



# REFLECTIONS AND

# REFRACTIONS

OF THE UNIVERSITY LOWBROW ASTRONOMERS

March 2005

## Upcoming Events March 2005

- **Friday, March 18, 2005.** (7:30 pm). Monthly Club Meeting. Fred Schebor (University Lowbrow Astronomers): "Artsy, Meaningless Slide Show."
- **Saturday, April 2, 2005.** May be cancelled if it's cloudy or too cold. (Starting at Sunset). Open House at Peach Mountain.
- **Saturday, April 9, 2005.** May be cancelled if it's cloudy or too cold. (Starting at Sunset). Open House at Peach Mountain.
- **Friday, April 15, 2005.** (7:30 pm). Monthly Club Meeting. Election and Swap Meet.
- **Saturday, May 7, 2005.** May be cancelled if it's cloudy or too cold. (Starting at Sunset). Open House at Peach Mountain.
- **Saturday, May 14, 2005.** May be cancelled if it's cloudy or too cold. (Starting at Sunset). Open House at Peach Mountain.
- **Friday, May 20, 2005.** (7:30 pm). Monthly Club Meeting. Mark Deprest (University Lowbrow Astronomers) Topic to be Announced.

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*Back Cover: Exceeding the Tasco  
Limits*

# Paying Forward (Or, How I Got Started in Amateur Astronomy)

*by Doug Scobel*

When you think about it, paying someone back for an act of kindness is pretty easy. After all, you're simply treating someone the way they treated you. But that original act is a little more difficult to do. You have to "pay forward", not knowing how it will be received or if anything good will come out of it. But I was a direct recipient of just such an act, and that's how I got started in amateur astronomy.

Growing up in Detroit in 1969, when I was 14 years old, a neighbor (his name was Ed) from across the street came over one day and asked me if I would like a telescope. They were moving and they were trying to clean out their house beforehand. Now being 14 years old, and not being acquainted with "real" telescopes, naturally I'm thinking to myself that he's talking about one of those cheap little 60mm refractors you see in Sears and KMart and other department stores. So I tell him "Sure, I'll take it". He goes back across the street and comes back, wheeling (what I considered at the time) a HUGE, homemade 6-inch f/8 reflector, on a heavy duty machined pipe mount! Then he goes back home again and brings back a big box full of astro-goodies, including eyepieces, a copy of Norton's Star Atlas, Sky and Telescope magazines, mirror making materials, Edmund Scientific books, and a copy of Allyn Thompson's how-to book "Making Your Own Telescope". I think I just stood there with my mouth agape. Not knowing quite what I was looking at, I start asking questions. That's when Ed tells me that there's a catch. The catch is that the scope is almost complete, but there was no primary mirror. "Mirror?" I thought to myself, "I thought telescopes have *lenses*, not mirrors." To make a long story short, Ed had spent countless hours building everything, including grinding and polishing the primary mirror. He was in the final figuring stage, and while attempting to star test it uncoated in the telescope to verify the accuracy of the figure, he dropped it and broke it. In an instant, several months worth of pre-



cious spare time (he and his wife had three small children who kept them very busy) flushed down the toilet! He just didn't have the heart or energy to attempt to do it over, so he gave it all to me, hoping I could make use of it.

Now in those days commercial mirrors were more expensive than they are now (when you take inflation into account), so most folks made their own. After reading through Thompson's book umpteen times, I decided that maybe I could do it myself. I got my sister to take me down to Polaris Telescope Shop, on Michi-

gan Avenue in Dearborn, and I bought a six inch mirror making kit. I somehow obtained a 55 gallon drum and made my first mirror in my garage that summer. I was working alone with only the book to guide me (Ed and his family had moved away by then), so it ended up at  $f/9$ , I couldn't get the curve deep enough. Made my first Foucault (pronounced *foo-co*) tester, a crude little thing, but good enough to see the shadows described in Thompson's book. I don't think it was that good of a mirror, but it came out decent enough. I took it back to Polaris to be sent out for coating, and it wasn't long before I got it back. With its fresh aluminum coating, it was a thing of beauty, at least to me! After installing it in its cell, and the cell in the tube, and roughly aligning the mirrors (gotta love  $f/8$ 's!), it was time for first light. I don't remember how long I waited for that first clear night, but as luck would have it, the waxing crescent moon was up in the west, so naturally I had to look at it first. "Unbelievable! It looks just like the photographs!" After studying it for a while and reluctantly letting family members and neighbors take a look I was eager to see what a star looked like. I was so green I had no idea what was up there, just a bunch of stars. "There's a nice bright, yellowish one in the east, I think I'll try that." After a little struggling to get the thing aimed, I brought it to focus. Then I just stared in disbelief. "Saturn! Look at the rings!" It was spellbinding, making it difficult to tear myself away from the eyepiece to let others see it. What serendipity, the first two things I looked at through that scope were the Moon and Saturn, arguably to two most spectacular objects you can look at through a telescope. Keep in mind that up to this point I had never looked through any telescope of any size or quality, so it's quite an understatement to say that the views left an impression. I just couldn't believe my eyes! Needless to say I was hooked, and the rest is history.

