REFLECTIONS
REFRACTIONS
of the University Lowbrow Astronomers

December 2001

The University Lowbrow Astronomers is a club of Astronomy enthusiasts which meets on the third Friday of each month in the University of Michigan's Physics and Astronomy building (Dennison Hall, Room 130 or 807). Meetings begin at 7:30 PM and are open to the public. Public star parties are held twice a month at the University's Peach Mountain Observatory on North Territorial Road (1.1 miles west of Dexter-Pinkney Road; further directions at the end of the newsletter) on Saturdays before and after the new Moon. The party may be canceled if it's cloudy or very cold at sunset. For further information call (313) 480-4514.

Clayton Kessler's Quest
The 2001 Leonids Experience

Lorna Explains Her Take on Galaxies

A Collection of Astro Poetry

Tom Ryan is back with more secrets revealed

Photos of Leonids from around the Country

Plus: Moon Light Observing and Photos from the 2001 Leonid Shower / Storm, Star Party and Open House Fog-Out at Hudson Mills Metro Park

This Month:

December 8th Open House at Peach Mt. Observatory, begins at Dusk …. Will Linear (C/2000 WM1) be visible "naked-eye"? It should be well placed in Cetus the Whale.

December 15th Open House at Peach Mt. Observatory, begins at Dusk …. It might be cold, but the "Gas Giants" will be high in the sky!!!

December 21st Lowbrow Meeting at 7:30pm in Room 130 of the Dennison Bldg. Speaker Clayton Kessler on Astrophotography

Next Month:

January 12th Informal Open House at Peach Mt. Observatory -Check E-mail and / or Voice Mail
January 19th Informal Open House at Peach Mt. Observatory -Check E-mail and / or Voice Mail
Due to prevailing weather conditions thru January & February We will not be advertising these Open Houses in the Media

January 18th Lowbrow Meeting at 7:30pm in Room 130 of the Dennison Bldg. Speaker TBA

2001 - A Leonid Odyssey

(With apologies to Arthur C. Clark)
By Clayton Kessler
November 20, 2001

It was a day filled with promise, the sky was clear and blue and the temperatures were mild. The weather forecasters (gurrrr…) were predicting clear with mild overnight temps - perfect for the 2001 Leonid meteor storm. Janice and I planned an overnighter at the Seven Sisters Observatory and we invited a good number of folks to join us.

This meant that some work had to be done to provide a good level of comfort. We drove out to Manchester early and set up a coffee station, dug and constructed "rest room" facilities, set up the 6" dob and the G11 photographic system. When this was done we sat down to sip coffee and watch the stars pop out.

Just about the time that we could begin to make out the "summer triangle" we noticed a funny gray shadow to the south. In a matter of a few minutes this resolved into a wall of fog that washed over us like wet concrete! It was so thick we could barely see headlights over on Sharon Hollow Rd. It was early yet, not even really dark, so we decided to wait and see if it would clear. By 8 PM it was even thicker than in the beginning so we decided to pack up and move out in search of clear sky. Down came everything we set up and back into the van (after a final pot of coffee was brewed).

Cell phone coverage is spotty at best from the observatory site so we decided to head south towards Lake Hudson and contact people by phone once we had good signals. We managed to contact Bob Justin, Mark Deprest (foggy at Hudson Mills) and Greg Burnett as we traveled down M52. It was still foggy in Adrian so we pulled into a parking lot to regroup. A call to Harry Kindt, in northwest Ohio, confirmed clouds and fog all day at his place and it seemed that south was not the way to go. I finally found Rich Brenz's number in my wallet and we called the "Cadillac Guru". Rich said he had clear sky and it looked to stay that way. He was going to sleep and get up to observe the peak. I told him to look for me in his driveway when he got up.

