

REFLECTIONS



of the University Lowbrow Astronomers

September 1999



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



1999 JM8: A Rock Too Close

Credit: L. Benner (JPL) et al., NAIC, NASA

<http://antwrp.gsfc.nasa.gov/apod/ap990901.html>

Explanation: Nearly four kilometers across, the huge rock known as 1999 JM8 silently passed only 8.5 million kilometers from the Earth in early August. The small asteroid was completely unknown before May. Every few centuries, a rock like this impacts the Earth, with the potential to disrupt modern civilization. Radar from two of the largest radio telescopes, Arecibo and Goldstone, tracked and imaged the Apollo asteroid as it approached to only 22 times the distance to the Moon. Although 1999 JM8 missed the Earth, thousands of similar but unknown asteroids likely exist that cross Earth's orbit. In fact, four asteroids have passed inside the orbit of the Moon within the last decade. Possibly of larger concern to humanity are the more numerous rocks near 100 meters across. Were one of these to strike an ocean, a dangerous tidal wave might occur.

This Month:

Sept 11 - Public Star Party at Peach Mountain Observatory - The Moon is just two days past new. Jupiter followed quickly by Saturn rising just after midnight.

Sept 17 - Meeting at 807 Dennison - We'll keep you informed just as soon as we figure it out. :-{

Sept 18 - Island Lake Star Party, sponsored by the Ford Amateur Astronomy Club, will be held at Island Lake State Recreational Area. Park entrance is east of Brighton off I-96 (just north of Kensington Park).

Next Month:

October 2 - Public Star Party at Peach Mountain Observatory - Ah, Observing in the Fall - No mosquitoes and no cold.

October 9 - Public Star Party at Peach Mountain Observatory - New Moon today at 7:34 am EDT.

October 15 - Meeting at 807 Dennison - We'll keep you informed just as soon as we figure this one out also. ;-)

October 16 - A Night on Peach Mtn/Moonwalk previously scheduled for Sept 18th is being rescheduled for this date. See article inside for further details.

The BW Optik 4" f6 Refractor Kit

by Clayton Kessler

Due to my interest in astrophotography I have looked for telephoto camera lenses for some time. Once you get above 200mm or so focal length they become rare and expensive. On the other hand - a few of my observing friends, and many people that are members of the Astrophoto Mailing List (APML), get wonderful shots through short focus refractors. These range from the 70mm Pronto up to 6 and 7" AP's or Takahashi's. Well, these scopes are somewhat out of my league, but I began to look around and see what I could afford.

The first thing that I tried was an Orion "Short Tube 80". This neat little scope of 400mm focal length worked - but problems presented themselves. The biggest problem was field curvature. Stars were stretched in several directions on my shots. Not being an optical expert, I do not know how to correct this - if it can be corrected. I looked through a TeleView 85 at the Texas Star Party and it is a wonderful scope both visually and photographically. The \$2,000.00 price tag was kind of a shocker though. I kept coming back to an ad on Bill Burnett's Internet Telescope Exchange (ITE) website (<http://www.burnettweb.com/ite/index.html>). ITE is one of the companies that sells the Russian Maksutov telescopes that are becoming more popular all the time. Bill is advertising a 600mm (4") f6 "Semi-APO" refractor kit with a triplet objective from BW Optik in Germany. The optical test report and the user comments looked good, so did the price at \$750.00 delivered. After reading the ad - oh, maybe a thousand times - I ordered one.

Delivering The Goods - It took a little while to get. Apparently the unrest in Eastern Europe added to the time involved in getting objectives from Germany, but it finally arrived. It was a happy day when the UPS driver dropped off the long awaited refractor kit. I was able to tear into the boxes and fondle all the bits and pieces for this "antique" telescope (sorry, inside joke?). I was pleasantly surprised by the quality of the components that were supplied. The "Fiber" tube turned out to be a high quality and nice looking piece of phenolic tubing. It was very round and straight and perfectly suitable for a telescope tube. The focuser was the same one that is used on the Russian Mak's and is a nice piece of work for visual use. The ads for the

scope warn that the supplied focuser may not be "stiff" enough for photographic use, and that is the case, but it works very well visually. The objective came mounted in a cell and is a heck of a chunk of glass. The objective cell has a cam ring designed in to aid in optical alignment of the telescope. The kit included a 2" extension tube, which allows you to use different eyepieces / cameras and still come to focus. A multi purpose mounting rail was included that has a dovetail and several 1/4-20 and 3/8-16 tripod screw holes. The "finder scope" supplied was actually a 4X40 rifle scope and rings. While I elected not to use this, I do not see why it will not be effective.

