

starry nights



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MORE FROEMMING PARK IMPROVEMENTS

I recently took on a project at Froemming Park that I've wanted to do for the past couple of years. During seven days in May, scattered over two weeks, I was able to repair the rutted driveway along the edge of our observing field at Froemming Park. The County has known about its deteriorating condition for quite some time, but there have been much higher priority paving projects to be done with scant budget money to address the issue. So I decided to do it myself.

I first let the W.A.S. Board of Directors know what I had in mind, and then got the approval of Froemming Park's supervisor, Sue Devich. I had done such repairs on a much smaller extent in the past (see *Starry Nights*, Vol. 21, Issue 1.), but this time I wanted to do it right. I noticed a partial truckload of sand behind the abandoned Sports Complex, which adjoins the western edge of Froemming Park, and got Sue's approval to use it on the driveway.



Greg Gonia

Before

First, the hard part had to be done - laying down layer of larger gravel in the ruts and then a sub-base of gravel over the entire length of the driveway. I used the materials at hand - some of the gravel embedded in the grass along the outer turns of the service drive connecting Froemming Park with the Sports Complex. The stones "popped" out of the grass, by applying a lot of down force using a hard-tine rake. The sand was much easier to handle and it spread quite nicely on top of the gravel. Then I stomped each section down, one step at a time, in both directions. Finally, once the sand settled in

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MARSHFEST 2003

Having been to Ledge Park before, I was looking forward to observing with a sky background darker than any which can be had in Milwaukee County. It's a 90 minute car ride from Franklin, but well worth it if you plan ahead and don't have to be anywhere early the next day. This year's event was scheduled for Saturday, May 3rd, and the sky actually stayed clear until early morning. I didn't get there until dusk, but observing was already underway. Dave Stublaski had camped over from Friday, so he had his computerized 'scope already set up. (There were sunspots to see during the day as well.) Joe Carlone also had his computerized 'scope set up, but was getting it collimated. Finally, Tim Grunewald had his Dobsonian reflector going, which was quick to set up indeed. I brought along a 6" f/8 reflector, to show binary stars to others, and 10 x 70 binoculars on a heavy tripod, to view star clusters against the darker sky background. Jupiter near the Beehive Cluster (M44) looked spectacular in the binoculars' wide field of view! The setting crescent moon also gave delightful views of mountain peaks in sunlight and shadow.

Ledge Park has an expansive view of the horizon from southeast to southwest, with trees to the west (to help block some of Horicon's city lights ten miles away), and trees from the northwest to northeast. Thus it is well shielded from stray light and strong winds, but being on a campground, there is the occasional car going by on the western or northern driveways - bummer! The main attraction though is that all the faint objects show up with so much better contrast than can be seen in city skies. It was a colder than normal evening, so the air transparency was pretty good, and the occasional breeze kept us awake. With Dave's and Joe's "go-to" telescopes, we all got to view most of the Messier objects and a good number of NGC objects north of -35 degrees S. Latitude before high cirrus clouds started to move in from the S.W. after 1 a.m.

Ledge Park is a primitive site, however, so be prepared to hike to the latrines. That minor creature comfort aside, if you pack some food and drink along, it can be quite an enjoyable experience. Even more so if you carpool with relatives or friends who are somewhat interested in observing and are willing to give it a try.

Hopefully the W.A.S. Board of Directors will schedule another Ledge Park event for some moonless weekend in September or October this year yet - that way club members will have an opportunity to see almost all the celestial wonders visible throughout the year from just these two annual outings (if you're willing to stay up to the wee hours of the morning). Sometime during your active observing lifetime, you owe it to yourself to plan an extended session under the stars for some serious, but fun, viewing!

-Greg Gonia



FOR SALE

6" f/8 mirror, \$120.

This has been my personal mirror in use for many years. I'm changing my telescope's optical system, so it's up for sale. Contact Greg Gonia, 414-425-1059.

8" f/7, optical tube assembly.

\$550, (or just the 8" mirror for \$200.) Superb optics! Mirror ground & polished by Rick Monnier, with 1/8th wave front. Rick was a master optician at Adler Planetarium before becoming an optician at Yerkes Observatory years ago. Contact Keith Taylor, 414-421-1147.

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Wehr Astronomical Society

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* Signifies the position is available and the name represents the acting volunteer. Contact a board member if you are interested in the position.

starry nights

after two rainfalls, I smoothed out the bicycle ruts and drove the minivan down the entire length, then steered over a few inches to go down the entire length again, etc. The whole effort turned out surprisingly well, and didn't retain any standing water.