We turned the van around and headed back north up M52, angled M50 over to Jackson and caught US 127 north there. We had several conversations with Mark and Greg discussing possible clear areas. Mark decided to head to Midland and Greg and Vicky were going to the thumb. About half way between Jackson and Lansing Bob Justin called and said that it was clear in Lapeer and he was headed to Fish Lake. Shortly thereafter we broke out of the fog and into clear sky ourselves. At this point we decided that if it stayed clear we would head across I-69 to Lapeer and join the group at Fish Lake instead of going all the way to Cadillac. It stayed clear and we made good time heading east across the state. Our confidence was bolstered by a call from Greg and Vicki who were at Fish Lake and said it was wonderful. It was a little scary north east of Lapeer as some patchy fog started to form, but not the thick stuff that covered us earlier. As we drove up Fish Lake Road at about 1 AM we saw a bright meteor through the windshield. When we parked and saw the stars shining down two more long grazers let loose from east to west. There were only a few of us there, Norb Vance, Bob Justin, Tom Kasper, Greg and Vicki Burnett and Jan and I. We seemed to have this little spot of clearing to ourselves.

I was way too tired at this point to set up any cameras but I stayed out and watched the show all night. Between 4 and 5 am I kept a mental time count. I started counting seconds after a sighting (I could not see the entire sky at one time). I only made it to 30 seconds a couple of times and mostly it was 3 or 4 seconds. Frequently it was less than a second or multiple sightings at one time. I was estimating 20 per minute (1200 per hour) for extended periods and 40 to 80 per minute in flurries. What was very nice was the preponderance of very bright meteors. I think I saw more bright ones than dim ones and lots of trails. I even spotted a head on meteor.

We packed it in at about 5:45 and headed back home. We did not get too far down M 24 when we ran back into the wall of fog. The fog remained our companion all the way home.

Now I wish I have forced myself to set up a camera and take some pictures but I was tired at the time and I will have to content myself with the memories of this meteor storm. Next year's display is predicted to be good but it will be obscured by a full moon (betcha' it's clear for THAT one!!). This may well have been my only chance to see this kind of celestial show - I am grateful to have had the opportunity to enjoy this one.

Photo by Joe Fino / joe@studio1334.com

Photo by Joe Fast / jefast@home.com

A Collection of Astro Poems

By Roger Curry and Craig Nance

Contemplation

c. Roger Curry

Darkness hides the world about me,
Save for silhouettes in dim night glow.
Fields of stars silently beckon my eyes.
Swan, archer, beauty, beast--
Randomly we group these tiny sparks of light
that whisper their secrets to probing minds
on mountain tops.
As my eye greets old friends and seeks the new,
I oft wonder if other eyes, in other places,
Glimpse a distant and insignificant yellow star,
And wonder, too.

I Hope the Sky is Clear Tonight

c. Roger Curry

I hope the sky is clear tonight.
I hope the stars will come out bright
And spangle heaven with their light--
They're my obsession and delight.
I hope tonight that I might stand
Beneath the heaven's starry band,
And gaze, in wonder, at the sand
That drifts upon the cosmic strand.
I hope that in my scope I'll see
Some wisp of nebulosity
That's listed in the NGC,
But has, till now, eluded me.
My hobby is astronomy;
Beneath the stars I love to be.
May someone on my tombstone write:
"I hope the sky is clear tonight!"

Under the Stars

c. Roger Curry

Seated in an old lounge chair,
At the heavens now I stare.
Binoculars upon my face,
I search the majesty of space.
Stars in clusters, bright and gay,
Lie within the Milky Way.
Globulars and nebulae,
Like cotton, pale and dim I spy.
Venus, Jupiter, and Mars
Daily move among the stars.
Oh, would that I, with speed of thought,
Could fly to worlds so clever wrought.
A meteor attracts my eye--
"Look, look at me before I die!"
Then, upon the starry vale,
I see its dim and ghostly trail.
Far from noise of city street,
I come to this, my safe retreat,
And slake my thirst with cold star light
That falls to Earth this lovely night.