Getting It Together - Complete assembly instructions, and a detailed blue print, came with the kit. I was especially thankful for the blue print as it helped me to visualize how everything worked. In the "Additional Notes to Advanced ATMer's" section there are several suggestions that will make for a "Superior End Product". One of these was to replace the fiber tube with an aluminum one. Because I did not know just what the fiber tube was like, I had already acquired a piece of aluminum pipe to make a new tube. After seeing the fiber tube I would probably use it next time. I also made a push/pull adjustment adapter for the objective lens cell. In theory this will allow me to adjust the objective to be in very precise alignment and give the best star images. Large pieces of glass seem to suck in dust from everywhere, so a lens cap and a dew shield were also made for this telescope.

First Light - Of course, I could not wait until everything was done to look through the telescope. As soon as the metal work was done I screwed the unpainted parts together and walked outside. A 50mm eyepiece gave me 12x with this system and I was able to hand hold the tube steady enough to find the moon. The bright blob in the eyepiece snapped into crisp focus and the moon looked great! This is without any optical alignment - a very good sign. The next morning I took a look at Jupiter and Saturn. I could see moons and bands on Jupiter at this low power but my hand holding was too unsteady to make any quality judgements.

Finishing Touches - The aluminum parts were cleaned and then primed with a zinc oxide primer. All of the inside surfaces were painted with Krylon Ultra Flat Black. The visible outside was painted with a white epoxy appliance paint. Unfortunately, aluminum is difficult to paint with a durable finish. The first trip home scratched the tube and I was quite

disappointed. The solution, at least for now, was to get some white self-adhesive vinyl and wrap a layer around the tube. I will see how this holds up to the rigors of the observing field. The dew shield and lens cap need to be black anodized. This will wait until a larger quantity of aluminum is acquired that must be anodized - the minimum charge is expensive. Rings and dovetail plates were made to attach to my G11 mount. The dovetail plates are aluminum and the rings are lexan. The general arrangement is similar to what I have seen on some Astro Physics telescopes. In order to make it easier to take astrophotos with this system I made an adapter to attach my JMI SCT rear cell MotoFocus. This is a very nice precision focuser and will support the weight of a camera without moving around. The JMI unit has considerably less focus range - but for photography it will be fine.

Star Testing and Optical Alignment - Now I have no idea how to align a refractor. The instructions mention rotating the cam ring on the cell to get a round star image both in focus and out of focus. No mention was made of how to use the push / pull cell to align the objective. Fortunately, Greg Burnett loaned me a copy of [The Adjustment and Testing of Telescope Objective](#) by H. Dennis Taylor. This is an interesting and complete volume in about 110 pages. The first edition date is 1891! (Man - I feel younger all the time). The copy Greg loaned me was the 5th Edition dated 1983. Using this as a guide "Squaring Up" the objective should be simple.

The first "Star Test" was done at Harry Kindt's retirement place in northern Ohio. Naturally, because we were trying to do astronomy, it was pretty cloudy. I did get a chance to evaluate the optics against the illustrations in Greg's book. I don't know what I expected to see, all of my experience has been with SCT's and Newtonians. What I saw, inside and outside of focus, was a beautiful "bullseye" pattern of diffraction rings. There was some slight off center-ness to the pattern but it was quite smooth and very close to round. The adjustments that I can make to the objective should allow this to be adjusted out completely. After fumbling around in the dark I can see why an artificial star is so handy for optical testing. I am going to order an optical spanner from Edmund Scientific and research the "ball bearing" artificial star method before I attempt any adjustments.