Fast forward to today. I've long since rebuilt that scope, so that little of the original remains, but I still have it. In the mid-1970's I replaced that first  $f/9$  mirror with an  $f/8$  mirror from Coulter, and reground the  $f/9$  into an  $f/4.5$  (yes, I learned how to deepen the curve). I still have that Coulter mirror; it is very well corrected and it performs very well. It still has its original coating, which still looks good. I've replaced the tube, and the finder, and eyepieces, but I still consider it the same scope. But, I haven't used it in a couple years after "stealing" that old but solid pipe mount for my 8-inch  $f/8$  "Mars Scope" that I built for the 2003 opposition.

Making good use of that mount made me think of Ed, wondering what had happened to him, since I had not seen him in more than 30 years. He probably had no idea what his selfless act meant to me, so last year I looked him up on the Internet, and wrote him a letter. I explained to him where that scope and the others that followed have taken me, and all the wonderful sights I and countless others had seen through it, and that I owed it all to him. In his reply I learned that he had fallen on some hard times, but he was extremely gratified that something good came out of his gift. I hope to keep in touch with him in the future. He definitely "paid forward", and for that he has my gratitude.

But this story isn't over. When I get some spare time I hope to make a simple Dobsonian style mounting for that old scope, and look for my own opportunity to pay ahead by donating it to some other deserving person. Maybe someone who doesn't know what a "real" telescope is. Then who knows what celestial journeys will be taken and what stories will be written in another thirty some-odd years? ●





# A Tale of Two Observatories

*by Dave Snyder*



It begins with a phone call from my sister. A few years ago it was “How would you like to go to China?” More recently it was the Virgin Islands, Oregon, New York, Europe, Vermont (I’m convinced she was a travel agent in a previous life).

In my last article I told you about my trip to New York, this time I’m going to tell you about two other trips and some observatories I saw along the way.

My sister and brother-in-law are part owners of a condo in Sunriver, located in central Oregon; going to Sunriver has become an annual ritual for us. There’s lots of things to do there, but I’ll focus on just one, the Sunriver Observatory (shown in the photograph above).

The building is about the same size as our McMath telescope building. Like our building there is roof which can be moved from closed to open (it is par-

tially open in the photograph); unlike our building the roof is pitched and there is a dome.

Your first question should be, “how dark is the sky?” Surprisingly dark. There are several reasons for this.

1. Sunriver is a planned community with a very effective light pollution ordinance. The observatory is a quarter mile or so from town, and trees block the small amount of direct lighting that otherwise might reach the observatory.

2. Sunriver has numerous bike and walking trails. Residents are more likely to bike or walk to destinations and they make less use of cars than is typically the case in similar communities. That means less light from cars and street lights. In case you are wondering, every time I’ve visited the observatory, I’ve use a bike. I don’t use a bike around Ann Arbor.

3. Central Oregon has a low population density. The listed population for Sunriver is 5144, however I suspect that rises during summer and declines in winter. The nearest city is Bend, 15 miles to the north with a population 50,649. Bend does not have a light pollution ordinance, however there is an extinct volcano between Sunriver and Bend which appears to block a lot of light.

4. The climate in Central Oregon can be described in one word: dry. In Ann Arbor, we continually have problems with clouds or fog that are ultimately caused by moisture from Lake Michigan. Moisture is much less of a problem in Central Oregon. (Don’t confuse the climate in Central Oregon with the climate in Coastal Oregon, areas along the coast such as Portland can be best described as cloudy and wet). As you can see in the photograph, cumulus clouds sometimes occur during warm summer days (as is the case in Ann Arbor), but they generally disappear after sunset. The stratus clouds that we’ve grown to hate are less frequent than in Michigan.