Tomorrow is Another Night

c. Roger Curry

Warm day gives way to cooling breeze.
The Sun has gone behind the trees.
Marching shadows reach a pair
Who come to open field to share
The wonders of the nighttime sky.
Busy hands the scopes prepare,
Cicadas buzzing everywhere,
And the Sun's warm, rosy bed
Yields to azure overhead.
Earth's shadow rises in the east.
Sibling planets twilight grace,
The Sun's ecliptic path they trace.
Stars of blue and red and white,
With soft caress beguile the sight.
Dilated pupils nectar drink.
Nomads camped upon the sand,
Sailors far away from land,
Find enchantment in the sky.
Unlike the song of Lorelei,
It nurtures rather than destroys.
Bent to peer through tube and glass,
From dusk to dawn the hours pass.
Heavy-limbed but spirit-blessed,
Sleepy eyes will soon find rest.
Tomorrow is another night.

Moonrise

c. Roger Curry

Hostile photons in the air,
Hostile photons everywhere.
Silvery beams of cold moonlight
Spell the end to starry night.
Lovers by the Moon do spoon,
Fiddlers play the Moon a tune,
But the man who hunts the sky,
In search of wispy nebulae,
Spurns the Moon and bids her go
To that netherworld below.
"Moon that's rising in the trees,
You've spoilt my view of galaxies!
From the sky the stars you've swept--
I wish that you had overslept!"

Skeeters

c. Roger Curry

To country field I came to stare,
And search for heaven's fuzzies.
But I'll be hanged if I will share
My blood with these danged buzzies!
So I will spray, and I will shoo,
And I'll anoint my skin with goo;
I will fog and I will swat
(And then I'll prob'ly itch a lot).
These kamikazes I'll lay low
With scent or spray or crushing blow,
And in the morning I'll feel fine
(If I can find my Calamine).

Ode to my Telescope

c. Roger Curry and Craig Nance

I think that I shall never see
A scope that's lovelier than thee,
With beauty, elegance, and grace,
Reflecting photons toward my face.
When I show the Moon so bright
To those who stroll about at night,
Thy highest praises they do cheer,
Because you make it seem so near.
When the Sun has gone to bed,
To starry sky I lift thy head.
And when we're far from city's glare,
The dimmest galaxies we share!
Alas, to criticize is tough,
But here it is-you're not enough!
I swear I hear the Horsehead's call,
And thy speculum's too small.
And so, Away, my pretty lass,
Mine eye is fixed on bigger glass.
A fever in my heart ignitith--
I'm consumed with two-inch-itith*!

Two-inch-itis: the mistaken belief, held by many amateur astronomers, that they would be perfectly happy with their telescope if it only had two inches more aperture.*
***The above definition is to be included with the poem*
These poems were reprinted with permission from authors.

Photo by Derek Overdahl / derek@overdahl.com

Photo by Joe Fast / jefast@home.com

FROM LITTLE BITTIES TO BIG BUNCHIES?

By Lorna Simmons

You amateur astronomers have it easy. All you do is point your telescopes, etc., and look at the marvelous Michigan sky whenever it is not raining or being obscured by clouds and light pollution. The galaxies and other peculiar objects are out there waiting patiently for your undivided attention. Sure.... Piece of cake....

Do you ever wonder how the galaxies, which everybody loves to view, came to emerge from their earliest seeds in the early universe finally to dazzle our eyes as the gorgeous monsters of more recent times?

The elliptical galaxies have certain similarities, which are easier to study. The stars in the ellipticals tend to whiz around in every direction with great abandon. This whizzing around seems to have gotten rid of a lot of stuff between the stars because of the constant collisions, which would occur in elliptical galaxies from the all-over-the-place-every-which-way movement of the individual stars. Of course, at great distances, you cannot see the frantic movement but must be content with merely observing the faintly fuzzy floating phantoms.

Elliptical galaxies are distinctly redder than the spiral galaxies and tend to resemble jewels in the sky. Sadly, after awhile one elliptical galactic jewel appears similar to all of the other elliptical galactic jewels, and we yearn for the variety which we see in the stately grand spiral galaxies, in the magnificent barred spirals of even more recent epochs, and in the irregular galaxies formed by galactic mergers, etc. Spirals are great, gorgeous, stately whirlpools of stars. If your telescope has enough aperture, you can see the resulting great beauty of their majestic journey, although you cannot actually see their true movement because of their great distance.