Through The Eyepiece - I can sum up the viewing in one word - "WOW"! Spectacular vistas of stars with

a 50mm eyepiece (12X) and the same with an 18mm (33X). I have to get used to the scale of things. M57 was very small and easy to overlook in the 50, it was much easier to see in the 18. M27 was easy in both eyepieces and quite distinct. It was a joy to loosen the clutches and sweep around just gazing at interesting stuff. To give an idea of the field of view, Broncchi's cluster - more familiar as the "Coathanger" easily fit in the view-field of the 50mm eyepiece with room to spare. I am hoping that SMURFS will present a chance to better evaluate these optics.

Astrophotography - I must admit, I ruined the viewing for everyone at Harry's. I did this by setting up a camera. I no sooner got the ST4 guiding and the exposure started then the clouds filled the last hole overhead. I walked away for five minutes or so and when I returned the ST4 was beeping and the clouds had just about choked off any further star-gazing. I terminated the exposure thinking that 5 minutes or so would not get me anything. Imagine my surprise when I had the film processed and a nice shot of the coathanger cluster emerged. It is underexposed, but I got more than I expected on the negative. If we get any clear weather at SMURFS I expect to give this thing a real workout!

Conclusions - I think that the BW Optik 4" f6 Refractor is a wonderful buy! The information on the ITE website was very accurate and well presented. Even the downside of the supplied focuser was discussed. I would recommend the kit to everyone who wants to try a high quality refractor, is willing to add some "sweat equity" and doesn't want to re-mortgage the house to pay for one. The only really difficult part of the assembly required is the accurate location of the drilled and tapped holes that you put in the tailpiece and lens cell. These must line up with the holes you drill in the tube. If you have access to a machine shop this is easy but if you are doing the holes by hand. I recommend you make a simple drill jig to assist in getting everything lined up.

What would I change? Well, the kit is actually fairly complete, a lot of the additions that I made were "just because". The biggest down side is the focuser. Bill Burnett offered to adapt a helical focuser for me at an additional cost. This might be a better solution for those who wish to do astrophotography with the scope. In an ideal world a high quality JMI type manual focuser with a 2.7" capacity, a 2" adapter and a specially designed field flattener would be wonderful! Are you listening Bill?

Now for something completely different

by Mark Deprest



Now for something completely different. Here is a list of double stars whose components show a large amount of contrast in "COLOR". This list was compiled from a number of sources. The "COLOR - KEY" was adapted from, Webb Society Deep-Sky Observer's Handbook: Volume 1 Double Stars by Kenneth Glyn Jones. Since the color of stars, as seen through the eyepiece can be very subjective. The "COLOR - KEY" will serve only as a guide. You may not agree with the exact hues in the key, but I think you'll agree these are some real beauties.

COLOR - KEY

- Strong Purple Blue 1
- Moderate Blue 2
- Strong Green Blue 3
- Light Blue Green 4
- Strong Yellow Green 5
- Vivid Yellow 6
- Strong Yellow Orange 7
- Strong Orange 8
- Strong Red 9

Common Name / Constellation A B R. A. Dec. Sep. (arcsec) PA

Gamma Andromeda 7 1 02 03 53.9 +42 19 47 9.8 64
 Iota Bootes 2 8 14 16 09.8 +51 22 02 38.5 33
 35 Cassiopeia 2 9 01 21 05.2 +64 39 29 55.5 344
 Delta Corvus 3 8 12 29 51.9 -16 30 54 24.1 214
 Beta Cygnus 8 1 19 30 43.3 +27 57 35 35 53
 STT 191 Cancer 8 3 08 24 49.2 +20 09 11 37.5 191
 STF 2348 Draco 7 2 18 33 56.7 +52 21 12 24.9 273
 32 Eridanus 8 1 03 54 17.5 -02 57 17 6.6 348
 55 Eridanus 8 3 04 43 34.7 -08 47 39 9.7 137
 95 Hercules 7 2 18 01 30.4 +21 35 44 6.4 256
 Alpha Leo 2 8 10 08 22.4 +11 58 02 177 128
 Eta Perseus 8 2 02 50 41.8 +55 53 44 29 123
 Lambda Aries 2 5 01 57 55.8 +23 35 46 37.1 48
 Pi Bootes 2 5 14 40 43.5 +16 25 06 5.5 110
 Iota Cancer 6 3 08 46 41.8 +28 45 36 30.2 308
 STF 3053 Cassiopeia 7 2 00 02 36.1 +66 05 56 15 70
 Kappa Cepheus 2 5 20 08 53.3 +77 42 41 7.2 120
 Delta Cepheus 7 3 22 29 10.2 +58 24 55 39 191
 STF 2893 Cepheus 7 3 22 12 52.7 +73 18 26 28 347
 STF 2903 Cepheus 7 3 22 21 45.2 +66 42 22 4.4 96
 24 Coma Berenices 7 4 12 35 07.7 +18 22 37 19 269
 STF 1678 Coma Berenices 2 5 12 45 26.2 +14 22 25 36 173
 *Omicron Draco (both reddish) 8 9 18 51 12.0 +59 23 18 36 319

