

Danish Windmill Quarterly Newsletter

THE BREEZE

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Director's Message:

Dear Members,

Happy Belated New Year! 2024 proved to be an amazing year for us and can't wait to see what 2025 has coming. We finished the first phase of our capital campaign, enjoyed another annual Julefest celebration, and capped off the year with another busy holiday season.

Much happened in the final months of 2024 and we're excited to finally share all of it with you here including a full overview of our *Back on the Grind* restoration work from October. Don't forget to check out additional resources and content over at danishwindmill.org.



As always, thank you for following along on our windy journey. We look forward to what comes next and thank you for coming along with us.

Mange tak!

Shaun Sayres, M.A.
Manager

 Nørre Snede, DK 1848-1975

Celebrating
49 years in
Elk Horn
Elk Horn, IA 1976-present 

In 1975, local farmer and Danish-American Harvey Sornson approached the Elk Horn community with an unthinkable idea: to relocate a windmill from Denmark to the United States. It was no easy feat, but to the amazement of most, Harvey's "impossible dream" became reality.

During the winter of 1975-76, an authentic Danish windmill from Nørre Snede, DK was dismantled, ferried across the Atlantic, and transported cross-country to Elk Horn, Iowa. Once arrived, community volunteers set about putting together the pieces one by one until eventually, the old Danish windmill towered over downtown Elk Horn where it remains to this day.

For nearly 50 years, the windmill has stood as a tribute to Danish-American heritage, agricultural history, and the power of community.



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Feature Story:

"Back on the Grind: A Recap of Our 2024 Capital Campaign"

If someone had told me five years ago that one day I would be driving down interstate 80 in the middle of the night with 2 Dutch millwrights and a trunk full of holiday garland to fix a windmill from Denmark in the middle of Iowa, I'm not sure how I would have reacted. By now, two years into this job, this Blues-Brothers-esque scenario is just another 'run-of-the-mill' day, but for most people, this vignette of random details presents another extraordinary episode in an almost unbelievable story. It's also a story that, perhaps remarkably, has yet to end. This thought has remained at the forefront of my mind since these millwrights left Elk Horn two weeks later. The windmill's journey has no ending. It beats on with a Gatsbyian-pulse which constantly echoes the soundings of the past against an ever-changing future.

The thrust of what I'm trying to say is that the windmill's story does not end with its arrival in Elk Horn, Iowa in 1976. Almost 50 years later, we are still here making Harvey Sornson's dream a reality. Whether we call it a struggle or a journey, this process must always continue as we strive to keep history relevant in a world seemingly more willing than ever to forget it altogether. The challenge has shifted from getting it here to keeping it here, and that's what makes moments like the repairs we made this year so special. It was a privilege to become a part of our mill's ongoing journey, and I intend to share my perspective on those days here.

First, we need to cover some background. The work I'll be outlining below covers Phase One of our latest capital campaign, Back on the Grind. The focus of this campaign, developed after Erik Batenburg's 2023 inspection, is to restore the windmill back to full functionality and working condition. Phase One consisted of projects aimed at addressing necessary repairs and improvements that would ensure the mill's safety and longevity in the coming years, leaving aside aesthetic improvements and other luxuries for



Ronald & Erik using a hydraulic jack to lift a contact point on the cap frame

the latter stages of the campaign. To accomplish this work, we contracted with Erik's firm, Møllebygger Petersen ApS, a mill-building and restoration company based in Denmark. Morten Petersen manages the administrative affairs of the business while Erik oversees the technical work. Erik and his colleague, Ronald Scheltens, would spend about two weeks working on this mill, with plans for Morten to join us towards the end of their stay.