Did you ever wonder how spiral and elliptical galaxies came to be formed in the first place in the early universe? Did the stars in the galaxies begin as part of gigantic conglomerations, mixing and churning away, or did the galaxies ever so slowly develop from tiny bits of matter getting together and adding themselves to other tiny bits of matter (a/k/a accreting), eventually becoming the big monsters of recent cosmological epochs? It is a puzzle that astrophysicists and cosmologists have yet to solve. They say they're working on it. Sure.... We know.... Yeah....

Well, if you really want to know all of the answers, many present-day cosmologists (but certainly not all) suggest that there are two major possibilities. One is a monolithic collapse scenario with all of the galaxies, ellipticals, spirals, and irregulars forming from the remnant matter produced by the Big Bang (which, by the way, was neither big nor a bang). In other words, galaxies envisioned this way developed "from the top down". Everything simply slowly separated into smaller bunches of stars, eventually to form the familiar galaxies. Did already-present elliptical galaxies become elliptical galaxies and already-present spiral galaxies become spiral galaxies, with never the twain mixing? Would this be the kind of pattern continuing to the present day? Good question....

On the other hand, perhaps everything occurred much differently. Could the galaxies have been formed "from the bottom-up"? Perhaps there originally was a slow gravitational collapse merging together little wisps and bits and pieces of material left over from the so-called Big Bang (named, derisively, by the late Fred Hoyle) to end up with larger and larger conglomerations of these little wisps and bits and pieces of material, eventually forming galaxies. This process could continue on to make huge accumulations of stars and star-forming matter. Again, perhaps....

Then, of course, add to both of these scenarios the omnipresent "dark matter" which is part of the great majority of the galaxies, which "dark matter" is only observed as a result of its gravitational effect on the easily-observed matter. Additionally, there is the dark energy, unseen, except by its effects, which is now thought to be accelerating the expansion of our universe, simultaneously preventing the formerly-expected gravitational collapse between galactic groups. The Big Crunch seems to have become only a cosmological theoretical memory nowadays. Accelerating universes do not crunch.

Therefore, there seem to be two main ideas remaining at present as to the evolution of galactic groups: (1) In the monolithic collapse scenario, galaxies of different morphological types (spirals and ellipticals) are born intrinsically different and continue that way unchanged as to their morphological type, to the present cosmological era. (2) In the hierarchical merging scenario, galaxies end up as spirals or ellipticals depending on the details of their merger history. They can change from one to the other, given the changing conditions.

Of course, everybody can wonder about all of the stuff which cannot be seen but which can only be imagined or found indirectly. Making a living as a cosmologist takes a lot of imagination -- a whole big enormous lot of imagination...

Regardless of how everything got to where everything got, the simplest solution is to take your telescopes out in the night sky and enjoy! Forget everything else and let the cosmologists worry about the meaning of it all.

On Moon Washed Nights

By Mark S Deprest

On November 2 (one day after Full Moon) four "Photon Starved" Lowbrows made their way to Peach Mt for some Moon lit astronomy. This small but adventurous band which included Mike Radwick, Bob Gruszcynski, Randy Pruitt, and myself came to the hill with only minor expectations of seeing bright objects. Mike had fun splitting double stars Bob had his new Orion 10" Dob and was honing his "star-hopping" prowess (that one doesn't look right either). Randy was operating the 24" and searching out variable stars. I had come with only two different objects in mind to observe and only expectations of see one.

