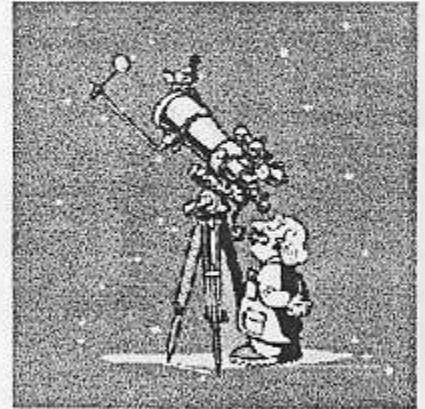


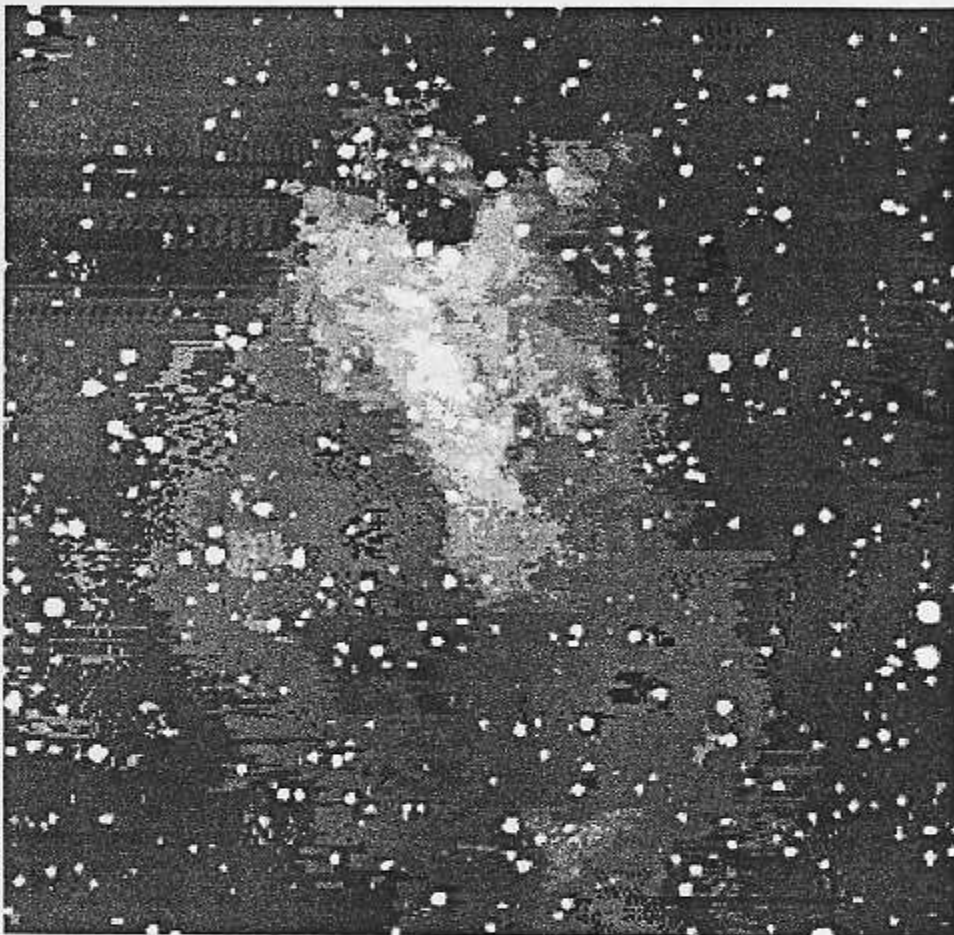
# REFLECTIONS

## of the University Lowbrow Astronomers

August 1999



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 may be canceled if it's cloudy or very cold at sunset. For further information call (734)-480-4514.



**M 17 (NGC 6618)**

### Swan Nebula

An emission nebula, in Sagittarius

(see next page for description )

### This Month:

- August 7 - Public Star Party at Peach Mountain Observatory -
- August 13 - Lowbrows at the Leslie Science Center -
- August 14 - Public Star Party at Peach Mountain Observatory -
- August 20 - Meeting at 807 Dennison. Find out all about the eclipse from Chris Sarnecki and find out whats happening in Mark Vincents world.
- August 22 - ATM Group - Meeting TBD

### Next Month:

- September 4 - Public Star Party at Peach Mountain Observatory -
- September 11 - Public Star Party at Peach Mountain Observatory -
- September 17 - Meeting at 807 Dennison -

September 18 - "A Night on Peach Mountain / Moonwalk" - A combined event with the Friends of Stinchfield Woods. Many activities throughout the evening: several slide shows, guided hikes through the woods calling for owls, a bonfire and roasting marshmallows etc.