The main objectives of this phase were as follows: (1) address misaligned sliders upon which the cap frame turns before the cap pops off the mill body; (2) address the internal rattling of the new windshaft installed in 2018; (3) install a brake cable for brake access via the second-floor gallery; (4) install a grease bank for the safe application of new grease to all main points on the fantail; and (5) replace the rotting friction wheel for the sack hoist system. This is no small amount of work, especially when the workers are coming from overseas without their tools and equipment. Elk Horn doesn't have many options for lodging, but Mike and Lisa Riggs kindly let Erik and Ronald stay at their house just a short walk away from the mill. Meanwhile, I had compiled a fair amount of tools and hardware at the mill. It took a great deal of preparation and some critical local support to ensure the crew had everything they needed. They accomplished everything planned and more over the next two weeks.

We were also fortunate to have

Logan Aalbers with us for a couple days. Logan currently lives and studies in Pella, Iowa where he is part of the crew that maintains Pella's Dutch windmill. He joined us in Elk Horn for the opportunity to work with Erik and Ronald for a little while, and he didn't mind being put to work either. While Ronald prepared the site for the first project, Erik showed Logan how to tighten the wooden teeth used in our gears, and soon enough Logan was left to himself, adjusting the teeth on the spurwheel before starting on the brakewheel later on. This was a welcome project finished and we're thankful Logan got to spend some time with us and help us out.

While Logan worked on the teeth, Erik and Ronald tackled the sliders on the cap frame. These are essentially cast iron feet bolted into the underside of the white oak H-frame that makes up the cap frame base. All 12 of them need to be placed with precision so that they glide freely inside the track upon which the cap frame can rotate. Unfortunately, however, building machinery out of wood is a tricky business and it can be difficult to account for changes in wooden structures as wood dries and shrinks, a process that lasts many years. Our current cap frame was replaced in the 1990s, and after many years, the white oak beams had shrunk until eventually some of the cast iron feet were beginning to ride on the inner rail of the track. This is a rather common problem

with windmills and one that Erik has substantial experience in dealing with. Addressing it, without the use of large, expensive machinery, requires jacking up the entire cap frame using a low-profile hydraulic jack capable of lifting at least 10 tons. At each point, a number of shims cut from flat bar would be used to hold the cap in place and allow Erik and Ronald to get the cap high enough to remove the sliders. Thankfully, local machinist Mike Mortensen was able to provide some of the materials for us, including the hydraulic jack and the shims we needed. We only had to purchase the right puck for the jack, and some heavy-duty ratchet straps to keep everything secure.

Out of every job to be done, this was the messiest and most difficult. The plan was to mill new holes into each of the sliders, enabling us to reposition them all approximately 3 quarters of an inch outward. However, to be precise, each one had to be measured individually, and each required slightly different hole placements to ensure a precise fit and rotation. We were fortunate enough to have access to Colton Juelsgaard. He and his father, Eric, have some serious machine equipment, and Colton was able to mill new holes into each of the sliders with exact precision. Often when Erik and Ronald are doing this kind of job, they are dealing with people that don't have machinery as precise, and it draws out the process as modifications and adaptations are made. But in this case, thanks to Colton's

equipment, everything worked perfectly, allowing Erik and Ronald to put everything back together with relative ease. Altogether, we saved a full day for this project and all that was left was to clean up all of the grease, but there was one more hiccup we ran into before we could move on.

A windmill's cap frame weighs several tons. As a new cap frame dries, it also settles, forming a specific pathway as the mill finds its preferred movements. When we adjusted the sliders, we also interrupted this pathway, causing the frame to buckle as it adjusted to the new weight distribution. The difference here is a matter of millimeters, but a failure to address it can be catastrophic. As we lowered the cap frame back down, Erik and Ronald could see the added stress building on the wind shaft, the horizontal axle spanning across the cap frame. If left unchecked, the pressure from both sides would eventually cause the axle to snap. As a result, a little more time was taken to carve out space for the shaft and relieve the pressure from its back end. It's such a minor, but important detail, and one that we're thankful for Erik and Ronald's experience. There are only a handful of people working on mills that would have recognized this issue and thankfully we had two of them with us.