A Night on Peach Mountain / Moonwalk rescheduled for October 16th

By Bernard Friberg

What is it? - Stinchfield Woods is owned by The University of Michigan and located about 5 miles from Dexter. Peach Mountain is located within Stinchfield Woods. The facility includes a radio telescope and other equipment on Peach Mountain operated by various departments in the University. There is also a 24 inch optical telescope operated by an amateur astronomy club known as the University Lowbrow Astronomers. A special open house is hosted by the Friends of Stinchfield Woods and the University Lowbrow Astronomers on Saturday evening, October 16th called "A Night On Peach Mountain / Moonwalk".

The public has the opportunity to look through the 24 inch telescope and many other telescopes. Lowbrow members bring their own telescopes and visitors are also encouraged to bring their telescopes and setup before its dark. There are also several telescopes owned by the club. Visitors are also encouraged to bring their own binoculars. For this event there are two locations for the telescopes, one near the classroom opposite the bonfire, and the one next to the 24" telescope. In addition to these telescopes, there will be other activities throughout Stinchfield Woods, including slide shows in two locations, other talks, a bonfire and guided walks for owl calling.

When is it open? - This event begins before it gets dark. The gates are scheduled to open at 6:30 pm and the first talk/slideshow to begin at 7:00 pm. A former astronaut, Tony England, is scheduled for the first talk. If conditions are unusually cloudy, the telescopes may not be available, but the other activities will continue. If in doubt, call (734)480-4514 after 4 PM the day of the event to determine the status of the event and the weather forecast. Peach Mountain often gets quite cold late at night, so dress warmly. In warm weather mosquitoes can be a problem, so do not forget insect repellent. Also, near the telescopes white light from flashlights is not permitted. If you need a flashlight please put a red cloth over the light so as not to destroy people's night vision.

Events - Many events take place throughout the evening,

- Many telescopes to look through including the 24" telescope.
- A Space Physics, Natural Resources, Astronomy slide shows. Four of the slide shows are scheduled at the classroom, and the other slide shows are scheduled at the Space Physics building.
- Guided walks through the woods calling owls. There are four variety of owls at Stinchfield woods.
- A bonfire and roasting marshmallows.
- These events are free and open to the public.

How do I get there? - Peach Mountain is located on North Territorial road about 4 to 5 miles North of Dexter. To get to the observatory, the radio telescope and the talk on space physics: Travel 1.1 miles west along North Territorial Road from the Dexter-Pinckney Rd. intersection. You will see a small maize and blue sign that marks the gate. We request that you turn cellular telephones and similar equipment off at this point (they interfere with ongoing research work). Travel about a mile along the dirt road going up the hill, turn left, and you will see a radio telescope and a parking area. Walk West from the small parking lot keeping the fence to the left and turn left again keeping the fence to the left. Follow the path for about 700 feet until you see the pale blue building. Inside is the 24 inch telescope. Club members and visitors may set up their telescopes in the field next to the 24 inch telescope. Remember that the use of cameras with flash attachments and white flashlights may interfere with the dark adaptation of others, so please be considerate.

To get to the North entrance, the classroom and the activities nearby: Drive north from the Dexter-Pinckney Rd. intersection until you get to Stinchfield Woods Road. Drive West along Stinchfield Road for .5 miles until you get to the North gate. Drive through the North gate and you will be instructed where to park.