## M 17 (NGC 6618)

### Swan Nebula

Credit NASA

An emission nebula, in Sagittarius

Right Ascension	18h 20.8 m
Declination	-16 d 11m
Distance	5 kly
Visual Brightness	7.0 mag
Apparent Dimension	11.0 arc min

The Omega Nebula M17, also called the Swan Nebula, the Horseshoe Nebula, or (especially on the southern hemisphere) the Lobster Nebula, is a region of star formation and shines by excited emission, caused by the higher energy radiation of young stars. Star formation is either still active in this nebula, or ceased very recently. A small cluster of about 35 bright but obscured stars seems to be imbedded in the nebulosity.

The color of the Omega nebula is reddish, with some graduation to pink. This color comes from the hot hydrogen gas which is excited to shine by the hottest stars which have just formed within the nebula. However, the brightest region is actually of white color, not overexposed as one might think. This phenomenon is apparently a result of a mixture of emission light from the hottest gas, together with reflections of the bright star light from the dust in this region. The nebula contains a large amount of dark obscuring material, which is obvious in its remarkable features. The mass of the gas has been estimated to amount about 800 times that of the Sun, enough for forming a conspicuous cluster, and a good deal more than that of the Orion nebula M42. While the bright nebula seems to be roughly 15 light years in extension, the total gaseous cloud, including low-luminosity material, seems to extend to at least 40 light years. Distance estimates are spread over a wide range, but modern values are between 5,000 and 6,000 light years, thus little less than that of its apparent neighbor, M16 with the Eagle nebula – apparently, these two star forming regions are indeed close together, in the same spiral arm of the Milky Way galaxy.

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### RESULTS OF RING OF FIRE EXPEDITION #21: THE AUGUST 22, 1998 ANNULAR SOLAR ECLIPSE SEEN FROM MALAYSIA

Credit: Paul Maley, NASA Johnson Space Center Astronomical Society, Houston, Texas USA

The 21st RING OF FIRE EXPEDITIONS solar eclipse adventure of the NASA Johnson Space Center Astronomical Society to observe the annular eclipse of the sun was attempted from two sites in Malaysia. Though I knew

the weather prospects were not too promising, our primary task was to try to ensure that observations would be made at both eclipse limits in our continuing project to determine corrections to the solar radius. Two members (Derald and Denise Nye) flew to Vanuatu, our original destination, to watch from the north edge of the eclipse path. But because no one else was planning to cover the south limit at the time, I changed our plans a couple of months earlier to complete the project goal. Lynn Palmer and I flew to Singapore on August 18. After 20 hours and 4 flights on United Airlines we arrived at 1am on August 20 to spend the next week at the Marriott Hotel in the middle of downtown Singapore. The next morning we were ready to head for the eclipse site. We were picked up by our host Lee Wee Kiong, who runs a small scientific store in town. I had been in constant communication with him and others in the Malaysia Nature Society in preparation for the eclipse. Singapore was the gateway to the eclipse this time and it was only a 2 hour drive from our proposed observing location. We then collected Richard Nugent who had flown in the previous afternoon and traveled in two cars along with several other Singaporeans to small motel near the eastern side of Malaysia not far from the town of Kota Tinggi.

We passed through customs unimpeded even with all of our batteries, wires, and other hardware. The first thing we did upon arriving near Kota Tinggi was to conduct an impromptu site survey. I found that sites that Lee had surveyed on an earlier expedition using a Trimble Navigation GeoExplorer GPS receiver were too far north. The site also had horizon problems due to the expected low elevation of the sun at eclipse time. Unexpected difficulty with my GPS receiver resulted in two of three battery modes failing to work. However, after hooking it to a cigarette lighter plug, positional readings and navigation features activated properly. It took about four hours before more satisfactory sites could be located due to difficult terrain and few roads.

On Friday evening August 21, we spent the night at the Mutiara Motor Lodge in little cabins on the beach which had primitive toilets, mosquitoes, and not much else. You know that things are a bit strange when your motel receipt states clearly that the motel used to be welding and spraying shop! August is normally a dry month, but this year due to El Nino the opposite was the case. It had rained every day, in some cases, the entire day in the two weeks preceding the eclipse. August 22, eclipse day, was finally here. We awoke to a thunderstorm off to our west and cloudy skies everywhere else. We drove off in a small convoy having been joined overnight by five Malaysian amateur astronomers. About 6:15am we arrived at our two sites situated at what was believed to be 0.0 and 0.4km

south of the predicted southern edge of the eclipse path. We had planned to take video at both stations. Richard deployed his Meade 2045D telescope and I set up a Celestron 90. As the sun rose, the horizon was partially blocked by foliage but gradually we could spot the sun through minor breaks in the clouds. The maximum eclipse was predicted to occur at 8:22am with the sun only 18.8 degrees above the east northeast.

