



REFLECTIONS

of the University Lowbrow Astronomers

January 2003



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-Pinckney 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.

January 2003

- **Saturday, January 4** (Starting at Sunset) Regular Scheduled Open House and Star Party at the Peach Mt. Observatory.
- **Friday, January 17** (Starting at 7:30pm) University Lowbrow Astronomers' Club Meeting held in either room 130 or 807 in the Dennison Bldg. **Speaker or Topic TBD**
- **Saturday, January 25** (Starting at Sunset) Regular Scheduled Open House and Star Party at the Peach Mt. Observatory.

February 2003

- **Saturday, February 1** (Starting at Sunset) Regular Scheduled Open House and Star Party at the Peach Mt. Observatory.
- **Saturday, February 8** (Starting at Sunset) Regular Scheduled Open House and Star Party at the Peach Mt. Observatory.
- **Friday, February 21** (Starting at 7:30pm) University Lowbrow Astronomers' Club Meeting held in either room 130 or 807 in the Dennison Bldg. **Speaker or Topic TBD**



Earthshine, Auroras, Meteor Showers and more are glorious naked-eye events and the subject of Mark Deprest's article on page 2.

Harry Juday is back with his Low Cost, Low Tech, Lowbrow telescope hand controller holder solution. Check out his article starting on page 4.

Tom Ryan writes on [Product Success](#). (page 6)

Gary Perrine tells of his travels, observing, and fine dining in Mid-Michigan. (see page 7)

Rudi Lindner stirs up [The Ghosts of Astronomers Past](#) on page 8.



Astronomy - No Telescope Required By Mark S Deprest

How many people saw the Moon, Mars & Venus all within 3 degrees of each other on December 1, 2002 or the Great Planetary Alignment of 2000, when tidal forces were going to cause untold Earthly catastrophes? Who has seen Mir or the ISS fly overhead? Have you ever witnessed a Meteor shower or seen a "Shooting Star"? Have you ever watched the Moon go through its phases night after night? How about an Aurora or Eclipse? Have you ever just looked up at night and seen the Milky Way or even just one bright star. If you can answer 'yes' to just one of these questions, you have done Astronomy, "Naked-Eye Astronomy", but still astronomy non-the-less.

Ever since that "cave-man" looked up and noticed that each night the moon changed its appearance and that the sun's rising and setting points along the horizon seem to move, man has been doing "naked-eye astronomy." The Babylonians helped put together the first real sky charts with nothing more than their own eyes. The Chinese helped develop a form of Astrology and recorded hundreds of comets using no optical aid. Ptolemy plotted about 60 of the 88 modern constellations and named the brightest stars in magnitude order with only eye power. The Egyptians may have centered their religion and most of their Pharaohic culture on observations and movements of the stars, constellations, and naked-eye Planets. They have found deer antlers that have been carved with the phases of the moon on them that date back some 10,000 years. The Aboriginal rock paintings of the Australian outback are thousands and thousands of years old and depict eclipses, novae and comets. The American Indians and hundreds of other cultures use the heavens to fine tune their calendars, Stonehenge is a Neolithic astronomical observatory that may have been use to predict eclipses.