It is about .8 mile walk from the classroom to the observatory along a small dirt road through a very scenic woods. The road will be blocked off so that you cannot drive between the two locations.

Lowbrows - A reminder that volunteers are needed for parking, telescopes, etc. Please signup at the next meeting or leave a message at (734)480-4514, e-mail Bfriberg@aol.com, or call Bernard at (734)761-1875. Thanks

America's Space Program & a Capitol grazing occultation

From: dunham@erols.com (Joan and David Dunham) - dega@home.com

Don't let them end American Space Exploration - Ask your Representative to vote against the budget plan with deep NASA and NSF cuts, and invite them to watch a grazing occultation visible from the Capitol on Saturday evening, September 18th

In late July, the House Appropriations Committee wrote a budget that will effectively end future Solar System exploration, as well as seriously jeopardize other space exploration and astronomy efforts by both NASA and the National Science Foundation (NSF). The wording of the budget specifically cancels several missions that are part of NASA's carefully conceived plans, terminating, for example, all future Discovery and Explorer missions that are not already in fabrication. Facing the chopping block, either directly or indirectly from cuts in technology development on which they depend, are CONTOUR (mission to 3 comets), Pluto Express, Deep Impact, Messenger (mission to Mercury), FIRST/Planck, Solar Probe, and others. There are also large cuts in the budget that funds individual astronomers at colleges and universities. A longer description of the impact of the House budget plan can be found at the American Astronomical Society's (AAS's) Web site at <http://www.aas.org/policy/>. It gives information and links to let you know how you can contact your Congressperson.

The full House will consider the funding bill, HR 2684, starting on September 8. You, and your astronomy friends, are encouraged to write a short message to your Representative, letting him or her know that the cuts are unacceptable, and that funding for NASA and NSF should be kept at the President's requested level. The cuts are especially demoralizing for NASA, which has been held up as an example for ways to streamline costs to other agencies (NASA's funding in current-year dollars has decreased steadily in recent years). The new cuts are a slap in the face following NASA's successful efforts at "faster, better, cheaper" missions; they target what NASA does best and what has the most visibility to the general public. Solar System and space exploration are the crowning achievement of our technological age; to curtail them now sends absolutely the wrong message to students at a time when the USA is trying to raise its educational standards to compete better in the modern global economy. In addition to the

NASA mission cuts, there are cuts in other areas, including space and astronomy educational efforts.

The AAS says that letters or faxes are the best way to communicate; e-mail carries very little weight, in spite of its convenience. Phone calls are also effective, but letters or faxes are considered better. The AAS's "Call to Action" message is given after my message; it gives several points that can be made. Don't try to mention everything; 2 or 3 paragraphs (not more than 1 page), or even just a few sentences, are enough. A short message is much better than none! In addition to Congress (most urgent), copies of your message should also be sent to your Senators, since they are also writing a budget (they are a little behind the House in their process). It will need to be reconciled with the House budget in a joint conference committee in late September, then it will go to the President, who could veto it, resulting in a further delay in the process. But the sooner that the planned House cuts can be removed, or at least reduced, the better.

You might also mention an unusual astronomical event that might give your Congresspersons and Senators some appreciation for the night sky, and phenomena that take place there. Maybe this could have a positive influence on their judgement of budget matters that affect what we learn about the universe around us. It will be a grazing eclipse (properly called "grazing occultation"), of the 6th magnitude star Z.C. 2697 in Sagittarius by the 60% sunlit (near first quarter) Moon that will occur between 7:47 and 7:53 pm EDT Saturday evening, September 18th. It won't be visible with binoculars, but will be visible with almost any small telescope, with the star disappearing and reappearing repeatedly among mountains and craters in the lunar north polar area as it appears to pass along a line tangent to the Moon's disk. Actually it is the Moon that is moving in its orbit about the Earth. Note that NASA's recently completed Discovery mission, Lunar Prospector, determined that water ice is likely in some of the craters that will be involved in the graze. The unusual aspect of this graze is its path of visibility, which passes from west to east directly over downtown Washington, DC. The Capitol, the White House, the National Air and Space Museum, and the entire Mall are all within the graze zone. An event like this occurs at a given location only once every ten years, on the average. David Dunham, president, and other local members of the International Occultation Timing Association (IOTA), can set up small telescopes at or near the Capitol to show those who work there this event, if the weather forecast gives a reasonable chance for seeing it. We can videotape the graze and show it live on monitors connected to our camera. Anyone interested in this can contact Dr. Dunham by e-mail at dun-