All equipment functioned properly except that with the clouds present, I decided to remove the ND5 solar filter protecting the video camera. Normally this can be quite hazardous, but with cloudy skies it can be a real benefit. I had accidentally discovered this little trick in Gabon in March 1987 during the one-second annular eclipse there and it worked quite well this time. As long as there was filtration by clouds, the TV could define the sun/moon crisply with the filter removed. As the time of central eclipse drew nearer, the clouds were more in front of the sun than away from it. I expected to spot Baily's Beads, the elusive points of light poking out between lunar mountains, as early as ten minutes before central eclipse. But clouds were too thick. Then at 8:22am, the clouds parted and the eclipse was observed for about a minute. There were only two lunar mountain peaks that appeared to touch the edge of the solar disk. A near complete annulus (ring) was seen. This was a signal that our site was located too far north of the edge. Richard's site never cleared.

Even though this was not a total eclipse where the temperature can drop by 10 or more degrees, we felt the air temperature had definitely dropped during the eclipse process. Forty minutes later, the sky cleared up completely and the temperature began to climb rapidly. Because of the cloud situation we did not record temperature data this time and also did not attempt to see Venus. Our sites were located along a busy two lane road and trucks, cars and buses slowed to watch us observe. Vibrations from passing vehicles did not affect our observations nor did insects. There was jungle all around, so we were lucky in that respect. Lee had brought a small folding table and a Celestron 5 to which I had attached a 35mm camera. The C5 was borrowed from another of my email contacts, K.K.Looi who had trucked it down from the Malaysian capital city of Kuala Lumpur. Though the eclipse was somewhat disappointing, everyone posed for group photos anyway. At one point we had about 12 people at our site. I bought a Malaysian flag at a petrol station to fly at the site because I had left our Texas flag at home, and also we were told that it was politically incorrect to fly the Singaporean flag due to recent disputes over water between the two countries. Singapore is an island and depends totally on Malaysia for its water sup-

ply. But that is another story.

On Sunday, memories of the eclipse had faded a bit and we had a chance to relax and play tourist. Lee took us on a run of Singapore's Chinatown market, a terrific experience if you want to see food of every description. This includes watching frogs getting their heads bashed in, a sumo wrestler vendor with the words "Be Patient" tattooed on his back, and every variety of fish imaginable. After this, we wandered through one of the big high-tech shopping malls, drove to Mt. Faber, and passed through Little India. We also found news accounts of the eclipse written in Chinese. Lee had already developed his photos and had scanned one of his eclipse video sequences and made an MPEG movie on a floppy disc. That evening, Lynn and I set out on the modern Metro Rail system to find a 'wayang'—a Chinese opera that was to be staged in several places throughout Singapore commemorating the start of the Festival of Hungry Ghosts. This festival happened to coincide with the day of the eclipse, August 22. We had earlier purchased some fake money from the Bank of Hell which is supposed to be burned during the festival. However, we could not find a place to burn it due to strict laws in the country: no tossing of trash, no spitting, no buying chewing gum and no looking through the wrong end of the telescope all will get you a \$500. fine. Being caught with drugs in Malaysia, by the way, results in the death penalty (no options).

On Monday, it rained again but we managed to circulate to various shopping malls and restaurants. Although I had been to Singapore in 1983 on the way to observe the total solar eclipse in Indonesia, I was amazed to see how much the country had changed. Singapore boasts the best airport in the world and also scores highest on shopping for tourists. Everywhere you go there are modern, clean buildings; sometimes there are two McDonalds restaurants on the same block. Food is very cheap and one of the great joys of traveling here is the remarkable cleanliness and first rate look of parks, streets, and buildings. There are so many varieties of restaurants. Our meals seldom exceeded US\$3.50 for both of us combined even though hotel prices are comparable with the USA and rental cars are the most expensive of any country I have been to. For great vegetarian food Lynn and I recommend Komala Villas. Singapore recently suffered a 20% currency devaluation which made it very economical for Americans. Our trip to Malaysia found its local currency depreciated by 40% this summer. Because the price of gasoline is half that of Singapore, most Singaporeans flood across to buy Malaysian gas; a new law requires that any driver going from Singapore to Malaysia must show 3/4 full tank of gas. This is designed to enable Singapore to

collect as much gasoline tax as possible.

Monday night saw the rain stop and we were the only tourists to take the ZooPlus bus to the Night Safari—a first rate zoo park that is only exceeded by the San Diego Wildlife Park. My Sony camcorder was put into action and took excellent video of fruit bats, hyenas, axis deer, tigers, and other creatures. Singapore is now on our top picks list!

I usually scan the local news for information on eclipse related stories; this time there was a bizarre account of a local eclipse experiment featuring eggs that were found to stand upright only during the eclipse. A photo made the newspaper, but there was no discussion on the scientific basis for the claim. I now will view eggs with more reverence next time I see them in a supermarket.

Upon returning back to Houston on August 27 I found an email sent to me the day we had first departed Houston recommending our eclipse sites be shifted 1km to the south for best Baily's Beads viewing. Unfortunately it did not arrive in time. We all agreed that the trip had been a lot of fun and I look forward to returning to Singapore some day.