(Unfortunately the lack of water leads to another problem, forest fires. On one of our visits, there was a forest fire, thankfully a healthy distance from us. However the smoke blackened the sky for a while. In case there was any doubt about what was happening, pieces of burnt wood starting raining from the sky. Later on we found these pieces of burnt wood everywhere).

On the other hand the horizon is not perfectly flat. The biggest obstruction is Mount Bachelor (9,065 feet), 18 miles to the west. And there is the Volcano to the north. However I haven't noticed this being a big problem.

The observatory is run by what is known as the "Sunriver Nature Center & Observatory." They have a mixture of paid staff and volunteers. The Observatory's purpose is to present the night sky to the general public and to provide educational programs for children. As far as I know, no one does scientific research here, but there is an amateur community that makes use of the observatory. Unlike us, they charge an admission fee to enter the observatory. There is a small gift shop (located near the observatory, but not visible in the photograph) that includes, among other things, a limited assortment of astronomy equipment.

The main telescope is a 20" Ritchey-Chretien, and they have a collection of smaller instruments. All of the telescopes, including the 20" were donated.

During July and August they have daily solar viewing, and night sky viewing 6 days a week. There are open houses in other months, but less often. In the summer they will have you sit on wood benches in front of the building (in the photograph you can see these benches arranged in a circle). The presenter will show you the Milky Way and the various summer constellations. Later you can look through the 20" or other telescopes set up nearby. If you are nice, they might let you borrow one of the Observatory's several 8" dobs (to be honest I haven't borrowed any of their telescopes, but apparently they encourage children to try their hand observing on the dobs)

These also have astronomy talks on a regular basis. Once a year, in July, there is the Mount Bachelor Star Party (held, as you might guess, at Mount Bachelor which as I mentioned earlier is 18 miles to the west of Sunriver). I've never attended so I don't know much about it beyond the information available on the web. It is hosted by Mount Bachelor Ski Education Foundation and the Sunriver Nature Center & Observatory.

You can find more information about the observatory at: <http://www.sunrivernaturecenter.org/>  
You can find more information about the Mount Bachelor Star Party at <http://www.mbsp.org/>

As I hinted above, Oregon is not the only place I've visited. A year ago, we took a trip through Switzerland and Germany.

One of the stops was the German town of Hildesheim. Shortly after we arrived, we took a walk through the woods and came across a tall tower (shown on the next page). You can get some sense of how tall it is by looking at the shape at the bottom of the tower; it is a door. At the top, there is an observatory dome. The Observatory has open houses, but we were only in Hildesheim for a couple days and did not have time to attend.

I was curious about this unusual structure. So I used Google to get more information.

I first tried entering "Hildesheim Observatory." That didn't work. I quickly realized that I needed to enter a request in German to find information about a German observatory, so I tried "Hildesheim Sternwarte." "Stern" is of course German for "star" and "Sternwarte" is German for "observatory." The result was a number of web pages, all in German. Google notices that they are in German and offers to translate them into English. Since my German is rusty, I accepted the offer.

If you try this, the pages you get are not perfect translations. These computer translations include awkward phrases that clearly were not written by a human, or at least a human who is a native English speaker. They often are difficult to interpret, however with effort you can figure out a lot as I was able to do in this case.

The tower has the name "Der Gelbe Turm" or "The Yellow Tower." The tower itself was built in the late 1800's and refurbished in 1996.

The telescope, a 600 millimeter Cassegrain, also dates to 1996. Coincidentally 600 millimeters is slightly less than 24 inches, so this is roughly similar to our 24 inch McMath Cassegrain, however the telescope has a more modern design than the McMath. As near as I can tell it never was a research instrument, but used solely for amateur observing, public open houses and the education of local school children. Unlike Sunriver, light pollution is a problem at this location (as it is in much of Western Europe). The web site I found was [http://www.vhs-hildesheim.de/gelber\\_turm/](http://www.vhs-hildesheim.de/gelber_turm/). However unless you are

fluent in German you'll need to use a translation service to read it. You might try repeating the procedure I explained above.

By the way, during the same trip, we spent a couple days in Mürren Switzerland. (I probably wouldn't have thought to include this if John Causland hadn't mentioned that he recently took a skiing trip to the same area). Mürren is located in the hills on the same mountain as Jungfrauoch, one of highest peaks in Europe (Jungfrauoch is the German name for the peak, but English maps often call it simply "the Top of Europe," even though that is not a reasonable translation of the word).