ham@erols.com, or by phone (within the DC toll-free area) at 301-474-4722 (home) or 240-228-5609 (day). A map showing the graze zone across the DC area is at <http://iota.jhuapl.edu>; sometime the afternoon of Sept. 7th, a view of the Moon and the graze will also be placed there. It gives a link to IOTA's main site at <http://www.lunar-occultations.com/iota> where more information about occultations and grazes can be found.

***** AAS CALL TO ACTION *****

September 2, 1999 - Marcia Rieke, Chair of the Committee on Astronomy and Public Policy

BACKGROUND - Congress returns from their August Recess on September 8, and the Space Science Community MUST make their voice heard in Washington to maintain funding in FY 2000 comparable to FY 1999. Members of Congress clearly heard from the science community, and the Space Science Community in particular, after the VA-HUD-IA Appropriations Subcommittee released their report in late July, which contained deep cuts to the President's proposed science budgets, especially to NASA.

The science community has, unfortunately, been quiet since the House Full Appropriations Committee restored some, but not all of the Space Science funding. The NSF budget still has significant reductions and the NASA budget is still much below the budget for FY 1999. This silence is being interpreted as community satisfaction by some on Capitol Hill.

Nothing could be further from the truth. The remaining reductions pose a serious threat to astronomical research, but only a concerted effort on the part of the science community, and members of the AAS in particular can help the situation at this point.

CALL TO ACTION - NASA's budget is still not secure. The House Appropriations Committee restored roughly 400 million dollars to NASA's budget, but the Office of Space Science is still facing a 265 million dollar reduction from the President's request. This amount is about 8% less than the budget for FY 1999 (before correction for inflation, which would increase the true percentage cut) and represents a "going-out-of-business" budget for OSS. All future Discovery and future Explorer missions would have to be canceled. 35 million would have to be trimmed from the R&A budget, the money that funds individual researchers at Colleges and Universities. The CONTOUR mission would be canceled and the future technology development budget would lose 60 million dollars. This cut in particular would cause the cancellation of several missions including: Pluto Express, FIRST/Planck, GLAST, STE

REO, Solar Probe and Solar-B.

NSF's budget as outlined by the House Appropriations Committee is still about 2% below FY 1999, after adjustment for inflation and 7% below the President's request. Numerous programs and activities are threatened.

A full description of the impact of the House Appropriations Committee's funding scheme is available at the continuously updated AAS FY2000 Budget Action web site: <http://www.aas.org/policy/NASAACTION.html>.

The House will consider the funding bill, HR 2684 on September 8 and the Senate Appropriations Committee will consider the VA-HUD-IA appropriations bill soon after. The time to make your voice heard on the Hill is NOW! Letters or Faxes are the best way to communicate, email carries very little weight, despite its convenience. Phone calls are also an effective way to communicate your opinion, but the CAPP recommends that you write a letter.

Write to your Representative, the House Leadership, and especially to members of the Senate Appropriations Committee and your Senator letting them know that funding for NASA and NSF should be kept at the President's requested level. Include an example of how the budget cuts may affect you or your colleagues personally. Consider having your friends and family write as well. If every US member of the AAS had five friends write to Congress, more than 30,000 letters would arrive on the Hill. This would be a powerful message indeed.

Details on how to write to members of Congress, including their addresses are available through the AAS Public Policy webpage. (<http://www.aas.org/policy/>)

Some points to consider including in your communication:

NASA

- 1) The overall Space Science budget request for FY 2000 is only 3.6% higher than FY 1999 (\$2,196.6M vs.\$2,119.2M), little more than inflation. High-priority programs expecting to grow (within those totals) include Mars exploration and the astronomical search for Origins and other planetary systems.
- 2) The proposed cut would be the largest reduction ever made to Space Science.
- 3) The subcommittee mark is, in essence, a "going-out-of-business" budget for Space Science, killing over half of future OSS missions, and more.
- 3) Space Science has demonstrated excellent cost and schedule performance for the last 5 years. Most of the OSS missions are being launched on time,

and on (or under) budget. NO recent Space Science missions have experienced overruns of more than a few percent.