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#### RESULTS OF RING OF FIRE EXPEDITION #19: EXPEDITION TO MONGOLIA AND THE TOTAL ECLIPSE OF THE SUN

Credit: Paul D. Maley, NASA Johnson Space Center Astronomical Society, Houston, TX USA

Not all of our expeditions turn out the way we would like. The 19th RING OF FIRE EXPEDITION to observe an eclipse of the sun took off for Asia on March 1, 1997. Twenty members from the USA, Japan and Canada began the adventure departing from San Francisco at night, moving northward to the southern tip of Alaska. The timing was excellent. Most of us sitting on the starboard side of the aircraft could spot Comet Hale-Bopp. It looked very impressive in binoculars even through the aircraft windows. Adding to the sight was the appearance of a marvelous aurora; spreading from horizon to horizon, it appeared very similar to auroras viewed by Space Shuttle astronauts. One could see the three dimensional activity with changing shape and coloration. I was able to arrange to sit in the cockpit of the Singapore Airlines Boeing 747 and viewed the comet and aurora through the co-pilot's exceptionally clear windows on the flight deck. The pilot and co-pilot could see the comet but claimed they had no idea what it was!

Nearly 15 hours later, we arrived in Hong Kong where the temperature was a balmy 68 deg F. We only spent one day here just three months before Hong Kong was to become part of the People's Republic of China.

One unexpected problem arose. Our flight tickets from Hong Kong to China were not delivered to our hotel in Kowloon as promised. While the rest of the group toured Hong Kong, I made frantic phone calls into China. There was only four hours left before we were to leave for the airport when I received a return call from our ground operator in China informing me that the tickets were across the bay in the office of a trading company. The company had never been told to deliver them.

I hopped onto the metro railway and took it to the Hong Kong side, found the office in an obscure highrise building, and got the tickets in the nick of time. That evening we boarded a China Northwest Airlines flight to Xian, a large city in southern China where we would tour the famed site of the Terra Cotta warriors excavation and the neolithic village of Banpo. China's airline system is being divided into regions: China Northwest, China Southern, China Eastern, China Southwest, etc. But the aircraft are mostly Airbus or Boeing products and give a much nicer feel than the old Soviet style planes that they used to fly.

From Xian we flew on to Beijing, capital of China. There we headquartered in the five star, 29-story Kuntun Hotel, located across a busy freeway from the Hard Rock Cafe. I count this Hard Rock as having the best cheeseburger of all Hard Rock's that I have visited around the world. We were able to visit the famed Forbidden City and drove the Badaling Expressway to one section of the Great Wall of China. The claim is that this is the largest man-made structure to be observed from space. I have it on good authority that the Great Wall has never been successfully observed by American astronauts from space.

When we finally prepared to depart China for Mongolia, we had to do so before sunrise. Exiting our hotel we found the sky reasonably polluted by 'clear'. Comet Hale-Bopp could be seen with the naked eye, though with difficulty in this city of 13 million people. Arriving at the Beijing Airport, we packed into the Mongolian Airline MIAT which uses Boeing 727 airplanes to take us to Ulaan Baatar airport, where vintage single engine propeller driven airplanes and Russian helicopters dotted the airport tarmac. Our group was but a tiny speck in the 2,500 foreign tourists expected for this eclipse. Those professional photographers who intended to shoot the eclipse were being charged exorbitant fees of US \$25,000 - \$40,000 according to the newspapers.

Skies had been clear all the way from Beijing. On arrival we boarded buses for the five hour (220km) drive north to the city of Darhan. Darhan is Mongolia's main industrial center with about 80,000 inhabitants and no airport. We spent two nights in the Darhan Hotel which was the center of all eclipse activity in the

country. If you weren't in that hotel, you weren't on the map. Our group occupied most of one floor of the hotel and we were consolidated with two other groups in order to be assured of getting this rare hotel space for which so many had applied for and were rejected. Those not lucky enough to reside in The Hotel had to be satisfied with ger camps (round tents also called "yurts").

We scouted the highway for observing sites the following day; I located two fairly decent spots. One was a snowy 'parking lot' near a Japanese tourist camp on the way to the centerline. The bus nearly got stuck here. Our driver found another good site but the Japanese TV (NHK in Tokyo) occupied this hill and refused us permission to set up there. The initial plan was to have everyone set up on the roof of the Darhan Hotel (about 100 people). It was obvious to me that such a plan would pose some real problems. The roof was difficult and hazardous to access. You had to clamber up a ladder of crusty metal onto an upper floor. Pieces of stuff littered the floor and it was constantly falling down onto people on the ladder. Once on the upper floor you had to crawl through a small window opening onto the roof. There was no way the roof could safely hold more than thirty people. Furthermore anyone walking on the roof caused enough vibrations to affect a telescope positioned to photograph the eclipse.