The first chart I pulled from Guide 7.0 was that of Saturn and its moons and their positions, this was a realistic target. The second set of charts were that of Comet Linear (C/2000 WM1)'s position, this I really didn't think I had much of a chance at seeing, but nothing ventured, nothing gained. Guide 7.0 listed the comet's magnitude at 9.4 and well positioned in Perseus about half way between Capella (in Auriga) and Delta Perseus or 1.75 degrees east of 4.1 mag Mu Perseus. I tried for the Comet just before the moon crested the trees but without any luck and I found that I was having some trouble with the "old-style" Rigel finder again and by 22:00 hours I became totally frustrated with it when I could not seem to locate T Lyra. So, I took it off and strapped one of my Telrads to the 12.5" using a large rubber band that I happen to have in my seemingly endless supply of "things I might need," using the front feet and dangling them over the top edge of the scope I was reasonably sure I had the Telrad lined up parallel with the light path and the rubber band to hold it in place, I was ready to search again, but first lets find that Carbon Star, T Lyra, a little realignment of the reticule and a couple of small tweaks and ta-dah! There it was.... The moon washed a lot of the color out of it, but it still impressed Mike Radwick.

Well, Saturn was well above the trees and the seeing was very steady so I thought I'd try to count Saturn's moons. I checked my chart and went to work ... Titan at 8.0 mag was easy, Dione at 10.1 and Rhea at 9.4 just above the disk and rings were both easily visible, Tethys at 9.9 below the disk was fairly easy, wide roaming but bright Iapetus at 10.1 was just out of my field of view but a little nudge of the scope brought it into view, Mimas at 12.6 and Enceladus at 11.4 were very close to the bright glare of the ringed planet so they would only be seen during those brief moments of very steady seeing, then I noticed Hyperion as a faint glimmer far below the planet but on what would be the orbital plane of the rest of the Saturnian Satellites. But how could that be Hyperion is 13.9 mag. ... was the seeing that good?

I had noticed that I was seeing more and more stars in the field of view as the night wore on but dare I try a 9.4 Comet? Sure, what the heck ... a quick slide of the scope over to Mu Perseus and a little star hopping east and ... is that a faint smudge? The star field is right.... nudge the scope to con firm and BINGO!!!! I bagged another comet. Bob and Mike quickly came over to confirm it and then Randy poked his head out of the observatory to see what all the excitement was about and he too saw the latest in the long list of Linear Comets.

We continued to observe Saturn and by now even Jupiter had crested the pines in the east Bob asked if I knew when the next GRS (Great Red Spot) was going to transit and that he would really like to see that. I told him that I didn't know but we had fun observing the Gas Giant and Galilean moons make their way higher into our celestial vault. I asked Bob if he had ever seen what colored filters can do for planetary observing, he said he'd read about them but that he had no actual experience with them. So, I showed him and Mike what a Lt. Green filter does for the rings of Saturn and how when the atmosphere steadies out how much easier it is to distinguish the Crepe ring from the background. Yes, that's right we were seeing the crepe ring in "one day past" full moon lit skies. I switched from the Lt. Green to the Lt. Blue #82a filter and moved the 12.5" to Jupiter and called the guys over to see that much greater detail was visible in the bands of Jupiter and that a hint of color was even evident. It was then that we got some visitors up there.

A couple showed up ... they were out for a Mid-night hike? and just wandered up the hill. Randy was entertaining them in the Observatory and Bob, Mike and I went back to Jupiter, and while studying the detail in the southern band I noticed an anomaly on the proceeding limb ... was this the GRS? You bet your boots it was! So, I loaned Bob my Lt. Blue filter and watched him enjoy a GRS transit.

Not a bad night ... if I do say so myself. Nine Saturnian Satellites, One 9.4 magnitude Comet, the Crepe ring, a number of binary stars including Iota Cassiopeia, the carbon star T Lyra, the GRS transit and The Great Orion Nebula thru the 12.5" with a UHC filter on a 12mm plossl which was spectacular. So the next time I say there's too much moonlight to do any real observing just slap me silly and remind me of November 2nd 2001.

Clear Skies

Photo by David Harvey / consoft@primenet.com

Leonids 2001 at Hudson Mills

By Mark Deprest

On November 17th shortly before sunset some of the Lowbrows met at Hudson Mills Metro Park for the third annual Leonid Meteor Shower / Storm, Star Party and Disappointment. This year was different from the last two in that the weather foiled us this time rather than the moon or inaccurate predictions. We did however, have a highly successful and entertaining event despite the fog-out.