4) Point 3 shows that NASA is "FISCALLY RESPONSIBLE."

5) Space Science has a broad, innovative, and effective Education and Public Outreach program that is reaching the public, including (especially) children, with the excitement of science. It was no fluke that the Mars Pathfinder website received 45 million hits per day in July 1997. Our missions and findings receive constant national media exposure. The recent release of the first Chandra results are yet another example of the productivity of space science.

NSF POINTS

1) This reduction in research and education efforts is inconsistent with the numerous studies, which have documented the strong links between publicly-supported research and wealth creation and benefits to society.

2) The Committee's failure to provide funding to implement the core recommendations of the President's Information Technology Advisory Commission is especially troublesome as it goes against the advice of leaders throughout industry who see basic research in information technology as a key to growth in every sector.

3) Earlier this year, before the Joint Economic Committee, Dr. Eric Schmidt of Novell, Inc said: "It is thanks to federal funding for research in the post-war years that we have the Internet. One of the best investments Congress can make is to assure strong support for Federal research...except for small increases in the past three years, overall federal support for research has been flat or declining for a decade. We must make substantial, consistent increases in federal funding for basic science, engineering, and technology research."

4) The overall impacts of the 7% reduction from the President's FY 2000 request would be:

a) Erosion of NSF's investment in the nation's science and engineering research and education infrastructure and slowing of development of the S&E knowledge base and of the intellectual and technical personnel base.

b) A negative impact on industry and mission agencies that rely upon the research results and trained personnel coming from academic research and education activities supported by NSF.

c) A reduced investment in the nation's universities and colleges.

d) Elimination of major portions of the proposed information technology initiative including the de

velopment of large scale advanced supercomputing hardware needed to support fundamental research across all disciplines of science and engineering.

e) Reductions in collaborative efforts with federal, academic, and private partners.

f) About 6,000 K-12 teachers would not receive training or enhancement activities in science and math education. Approximately 385,000 K-12 students would not benefit from the standards-based instruction that would have been provided by these teachers.

g) NSF would not be able to increase award size or duration as planned and the already low success rates for proposals would decrease even further. (NSF awards currently average less than \$100K and are one-third the size of NIH awards and almost half the duration.)

h) NSF would not be able to increase the percentage of competitive grants going to new researchers just starting their careers to its goal of 30%, without sharply reduced funding rates for experienced researchers.

Subj: **Contacting Congresspersons**

From: dunham@erols.com (Joan and David Dunham)

In my last message, I gave some Web links that give much good information, but almost too much information. A good Web site about contacting congresspersons (including what to say in short messages) is at <http://legislators.com/congressorg2/contact.html>

It notes that your position on a specific bill should be given first, followed by the reasons for your position. So in this case, say that you are against HR 2684, last modified before the August recess, and that you will not be satisfied with it until the funding for NASA and NSF are at least restored to the President's requested level, then give a few reasons.

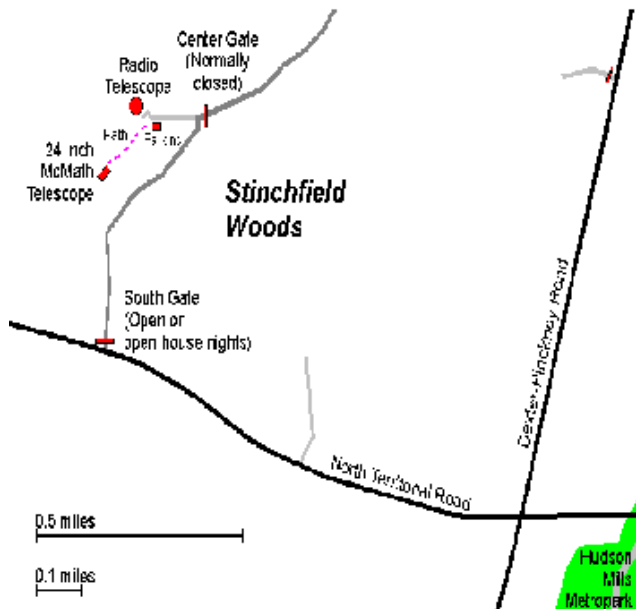
Specific phone numbers and addresses (and fax numbers and e-mail addresses, when available) are given in the online congressional directory that can be linked from the above, and which has the separate URL - <http://legislators.com/congressorg2/congdir.html>