I was curious as to just how much material I was moving. (My lower back was "telling" me that it was A LOT!) I weighed the various sizes of buckets and one large metal bushel basket when they were filled with gravel, and then with sand. I used our minivan like a big wheel barrow and made 11 trips. The grand total of material hoisted and dumped was just over FIVE TONS, one shovel full at a time.



Greg Gonia

Buckets of Gravel

I want to thank three County workers for their cooperation in the repair work which was done. The first is Charlie Steidl, a seasonal worker who put some "spare" gravel in the mud ruts at times. He also kept me informed on my request for a topping of crushed stone on top

of the sand. He got me in contact with his boss, Bob Michalek, who promised to follow up on finding the crushed stone and having it laid down and rolled for the driveway. Lastly, from early May through mid-June, I had been in contact with Sue Devich to get her permission and keeping her informed (as well as our Board of Directors) of progress being made. Without her approval and cooperation, none of this would have been possible. There are further plans for our observing facilities at the park, but that's a future article.

After several weeks, Charlie let me know that County workers were out there on Friday, June 6th, to measure the driveway for pouring asphalt. This was turning out better than I imagined! A week later, the driveway was widened to 10', and additional stone and bonding agent was steam rolled into place. On Thursday, June 19th it was finally paved over with asphalt. Finally, after several years of contacting various County managers, the observing field driveway is now properly paved! (See Picture "Final Blacktopped Road")



Adam Machajewski

Final Blacktopped Road

-Greg Gonia



For the Record...

Requests for any improvement to the observatory or the grounds must be submitted to the Observatory Director, who will then discuss it with the board, if needed. Submitting a request does not indicate approval. If you get approval for your original project, this does not automatically grant you approval for related items. These other items must also go through the approval process. If the request deals with the grounds, the Observatory Director will get in touch with the Milwaukee County Park System for approval. Please remember that this is not our own private property, but both the observatory and the grounds are Milwaukee County property. We got approval to put the observatory at the park if the County would own it and we would maintain it.

- Tim Grunewald





PLUTO (and KBOs)

In preparation for the expected Launch of the Kuiper-Express probe to Pluto and nearby Kuiper-Belt Objects (KBOs) in 2006, (for arrival at Pluto in 2015,) the Johns Hopkins New Horizons scientific team, in charge of the probe, is preparing a detailed close-in survey of the 9th Planet for later this year with both ground Very Large Telescopes (VLT) plus the Hubble Space Telescope (HST) to determine if there are any other Plutonian satellites besides Charon. This would be of major importance in preparing the programming for the mission. They hope to discover any smaller captured KBOs in orbit around the Pluto-Charon pair down to even 6 miles in diameter.

NEPTUNE

According to a new computerized model study of the Solar System, Neptune shouldn't exist--along with its sister gas giant, Uranus. This is because the amount of metal and rock that built the two could not have existed out at the rim of the evolving Solar System, there being only gas and ice particles that far out. (The heavier elements formed the inner planets only out as far as Jupiter.) In a Catch-22 scenario for the creation of Neptune and Uranus, the proto-planets needed massive amounts of rock and metal to build up their cores in order to attract by gravitation the gases and ices that are known to make up their atmospheres, but since the known cores of the two simply shouldn't have existed, there could not have been any way to attract said gases, and so forth.

Now a theorist at the Carnegie Institution has proposed a radical new idea to account for their formations. He theorizes that Neptune and Uranus were actually created while the fledgling Solar System was in another part of space, that in a region of violent star formations, whereby the UV radiation from a nearby star--other than Sol--

caused the accretion of the necessary heavy components. Then, he supposes, the same forces thrust the Solar System into migrating to its present, (and thankfully, more pleasant) region of the galaxy. Naturally, with something this radical and sensational being proposed, other astrophysicists are taking hard looks at the theory.

Meanwhile, the southern hemisphere of Neptune is in the midst of its four-decades-long summer. The HST has noted Jovian-like cloud bands of evaporating nitrogen gases forming, carried along by 1,500-mph winds.

URANUS

Undiscovered until 1977, Uranus' rings, now a quarter of a century later and catching more sunlight, are showing themselves to great effect in the VLT, especially in the IR bands. In fact, pictures taken in IR show the planet and its moons looking remarkably like the Saturnian system in normal-light photos. But because of Uranus' extreme tilt, the rings are being seen in their entirety from above the planet's north pole, (as seen from Earth,) a view not possible with Saturn.

SATURN

The count goes on: Saturn has now been found to possess 31 moons of various sizes, from giant Titan down to tiny fragments of asteroids or KBOs. The latest, No.31, is assumed to be about 5 miles wide. Because of the increasing number of Jovian moonlets counted, astronomers are debating on some way to limit the number of satellites to be called actual moons.