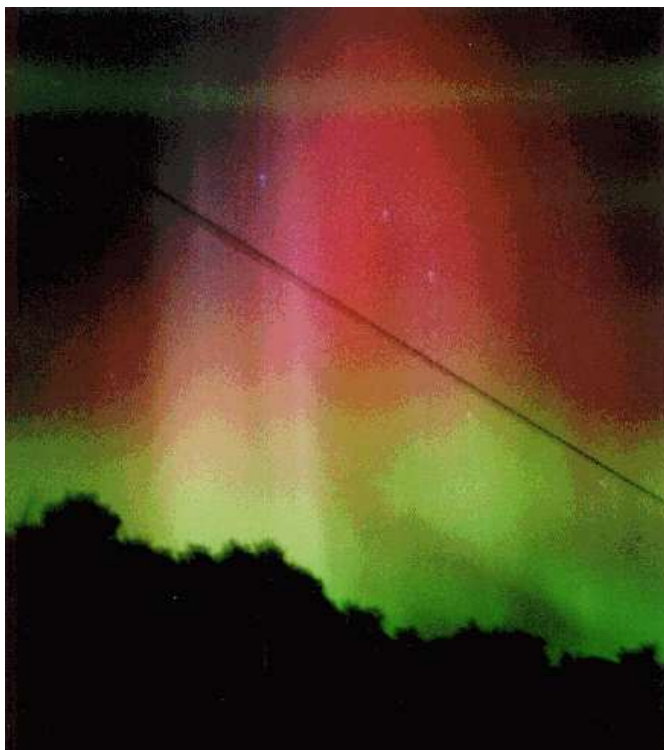
Until the early 1600's no one had used optical aid to observe the stars, the planets, or the moon. But for thousands of years prior to Galileo the science of Astronomy and the psuedo-science of Astrology were developed, practiced and flourished. During the golden age of exploration in the 17th and 18th centuries mankind navigated the oceans of the earth with tools using only naked-eye stars. In the 19th and 20th centuries in what some people refer to as the golden age of astronomy we built ever larger and more precise telescopes and instruments to see and measure deeper into space than we could even imagine until the physicists' explained it to us. But we seemed to lose the love or feel for naked-eye astronomy and slowly our dark night sky started to disappear.



This not an article condemning the invention of the incandescent light, but our inability to use it wisely or efficiently is a subject of some concern, and one that I will leave the highly articulate International Dark Sky Association. This is an article on the joys of naked-eye observing. Yes, even with all of the equipment I pack into my trunk and transport to a "dark" site, for a few hours of observing, I am touting the pleasures of non-optically aided astronomy. Some of my best and favorite memories are of observations made with-out a telescope or binoculars.

I love the sight of the summer Milky-way stretching far overhead from horizon to horizon. My first memory of anything having to do with an astronomical event was a pin-hole projection viewing box used to observe a Partial Solar eclipse on July 20th 1963. I was eight years old and this was naked-eye observing at its best. My mother had read in the newspaper how to build this box, which you could put over your head and position it so that it would allow sun light to pass through a small hole in the box. This would "magically" project an image of moon shadowing out a huge chunk of the sun on the inside of the box, it was *soooo neat!*

While camping with my parents in Northern Michigan at the age of 12, I witness one of the most spectacular auroral displays of my life. It started around 11:00 pm and only lasted about an hour or so, but it was special for two reasons. The first was that it was the first Aurora Borealis I had ever seen. The second reason that this display was so special was the intensity and the variety of colors I saw. It started as a bright green glow just above the trees to the north and quickly changed to red florescent cur



tains extending all the way to the top of the sky. These curtains rippled and changed their hue to a fading purple glow. Before we realized what was happening these colorful glowing beams of lights had surrounded us completely and seem to come to a peak directly over head. With the tall pine trees encircling the clearing where we were camped, I felt like I was inside a church steeple that had translucent spires and they were being illuminated with one of those revolving light wheels that my grandma used to back light her silver Christmas tree. Then as quickly as it had started, it was over and time to crawl into our sleeping bags. I remember thinking about what I saw for a long time before falling asleep. We looked for more the next night but it was done, and I thought how lucky I was.

As a Boy Scout, I had to be able to identify a certain number of constellations to get my Astronomy merit badge. I also needed to explain the phases of the moon and how to tell time and direction using the Sun and a stick in the ground, for various other badges. It was about this time in my life that I discovered a love for Mythology and Folk-lore and to my surprise and delight the characters of these stories filled the sky. From the twelve labors of Hercules to the Gods and Titans of antiquity, the night is illuminated with the principles of these stories.

The names of the days of the week come directly from the names of the five naked-eye visible planets along with the Sun and the Moon. If you would like to see what I mean just look at the French words for Tuesday through Friday, they make up Mars, Mercury, Jupiter, and Venus

respectively. Saturn is Saturday; Sunday the day of the Sun and Monday is simply the Moon's day.

