

starry nights



October, November, December 2004

Volume 23, Issue 4

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Wehr Dome gets Tummy Tuck and Facelift.

Sunlight, weather, rain, bugs, critters, time and gravity have all taken a toll on the Wehr dome in Froemming Park. Much needed repairs were made to the Wehr Astronomical Society's dome on Sunday, September 12, 2004. Members who volunteered to help are Sandy Dombeck, Mike Nugent, Adam Machajewski, and Jackie Mau. Yours truly provided the tools and project coordination. There were three primary projects, which we estimated would take nine people three hours or 27 people hours. While we didn't have that many people available, the actual time added up to about 30 people hours. The tasks were divided between the dome, the base and the mechanical systems inside. Some jobs were purely cosmetic, others involved structural and re-design work.



The primary problem was the dome was grinding to a halt when rotated. The apparent cause was the wheels were worn causing the wheel track of the dome to bind on the motors. After some disassembly, the true cause surfaced.



The boards to which the motors were mounted (sill boards) had warped and separated from the top wall (top plate) of the base. This caused the weight of the dome to push down on the outside wheel and lift the inside sill. The motors were only lag screwed in two of the three holes. Ants had started to make a home in the crack,

which additionally contributed to the decay of the sills. Two of the boards needed replacing. A slightly more challenging project than replacing three wheels.

W.A.S. News and Information

It was thought we would need a bunch of people to lift the dome up. Using a portable hydraulic jack, a friend of mine, Dave Spiess, and I lifted the dome up, blocked it and removed the motors and rotted boards.

An inspection of the wheels revealed the hard rubber wheels were fine. However the hub which contained a wooddruff key was worn from all the reversing of the motors. A search of all the local Grainger and wheel part stores came up empty. All the wheels of the proper size had plastic hubs now. The only solution was to replace the hub. Dave Spiess, who is a retired machinist and fabricator, came up with a cure. He pushed out the worn hub, inserted a new metal hub and added a dog screw. The tight fit and new components moved the wheel motor out a 1/4 inch. But since the motors were all removed they could be re-mounted in new locations. We were also able to obtain some special signboard grade plywood from which to cut the new sills. The wood has a



fiberglass side to protect it from the weather. The new sills were primed, edge sealed with polyurethane glue and finish painted. The use of the polyurethane glue greatly extends the life of the sills as the glue cures with water. It fills the voids to keep the bugs out.

The other problem was the tension springs. These are the four sets of rollers attached to a leaf spring like assembly. They apply outside pressure to keep the dome centered as it rotates. The leaf springs have become very rusted. The solution was to spray the rusty metal with a product from Loctite called Rustend. It chemically converts the rust into an inert material suitable for painting. A few hits with the Rustend and the color went from brown to black.

Finally, the big work party day arrived to put everything back in place. First to arrive was

Sandy Dombeck who got the show rolling by unwinding the 400-ft. extension cord. In the process, she astutely observed some wear on the extension cord connectors. Another project was born. The ground wire lost only a few strands so we patched it with some electrical tape and covered the connectors with duct tape to provide added protection.

Next, all of the "junk" had to get hauled out of the dome to provide working space and give it a good cleaning. A few hundred spiders were forcibly evicted. About three wasp nests were neutralized and removed as well. Periodically a few yellow jackets returned looking for their home. A few swats with a broom by Jackie and Sandy ended their homecoming.

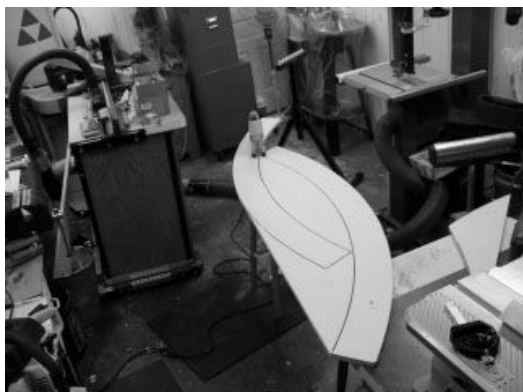
They say, "Never buy a car at night." The same can be said about observatories. I had gotten used to darkened conditions inside of the observatory at night, but it was a different story in the light of day. Only then did the bug nests, cobwebs, mouse house debris, and rust show its true colors. It took a good hour to get all the "gook" out of the dome. Loose papers, old displays, old signs, a rusty stool and more, all added up to a heaping pile of piffle.