I was able to install a GPS receiver which collected data on the mornings before and of the eclipse through this roof access procedure. The data was to be used in collaboration with a Russian Academy of Sciences project to study changes in signals from GPS satellites by virtue of the rise and fall of the ionosphere during the eclipse process. My site was the third in a trio, the others being in Irkutsk and Ulan-Ude across the border in Siberia.

One of the members of the other group in the hotel brought a weather satellite receiving system consisting of a helical antenna, PC, and receiver. The night before the eclipse, a fairly decent picture from the Russian Meteor satellite was received. It showed many bands of clouds to the north and west. This was worrisome since it was the primary direction from which weather would move toward the Darhan area.

Our bus pulled out of the hotel on schedule at 5:00am on March 9. First contact was to begin at 7:48am followed by totality at 8:49am. We traveled northward on the two lane highway toward the Russian border. In the darkness we encountered light snow at first, which turned much heavier. The buses were made for transporting passengers in the capital city and were very new vehicles. They could only travel on relatively good, flat roads. We made three stops. At each stop, I checked the sky and it was overcast; as we moved

north the weather was obviously worsening. I turned the bus about and headed back south driving through Darhan hoping to outrun the approaching weather system. We passed the other tour buses who continued to drive north.

There were no real forecasts and we had been told that traffic would be only allowed to move northward on eclipse day. About 400 police had been mobilized to help control traffic. But we found there was no real restriction on movement. When we awoke there were a few stars visible and it seemed that if the weather was moving slowly, there might be a chance to beat it. By 7:15 we arrived at a small hill 43km south of Darhan. Some breaks in the clouds were noted. There was also a police checkpoint, a gas station and a motel. Our guide tried to get use of a police cell phone so we could attempt to communicate with the other buses to the north. The bureaucracy of doing this was not worth the effort. Another try to use a phone at the motel was aborted due to heavy cigarette smoke from some Japanese tourists and the fact we could not locate the phone.

The snow which we had outrun at first began to fall within an hour of totality. The temperature never got any lower than 14 degrees F which was a treat considering predictions of -25 that we had been expecting. A Mongolian Airlines helicopter shot over our site headed north yet barely beneath the cloud base. Then it was three minutes until totality and we saw a break near the sun. The sun was a narrow sliver. Then it clouded over. We then went into totality. Lights in the motel came on and a lone car ambled up the highway seemingly unaware of the eclipse. Within two minutes the moon's shadow began to slowly move eastward and with it any hopes we would see totality. This was the first time I had been totally clouded out since January of 1992 in New Zealand. It was very disappointing. Although two horses and a dog were by our site, we observed no effects on them caused by the eclipse. Snow was all over the ground and our Texas flag flew stiffly in the wind. It was cold enough that even with two pairs of gloves, I felt almost frostbitten.

One of group, Johnny Duran, brought a Polaroid camera and took a couple of photos of a Mongolian policeman who wanted to have his picture taken with us. He and another Mongolian grabbed for the photo as it slowly was ejected from the camera like two children fighting over a new toy. They were very impressed with us foreigners and were very cooperative and friendly. During totality one Mongolian came up to Lynn Palmer and placed a heavy sheepskin coat around her. The Russian army 'ear hats' Lynn and I had bought in St. Petersburg last year really came in handy. After a group photo with about two dozen people in it, we all piled

dejectedly back into the bus only to experience snow falling inside the bus as we moved up the highway. Looking up, we found a small vent was letting snow in, so we decided to let nature take its course. Along the road, the sky began to show signs of breaks in the clouds. When we arrived in Darhan we were told that the corona had been seen through thin cloud in the city but at the hotel they were clouded out. Those who went north were also clouded as, it seemed, was all of the country.

The most success was reported from Chita in Siberia and Mo He in China where skies were completely clear and the air bitterly cold. Sites there were more remote and logistically more difficult to coordinate. Mo He temperatures were at -30 deg C at eclipse time. Here the government had banned open fires—the main method people there use to stay warm—until after the eclipse in order to prevent air pollution. Chances of seeing the eclipse in Mongolia had been about 50% to begin with. In the afternoon of eclipse day, the skies cleared and remained so for the following two days. We had just been zapped by a fickle weather system and the timing was unlucky.

Before leaving Darhan, we entered a ger camp near our hotel where 20 lamas (monks) from the Gandan Monastery in Ulaan Baatar held prayer readings and a 1,000 candle lighting ceremony. They came to pray FOR the clouds! The monks believed that the negative energy imparted by the eclipse could be mitigated by clouds. The eclipse process is said to cleanse the sun and moon. The lamas prayed day and night. When we entered their tent following a snake trail of people we spied piles of local money called tugriks (1\$=770 tugriks) layed out in front of each monk. These were offerings given by local people to help with the divine cloud request. Their duties did not end for another seven days. Each day had a different level of symbolism in the eclipse sequence. Mongolia's Buddhist monks saw the eclipse as an ominous symbol of death. It was said that animals would howl, traumatized by the sudden darkness. Some Mongolians reported that they had beaten their own dogs into howling in order to frighten the deity Rah into retreating from his consumption of the sun.