About eight years ago, I found myself out on the deck in the spa, with my wife and step-daughter one autumn night. Jennifer, (my step-daughter) was gazing skyward and noticed a bright star overhead, that seem to twinkle and dance in the cool night air. Jennifer was only 5 or 6 years old, when she asked me if that star had a name. I knew that most of the really bright stars did have names and this one was very bright. So, I told her it probably did and that if she wanted me to, I would find out what its real name is. Jennifer's biological father was killed when she was only 4 months old, so she had no real memory of him. She told me that she thought that the twinkling star in the sky was her "Daddy Lenny" and he was winking at her. Well, that made me almost cry, and I knew I needed to find out the real name of that star, so I could find it for her again. That was the naked-eye incident that sparked my renewed interest (referred to as obsession, by my wife) in astronomy.

Since then this hobby, that I have such a passion for, has taken me to Texas and Pennsylvania and my own backyard to observe the night sky with a variety of instruments, but I find myself spending many more hours just looking up at the whole sky.

I have seen and had the good fortune to photograph a number of spectacular auroral displays. At least two of them were during Public Star parties and I was able to share the experience with others who share my love for astronomy, making those events even more special. On two very special occasions my wife and I watched meteor showers while lying side by side on an empty beach listening to the waves lapping gently on the shore. At least once a month on either side of the New Moon, I examine the waxing or waning crescent moon for hints of Earthshine, I have a number of photos that capture this phenomena beautifully.





I find myself constantly looking skyward as I walk my dog every morning and evening. During those walks I have seen Comets Hyakutaki and Hale-Bopp, and dozens of bright bolides streaking across the sky. I have seen Mir and now watch the ISS at almost every chance. I have seen the Space shuttle both chasing and leaving the Station, as they float in tandem above our heads. There is a "constellation" of three survey satellites that move in formation and hundreds of other artificial satellites that have caught my eyes as I scan the heavens on those canine constitutionals. Planetary conjunctions, alignments and Lunar/Planet groupings are wonderful sights to behold as witnessed by this man and his dog. Even during my drives to and from work, I find myself noticing astronomical events through my windows and in my mirrors. I've watched Sun rises and Sunsets in my rear view mirror, and have done the same with the moon. I've seen "Sun Dogs" or false Suns as they are sometimes referred to, while driving home from work. Just the other day I saw one of the prettiest "Sun Pillars" I can remember, this golden-orange "pillar" of light rose almost 30 degrees straight up from a brilliant yellow-orange setting Sun. When I have the good fortune to witness sights such as these, and have some understanding of what is actually happening, I know why I love astronomy so much.

I don't know if there is a point to this article, except maybe that you don't necessarily need a lot of fancy, expensive equipment to do real astronomy. You just need the ability to see and the desire to observe. I know that some of us poke fun at Jack Horkheimer, The Star Gazer, but his sign off catch phrase is very appropriate; "Just keep looking up!" I started this article some time near the end of December, on one of the last clear days of 2002, from my desk at work, shortly after watching Venus through my window until 11:00 am. Now that's Naked-Eye Astronomy!



LOWTECH, LOWBROW HAND CONTROLLER HOLDER

By Harry L. Juday

Well. Mark seems to be desperate again (or is it still), for some articles, so here is one on a little useful (to me), addition I made to my new mount. 3 long months after placing my order last August, (months with some fairly nice viewing ops, almost none since I got it), my G11 with the Gemini controller arrived. Ironically on my wife Anna's Birthday. As this is, with all of the extra mounting plates, polar scope, optional clamps, etc., the single most expensive piece of astronomy equipment I have ever gotten, I felt a bit bad about that part, but she was extremely gracious about it my excitement about the long awaited delivery was very great.

However, after assembling the mount and Gemini unit, I was a bit disappointed to see that there was nothing to attach the hand controller to, and no good place to store it when not in use.

The next day I called Scott Losmandy and asked him about it. He said he had nothing available and most people just used Velcro to attach the unit to the mount. I have not really had that much luck using Velcro in a glue on application that receives a lot of usage, even the "Heavy Duty" type. As the mount has no flat surface to place one part of the Velcro on, given the constant stress of taking the controller off and on that it would get and the humid conditions the mount will be seeing, I decided that Velcro would

not work for me. I needed something I could set the controller on, or better yet, put it into.

