



Pentax SMC Takumar + Canon 300D
f=135mm 0.12 sec 100 ISO

C/2006 P1 (McNaught)
10-01-2007 15:55 UT

B. Leitner Graz/Austria
www.kometarium.com

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C/2006 P1 McNaught

A Simple Story about a Comet

By Mark S Deprest (duh, like that's a surprise)

By now almost everyone in the club knows of my fascination with comets, and for those who don't ... just ask me about my collection of comets. I have collect, observed, drawn or photographed and logged 41 different comets in the past 12 years. Each and every one of them has only served to whet my appetite for more. Every one has been special, and every one has been different. I look forward to every new comet discovery and hope that it will brighten enough to be collected by me.

But enough about me and my little obsession, this is a story about Comet C/2006 P1 McNaught. So, lets start with its discovery, R. H. McNaught (Siding Spring Observatory, Australia) discovered this comet on CCD images obtained with the 0.5-m Uppsala Schmidt telescope on 2006 August 7.51. The images had been obtained as part of the Siding Spring Survey. He described the comet as magnitude 17.3, with a faint coma 20 arc seconds across in moonlight.

It was imaged an observed by many of my comet crazy compatriots in September and October as it brighten steadily. By the end of October it became brighter than 13th magnitude and that put within range of my equipment and skies. So on November 12th I added this one to my collection as number 39 and because this comet's path followed just north of the ecliptic, any observations done after November were pretty compromised by twilight skies and low altitudes.

Fast forward to January 1st 2007 and McNaught had brightened to 3.5 magnitude and racing toward negative magnitudes and perihelion on January 12th. Because of its northern position in relationship to the Sun and the time of the year (more time with the Sun below

Important Club Info

- **Saturday, February 10, 2007.** *May be cancelled if it's cloudy or too cold.* (Starting at Sunset). [Open House at Peach Mountain.](#)
- **Friday, February 16, 2007.** (7:30 pm). [Monthly Club Meeting.](#)
- **Saturday, February 17, 2007.** *May be cancelled if it's cloudy or too cold.* (Starting at Sunset). [Open House at Peach Mountain.](#)
- **Saturday, March 10, 2007.** *May be cancelled if it's cloudy or too cold.* (Starting at Sunset). [Open House at Peach Mountain.](#)
- **Friday, March 16, 2007.** (7:30 pm). [Monthly Club Meeting.](#)
- **Saturday, April 14, 2007.** *May be cancelled if it's cloudy.* (Starting at Sunset). [Open House at Peach Mountain.](#)

the horizon than above) it had become both a morning and evening apparition. Now the skies in the Ann Arbor area were cooperating with their usual lack of enthusiasm and it began to appear that perihelion and this naked eye comet (now being touted as the "Great Comet" of 2007) would pass un-witnessed by me or any of the Lowbrows.