A great many people came out with high hopes of seeing a real storm of meteors but instead were treated to a number of wonderful talks aimed toward getting a number of Girl Scouts their Astronomy badge. These talks were coordinated by Paul Walkowski and featured Doug Nell, Charlie Nielsen, Brian Ottum, Paul Walkowski and myself and covered a number of topics including; star charts and how to use them, telescopes and optical aids and how they differ and how to use them, comets and meteors and what they are, the solar system and our place in it, and Astro-mythology. Kudos to Paul for organizing this program and big thanks to Chris Scharrer for providing the projector.

Does anybody know what happens when the humidity reaches 100% and the air temperature drops down to the dew point? Well if you were out on the night of November 17th, just about anywhere in southern lower Michigan you do, its called FOG!!! and it was thick!!! It formed at around 8:00 pm and virtually eliminated any hope of seeing a meteor shower that night, unless you were prepared to drive until you found a clear spot. Some of the Lowbrows did just that and a few of them got lucky and were rewarded with a spectacular show. I have provided some photos scattered throughout this newsletter taken by friends from around the country, where the weather was much more favorable. Thank you, all.

Here are a few pictures taken by Dave Snyder of the Hudson Mills Event:

From top to bottom:
Reid Travis, Jim Forrester, Chris Scharrer, & Gary Perrine.
Thank you all for coming out and making the 2001 Leonids worth remembering

Setting up at Hudson Mills Metro Park.

Telescope Topics

by
Tom Ryan

As a person who has a near zero tolerance for being controlled, and more self confidence than is probably good for me, I have managed to parlay a minor talent for mechanics and a love of light into a career as an engineering consultant for the past fourteen years. And I've noticed that most of the companies for which I've worked, large and small, rich and poor, public and private, believed they had Secrets. And that those Secrets were the reason they were still in business.

Naturally, as someone who is invited into someone else's company to help them with a problem that they couldn't solve themselves, I respect their privacy and scrupulously partition the work I do for them from the work I do for others. Professionalism demands it, and good manners enforces it. But every so often, a company employee (usually with a very limited resume) will stress how important it is that *no one* ever learns what they are doing. It's hard for me to explain that I just don't talk about proprietary information. It's like saying I'm not an ax murderer. If I claim I'm not, does that suddenly make me believable? At moments like these, I feel a certain awkwardness, but I've learned to handle it without embarrassing either of us. Nevertheless, I often walk away feeling a little angry, not just because I was insulted, but because I was insulted for no good reason. Because 99% of the time, there *are no Secrets.*

I think that the reason most people believe that their company has Secrets is because they walk around the building, look at their management and their coworkers, and say to themselves, the competition could not possibly be this screwed up. They're tough, they're smart, they've got better backing. All we've got is….uh, what? I know! Secrets! Man, if they ever find out what our secrets are, we're dead meat.

But this is just not true. Successful companies do have something, but it's not secrets.

In the early '70's, Celestron invented a method of making fourth order curves on window glass, thus making Schmidt Cassegrains possible at a low price. Meade also does this now, and so can you, since the method is widely known. But the dissemination of this knowledge has not put Celestron out of business. At least not by judging the ad volume in S&T.

When I needed to know the detailed prescription of a certain Nikon lens, I called Nikon and asked for it. They just laughed at the idea of giving that to a customer, so I disassembled the lens and measured the curves, spacings, and the glass types. Do they think that Canon doesn't do that? Yet Nikon is still in business.

When Ford wants to know how a particular car is made, they just buy one and take a chop saw to it. Yet Toyota is still in business.

Just having a Secret, or losing it, doesn't make much actual difference to most companies.

On the other hand, I've worked with a successful mid range ($60K - $150K) telescope builder that not only did not have secrets, it was struggling to incorporate common knowledge. The fact that they were successful led me to an inescapable conclusion. A company (or a person, for that matter) doesn't owe it's success to proprietary secrets. It owes it's success to it's people, who get up every day and do their jobs.