We did not visit it, but there is an observatory near the peak (the Jungfrauoch Observatory of course). The observatory is part of the logo of the Jungfrauoch Railway which bills itself as the highest railroad in Europe and offers rides to the peak (but tickets to the peak are expensive, the prices I've seen are about 160 Swiss Francs or about US\$130). If you travel through that part of Switzerland and look at your train ticket, you will see a picture of the observatory (there are no roads through these mountains, if you want to get to the peak you have no alternatives but

the train).

Unlike the two observatories I mentioned earlier, this one is heavily involved with scientific research. The formal name for the umbrella organization which runs the Jungfrauoch Observatory is the International Foundation High Altitude Research Stations Jungfrauoch and Gornergrat. It also runs another observatory, the Gornergrat Observatory located on a different mountain peak near the Matterhorn and roughly 80 kilometers south of Jungfrauoch.

There is more information about the Jungfrauoch and Gornergrat Observatories at <http://www.ifjungo.ch/>. Unlike the previous web site, this one is mostly in English (though I noticed they slipped and included an occasional German phrase and some of the links are to web sites in German). They are engaged in a number of research projects, only some of which are astronomy related. A quick look at the projects suggested to me they were primarily grouped into the following categories.

- Climate Change.
- Atmospheric Physics and Chemistry.
- Medical Research on High Altitude Sickness.
- Observations of the Sun. •





# Telescope Review: Orion StarBlast

*by Bob Gruszczynski*

As you all probably know, Joni and I are (OK, I am) in the process of revamping our telescope collection. After months of fooling around with the Celestron 925 SGT that Joni purchased before the last Black Forest Star Party, I determined that it was too much telescope for either of us to be moving around. It is a chore for me to lift the OTA onto the mount and polar align it, let alone Joni doing so on nights that I am not around. I have made a purchase that should give similar views and be easier to move around, and it will be the subject of at least two future newsletter articles.

I decided that it was time to sell all of the telescopes that would not be needed after the new acquisition, both to make more room in the house, and to finance the purchase of the new telescope. What I did not count on was the fact that having a smaller grab-n-go is still a "nice to have", but I had already sold the ETX-70. I decided to try out the Orion StarBlast 4.5" f4 Newtonian. Most of the reviews have stated that not only is it a great starter scope, but also is good enough to be a portable grab-n-go for serious astronomers. I wandered on out to Rider's Hobby where John K. was happy to accommodate my needs.

I got the telescope home and unboxed it. It was pretty much ready for action out of the box. One only needs to affix the "red-dot" finder and plop in one of the supplied (17mm and 6mm) Kellner eyepieces and you're on your way. Well, almost.

First things first. The collimation was WAY off. Now, a newbie setting this scope up for the first time would probably not know anything about this problem, and the instructions are fairly clear but most likely confusing to someone without experience. The only thing supplied with the scope for this purpose is a "collimating cap" which is essentially a poor man's Cheshire. The optical path was far enough out of line that it took me ½ hour to get it straight, with iterations of Cheshire-Laser-Cheshire-Laser until things were aligned. I don't know what the views would have been like without properly collimating it, but my guess is that they would not have been good.

Now, off to observe. First light came that very night (unusual for Michigan and a new scope). It was actually early (3 AM) the next morning and Jupiter was riding high. I set the little guy up on my roll-a-table, which is not all that stable, but, amazingly, everything worked out fine. I attempted to align the "red-dot" and found that, between the cold temps and operator error, I could not get it exactly aligned. It stayed about 1 degree under the target. So I used this fudge factor and motored on. The skies were not that great, with transparency ~ 6/10 and seeing ~ 4/10. Jupiter looked good, though, with both the supplied eyepieces (more on those later). I tried unsuccessfully to locate M65 & 66 but did spy some brighter galaxies in the Virgo cluster. I also stumbled across 81 & 82, which actually looked pretty good too. I was pretty satisfied for the first night out with this little "toy".

Next, improvement. I decided to add my Rigel QuikFind™ to the scope, which meant rotating the tube "upside-down", but it fit perfectly. I removed the "red-dot" finder for the time being and probably will never re-install it. Some people like them, and, like any other such item, I imagine that it is what you get used to that you use the most. After many nights with the PortaBall, I've become a Rigel guy. I threw out the Kellner eyepieces. No eye relief, and looking through the 6mm was worse than looking through a straw. More like looking through one of those little coffee stirrers. I decided that my next observing session would be with the Orion Expanse set.