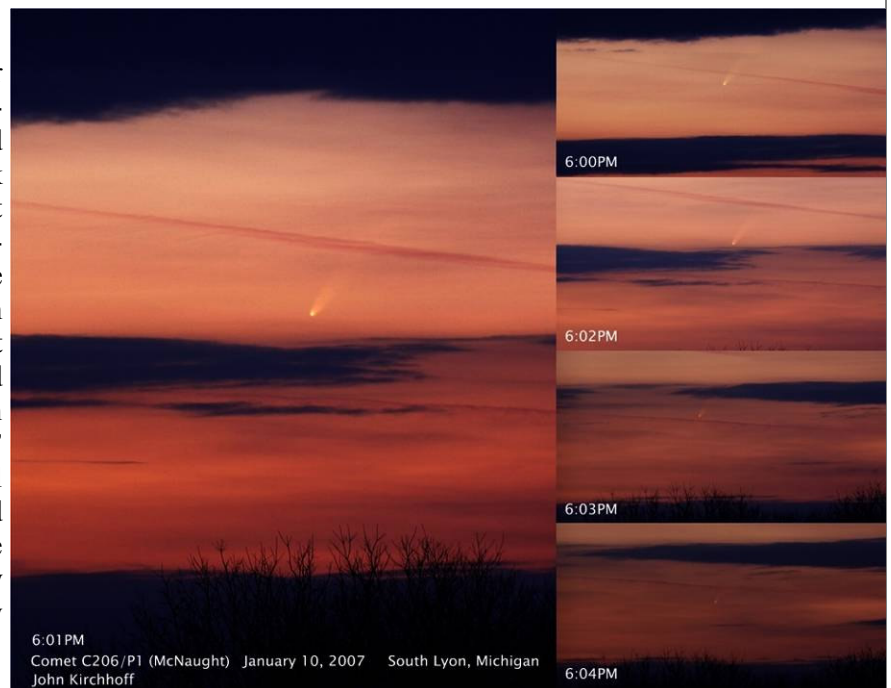


But that all changed on January 10, 2007 when the skies of Southeast Lower Michigan opened up for one last chance to see the "Brightest Comet of the last 30 years" as some overly enthusiastic "science reporters" were saying. All day long the sky was totally cloudless and about 2:00pm, I received a call from a rather excited John Causland telling me that we should try and see this comet tonight right after sunset and after some confusing discussion we decided to meet on the top of the toboggan hill at Leslie Park around 5:30pm. I arrived with my 10x70 binoculars and climbed to the top of the hill just in time to see a number of wide bands of thick clouds moving right into the area where the comet would be. These clouds and the setting sun made for an incredible sunset but really threatened our chances of seeing this comet. Michigan astronomy is at best hit or miss and during

the winter months almost completely non-existent. As I watched the setting sun throw up a crimson solar pillar against the dark purple-blue backdrop of the ever increasing bands of clouds, I remembered my cell phone had a small camera built into it. Although, only 1.3mp resolution I decided to try and capture a couple of images of this incredibly beautiful sunset.

Just as the quickly as they formed the solar pillars disappeared and just then Jack Brisbane showed up with his binoculars and tripod hoping to get a glimpse of this comet too. Jack and started to scan the area where the comet should be and through our binos we saw nothing but clouds. But there was still a chance that these bands of clouds would split open enough for a quick look at this comet. Then it happened just as John Causland pulled up and was getting out of his car Jack and I both shouted almost simultaneously, "THERE IT IS!!!" John and his guest climbed the little hill and joined us just as the comet disappeared behind a thin cloud band. It would be a minute before it peaked out again, but when it finally showed itself all of us got to see a truly beauty of a comet.

Words never seem to convey the excitement or pleasure that astronomical sights instill in the observer and images only come close, so my advise to those of you who want to feel the same as the four of us did that cold early evening of January 10, 2007, is get active and keep looking at every opportunity our finicky Michigan weather gives us. Persistence pays off! And for the rest of you who are satisfied with words and images here are a few of both.



6:01 PM
Comet C206/P1 (McNaught) January 10, 2007 South Lyon, Michigan
John Kirchoff



Robert McNaught's picture of Robert McNaught's Comet C/2006 PI 2006 taken on January 20, 2006—Image used with permission

Searching for Supernova Remnants on Superior's Shore

or How We Celebrated our 25th Anniversary

By Kurt Hillig

There are ideas the human mind cannot wrap itself around, however hard it tries; there are things too big and things too small, things too old and things too new, things too simple and things too mysterious. But we are human, and still we try...

Ten billion years ago: The sky (before there was a sky!) was filled with lights unimaginable, celestial fireworks on a scale beyond comprehension; cinders strewn on vast yet ephemeral winds, whence came all that we now see and feel and taste and touch.

Five billion years ago: Smoke and ash, dust and vapor; whirling, swirling, roiling, boiling, cooling, condensing, colliding, congealing, fusing.