A wood item did not seem to be the answer and I do not have the equipment to fashion what I would consider a suitable metal holder. What I needed was a fairly sturdy molded plastic case to fit the unit in. I wanted to have it quickly as it looked like some decent viewing weather was on the way at that time (didn't happen though), and it had to be inexpensive (CHEAP).

So, I began scrounging around the garage and house to see what I could find, and I found just what I needed. In a cabinet in the basement were some extra plastic food storage boxes (Tupperware and misc. brands). I found one that was just perfect, an off-brand (Tucker?) food storage container & lid, i/s dims, 5"x7"x1.5". The .05" thickness seemed stiff and durable enough for what I needed.

I cut the top, leaving about 2.00" (see photo) and then cut that piece with enough clearance to get the cord in and out easily. I notched the bottom wide enough clear the connector and within about 1/8" of the bottom. I then dug around in my pole barn workshop and found a scrap piece of 1/8" Masonite pegboard big enough to make a reinforcing piece for the i/s bottom of the box (yes, I save all of that stuff and find it usually comes in handy someplace).



I superglued the two top pieces in the corner and painted the box using white Krylon semi-gloss spray paint (about 3 coats, not letting it dry as long as I should have, but it seems to be sticking well). I used white to make it easier to see at night.

My plan was to attach the box to a mount leg with an "ss" hose clamp, which I thought I had. Turned out I did not, so a fast trip to Stadium Hardware on Stadium near Liberty (they have EVERYTHING there, but most of you probably already know that). Cost, \$1.39 for a 3" to 4" "ss" hose clamp. Also decided to buy some small "ss" bolts and nuts as long as I was there, instead of using the plated ones I already had (#8, 3/4" bolts and the nuts about \$.10ea, large washers to prevent pull-thru a bit more and cap nuts for the bottom (so as not to scratch up the mount legs) most of all, \$.44ea.

Drilled some holes, bolted the reinf to the i/s of the box and added a small length, (about 2"), of copper coated strapping wire with holes on the bottom, between two of the upper bolts. This piece holds the hose clamp to the box. Attached it to the mount leg, with the bottom part resting on the upper mount leg clamp, which makes the unit quite steady. I cut a piece of the foam material I use for make-shift dew shields (previous article) and glued it in place. The box holds the hand controller nicely and is just oversized enough to make taking it in and out easy.

Simple, kind of crude, but effective. A real low tech, low brow accessory.

Product Success by Tom Ryan

Back in 1986, just a year before I quit my regular job to start a company, I was talking to the woman I would eventually marry, and complaining to her that the most corrupt, evil person that I had ever met had started a company, cheated and abused his employees and his partners (and me), and ended up making about a million dollars. Maybe, I added, a good person stands less of a chance to "win" in business because some other guys don't limit themselves to playing straight. She replied that business isn't a zero-sum game; it isn't necessary for someone else to lose in order for you to win, and personal integrity in the face of business fashions can be an asset in the long run. Just saying "Greed is good", over and over, and convincing many others of that, doesn't make it true.

About that same time, the lead draftsman for the machine tool company I worked for handed me an editorial by Phil Kingsley of Power Transmission Design magazine. Our company was struggling (ultimately unsuccessfully) with low cost competition from overseas, and the draftsman had recently come under some criticism for some of his designs. I kept the editorial on the wall of my new business for many years, where I could read it when I needed reassurance in the face of setbacks. Eventually, I lost track of it. I recently rediscovered it tucked away in a book, and with Power Transmission Design magazine's permission, I will share it with you.

"Many of you have asked us to discuss how more projects have been successfully executed, and blundered. Therefore, here we go again with some good news and, regretfully, some bad news.

"A few years ago, a large, multi-division company launched two programs for designing new high-speed gear lines - Alpha and Beta. Each was developed by a separate engineering team.

"The Alpha team spent many months planing the product - complete description of speeds, torques, functions, features, costs, and operational constraints. This team also withstood much high-level pressure for taking so long to "simply" plan the project. Undaunted, they continued refining the plans.

"After the product was thoroughly defined, the Alpha team gave their first estimate on when the product would be ready for production. Why had they waited so long to make this commitment? They replied, "We had limited resources; therefore we couldn't establish how long it would take to design a product until we established what it was we were designing."