Second light. Unbelievably, 2 AM the next night/morning was pretty much the same as the last, so I hauled the little scope back out and went to work. With the Rigel and the Expanse eyepieces, things were much easier to find and I saw lots of really great stuff. The "Realm of the Galaxies" was alive with puffs of far away star gatherings. I saw around a dozen, just scanning through the area with the 6mm Expanse, including M65 & 66. What a joy having a nice eyepiece with some decent eye relief. M81 & 82 were so much easier to find, and so much brighter.

The verdict. For a low cost starter scope, the StarBlast is definitely worth a look. The motions in both Alt and Az are reasonably good, and can be easily adjusted to taste. The optics, when properly aligned, are better than anything else I've seen in this price range. I did a star test on Regulus and the primary shows a very slight bit of coma where the optics might be pinched. Not enough to bother either me or the views. Planetary views looked good at 75x and were better than the ETX, and almost as good as the f10 C5 SCT.

***Negatives are:***

- The initial collimation, which may throw off the novice user.
- The supplied Kellner eyepieces – throw them away. I would rather see Orion up the price of the scope \$10 and throw in a decent 20mm Plossl.
- The “red-dot” finder is not for everyone.

***Positives are:***

- Great optics for the price.
- Light weight.
- Ease of use.

I have a feeling that I'll be using this scope a lot when I'm in the mood for observing at the same time the laziness bug bites. ●

## Eye to Eyepiece

The eye is a digital device, in that the image it forms by rods and cones is made of discrete bits. It's hard to see this, except in paintings by Georges Seurat, who may have imbibed a bit too much of the neurotoxin absinthe. Normally, the brain processes all of that discreteness out of the picture, but it's really still there, if only in the form of limiting resolution. A telescope has a limiting resolution too: a point at which objects get bigger but not clearer. What do you get when you set these two to be equal? Eleven power per inch of aperture. That is the magnification at which your eye can see all of the detail that the telescope presents. For a three inch Tasco, that happens at 33 power. However, most people like their viewing to be a bit more comfortable, and may double or triple this value. If you are an ad writer for department store telescopes, you may recommend an even greater degree of comfort to your customers. ●

## Migrating to Digital

So far, several Lowbrow members have requested that they receive Reflections digitally, reliably, and inexpensively, over the Web. Many thanks to those who have chosen to do this. We hope that you are enjoying better reproduction of the text and photographs than the photocopying process permits. We are also looking forward to others making this choice, if possible, because by not publishing hard copies, the club saves a considerable amount of money. We also save trees, fuel, and human labor by publishing electronically. Receiving the newsletter electronically may not be the best choice for everyone, but for those who can, we offer our sincere thanks. ●

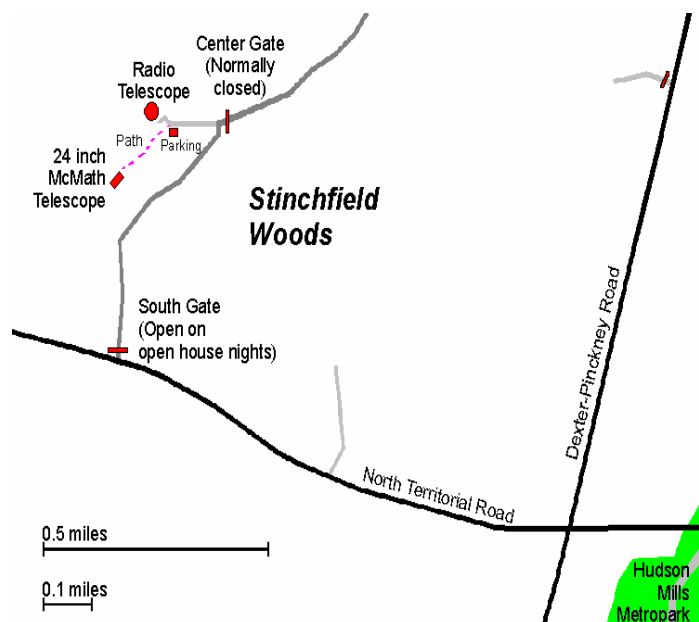
## April Elections

April is not only the cruelest month, it is also the month for electing the Lowbrow officers. (Is there a connection, we wonder?). Nominations for officers are normally received at the April meeting, and are then voted upon immediately, to keep the pain level low. If you would like to be an officer, any officer, you can find out if you qualify (are you breathing as you read this?) by talking to either Kathy Hillig or Charlie Nielsen. We need a few good Lowbrows, and perhaps you are the very one to fill that awkward gap left by departing officers. All offices are up for grabs, and the pleasure of being able to tell your friends that you were elected to an office should easily outweigh any of the slight inconveniences involved in actually performing the officer's duties. We hope you will attend, we hope you will run, we hope you will vote, we hope you will serve. ●



## 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 4332-9132 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 at the monthly meeting or by mail to this address:

Kathy Hillig  
7654 W. Ellsworth Road  
Ann Arbor, MI 48103

## Magazines

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

Sky and Telescope: \$32.95 / 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".