One billion years ago: A world covered with smoke and shadow, molten rock flowing through torn crust spreads like molten fudge poured onto a marble table before the confectioner starts to work it. Rain falls on hot rock: dissolution, percolation, precipitation, crystallization.

One hundred million years ago: The slowest of collisions raises mountain chains, bends rock, warps continents, reshapes the Earth. Water continues to refine, to reform.

Ten thousand years ago: Retreating ice has dropped the fragments that advancing ice had carried. Advancing men find fragments of a strange material: heavy and cold, malleable and lustrous, easy to shape and hard to break, colored sometimes like the moss or the grass or the trees, sometimes like the sunset, sometimes like blood.

One hundred years ago: Men have delved deep by the light of candles using the power of sweat and sinew, fire and water and steam. Men have built great engines and opened vast caverns. Men have strained and suffered, and many have died, but the prize some have won is star-stuff.

One hundred days ago: Two specks, on a speck, orbiting a speck, lost amid a hundred billion other specks, set out on a journey to find shards and fragments of the primordial cataclysm.

Imagine a sheet of paper ten feet wide and forty feet long; color it red so you can find it again, then lay it flat on top of a stack of paper a foot high. Pile another two or three inches of paper on top of this, then push in the edges of the pile (a half-dozen Caterpillar D7 bulldozers would do nicely) so it curls up at the sides, forming a long trough. Fill with water, then stretch to a hundred miles wide, bend it into a shallow U and call it Lake Superior. The near edge runs from Ironwood through the Keewenaw to Copper Harbor before dropping under water and turning to the south; the far edge is mostly submerged save for Isle Royale. And that one thin sheet is now twenty feet thick and dives down into the ground at a fifty degree angle...

For years beyond record people have gathered copper from the rocks by the shores of gichi-gami; and we have joined the throng. The search is slower now, the prizes smaller, the rewards now found in the beauty of miniature prisms and needles, of metallic feathers and threads, rich colors and sparkling crystals; epidote and microcline, calcite and quartz, prehnite and datolite and chrysocolla. And, occasionally, nuggets: hard and heavy and malleable, colored like the moss or the grass or the trees, or sometimes glowing like the sunset. And we wonder how and why...

My Passion

*What do you see when you look in the sky at night,
Do you see the stars or do you see the unwritten history,
I see them burning their way through time with all their might,
And the stories they tell in all their mystery,
They tell us of stories of things long since past,
Of gods, warriors, battles, heroes and fanatic beasts,
The need for these tales is gone but they still last,
They are now there for your eyes to feast,
While eyes are feasting I am searching, looking and finding,
For the things that eyes do not see, things that might not be,
I find myself so far back in the beginning winding,
My way though history just so I can see,
How and why it begin, in all it's wonderful mystery,
That is my dream, my passion to work my way though history.*

By: Angelika Cardew

Grab-and-Go Scope Review

By Christopher Sarnecki

I have owned only two scopes in probably over a dozen years of observing, a 13-inch Coulter (that I liquidated to purchase...) and an 18-inch Obsession. To me, size matters. Having said that I have come to the conclusion that I needed a grab-and-go scope that can be used for back yard observing and perhaps to join in some ACNO observing (Don't worry, the 18 is alive and well, and still gets my full attention). I was considering obtaining one of the many new 80 mm refractors that are on the market, but as Doug Scobel indicated -"its still only 80 mm of aperture". That comment made me think of what I really wanted. A grab-and-go scope had to be...

- Small enough to pick up and move.
- Easy to set up and start observing. That means a dobsonian.
- For me, some aperture with preferably a medium to long focal ratio, because I wanted to do lunar observing from my backyard.