By watching the eclipse, predictions could be made, it was portrayed, for the following year. If it snowed or rained on the day after the eclipse, the government would flourish. If there was snow on the second day, it meant a lucky year ahead. Snow on the third day meant that livestock numbers would increase, while snow on the fourth day showed that there would be danger of an enemy struggle. Snow on the fifth day forecasted severe weather was on the way. If it snowed on day number 6, the weather would be fine. However, snow or rain on the seventh day meant disease would

spread across the land. My interpretation of this is a little different: if it snows on the day of the eclipse, it really doesn't matter what happens thereafter.

In camp around our hotel were various indigeneous people intent on selling everything. It was a flea market to end all flea markets. You could find bear, wolf, fox and snow leopard skins, stuffed gophers, live eagles and reindeer. Police screened everybody entering the hotel grounds. One evening we even had a musical entertainment featuring a weird custom called throat singing. Yak, horse and camel rides were available; one peculiar item visible everywhere were piles of small animal bones. It was explained to me that many of the vendors who had traveled from other parts of Asia ate small animals much as we eat Kentucky Fried Chicken; they would then deposit the bones (heads, feet with fur on them in some cases) after eating them! There were eclipse souvenirs depicting the eclipse on rugs, mugs and clothing. Special flights between Darhan and the capital city were advertised for only \$25. round trip which was quite a bargain considering there is no airport in Darhan.

People from the Russian republic of Kazakstan and the Tsataan reindeer people, as well as a herd of camels from the Gobi desert were among the sights observed around the hotel. It was as if our hotel was the center of an obscure, short-lived universe. Our hotel was a sight in itself. We found a brochure in our room advertising the Miss Mongolia contest. It is a bit different than a typical beauty pageant. Amongst each candidate's duties is a scheduled erotic performance. While we had no television, each room had a private bath with hot/cold water, twin beds and doors that locked. Souvenir stands were actually on every floor of the four story hotel. In one case, a souvenir hawker went door to door waking people up and asking them to buy from him.

Food in Mongolia was good. Each meal consisted of an appetizer and a main dish along with soup. Cake or Jell-O appeared on the table as desert from the moment one sat down at the table. Bottled water, beer and soft drinks were in abundance.

We left Darhan and spent successive days in Ulaan Baatar. Our group prowled the Natural History Museum where reconstructed original skeletons of dinosaurs were on display. Also seen were 10 meteorites that had been recovered in a special exhibition room that included the clothes and flight equipment of Mongolia's only cosmonaut to fly in space. We toured the Ethnic Museum and recounted a display of femurs converted into trumpets. These leg bones were extracted forcibly from 18-year old virgins who were sacrificed in Tibet as part of a chanting ceremony. They say that this custom was not implemented in Mongolia. On our last two

nights there we could view Comet Hale-Bopp by opening a tiny window in our hotel room, which you had to do anyway since the heat was oppressive. The final morning before departure to the airport, our group congregated on the roof of the Bayangol Hotel to look at the comet again under clear skies.

From Mongolia, we returned to spend two half days in Beijing. We traveled the local subway, ate at one of 39 McDonalds restaurants, wandered back alleys at night, saw the old Beijing Observatory (age 500 years) and took GPS readings in Tienanmen Square where we saw a countdown clock erected to display the number of days/hours/minutes until Hong Kong reverted to Chinese rule. The next total eclipse in the region will be in 2008 when Mongolia experiences another total eclipse. The one before this occurred in 1907.

#### RESULTS OF RING OF FIRE EXPEDITION #18:

##### THE INDIAN TOTAL ECLIPSE

Credit: Paul D. Maley, NASA Johnson Space Center Astronomical Society, Houston TX USA

The 18th RING OF FIRE EXPEDITION led by this writer journeyed to Thailand, India, and Nepal in order to once again bear witness to one of nature's most splendid performances. Southeast Asia has always been a fascinating part of the world steeped in legends and mysticism. For example, in Thailand (formerly Siam) King Rama IV predicted there would be a total eclipse of the sun in 1868 and invited the ambassadors of France and England to witness it. The envoys were duly impressed, though whether the episode helped to stave off the colonialization of Thailand is a matter of historical debate. King Rama died a few months later from malaria contracted while observing the eclipse.