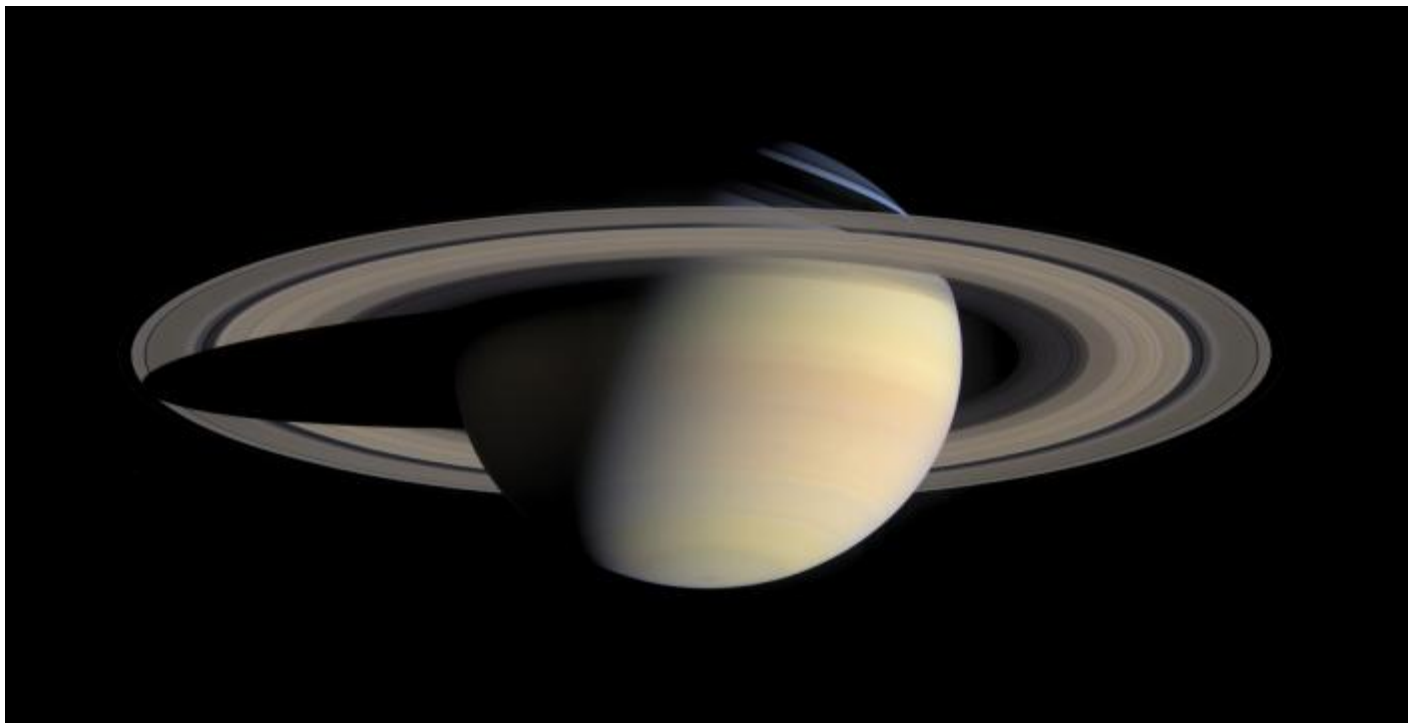
## Newsletter Contributions

Members and (non-members) are encouraged to write about any astronomy related topic of interest. Call or Email to Newsletter Editor at: John Ryan (734) 662-4188 [allegheny@mac.com](mailto:allegheny@mac.com) to discuss length and format. Announcements and articles are due by the first Friday of each month.

## Telephone Numbers

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**Lowbrow's Home Page**  
<http://www.umich.edu/~lowbrows/>



This picture of Saturn by NASA should dispel the unfortunate criticism leveled by some uninformed “experts” about what you can see with a three and a half inch telescope.



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Check your membership expiration date on the mailing label.