I recalled years ago using the club's Cave 8-inch f/6 scope, and thought that a similar scope would make a great grab-and-go scope. I started reading on the web and looking in old Sky & Telescope magazines when I happened upon the Orion SkyQuest line of scopes. Making a long story shorter, I could not help noticing the SkyQuest XT 8 Classic appeared to have what I was looking for. This scope is an 8-inch, f/5.9; and, at \$370 bucks plus shipping, was very affordable. Unpacking - Got home Friday afternoon to find some FedEx footprints coming up the driveway. Two Orion boxes, one large and one small, arrived. Yippee! Commenced to open the big box expecting to find the accessories in it. Located the Sirius Plossls 25 MM and 10 MM eyepieces. Evidence of multi-coated surfaces are showing green. Next found the LaserMate Deluxe collimator. This unit is designed to allow observing the beam return while adjusting the primary at the rear of the scope. I turn it on and notice a big fat beam. Concerns abound as I wonder if this collimator will be accurate. I locate the 9x50 correct-image right-angle finder scope (a recent upgrade from the 6x30 finder).

Those that know me know I like this type of finder (see previous article on an Antares 8x50 correct-image right-angle finder scope at: <http://www.umich.edu/~lowbrows/reflections/2002/csarnecki.12.html>). I have seen the Orion 9x50 right-angle finder scope on the 'Hill' previously and found it to be a very nice little finder scope. Nestled in the bottom to the tube box are Orion's DeepMap 600, a couple Starry Night CDs, and printed instructions.

Now it was time to open the small box and assemble rocker box so I would have something to set the tube on when I pulled it from the tube box. It is worth mentioning that the plastic laminated particle board rocker box panels are very well packaged and protected. The rocker box goes together in about 15 minutes. One gets the impression that everything including the rocker box is well thought out. Fasteners are high quality oversized non-corrosive hardware designed to connect in to particle board construction and transfer loads. The plastic bearings are lightweight square pieces stapled to the ground board and altitude bearings points. A Sky & Telescope article recommends sanding these to allow them to ride smoother. Another common recommendation is to add plastic milk bottle washers to the azimuth bolt to transfer some of the weight from the ground board bearings to the washers. After aggressively polishing off a gallon bottle of milk, I cut out four plastic washers and add them to the ground board bolt. The resulting azimuth movement can only be described as 'buttery'. If you own a dob, you really should do this as the azimuth movement is improve immeasurably.



With the rocker box assembled, it is time to liberate the optical tube assembly (OTA) from the packing box. I should say, boxes, because Orion places the tube in a double cardboard box supported at each end and mid-point by oversized styro-foam blocks. The black metal OTA is very well thought out, with substantial castings supporting the primary and a snap on cover that looks like it is

bullet resistant. The 2-inch Crayford focuser is a monster with brushed aluminum focus wheels with rubber inserts. The mirror cell has nice knurled knobs well placed for adjusting the mirror, and is prepared for a cooling fan attachment (future upgrade). Will the Lowbrow with the 9-volt battery powered muffin fan please step forward? The spider is a nice narrow 4-vaned style unit, upgraded from a 3-vaned unit.

It was now time to collimate the optics. Wondering how the Orion laser collimator would work, I slapped the unit in to the focuser and turned it on. In the optic path, the red laser produced a narrow beam, although not as nice as a Howie Glatter unit, but hey; this was a far more economical acquisition. The collimator has a feature to allow one to adjust the primary cell at the rear of the OTA while observing the return beam in an angled 45 degree white reflector in the collimator itself. But first one has to use a tiny Allen wrench to adjust the secondary.



Intermission

Atwater Block Brewery, Detroit MI, Vanilla Java Porter - Bursting with a full vanilla and java flavored belt, this Detroit porter could be a replacement for your AM joe.

Victory Brewing Co., Downingtown, PA, Storm King Stout - Pours black as night at BFSP. At 9% ABV, a couple of these could dark eye adapt you pretty quick.

Nine G Brewing Co., South Bend, IN, Blacksnake Porter - Delivers an upper cut to your palate with a nice little bitter ending.