Once the cap was safely dropped back into place, Erik and Ronald turned their attention to the windshaft. This axle is relatively new – the mill purchased the

lumber back in 2001, and it stayed under the care of Ben Hassett for several years. Once the solid piece of white oak was close to finished drying, Ben carved out the shaft and bore a hole through the center for the shutter mechanism to needle through. Unfortunately, due to a general downturn in tourism and a lack of funding, the process of installing the windshaft stalled several years until the mill's Spin Campaign was fulfilled in 2017-2018 during which time the new windshaft was installed. However, there was a slight problem with the design in that the shaft made an incredible amount of noise during operation. Every turn produced loud vibrations that would rattle through the entire mill, making it especially frustrating for running the windmill when it is important to listen for any potential problems.

Erik identified this problem during his initial inspection, but the shaft would have to be properly taken apart for a full diagnosis, and that is what we set out to do. The ratchet straps were repositioned to hold the wings tight, and one by one, the iron straps around the shaft were removed. These straps bind together the wooden shaft with the cast iron bearing where the friction of the sails turning is directed. Remarkably, the solution again was rather simple. Once Erik and Ronald had the axle opened, they could see large gaps where the oak and iron met, and these gaps happened to be the perfect width for the 3/16 steel shims Mike Mortenson cut for us. So, we went back to Mike and had him cut some more sections in about 4-foot lengths. Erik and Ronald then hammered these long pieces into the gaps. Only later, when looking back at photos of the 1995-96 project, did Erik recognize that the previous windshaft had been installed the same way. Once the shaft was put back together and clamped shut, the added pressure and filling from the shims had done just the trick. It rotated in almost complete silence. It was almost eerie to see.

While Erik and Ronald had been working on these, Logan and I began dismantling the old friction wheel to make way for the new one to be installed later on. Taking it apart without damaging it further, however, was tricky. I had wanted



Erik using Colton Juelsgaard's machine to drill new holes in the cast iron sliders





Erik and Ronald hammering the steel shims into the windshaft.

to display the original wheel on the ground floor, and so after trying to hammer it out of place, we eventually resorted to cutting it out before it broke apart anymore. Being unable to take the wheel apart also made getting it downstairs a bit of a challenge, but between the four of us we made it work, and the wheel is now part of a new exhibit on the ground floor where the entire sack hoist system is explained and demonstrated on tours today.

With both major repairs having been finished a full two days ahead of schedule, Erik and Ronald had more time to focus on other projects for the mill than originally planned. The added time meant Erik could take a bit longer to make

the brake cable pulley and he was able to fabricate a wooden wheel that would have been authentic to the mill's original brake when it stood in Nørre Snede. Meanwhile, Ronald began working on new shims for the wings, which require thick wedges of white oak to stabilize the connection inside the steel bracket that holds them together. The existing wedges had been made too narrow, causing the wings to wobble as they spun.

Having some hardy white oak on hand proved beneficial for us during these projects and we were lucky to have some available. Over the Summer, Kodie Haas volunteered to help a few of us cut and haul away the old white oak cap frame that had been sitting in the 'bone yard' behind the windmill since the 90s. Most of the wood had rotten away, but some salvageable pieces were spared including a large piece of the old H-frame which Kodie stored in a barn. Kodie was kind enough to give the piece back to us, and Mike Howard volunteered his shop for cutting it into smaller pieces for us to use. White oak isn't an easy material to cut, but Mike's bandsaw sliced through it like butter. We initially thought these pieces would be needed for repairing the windshaft, so it was fortunate to have so much material left over for these other projects.

As fast as the initial repairs went, these projects took a bit longer, especially without easy access to a full workshop. The third floor of the mill had become caked

in a thick layer of sawdust as the sounds of saws and drills echoed all the way to the bottom. By this point, the boom lift had also arrived, allowing Ronald to safely finish working on the wedges for the wings as well as check all of the bolts for the shutters.

Once the brake cable was installed and functioning, Erik and I began working on the installation of the new friction wheel while Ronald started working on the gearing. After a few hours of mental planning and some Dutch expletives, Ronald was able to reconstruct the parts by which the stone gear moved back and forth, making it much easier to slide the gear into place for grinding, and secure in place when not in use. This time, we made use of a long pine beam that Chris Fredericksen had salvaged from the boneyard over the Summer. The entire mechanism works much more easily now, and is also entirely adjustable should the parts decide to shift around again next Summer.