Besides your own House Representative and Senators, it would be useful to send a copy of your message to the Chairman of the House Budget Committee, John Kasich (R - Ohio) and perhaps also to the Dem. ranking member, John Spratt (S.Car.). On the Senate side, the Appropriations Committee leaders and members are important, since they will be working on the Senate version of the budget this week. Less critical at this stage, but will be important soon, are the House and Senate majority and minority leaders.



Places and Times:

Dennison Hall, also known as The University of Michigan's Physics and Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. It is found in Ann Arbor on Church Street about one block north of South University Avenue. The meeting is held in room 807. Monthly meetings of the Lowbrows are held on the 3rd Friday of each month at 7:30 PM. During the summer months, and when weather permits, a club observing session at Peach Mountain will follow the meeting.



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



Public Star Parties:

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

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



Membership:

Membership dues in the University Lowbrow Astronomers are \$20 per year for individuals or families, and \$12 per year for students and seniors (age 55/+). This entitles you to the monthly REFLECTIONS newsletter and the use of the 24" McMath telescope (after some training). Dues can be paid to the club treasurer Doug Scobel at the monthly meeting or by mail at this address:
1426 Wedgewood Drive
Saline, MI 48176



Magazines:

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

Bernard Friberg (734)761-1875 Bfriberg@aol.com
Chris Samecki (734)426-5772 chrisandi@aol.com

to discuss length and format. Announcements and articles are due by the first Friday of each month.



Telephone Numbers:

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Vice Presidents: Lorna Simmons (734)525-5731
Dave Snyder (734)747-6537
Paul Walkowski (734)662-0145
Treasurer: Doug Scobel (734)429-4954
Observatory Director: Bernard Friberg (734)761-1875
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Keyholders: Fred Schebor (734)426-2363
Mark Deprest (734)662-5719



Lowbrow's Home Page:

<http://www.astro.lsa.umich.edu/lowbrows.html>

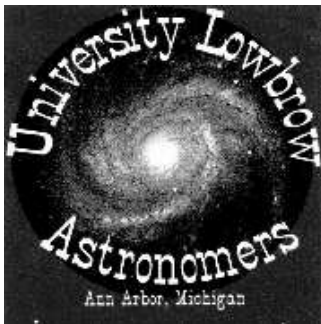
Dave Snyder, webmaster
<http://www-personal.umich.edu/~dgs/lowbrows/>



HCG 87: A Small Group of Galaxies

Credit: Sally Hunsberger (Lowell Obs.), Jane Charlton (Penn State), et al. & the Hubble Heritage Team (AURA/ STScI/ NASA) - <http://antwrp.gsfc.nasa.gov/apod/ap990906.html>

Explanation: Sometimes galaxies form groups. For example, our own Milky Way Galaxy is part of the Local Group of Galaxies. Small, compact groups, like Hickson Compact Group 87 (HCG 87) shown above, are interesting partly because they slowly self-destruct. Indeed, the galaxies of HCG 87 are gravitationally stretching each other during their 100-million year orbits around a common center. The pulling creates colliding gas that causes bright bursts of star formation and feeds matter into their active galaxy centers. HCG 87 is composed of a large edge-on spiral galaxy visible on the lower left, an elliptical galaxy visible on the lower right, and a spiral galaxy visible near the top. The small spiral near the center might be far in the distance. Several stars from our Galaxy are also visible in the foreground. The above picture was taken in July by the Hubble Space Telescope's Wide Field Planetary Camera 2. Studying groups like HCG 87 allows insight into how all galaxies form and evolve.



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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 !