First Light - As luck would have it, and I do mean luck in mid-January Michigan weather, it was clear! Having set the newly assembled scope in the garage to cool down for a half hour, it was time for some first light. Yippee again! The Moon was just past first quarter, so I plopped the 25 mm Plossl in to the eyepiece and located the object. Sweeet. The 25 mm gave about a degree worth of field, and as they say, the Moon never disappoints. I reminded of the saying "A small tree in ones backyard is larger than the biggest redwood in the forest". This little scope was a real performer. Using the Moon as a found object, I centered the finder scope and attempted to focus it. No luck in figuring the focus on the finder. Guess I'll just use some dead reckoning to locate the next object, the Orion nebula. After all this is Orion's scope. The nebula's green glow forms the 'fish mouth' and fills the one degree field of view. At almost 50 power, the eyepiece shows the trapezium stars nicely. Time to swap out eyepieces and try the 10 mm (120X). Mm, stars are not so pin pointy. Run in the house to grab the 7 mm Nagler for some comparison viewing. You might wonder about using an eyepiece in a scope that cost almost as much as the scope. However the Nagler stars are also not very sharp. Reminded that I should star test the optics, I move over to Polaris. In simple terms, star testing the optics involve de-focusing a moderately bright star on both sides of focus equally to set how the two images compare. Attempting to de-focus Polaris, I realize why stars are sloppy. The scope hasn't yet cooled down properly. Not to be deterred, I proceed to Sirius. In the dark, I manage to figure out how to focus the finder scope. Grabbing the Pocket Star Atlas (highly recommended) I am on to M47 and M46. Using the 25MM eyepiece, M47 pops in to view. Nice pin point stars. With the correct-image right-angle finder scope, I navigate to M46. Somehow it is not as easy as I thought. The transparency isn't very cooperative, what with a plus first quarter Moon and winter transparency. Next up is M35. Together with the Pocket Star Atlas and the correct-image right-angle finder scope, I can't lose. M35 stars flood the field of the 25 mm eyepiece. Notice some smallish clouds booking it through my local sky. Since I am at M35, I'll try NGC 2158, an 8 1/2 mag open cluster shadowing M35 at over 5 times the distance of M35 from our vantage in space. Can't locate, so I back up to M35. All of a sudden I can't find any star. It seems that a cloud front moved in, and first light was canceled by Mother Nature. Such is winter observing in Michigan. Oh, well. It was good while it lasted. I did come away with an appreciation that the optics are fine. Will leave a more detailed evaluation for the next time out. Summing up - A label on the side of the Orion SkyQuest XT 8 Classic indicates it is designed in the USA and manufactured in China. It is a well designed scope at an unbelievable value for your money. I read in scope reviews that scope prices don't go down over time, but your do get more for your money. This scope was initially listed at \$499 bucks in 2000, and with less accessories. In early 07 this same size scope with several added accessories is listed for less. Orion has continued to upgrade the scope with a larger 9x50 correct-image right-angle finder scope from the previous 6x30 straight-thru finder, a 2-inch Crayford focuser replaces the older rack-and-pinion focuser; and, adding a laser collimator to round out the offering.

As a permanent sufferer of aperture fever, I am glad I got the 8-inch. For \$180 bucks more one can get the 10-inch (\$500 more for the 12), but this scope weighs in at 55 pounds (81 pounds for the 12-inch) instead of the 41 pounds of the 8-inch. Doesn't sound like a lot, but lifting the 8-inch, I realize I am not as young as I think. The 8-inch is the limit of my lifting. Am I happy with my selection? You bet. Any new scope should open up or re-open up the Universe all over again. I can't wait to get out there.

Unadulterated Apollo

By Norbert Vance

Prior to Christmas I discovered on Amazon.com several DVD sets of each Apollo lunar mission released on six (or less) disks per set which present the complete TV transmissions, onboard 16mm film, and select audio transmissions from pre-launch to mission review. Produced by Spacecraft Films in 2005, the material has been pulled from the preserved masters and enhanced with the latest restoration techniques.

