Spot Observing	Lawn (Telescopes with Helium Baloons)	Ongoing 5:00 - 7:00	All Clubs	Yes	No
Comet Video	Mobile Unit Trailer - South Parking Lot	Ongoing 6:00 - 11:00	Kensington Nature Center (Prepared by Barry Craig)	Yes	Yes
Meteorites	Pavillion Theater	7:00	Oakland Astronomy Club (Mike Bennett)	Yes	Yes
Moonsites	Pavillion Theater	7:30	University Lowbrows (Mark Deprest)	Yes	Yes
Porthole to the Moon	North Pavillion	Ongong 8:00 - 12:00	Detroit Astronomical Society (Barry Craig)	Yes	Yes
Cometmaking	Pavillion Theater	8:00	Kensington Metropark Nature Center (Bob Hotaling and/or Mike Broughton)	Yes	Yes
Comet Hunting	Pavillion Theater	8:20	Time Warner Books/The Nature Company (David Levy)	Yes	Yes
Astronomy 101	Pavillion Theater	8:40	Ford Amateur Astronomy Club/Eastern Michigan University Astronomy Club (Greg Burnett & Norb Vance)	Yes	Yes
Basic Equipment	Pavillion Theater	9:15	Warren Astronomical Society (TBD)	Yes	Yes
Sky Observing	North Lawn (All Telescopes)	9:00 - 12:00	All Clubs	Yes	No
Guided Tour of the Constellations	On Beach	Every 1/2 Hour 9:00 - 11:00	Eastern Michigan University Astronomy Club (Kevin Dehne)	Yes	No
Sky Tour	Lawn (Telescopes with Blinking Red Lights)	Ongoing 9:00 - 12:00	All Clubs	Yes	No
Ask The Astronomers Panel	Pavillion Theater	9:30 - ???	All Clubs	No	Yes

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 807.



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.

Monthly meetings of the Lowbrows are held on the 3rd Friday of each month at 7:30 PM in 807 Dennison Hall. During the summer months, and when weather permits, a club observing session at Peach Mountain will follow the meeting.

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 mosquitos - 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.

Dues:

Membership dues in the University Lowbrow Astronomers are $20 per year for individuals or families, and $12 per year for students. 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 Doug Scobel at the monthly meeting or by mail at this address:

1426 Wedgewood Drive
Saline, MI 48176

Magazines:

Members of the University Lowbrow Astronomers can get a discount on these magazine subscriptions:

Sky and Telescope: $27 / year
Astronomy: $20 / year
Odyssey: $16.95 / 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.

Newsletter Contributions:

Members and (non-members) are encouraged to write about any astronomy related topic of interest. Call Newsletter Editor Kurt Hillig at (313)663-8699(h) or (313)647-2867(o) or e-mail to khillig@umich.edu to discuss length and format. Announcements and articles are due by the first Friday of each month. Articles should be mailed to Kurt at:

7654 W. Ellsworth Road
Ann Arbor, MI 48103

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Lowbrow's WWW Home Page:

http://www.astro.lsa.umich.edu/lowbrows.html

Monthly Meeting : April 17, 1998, 7:30 pm

Room 807 Dennison Hall (Physics & Astronomy Building) at The University of Michigan

Eclipse of February 98: Lowbrows share their experiences on this celestial event.

An astronomer's travel library - submitted by Doug Warshow

University Lowbrow Astronomers
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