As a prelude to our experience I examined the local newspapers just a few days before the October 24th eclipse in order to get a hint of the important stories of the moment: 1) Malaysia's national planetarium will investigate sightings of UFO's at a small village south of the capital of Kuala Lumpur which has lured hundreds of onlookers each night. Clusters of bright lights have been seen in the sky after dusk in the past few weeks and were said to disappear just before dawn; 2) In neighboring Iran, a man was given 20 lashes of the whip for disguising himself as a woman in order to ride in the women's section of a bus in Tehran. He had braved the adventure to win a bit of \$25 but was given away by his large size and men's shoes; 3) The festival of Diwali occurs in India during eclipse week. Diwali celebrates the dispelling of spiritual darkness. In contrast one temple was to take special measures to minimize the effects of the eclipse. Normally the temple is off limits to lower caste Hindus. On eclipse day the

shrine will be opened to everyone. The wealthy are to throw rice and wheat at the poor from the roof of the temple building. After the lower casts collect as much grain as they can, their rich benefactors were to purify the temple by washing it with milk.

(CONTINUED NEXT MONTH)

## About Comets

Credit NASA and IAU

### C/1999 N2 (Lynn)

IAU Circular 7222 (July 14, 1999) reports the visual discovery of a comet by Daniel W. Lynn, Kinglake West, Victoria, Australia using handheld 10x50 binoculars (! csm). The comet is reportedly about 7.0 magnitude with a coma diameter of 4'.

IAU Circular 7224 (July 15, 1999) gives an preliminary parabolic orbit with perihelion on July 23 at a distance of 0.76 AU. The comet is expected fade as it moves northward. By August, Northern Hemisphere observers will be favored. It will remain an evening object with its solar elongation decreasing to 37 degrees in early September, when the comet is expected to be 11th magnitude and thus, making observation difficult. The comet will continue to fade although the observing situation will improve for Northern Hemisphere observers.

### 10P/Tempel 2

This comet is currently reported between magnitude 11.5 and 12.0 and should continue brightening rapidly reaching 8th or 9th magnitude in August. Although visible from both hemispheres, the Southern Hemisphere will be favored when the comet is brightest. The comet should be followed through the rest of 1999.

### Ephemeris of comet C/1999 N2 (Lynn)

The following ephemeris is at intervals of five days. A daily ephemeris covering the same time interval is also available.

Check out recent magnitude estimates for this comet.

#### Lynn

Date	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase
m1	m2						
1999 07 21	10 58.15	-00 50.2	0.669	0.762	48.6	90.2	
7.4							
1999 07 26	11 31.45	+07 02.7	0.780	0.764	48.2	82.3	
7.8							
1999 07 31	11 54.84	+12 54.7	0.907	0.777	47.3	73.7	
8.2							
1999 08 05	12 11.61	+17 18.6	1.040	0.803	46.0	65.3	
8.6							
1999 08 10	12 24.05	+20 41.3	1.172	0.838	44.4	57.8	
9.1							
1999 08 15	12 33.69	+23 21.8	1.298	0.883	42.7	51.1	

9.5							
1999 08 20	12 41.50	+25 32.4	1.417	0.934	41.1	45.5	
10.0							
1999 08 25	12 48.13	+27 21.8	1.527	0.990	39.8	40.8	
10.4							
1999 08 30	12 54.03	+28 55.9	1.629	1.051	38.7	36.9	
10.8							
1999 09 04	12 59.49	+30 18.9	1.721	1.115	38.0	33.8	
11.2							
1999 09 09	13 04.70	+31 34.1	1.804	1.181	37.7	31.5	
11.5							
1999 09 14	13 09.80	+32 44.3	1.879	1.248	37.9	29.7	
11.8							
1999 09 19	13 14.87	+33 51.3	1.944	1.316	38.5	28.4	
12.1							
1999 09 24	13 19.96	+34 56.8	2.002	1.385	39.6	27.5	
12.4							
1999 09 29	13 25.12	+36 02.3	2.052	1.455	41.1	26.9	
12.7							
1999 10 04	13 30.38	+37 08.8	2.095	1.525	43.0	26.6	
12.9							
1999 10 09	13 35.77	+38 17.5	2.131	1.594	45.2	26.4	
13.2							
1999 10 14	13 41.30	+39 29.3	2.161	1.664	47.8	26.4	
13.4							

### Orbital Elements Credit: Marsden

The following orbital elements are taken from MPC 35208:

T 1999 July 23.0274 TT		Marsden			
q	0.761304	(2000.0)	P	Q	
	Peri.	357.7842	-0.2508141	-0.3659860	
	Node	254.6463	-0.8732502	-0.3139857	
e	1.0	Incl.	111.6658	-0.4177635	+0.8760521

the original owner's manual are all included. This scope has had an Orion velcro mount "shot bag" counter balance added. for use with a larger finder scope and/or large eyepieces. A heavy shot bag and an Orion full cover/carry bag for the OTA are also included. Photo available at <http://www-personal.umich.edu/~tgstoner/STAR8.JPG>. \$430.00

Contact Tom Stoner at (734) 663-3232 or [tgstoner@umich.edu](mailto:tgstoner@umich.edu).