This represents typically twenty or more hours of pure Apollo for each mission... no Tang commercials, no voiceovers or interruptions by journalists, no commentary at all- excellent!

As great as it is to see these historic missions one has to remember the video is from 1960/70 vintage stock. A few (perhaps young) reviewers on Amazon lamented that there "wasn't much action" or the views were fuzzy, yikes! The television was state of the art for its time, the prototype for all home video cameras to come, and the astronauts would only occasionally break from their NASA-induced serious demeanor to have some fun. They were kept busy by an overwhelming timeline. For an Apollo junky like me, it was an elixir. I felt myself pulled back to the time when I starved for as much as the meddling networks would show. Here, we see it ALL, unfiltered! And, yes, the astronauts even occasionally cursed when an experiment wasn't going just right or the terrain was a bit too rough. Who knew?

The TV transmissions from the last three landings were mainly those remotely controlled via the lunar rover from NASA in Houston. I happen to have "Apollo 15: Man Must Explore" and "Apollo 16: Journey to Descartes".

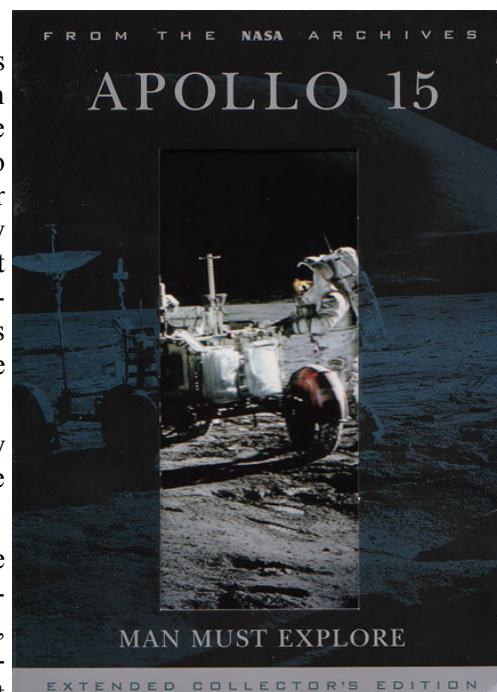
The difference between the two missions is interesting not just because of the nature of the crews or the landing sites but the sense that NASA gained experience with each mission in what to show via TV, how to use the remote camera, and where they aimed. As one would expect in Apollo there is a distinct improvement in both quality and coverage from A15 to A16. I can't wait to get my Apollo 17 set which is on backorder as I type, argh!

The beauty of modern technology is the fact you can fast forward or rewind to any spot, any point of interest, almost as if you are controlling the camera yourself. Several scenes, especially the Saturn V launches, employ the "select angle" feature which gives you multiple camera views of the same event, as many as 8 different views at times. I'm sure my neighbor is wondering why it sometime sounds like a Saturn V is taking off every two minutes in my condo. The sound shakes the building. The lunar EVA's are indexed by station or stop along the astronauts' busy journeys on the surface. I delighted in seeing them toss equipment packaging off into the distance in the low gravity or ponder a rock that had been sitting undisturbed for billions of years. This is "must see TV". I heartily recommend that these video journals find their way onto any science lover's bookshelf, to be watched when the urge strikes. I can't wait until we return to the moon once again using today's video technology. I'll be in the front row, popcorn in hand, ready to soak up some more!

(This day after Norbert sent me this article, he e-mailed the following:)

I went upstairs here at work this morning and found my backordered DVD set for Apollo 17 had arrived. Over lunch I excitedly zipped through several of the DVD's, yet another 6 of them, smartly packaged in a thinner more streamlined case, and with excellent pictures on each disk and the booklet. As expected, the video is of even higher quality than Apollos 15 and 16 showing in far more detail than those missions just how rugged and jumbled the surface of the moon is. The night launch angles are excellent, and right from the first EVA with flag deployment you can really see how much Apollo TV had improved by December 1972. The crew of Gene Cernan and Harrison "Jack" Schmidt are the most animated and gleeful of them all, and Jack's scientific/geological background truly shows through in his descriptions of the surface. Watching Cernan's high step gait while singing "hippity hoppity, hippity hoppity" is a real hoot. This will be fun to watch when I can sit back and sift through it all....