It took Erik and I a little while to get the new friction wheel installed. For this project, we managed to borrow some clamps from Gene Thomsen's shop next door. At this point I had been in and out of Gene's shop for odd items and tools a number of times, and each time he was more than happy to assist us or provide anything he could. Gene let us use his band saw to cut new white oak shims for the friction wheel, and once all the shims were cut, it didn't take long to set the wheel into place. With all other parts of the system in good condition, the sack hoist was declared functional again. This was the one project we weren't initially sure that we would have time for, but thankfully it is now complete and a regular part of our tours for visitors.

At this point, we only had the grease bank left, but it was time for some well-deserved time off. Erik and Ronald had been going nonstop since they arrived, and while we found plenty of time for coffee, World War II vehicles, and log cabins, they needed a break. By now, Morten had arrived in Elk Horn and the trio were set to take a small vacation across Iowa including visits to Dutch windmills in Pella and Fulton. Their break gave me some time to take care of the business-side of things that had been lagging behind a bit over the previous week.



The gap between the windshaft's oak and cast iron

Typically this means answering emails, paying bills, and checking inventory, but in my own case this meant fixing a leaky urinal and designing the exhibit panel for the sack hoist display I had been installing on the ground floor. I also had to get the hoses cut for each of the grease points that we had to cover.

Thankfully, this is something that Mike Mortensen specializes in. Mike builds hydraulic grease systems all the time, and had all of the equipment we needed to get this done right in his shop save for a couple odd adapters that we needed. While the millwrights were gallivanting through eastern Iowa, I worked with Mike to get all of the hoses cut to the lengths we needed. He also welded together the hub that would be used to connect them together. A lot of skill and tedious work went into this final project, but it was worth it if it meant we wouldn't have to climb out onto the fantail for routine maintenance.

On Thursday, the crew returned to the mill ready to begin wrapping things up, but our final project would have to wait just a little longer. The day's forecast called for high wind, and it was the perfect opportunity to put the mill through its paces. According to our weather station, wind speeds averaged out at about 27 mph that day, a great speed to test out both the mill and the stones. Erik gave her full sails and she flew in the wind like I've never seen, an awe-inspiring exhibition of both power and grace. Everything appeared to move effortlessly, and with the windshaft repaired, eerily silent. Anyone walking into the mill on the ground floor might not have even known it was running, if not for the dust. We had the millstones running at full speed, pulverizing rye grain into a fine powder that coated the entire ground floor including Ronald.

On Friday, Erik and Ronald assembled the grease bank while Morten continued cleaning up the heaps of tools and sawdust inside. This was the final day of work, and with everything going as well as it had, there wasn't a lot left apart from cleaning up and making the mill presentable again. The last two weeks had gone by so quickly, it was hard to believe the project was just about finished. Between the



Erik finishing the new wheel and axle for the brake pulley

beautiful weather and how each task unfolded, we couldn't have asked for better circumstances. It felt even more fitting that we had a celebration planned to send these guys off that same night, headlined by some delicious Danish food and the eternal folk music of the late Dwight Lamb. We had a great time sharing our successes with the town, and Erik and Morten enjoyed sharing their own perspectives on our community and the mill's future.

I couldn't help but feel relieved that this moment was coming to an end, but part of me wished there was more to be done. Having the privilege to work next to these guys, masters of a unique, Old-World craft was nothing I ever saw coming. Yet here it was, the opportunity of a lifetime that most people would never know they needed. When I give tours or talk about the windmill, I frequently evoke the metaphor of a time machine. The mill has this ability to spin you into a lost world, one that can be naturally disorienting, but familiar in its façade of simplicity.