"Then the design work started. With it came more pressures to get the product on the market. The marketing executives exclaimed: "We are losing business. Take some engineering shortcuts." But all this clamor went to no avail, and orders were lost to the competition just as the marketing experts had projected.

"Meanwhile the Beta team had quickly established a product description and started development. The plans were discussed with a few key customers who gave some excellent inputs. With this new information, the design plans were altered, and engineering continued but at a faster pace. Marketing constantly stressed the need for a quick product introduction. The engineering pace quickened. More inputs; more slight specifi

cation changes. More pressure, and Product Beta was introduced ahead of schedule. Orders immediately rolled in. The division management was pleased.

"Product Alpha? Still on the drawing board and in various stages of prototyping. Division management was *not* pleased.

"All that occurred a few years ago. Since then, Product Alpha was introduced near the date committed to by the engineering team.

"Today, Product Alpha has increased the company's business *very substantially*. The product performs as planned; warranty costs are less than 0.1%; and Alpha is now an industry standard for quality and reliability. Division management is now *very* pleased.

"Product Beta's warranty costs are 10 times the acceptable level; orders have virtually ceased. The entire engineering department spends most of its time not designing new products but trying to fix installed units with new lubrication systems. The division business is now the same as it was before Product Beta was introduced. Beta will be redesigned or buried. Division management is *very* unhappy.

"The difference: the Alpha team had strong engineering integrity and commitment to design a quality product; the Beta team was primarily concerned with getting a product on the market as soon as possible."

If you make products or write software, you already know what relevance this article has, but you might ask what specifically this has to do with Astronomy. Examples abound, but three stand out.

On the positive side, anyone who has ever held a Questar cannot doubt that company's commitment to engineering quality. Questars are admittedly expensive, but they hold their value, because they are well designed, well made, beautiful to look at and a joy to use.

On the negative side, I have to wonder what inspired the builders (I can't bring myself to say engineers) of a recent Catadioptric to hang a heavy CCD camera a foot off the corrector plate, where it can bump into things (perhaps to allow the customer to do his own stress tests?) and vent the heat of the CCD's Peltier cooler directly into the middle of the optical path.

To the third company, I lost a bid for a 20" LIDAR telescope. The customer told me that my design was better, but they preferred buying from a more established company. When their telescope arrived, a glance at the mirror cell showed that its design prevented about half of the 18 supports from actually touching the mirror. The primary mirror's baffle tube was mis-sized and cut off the outer edge of the beam, effectively turning the customer's 20" into an 18" scope. Poor design and machining on the mount forced several of the users to reach for Band-Aids to stop their bleeding.

During the Design Review meeting for the scope, where I was called in to help correct its many problems, the third company's representative told me that they liked my mirror cell suggestions so much that they would incorporate my design improvements into all of their new telescopes. When I asked him how he managed to get new business, he said that Astronomers all talk to each other. That company recently changed its name, and brought in an angel investor to help with finances, so I guess they do.

Your customers do, too.

LAST OCTOBERS OBSERVING TRIP TO GRAYLING

By Gary Perrine

I've been meaning to write a short report about a weekend trip my good friend Brian Knowles and I took to visit his friends at their cabins in Grayling Mi. the first weekend of last October.

Brian and I had been talking for some time about going there or over around the Ludington area where his father lives to do some dark sky observing that wasn't too far away, and where we would have nice warm beds to sleep in during the day. I left the decision up to him which place to go as he would know what the best place to observe from would be.

We were to leave on the afternoon of Friday the 4th and return on Sunday after getting some sleep and hopefully two good nights of clear, dark skies. I'd taken that Friday and the following Monday off work as I wanted to give my time packing up the van without forgetting anything and on Monday I knew I'd want to get some extra rest before going back to work. I waited for Brian to get off work on Friday afternoon and we loaded his 10" Meade EQ and equipment next to my 10" Dobsonian and Paralogram mount and tripod. I'd decided to take my 15x70 binos along so we could get some nice wide field views while we were there.