The plan was to have three three-person teams working at once. That plan gave way to a sequential plan of top down. Adam took the high road and started to grind the rotted seams on the metal dome. After that he sealed them with a clear roofing caulk. On the base, Mike prep-sanded the walls, while Sandy and Jackie spot plugged holes with Bondo. Inside the dome I proceeded to remount the sills. By screwing them in instead of nailing them, they should resist lifting better. Next came the remounting of the motors. The hardest part was deciding where the center of the dome should ride? A few "reference" rollers were still intact. This was a tricky task because the dome is not level. In fact, it is down about three inches in the south and two inches in the west. It's great for drainage, but not for balancing the dome. We measured, debated, and pushed the dome in a cycle like this for about 15 minutes. After a heavy heave-ho with everyone's help, the holes were drilled and we were committed to placing the first motor. We changed the location of the west motor to be able to screw it into a stud using four-inch long screws. The remaining motors are

now through bolted so it spreads the load along the entire wall assembly. We got the last motor into place at about 2 P.M. Mike and Adam then had to leave, but Sandy and Jackie stuck it out to the end to finish the painting.

A special aluminum roof paint was used to seal the dome. It is a tar and fiber based product that fills voids and expels water. Thousands of Gulf coast residents are spreading the material out as you read this in the wake of all the hurricane roof damage. It has an aluminum sheen when it dries to reflect the sun's heat. The dome kind of looks like concrete now. Maybe that will discourage vandalism.

I cut some baseboards to match the trim at the bottom. They also help conceal the decay of the plywood walls. I ran short of wood for the trim. I refused to pay \$12 for a 6 foot x 2 inch edge trim. I'll take a \$2 stud 2x4, rip it down and mill some matching pieces for a later project. We still need about a half-gallon of patching on some of the walls too.



While Jackie and Sandy endured the 95 degree heat from the sunny deep blue skies, I re-connected all the wires and circuits. I hoped I had labeled everything cor-

rectly. I was surprised to find a huge one-foot long Omite resistor in the circuit. After the last wire nut was twisted on, it was time for a test drive. A toss of the controller and voila! It worked! Next, we had to fine-tune the height of the "hurricane" clips. These prevent the dome from coming off in high winds. If placed too high, they hit the shutter door. If too low, they grind on the track. The leaf springs were given their finish coat and the interior black wall shielding was replaced. We gave it a little touch up spray and the interior looks brand new! We still need some "L" shaped foam strips to seal the gaps. We installed a new door closing mechanism. It now locks in the open position. I was waiting for the paint to dry before the top sliding latch bolt is added. We need to add a jamb plate on the dead bolt too.

So what's left on the "To do" list? I'm fabricating a "noggin board". This will clip on to the shutter and doorway to protect people's heads as they enter and exit the observatory. I'm working on a stencil that says www.wehraastro.org to put around the base of the dome as it rotates. I'm also working on a reinforced sign holder to post the schedule on the wall like we used to have. I'd like to paint a stripe on the pavement called the "Milky walkway" which would list distances from the parking lot to the observatory in one direction, and in the other direction, the distances to the planets as featured in Tim Grunewald's lectures at the observatory sessions. I'd like to build a lightweight A-frame standing road sign that is lighted for observing nights. We should also get a permanently mounted sign to hang underneath the Froemming Park sign.

If anyone else has other ideas, I like to hear them. Perhaps we can make this an annual or biannual affair of cleanup and spruce-up. I haven't the heart to toss the old signs, but if anyone has some other use for them let me know.

I'd like to thank Sandy Dombeck, Mike Nugent, Adam Machajewski, and Jackie Mau for their tireless efforts in completing this project. I'd also nominate Sandy and Jackie for the "Golden Brush" award for the excellent paint job. The "new" observatory will be a valuable attraction to our fall lineup of events. If you'd like to be put on an "alert" list for future repairs, send me an e-mail stating such.

A reminder the dome is open to all members who wish to use it! Enjoy!

-Todd Weiler



Northwoods Starfest



The Northwoods Starfest is one of Wisconsin's finest star parties. For \$50 you receive a midnight snack on Friday, Saturday brunch, dinner and a midnight

snack (11:00 if it is cloudy). The price also includes a bunk or a place to camp.

It is held at the Hobbs Observatory, near Fall Creek, east of Eau Claire, on Highway 12. It uses the grounds of a youth camp, with the meals in the dining room. The county owns the observatory, but the telescopes belong to the university and they are operated by the Chippewa Valley Astronomical Society.

They limit the star party to 150 people, which is a nice size group. They have a 24" Newtonian mounted on a ship's gun turret. New this year was a Meade 14" cassegrain.



Across the street (through the tunnel) is a very beautiful nature center. On Friday night and Saturday afternoon they have speakers and sometimes workshops. There is also a

speaker, usually from the university, after the Saturday dinner and door prizes (from T-shirts to telescopes).

We had two good nights for viewing this year. Solar viewing was very good too. There was a very large group of sunspots that was great.

It's a star party that we enjoy every year. Maybe we will see you there next year!