Norbert



Lost on the Moon

By Lee Vincent

As Michigan weather would have it, whenever we have clear skies, it seems like there's just enough moonlight to wash away the faint fuzzy objects that we've been longing to see. Whenever this happens, I simply turn my scope toward the very object that seems to be spoiling the party—the moon.

The only problem—as a true novice, I am totally lost. Yes, of course, I know a crater when I see one, but what crater am I looking at?

About a year ago, I picked up a nice laminate 'moon map' that I can have with me at the eyepiece. Seemed like the perfect solution, right? Wrong, no matter what scope I'm looking through, it's either flipped left for right, up for down, well you get the picture. As a result, it was nearly impossible to figure which way to rotate the map in order to have the same axis orientation as the image I was seeing through the eyepiece.

"Mental gymnastics like this will keep my mind sharp" I kept telling myself, but at 10:00 at night in 20 degree temperatures, my mind is too old to keep up.

The solution: "The Virtual Moon Atlas". I recently stopped by the Ford Club's annual swap meet in Livonia. One of their club members, Jim Frisbie, gave a presentation on binocular observing. As part of his presentation, he demonstrated a FREE software program called the Virtual Moon Atlas. Wow! I couldn't believe it. This is just what I needed.

Here are just a few of the particulars:

1. With just a touch of a button, I can flip the on-screen image of the moon to exactly match the 'left/right, up/down' image of my scope.
2. Another button allows me to rotate the on-screen image to exactly match the axis orientation that I'm seeing through the scope.
3. If I want to see what points of interest are along the terminator, I simply select the 'Terminator' tab and the 'Interest' level (pretty interesting, very interesting or exceptional) and up pops a list of names items to visit.
4. From there, I can click on the item I'd like to see, and it pin-points it on the moon map.
5. Click another button and the item is centered on the screen.
6. Another button enlarges the map image to more closely simulate the eyepiece image.
7. One tab gives me a wealth of information about what I'm looking at.
8. There's a note tab that allows me to add my own brilliant observations
9. If you really don't want to have your notebook computer sitting next to you at the scope, just print out a fully labeled image and other information to have at scope-side.
10. The best part--it's free!

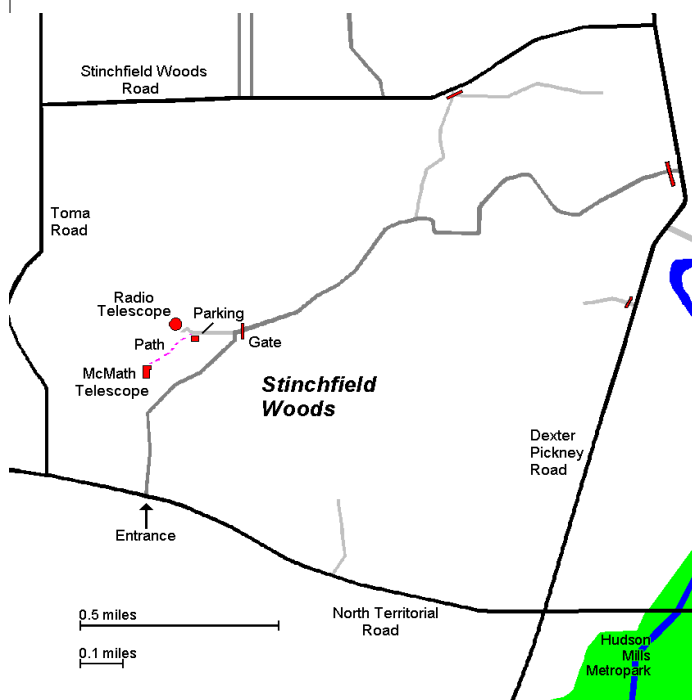
To download: I Googled "Virtual Moon Atlas" and hot-linked from there. It took about 45 minutes to download while I read and returned email. I believe it takes up nearly a Gig of disk space for the full version, but worth every byte.