Brian told me that his father had gone somewhere for the weekend so we would be going to his friends cabin in Grayling instead, which was ok too because he knew of a great place to set up where there was a clear view of the sky in all directions. He told me he had called them a couple of days before to make sure it would be ok for us to stay there if we didn't go to Ludington and they said that that would be fine and they had plenty of room.

We arrived at the cabin a little after 9:00PM, just as his friends Dave and Lorinda were coming back from their evening jog. They gave us a nice welcome and told us to just make ourselves at home. They're a couple of the nicest people you'd ever want to meet.

Anyway, it was still light enough to go to our observing sight and set up so we told them we would be back in the morning and off we went.

We only drove a mile or two down the road from where the cabins are and turned onto a small two track road. Once we got past the tree line, it opened up to what seemed to me like 30 or 40 acres of wide open sky surrounded by trees in every direction. Astro-ValHalla!!

The two track road wound around through area and I wondered if there would be people driving through at night with their headlights on, or maybe shining deer, or what ever the local folks do up there at night in October, but Brian said that he'd been there lots of times before and that had never happened to him. He told me that the name of this particular spot was Guides Rest as it was right on the Au Sable River and the hunting and fishing guides would always stop there to cook meals for their clients.

Well, we set everything up and enjoyed looking at the brighter objects, as there was some Moon in the sky until about 11:00 or 11:30 and after it set I would say it was on par with or very

close to how dark it was at the Black Forrest Star Party in September. We only noticed a very small light dome a little above the tree line in the direction of Grayling.

We observed a lot of the usual deep sky objects that we look at Peach Mt. and at home. They just look so much better when it's really dark. I showed Brian NGC 7789, a really great open star cluster in Cassiopeia that Mark Deprest turned me on to at Cherry Springs the month before. I don't think Brian had ever looked at it before because it really seemed to WOW him. I know it really WOWED me when Mark pointed it out to me. All in all, it was a great night until around 2:00AM when we noticed that all the equipment was completely soaked with dew. It couldn't have been wetter if we would have dunked everything in the river. We called it a night, packed everything up and went back to the cabin hoping for one more clear night before going home. Alas, it wasn't to be. When we woke up that day around noon it had clouded over and rain was expected. By mid-afternoon it looked like the clouds were trying to break so Dave, Lorinda, Brian and I went kayaking on the river, which was a first for me, and by the time we got back it had clouded back up again. Lorinda said she would make pizzas if Brian and I would go to town to get the stuff to make them with. She likes artichoke hearts on her pizza, so that was a first for me also. I'll kayak again but I think I'll stick with pepperoni and mushrooms thank you.

Anyway the trip was a lot of fun. We got a little quality observing in and I got to meet some great new friends, and I can write this article about it and hopefully give Mark something else to put in a newsletter and make him a happy guy.

I think this would be a great place for the people in the club to go to sometime. It's not a long drive. You can't camp or build fires at Guides Rest. But there are campgrounds in the area to stay at, and there is a lot to do there if it's cloudy. Like kayak, or enjoy a good pizza. Clear skies and hope to see you all soon.



Digital Sky Survey photo of NGC 7789.

The Ghosts of Astronomers Past

By Rudi Paul Lindner

This is the time of year when the nights are long but the clouds lie heavy and low. We can easily appreciate the feelings of the Michigan astronomers who coveted the long nights but chafed at the weather. If

misery loves company, their ghosts must have affectionate feelings for us.

Ninety years ago, Ralph Hamilton Curtiss, Michigan's first astronomical spectroscopist and the grand master of the 37 1/2" reflector, would sit in his office near the big dome and write reports to the Observatory Director, W.J. Hussey, who was in La Plata, Argentina, where he was also director of the Argentine National Observatory. The letters are full of comments about graduate students, about the proposal to build a great steam plant west of the Detroit Observatory, and about local gossip. They also contain

frequent, and not-so-subtle, comments about the clouds. One of the graduate students, bent on an evening's work, would pass Curtiss's office on his way to take spectrograms. It was typical to make four to six

exposures in a good evening, and the power of the "great reflector" and its specially designed spectrograph was sufficient to be about two to three

times as productive as the spectrograph on the 40" Yerkes refractor. Curtiss was justifiably proud of his equipment. Sure enough, however, by the time Curtiss had completed a page or two, the student would be pacing back, thanks to the clouds. Sometimes, if the clouds were scudding fast enough, the night observer would try to sneak in a plate exposure between them, usually without much luck, as the observing books attest.