How a mill should look after an hour of grinding



The new sack hoist exhibit

What made watching Erik and Ronald work such a privilege was seeing centuries of development in their craft one full display. They might say most of their work is swinging heavy hammers and cutting wood, but there is much more to it. Building and maintaining these historic machines depends on the preserved skill and knowledge that transcends generations. To be a part of that process and see it continue here in Elk Horn is a special moment. The windmill has been restored to the best shape it has seen in decades and will continue to be monitored by some of the most qualified and experienced millwrights in the world to ensure it remains in that condition.

We want to thank all of those who helped make this project possible, between 1975 and today. It takes a village to keep a windmill, and we're confident that the mill is in the best of care under the Danish Villages for years to come.

Shaun Sayres

Read the full project recap with more pictures and details over at **danishwindmill.org**

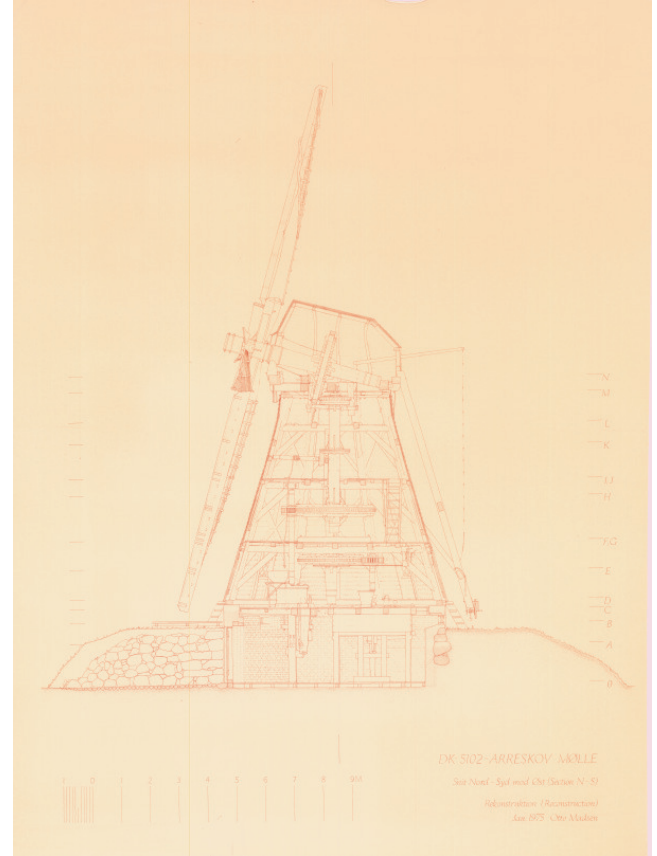
A LOST WINDMILL

We recently were gifted a set of blueprints for a windmill that no longer exists, and no one knows for sure what happened to it: Arreskov Mølle.

The Arreskov Vindmølle was once located outside of Fåborg on the island of Fyn. It's history remains largely a mystery and it is unmentioned in Dansk Møller (1934) where information on the Arreskov watermill can be found.

It is rumored that the mill was dismantled in 1975 as part of a project to send it to Florida, USA. However, although the mill was dismantled, it never shipped and the fate of its pieces remains unknown. It is assumed these blueprints were drafted specifically for this project. The prints were donated to the Danish Windmill in 2024, but how or when the prints were sent from Denmark is also unknown.

Nevertheless, these blueprints illustrate the Arreskov mill in incredible detail. We had the prints professionally scanned before giving the physical copies to Møllebygger Petersen ApS to return to Denmark. We are still working on how to make these prints available online.

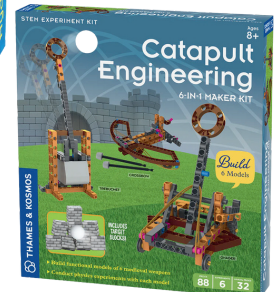


New for 2025

We are excited to debut a full new product line for 2025. We're partnering with Thames & Kosmos to bring in a line of educational STEAM-centric games and kits into the gift shop. These items offer a wide range of avenues for children of all ages to engage with the science behind windmills and how they are built and driven. Many of these come with lesson plans and activities that cover structural engineering, renewable energy, gears and motion, and more.