In other Saturnian news, the Cassini spacecraft, in its sixth year of voyaging to Saturn, is on course, operating perfectly, and on schedule to enter the Saturnian system finally next year in July. It is already sending back pictures of Saturn that rival those of the much-closer-in Voyagers of the 1970's--plus other bonuses (see below.)

JUPITER

The Monarch of the Solar System continues to reveal new discoveries. Not to be outdone by sister Saturn, its moon count is now up to 61. One astronomer in on the search says he expects the Jovian system to soon produce a count of over 100.

Adding to the debate, the Galileo probe, on its final mission in the Jovian system when it took closeup pictures of the inner moon Amalthea, detected between seven and nine space rocks

near it, either orbiting the small moon or traveling along with it as Trojans. Amalthea itself has now been determined to be nothing more than an accretion of rubble, showing more empty space in voids than the solids which constitute it, so the loose rocks in its vicinity may be just pieces temporarily tossed out of the pile. Still, it's one big rock pile, being over 170 miles in its longest axis. Since it should have enough mass-gravity to pull the assorted rocks into a compact solid, it's obvious that the tremendous gravitational pull of Jupiter continues to disrupt Amalthea's attempts to consolidate itself. And since it's coated with a dark red tint, it's probable the majority of Amalthea's mass is composed of chunks thrown off by the next moon out, Io, with its violent sulfurous volcanoes.

Rounding out the Jovian news, the passing Saturn-bound Cassini spacecraft, while looking down at the North-Pole area of Jupiter, discovered a Dark Spot even larger than the Great Red Spot (GRS) circling close around the north pole of the gas giant. Observers have already named it the Great Dark Spot or GDS. Where it differs from the GRS is the GDS is a shallow, high-atmosphere phenomenon, whereas the GRS is a very tall high-pressure storm system rooted deep in Jupiter's troposphere, far below the cloudtops.

ASTEROIDS

A Japanese probe named MUSES-C lifted off in May to rendezvous in 2005 with a recently discovered half-mile-long asteroid called 1998 SF36. There, it will make several touch-and-go contacts with the asteroid's surface in order to scoop up tiny bits of material, then fire its rocket engines to bring it back to Earth in 2007 where it will parachute the asteroid samples--weighing less than a gram--in a re-entry capsule. (Of course, on Earth we have thousands of millions of grams of asteroid pieces in the form of meteorites.) MUSES-C originally was to contain a tiny rover robot, but that plan was scrapped and instead the probe will leave an aluminum ball with nearly a million Japanese names micro-engraved on the asteroid's surface.

In a similar, but much larger probe, the U.S. will dispatch the DAWN spacecraft to the two largest asteroids, Ceres and Vesta in 2006, where it will orbit in turn the two bodies starting in 2014. The reason for the long-journey duration is that DAWN's propulsion system will be an ultra-low-but-constant-acceleration ion-engine, (1/3rd of an

ounce of thrust!) first tested in Deep-Space-One when it visited the comet Borrelly in 2001.

MARS

Many developments in Mars discoveries have been announced in just this last quarter: The Mars Odyssey Orbiter's (MOO) hydrogen-content-mapping neutron spectrometer has conclusively shown that just several inches under the northern Martian surface lies frozen water "ankle-deep at least," according to one interpretation. When it is remembered that the spectrometer in orbit can only measure hydrogen down to just a few feet, there remains the possibility of even larger reservoirs of water beneath Mars' deserts. Even in the highly-cratered ancient terrain of southern Mars, multiple locations of massive water deposits have been found. What seems a pity is that the Viking-Lander scoops in the '70's must have just missed digging down deep enough to discover the ice.

The pictures of the "weeping" gullies and cliff edges which continue to flow in from both MOO and Mars Orbiting Surveyor (MOS) seem to correlate the existence of water just below the surface. Now it is theorized that snowfalls from the wintry condensations of the tiny water content in the Martian atmosphere also adds to the possibility of narrow time zones of melting water on Mars, where the snow layer insulates the melt long enough before it evaporates back into the atmosphere upon the coming of summer. This is enough time to help form the gullies the pictures reveal.

The European Space Agency's (ESA) Mars Express orbiting satellite, due to launch in early June, will carry a ground-penetrating radar able to detect water as deep as three miles underground. The Mars Express also carries a static (non-roving) lander-probe called the Beagle-2, which will try to detect sub-surface water and also any signs of fossil life.

And finally, the two NASA Mars Rovers, after several delays that pushed the expected May launchings into June, are now lined up for their launch windows, one at the beginning of the month, the second at the end. They will touch down on Mars in January of 2004, one on the Meridiani Planum, and the other inside the Gusev Crater, both suspected of harboring large amounts of sub-surface water.