Thanks much.  
Tom Stoner

### Events

BF

The event "A Night on Peach Mountain / Moonwalk" is quickly approaching (Sept 18). Volunteers are needed for parking, telescopes etc. Please signup at the next meeting. If you are available and are not going to the next meeting or do not get a chance to signup please leave a message on (734) 480-4514, e-mail [Bfriberg@aol.com](mailto:Bfriberg@aol.com), or call BF 734-7611875. Thanks

The Leonid meteor shower is Wednesday November 17. Arrangements are being made to hold the "Leonid Meteor Watch " event at Hudson Mills Metro Park, the same location as last year. This year there is no entrance fee. This shower/storm cycles every 33 years. Its going to be a long wait if this one is missed.

### General Announcements:

BF

(1) The public telephone number (734)-480-4514 will include a message for the Lowbrow club members on Wednesday and Thursday of each week, information on scheduling, special viewing sessions, announcements etc. This may reach those that do not have e-mail.

(2) For those members that have e-mail capability and are not on the Lowbrow e-mail list, please contact Doug Scobel, [scobel@applicon.com](mailto:scobel@applicon.com), (If you are not getting Lowbrow reminder notices etc., you are not on the list).

(3) For those folks that are not on e-mail and do not have a computer, free e-mail is possible. Most libraries have computers available for the public, and there are several service providers that will do this free. This is a topic we can go into in detail at the computer subgroup meeting if there is interest. If you are interested, please leave a message on the public telephone number (734)-480-4514.

### Telescope for Sale

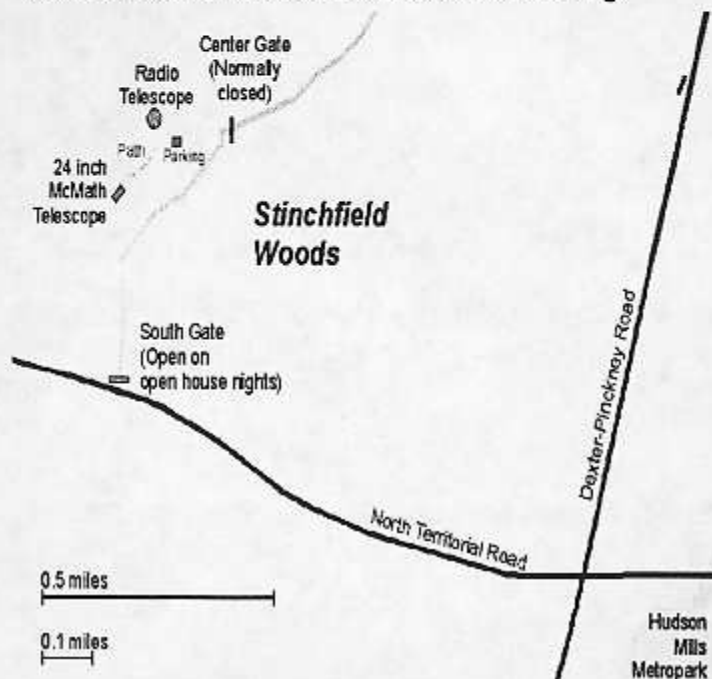
FOR SALE: Meade 8 inch f6 Starfinder Newtonian reflector telescope on Meade's teflon/nylon bearing Dobsonian mount. The standard 1.25 inch rack & pinion focuser, a 6x30 finder scope, a Meade MA 25mm eyepiece and





## 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. 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 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: \$29.95 / year  
Astronomy: \$29 / 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 (743)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:

President: Mark Deprest (734)662-5719  
Vice Presidents: Lorna Simmons (734)525-5731  
Dave Synder (734)747-6537  
Paul Walkowski (734)662-0145  
Treasurer: Doug Scobel (734)429-4954  
Observatory Director: Bernard Friberg (734)761-1875  
Newsletter Editors: Chris Samecki (734)426-5772  
Bernard Friberg (734)761-1875  
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/>

## Monthly Meeting

August 20, 1999, 7:30 pm

Room ?? Dennison Hall  
Physics & Astronomy Building  
The University of Michigan

## The 1999 Solar Eclipse

By

Chris Sarnecki

And

an Update on the Astronomical  
Activities of Mark Vincent

By

Mark Vincent



Eclipse 1999 -A Crescent Sunrise—Credit Thomas Collin  
This unusual site was caught above during a cloudy morning in Quebec. A similar sunrise eclipse recorded almost 3000 years ago has allowed historians to attempt to accurately match ancient and modern calendars.



UNIVERSITY LOWBROW  
ASTRONOMERS  
3684 Middleton Drive  
Ann Arbor, Michigan 48105



Lowbrow's WWW Home Page:  
[www.astro.lsa.umich.edu/  
lowbrows.html](http://www.astro.lsa.umich.edu/lowbrows.html)

Check your membership expiration date on the mailing label!