In 2025, we hope to integrate many of these games into our windmill tour, guiding our visitors towards tangible items that can offer practical and hands-on experiences with the scientific ideas that our windmill introduces.

Some items will not be available until later this year, but many are already available in-store or online at danishwindmill.com.



News & Updates

October also featured more changes in the gift shop including the reorganization of our Christmas wall and the integration of one of our newer Danish brands, Gry & Sif. We also organized the remainder of our annual Denmark shipment. And this year, in conjunction with our new holiday catalog, we initiated a new free shipping policy for the rest of 2024, offering free shipping on all orders over \$100.

In November, we put out a brand new Julefest brochure with the help of local artist, Deborah King. We also created and launched a new landing page for Julefest over at JulefestDV.com. This page was headlined on three billboards that we booked in Atlantic, Denison, and Carroll as part of our advertising grant funded by the Iowa Tourism Office. We also hosted a completely new event, Santa in the Forge, as some of our Viking friends joined the weekend festivities. The results spoke for themselves as multiple businesses in town including the windmill posted record numbers over the holiday weekend.



Fall Banquet



Santa in the Forge



Christkindlmarket Des Moines



December 27, Our Denmark Shipment Arrives

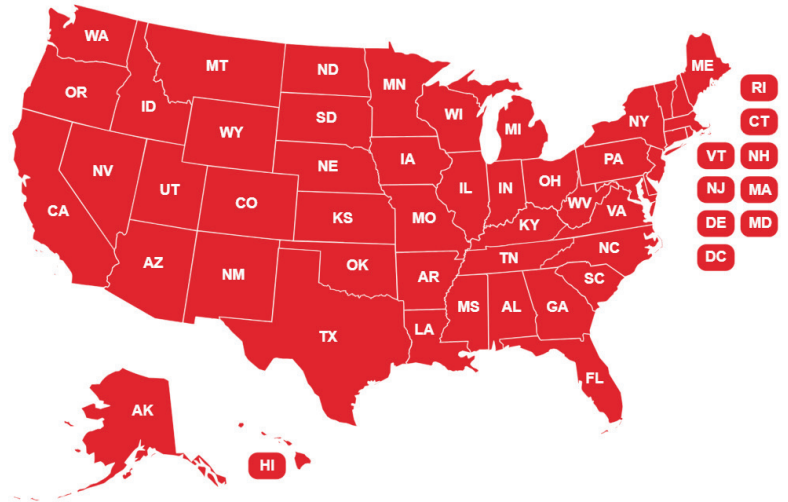
In December, we participated in Christkindlmarket Des Moines again thanks in part to our sponsorship by The Rasmussen Group. This year was by far the busiest we ever had, and we could not have asked for better weather or visitor traffic. Shaun, Julie, and Tami ran the hut for the weekend with Sarah McDonald volunteering her assistance on Friday. We'll be looking for additional help next year as the festival just seems to grow every year.

Finally, after two months of waiting, our Denmark shipment finally arrived. We're thankful it finally made it, and to our patient customers who kindly waited along with us. Cloid Farley and Andy Anderson helped us unload the truck, and it took until mid-January to clear out all of the boxes.

Visitor Information

We finished the year with visitors from all 50 states plus Washington DC and Puerto Rico!

- 21,185 visitors signed our guestbook
- Visitors from 36 foreign countries including 224 visitors from Denmark
- Top states: IA, NE, CO, IL, MN, CA



VIEW THIS ISSUE ONLINE

View this issue and past issues of *The Breeze* online at danishwindmill.org

WE NEED YOUR SUPPORT

We depend on donations and planned giving to keep the lights on. Whether it's repairs for the windmill, credit card fees, or restock orders, your support goes directly towards the operations that keeps us open and continuing our mission to preserve our Danish heritage. Any amount helps to keep the windmill turning.

Learn more about our fundraising opportunities at danishwindmill.org/donate.

These campaigns include:

- *Keep the Mill Turning* (Operations)
- *Back on the Grind* (Capital Improvements)
- *Danish Windmill Endowment Fund*



We also accept donated plates and figurines!