No wonder that Curtiss's student and successor, Dean B. McLaughlin, waxed eloquent when, in 1934, his big chance occurred. McLaughlin was interested in the spectra of peculiar stars, stars of class B with hydrogen emission lines, peculiar pulsating variable stars, and also novae or new stars. In 1934 Nova Herculis burst forth and many telescopes turned towards it, the first really accessible, bright nova since the end of World War I. And McLaughlin was in luck. He had fourteen clear nights in a row and was able to make enough accurate spectrograms so that he could prepare a large monograph, in which he discussed the minute, unpredictable, and fascinating changes that

occurred both in the expanding envelope around the nova and in the spectrum of the underlying star. It was a classic study that he produced, and he was grateful, -- even more than that, ecstatic, about his

good fortune. The nova was historic, but not much more than the run of clear skies that the weather gods bestowed upon the Ann Arbor observers.

The rule was, alas, much as we see today. A few years later on, Heber Curtis (no relation to Ralph Curtiss), who succeeded Curtiss as Director of the Michigan program, was musing on his inability to obtain the funds to figure, build a mounting for, and dome to house the 98" pyrex mirror blank that was the centerpiece of a revived astronomy program. He had come to Michigan particularly to assist in building that big telescope, only to have the bottom fall out of the state's financial basket in 1931 and his plans fall by the wayside. One of Curtis's students in those years was Orren Mohler, whom many Lowbrows will remember as a cheerful solar expert,

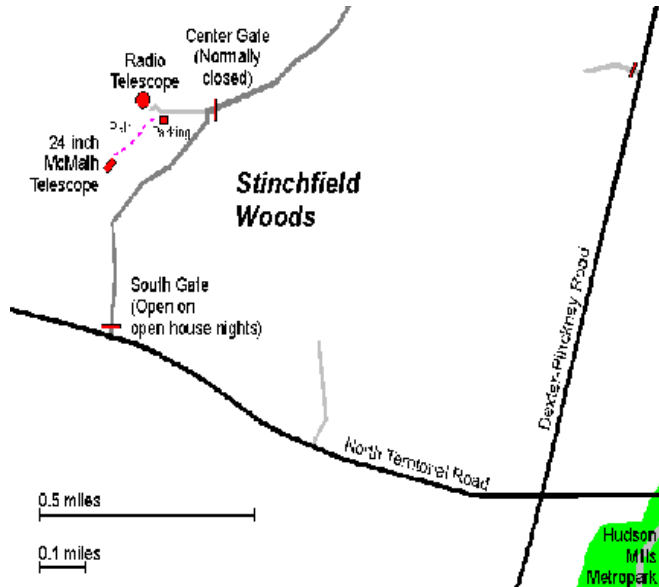
dedicated to the preservation of Michigan's astronomical heritage. Mohler and Curtis were returning to the Observatory from the central campus one day in the late 1930s, and Curtis looked at the clouds and said that perhaps it was for the good that the money to complete the 98" had disappeared, for the telescope would have been much more an instrument for meteorological than astronomical investigation.



*The two empty domes on Peach Mt.. Empty of functioning optical equipment mainly due to the lack of funds and clear skies here in Michigan, some of the equipment went to Kitt Peak and Cerro Tolol Interamerican Observatory in Chile.
Photo by Mark Deseck, Summer 2001.*

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 S Deprest (734)223-0262 msdeprest@comcast.net
Bernard Friberg (734)761-1875 Bfriberg@aol.com to discuss length and format. Announcements and articles are due by the first Friday of each month.

Telephone Numbers:

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Jupiter and the Galilean Moons team up with the brilliant Venus to show off a bit. This photo was taken through the prime focus of a 5" f/5 refractor using a 2x barlow. This scene was visible on February 23, 1999 at 7:00 pm, not only through a telescope, but also with binoculars and naked-eye, as touted in the article by Mark Deprest (see page 2). Photos in this month's newsletter were contributed by article authors.



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