Well, I still look forward to nice dark, moonless nights. Hey, while I'm dreaming let's throw in 72 degrees and bug-less too. Until that happens, at least I have the moon to explore and when I do, I'm not quite as lost as I used to be.

Places & Times

Dennison Hall, also known as The University of Michigan's Physics & Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. Dennison Hall can be found on Church Street about one block north of South University Avenue in Ann Arbor, MI. The meetings are usually held in room 130, and on the 3rd Friday of each month at 7:30 pm. During the summer months and when weather permits, a club observing session at the Peach Mountain Observatory 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" telescope which is maintained and operated by the Lowbrows. The observatory is located northwest of Dexter, MI; the entrance is on North Territorial Rd. 1.1 miles west of Dexter-Pinckney Rd. A small maize & blue sign on the north side of the road marks the gate. Follow the gravel road to the top of the hill and a parking area near the radio telescopes, then walk along the path between the two fenced in areas (about 300 feet) to reach the McMath telescope building.



Public Open House / Star Parties

Public Open Houses / Star Parties are generally held on the Saturdays before and after the New Moon at the Peach Mountain observatory, but are usually cancelled if the sky is cloudy at sunset or the temperature is below 10 degrees F. For the most up to date info on the Open House / Star Party status call: (734)332-9132. Many members bring their telescope to share with the public and visitors are welcome to do the same. Peach Mountain is home to millions of hungry mosquitoes, so apply bug repellent, and it can get rather cold at night, please dress accordingly.

Membership

Membership dues in the University Lowbrow Astronomers are \$20 per year for individuals or families, \$12 per year for students and seniors (age 55+) and \$5 if you live outside of the Lower Peninsula of Michigan.

This entitles you to the access to our monthly Newsletters on-line at our website and use of the 24" McMath telescope (after some training).

A hard copy of the Newsletter can be obtained with an additional \$12 annual fee to cover printing and postage. Dues can be paid at the monthly meetings or by check made out to University Lowbrow Astronomers and mailed to:

The University Lowbrow Astronomer c/o Kathy Hillig

**7654 W. Ellsworth Road
Ann Arbor, MI 48103**

Membership in the Lowbrows can also get you a discount on these magazine subscriptions:

Sky & Telescope - \$32.95 / year

Astronomy - \$34.00 / year or \$60.00 for 2 years

For more information contact the club Treasurer. Members renewing their subscriptions are reminded to provide the renewal notice along with your check to the club Treasurer. Please make your check out to: "University Lowbrow Astronomers"

Newsletter Contributions

Members and (non-members) are encouraged to write about any astronomy related topic of interest. Call or Email the Newsletter Editor: **Mark S Deprest (734)223-0262** or msdeprest@comcast.net to discuss length and format. Announcements, articles and images are due by the 1st day of the month as publication is the 7th.

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Lowbrow's Home Page

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

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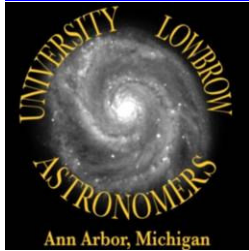


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Reflections & Refractions



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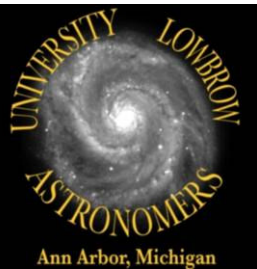


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f=135mm 1 sec 100 ISO

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10-01-2007 16:17 UT

B. Leitner Graz/Austria
www.kometarium.com

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