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EARTH

On the first return to the International Space Station (ISS) since the Shuttle disaster, a Russian Progress cargo ship docked and then used its remaining fuel to try to boost the atmosphere-dragging station to a higher orbit. The small amount of propellant mass was able to accomplish only a 3-mile rise, to 249 miles above Earth. Following this, a Soyuz spacecraft carried only two astronauts up to the ISS to replace the existing three-man crew. This duo will be hard put to carry out even routine maintenance in the half year they will be aboard.

Meanwhile, NASA has confirmed that the U.S. Shuttle fleet will be grounded into at least 2004. There is mounting concern whether Congress will vote for modifications to, and continued funding for, the remaining three-decades-old Shuttle fleet, currently using up two-thirds of NASA's budget. If not, then the ISS is doomed.

LUNA

The ESA will also launch a new Moon-orbiting spacecraft next month that will attempt to find water-ice hidden deep in craters on the Lunar surface. But instead of chemical rockets such as the U.S. used in the 1970's to reach the Moon in just four days, the ESA craft, named SMART-1, will take over three months to reach the Moon, and another month to settle into orbit. This is due to the type of powerplant being employed, a solar-powered ion engine (like NASA's Deep-Space-1 and DAWN probes). SMART-1 will stay in orbit for two years, looking for evidence to prove the theory that a planetoid struck the embryonic Earth and caused the Moon to form as ejecta.

VENUS

Yet another ESA probe will be the Venus Express, scheduled for launch in November of 2005. Not to be surpassed, NASA announced plans for a Venus Explorer, but not to launch until the next decade.

Also coming up for Venus, the first transit of the planet across the face of the Sun (as viewed from Earth) in more than a century, in June of 2004. This will be followed by a second transit in 2012.

MERCURY

The innermost planet completed one of its more

frequent transits (which happens once every seven years) in May, taking just over 5 hours to complete. For the first time, the Sun-observing SOHO satellite at a Lagrange Point was able to track the planet to help correlate Earth-based observations. SOHO will perform the same duty for Venus' transit next year.

-Jay Wichmann



May Lunar Eclipse

A few members of the Wehr Astronomical Society met on Thursday, May 15 for the total lunar eclipse. We had a fabulous clear night for most of the eclipse. We had an excellent turnout of people from the general public as well, thanks again to Vince Condella of Fox 6 for his endorsement of the event. I counted about 50+ people over the course of the night. People came and went over the entire duration of the eclipse. The relatively reasonable time of the totality, at about 10:30, made it even better. The only clouds over the course of the night passed through at the most unfortunate time, the moment of total eclipse, and lasted for about a half an hour. This was an excellent opportunity to take some pictures also for me and many other people who showed up. I took many pictures, the one below is a combination of twelve images over the course the night, although it is hard to see in the black and white image, the total eclipse is in the lower left corner.

-Adam Machajewski



For a high resolution full color image see our web site at www.wehastro.org and find the images link.

SCHEDULED ACTIVITIES

FOR

The Wehr Astronomical Society

<http://www.wehrastro.org>

Regular Meetings

(Free and Open to the Public)



Tuesday, July 8, 2003 6:00 p.m. Froemming Park

Annual Picnic at Froemming Park.

Wehr Astronomical Society will furnish the burgers, brats and buns. Members should bring a dish to pass and their own table service and silverware. Bring your telescope and get in some solar viewing before we eat.



Tuesday, August 12, 2003* 9:00 p.m. Wehr Nature Center

Perseid meteor shower at Froemming Park

Telescopes will be provided to view other celestial objects. Note: For meteor watching all you need are your eyes. Binoculars are helpful for seeing the smoke trails that some meteors leave behind.

*Rain date: Wednesday, August 14, 2002 at 9:00 p.m.



Tuesday, September 9, 2003 7:00 p.m. Wehr Nature Center

Galaxy Clusters

Pamela Gay, Associate Editor for Astronomy Magazine, will be talking about galaxy clusters.

Observatory Activities

(Free and Open to the Public)

July 11	9:30	Observing the moon and deep sky objects See a near full moon and the brighter deep sky objects.
July 25	9:30	Deep sky observing Locate the constellation Hercules and the Great Globular Cluster.
August 8	9:00	Observing the moon and deep sky objects See a gibbous moon and the brighter deep sky objects.
August 22	8:30	Deep sky observing Novice Night - Bring your telescope or binoculars and let us show you what you can see. See Mars (closest to Earth August 27th - This is the closest it will be until 2287)
September 5	8:00	Observing the moon and deep sky objects See a gibbous moon and the brighter deep sky objects. See Mars.
September 19	7:30	Deep sky observing Locate the Andromeda Galaxy. See Mars.

Note: All observatory dates fall on a Friday, and are held at Froemming Park.