Now, if you're a worker, this statement might make you feel pretty good. ("The place couldn't run without me", and to a certain extent, that's true, because talent matters.) And if you're a business owner, this statement might make you a little worried. After all, what's to stop a bunch of people from getting together and starting a competitive firm? The answer is, nothing. Nevertheless, most people won't do that. They're too busy doing their own jobs. The few who do start companies soon find that starting a company is a lot harder than it looks. A lot harder. For one thing, it's not easy to convince a lot of talented, compatible people to leave their jobs and do something new.

So the next time you're holding that multi-element eyepiece in your hand, don't think that you bought it because it has some fancy secret prescription. You bought it because someone went to work and made it.

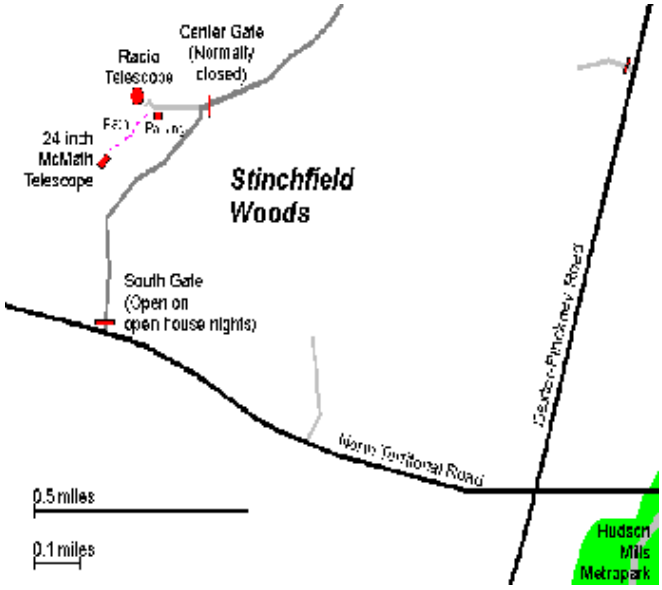
Above: The Lowbrows ponder the possibilities of the weather and hope for clear skies.

Would someone please wake up Bernard!

Right: Brian (mad scientist wannabe) Ottum demonstrates the "strange ingredients" of a comet.

Places and Times:

Dennison Hall, also known as The University of Michigan's Physics and Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. It is found in Ann Arbor on Church Street about one block north of South University Avenue. The meeting is held in room 130. Monthly meetings of the Lowbrows are held on the 3rd Friday of each month at 7:30 PM. During the summer months, and when weather permits, a club observing session at Peach Mountain will follow the meeting.



Peach Mountain Observatory is the home of The University of Michigan's 25 meter radio telescope as well as the University's McMath 24 inch telescope which is maintained by the Lowbrows. The observatory is located northwest of Dexter. The entrance is on North Territorial Road, 1.1 miles west of Dexter-Pinckney Road. A small maize-and-blue sign marks the gate. Follow the gravel road one mile to a parking area near the radio telescopes. Walk along the path between the two fenced in areas (about 300 feet) to reach the McMath telescope building.

Public Star Parties:

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

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

Membership:

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

Magazines:

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

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

Newsletter Contributions:

Members and (non-members) are encouraged to write about any astronomy related topic of interest. Call or E-mail to Newsletter Editors at:
Mark Deprest (734)662-5719 msdpressed@mediaone.net
Bernard Friberg (743)761-1875 Bfriberg@aol.com
to discuss length and format. Announcements and articles are due by the first Friday of each month.

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Lowbrow's Home Page:

http://www.astro.lsa.umich.edu/lowbrows.html
Dave Snyder, webmaster
http://www-personal.umich.edu/~dgs/lowbrows/

No these aren't before and after pictures, these are two of our favorite Lowbrows (Charlie Neilsen, left and Doug Nell, right)giving delightful talks at the 2001 Leonid Fog-Out, but don't they look smart in their matching Lowbrow ensemble.

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Lowbrow's WWW Home Page:
www.astro.lsa.umich.edu/lowbrows.html
Check your membership expiration date on the mailing label !