-Gene DuPree



Wehr at WOW

From June 17th through June 20th, 2004, NEWSTAR hosted Wisconsin Observers Weekend (WOW) in Hartman Creek State Park. All five of the group campsites are reserved for participants, which numbers close to 200. During the day you were free to enjoy the campground, talk with other WOW guests, or visit the nearby town of



Waupaca. On Saturday afternoon, NEWSTAR hosted an ice cream social and had a few door prizes.

The weather cooperated for much of the long weekend. Only on Friday night did it cloud up early. Most of the other nights, we had clear skies and many people stayed up until 2:00am.



-Tim Grunewald



2003 Pick'n Save "We Care" Notification



Period	Amount Earned	Status
2003 Q1	\$7.44	Expired
2003 Q2	\$8.10	Carried Forward
2003 Q3	\$9.15	Carried Forward
2003 Q4	\$11.37	Carried Forward

We did not meet the required minimum \$50 for the donation from Pick'n Save. The more members that are involved, the more money we will be awarded. So, please sign up!



Yearly Guide to Showpiece Objects

All of these objects are shown on the sky maps that we hand out at the observatory from www.Skymaps.com. There are only a few that may be difficult to view in a small aperture scope and many of these objects are viewable with binoculars.

Below, I give a list of these objects sorted out by month for the entire year. For each month I list ten objects that you can locate. I figure that the list will come in handy if you come out to the observatory and wonder what objects you can show people. If you can find half of these objects for a given month, you can definitely handle showing these same objects at the observatory. There is nothing more gratifying than having someone say "Thank you" to you for giving them a chance to look at an object through your telescope.

Below is a list of some of the more common objects that we show people at the observatory:

Albireo	M15	M45
Cr399	M22	M57
M2	M27	M64
M3	M31	M65/M66
M5	M35	M81/M82
M8	M36	M104
M10	M37	Mel 111
M11	M38	NGC253
M12	M42	NGC869/
M13	M44	NGC884

Objects by month (sorted by Right Ascension, West to East)

January	March	May	July	September	November
M31	NGC869	M81/M82	M3	M13	M57
NGC869	NGC884	M65/M66	M5	M12	Cr399
NGC884	M45	Mel 111	M13	M10	Albireo
M45	M38	M104	M12	M8	M27
M38	M42	M64	M10	M22	M15
M42	M36	M3	M8	M11	M2
M36	M37	M5	M22	M57	M31
M37	M35	M13	M11	Albireo	NGC253
M35	M44	M12	M57	M15	NGC869
M44	M81/M82	M10	Albireo	M31	NGC884
M81/M82	M3				M45
February	April	June	August	October	December
M31	M38	M81/M82	M3	M13	M27
NGC869	M36	Mel 111	M5	M11	M15
NGC884	M37	M3	M13	M57	M2
M45	M35	M5	M12	Cr399	M31
M38	M81/M82	M13	M10	Albireo	NGC253
M42	M65/M66	M12	M8	M27	NGC869
M36	Mel 111	M10	M22	M15	NGC884
M37	M3	M11	M11	M2	M45
M35	M5	M57	M57	M31	M38
M44	M13	Albireo	Albireo	NGC869	M36
M81/M82				NGC884	M3

-Tim Grunewald



SCHEDULED ACTIVITIES

FOR

The Wehr Astronomical Society

<http://www.wehrastro.org>

Regular Meetings (Free and Open to the Public)



October 12, 2004

Wehr Nature Center

Topic will be on "Latest from Cassini Probe at Saturn," presented by WAS member Jay Wichmann



November 9, 2004

Wehr Nature Center

"Starting out Right in Astronomy: What you need to know before you purchase a telescope for Christmas," presented by WAS Observatory Director Tim Grunewald



December 14, 2004

No meeting scheduled.

Observatory Activities (Free and Open to the Public)

October 8	7:30	Deep sky observing. Name a star: myths, legends and truths
October 22	7:00	Observing the Moon and deep sky objects. See a gibbous moon and the brighter deep sky objects
November 5	7:00	Deep sky observing. Locate the Andromeda Galaxy.
November 19	7:00	Observing the Moon and deep sky objects. See a first quarter moon and the brighter deep sky objects.
December 3	7:00	Deep sky observing and large open clusters.
December 17	7:00	Observing the Moon and deep sky objects. See a first quarter moon and the brighter deep sky objects.

Note: All observatory dates fall on a Friday, and are held at Froemming Park, on 51st Street between Ryan Rd. and Puetz Rd.



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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.

Starrynights

The official newsletter of the Wehr
Astronomical Society.

We are a group of amateur astronomers organized to promote the study of astronomy and further public and members' interest in astronomy. We have been serving the Milwaukee area since 1981 and welcome the public to our meetings. Our aim is to give guidance and information to those who want help in the pursuit of stargazing.

Back issues of starrynights can be requested or downloaded from our website at: www.wehrastro.org