



**LEHIGH VALLEY CHAPTER**  
 PENNSYLVANIA SOCIETY OF  
 PROFESSIONAL ENGINEERS

**Lehigh, Northampton, Monroe, and Carbon Counties**  
**(Organized 1935)**

# Valley Engineer Newsletter

January - February 2021

## **President's Message**

Alex Dezubay, PE, President

At Lehigh Valley PSPE we have not had any in-person events since early in 2020. We are continuing with as many of our activities as possible using Zoom.

We have had two Zoom events lately. In December Steve Ressler's presented "Roman Aqueducts" and in January John Wanner's presented "Legislative Update." A summary appears elsewhere in this newsletter.

We also continue with our Zoom Board of Director meetings the second Monday of each month. This has been very successful. We also continue with this year's scholarship program, now being chaired by Jeff Kutz. Frank Walsh is heading up the fundraising efforts. Contributions are "encouraging."

In spite of all that the Engineer of the Year and Young Engineer of the Year applications were received and awarded in January. Bios of the EOY and YEOY are later in this Newsletter.

Again, depending on Covid-19, we are considering an outdoor picnic to award the scholarships and EOY and YEOY awards, hopefully in May.

Lastly, this is an election year for our local chapter and state PSPE officers. If any members in good standing are interested in joining the board, or becoming an officer please contact Past President Brian Kutz or me. I will forward all nomination to Brian.



**PENNSYLVANIA SOCIETY  
 OF  
 PROFESSIONAL ENGINEERS**

**LEHIGH VALLEY CHAPTER  
 (ORGANIZED 1935)**

CARBON, LEHIGH, MONROE, & NORTHAMPTON COUNTIES

**Engineer of the Year,  
Stephen J. Ressler, P.E., Ph.D.,  
Dist.M.ASCE, F.ASEE**



Currently serving as President of the Lehigh Valley Section, American Society of Civil Engineers (ASCE), Dr. Stephen Ressler is Professor Emeritus from the U.S. Military Academy (USMA) at West Point, NY. He holds a B.S. degree from USMA, M.S. and Ph.D. degrees in civil engineering from Lehigh University, and a Master of Strategic Studies degree from the U.S. Army War College.

Dr. Ressler served for 34 years as a commissioned officer in the U.S. Army Corps of Engineers and retired at the rank of Brigadier General in 2013. He served in a variety of military engineering assignments in the U.S., Europe, Africa, and Central Asia, including service as Deputy Commander of the New York District, Corps of Engineers. He is an Army master parachutist and a registered professional engineer in Virginia. At West Point, he served as Professor and Head of the Department of Civil and Mechanical Engineering, Director of the ABET-accredited civil engineering program, Vice Dean for Education, and USMA Chief of Staff, while also teaching a wide variety of mechanics, structural engineering, and professional practice courses across the civil engineering curriculum. As Department Head, he supervised 46 faculty and staff, two ABET-accredited engineering programs, and two research centers.

In 2007, he deployed to Afghanistan to develop a civil engineering program for the newly created National Military Academy of Afghanistan (NMAA) in Kabul.

Dr. Ressler's passion is engineering education. He has produced four on-line engineering lecture series for The Great Courses (<http://www.thegreatcourses.com/>), achieving some of the highest customer satisfaction ratings in the company's 25-year history. He is a frequent guest lecturer at universities, museums, and professional meetings—and has been a featured speaker on seven cruises. He has taught as an Adjunct Professor at Lehigh University and serves on two national-level education committees of ASCE. He was the developer and director of the West Point Bridge Design Contest, a nationwide online engineering competition that engaged over 100,000 middle school and high school students between 2001 and 2016. For over a decade he has served as an instructor for ASCE's landmark faculty development program—the Excellence in Civil Engineering Education (ExCEED) Teaching Workshop. He has written over seventy scholarly papers on engineering accreditation, curriculum assessment, faculty development, teaching techniques, K-12 engineering outreach, and information technology.

Dr. Ressler is a winner of the ASCE Outstanding Projects and Leaders (OPAL) Award, the ASCE Presidents' Award, the ASEE Civil Engineering Division's George K. Wadlin Distinguished Service Award, the ASCE Leif Sverdrup Award for Civil Engineering Management, the ASCE ExCEED Leadership Award, the ASCE President's Medal, the Society of American Military Engineers Bliss Medal for Outstanding Contributions to Engineering Education, the American Association of Engineering Societies Norman Augustine Award for Outstanding Achievement in Engineering Communications, the ASEE Distinguished Educator Award, the Premier Award for Excellence in Engineering Education Courseware, the ASEE Dow Outstanding New Faculty Award, the EDUCOM Medal for application of information technology in education, and ten best paper awards from ASEE and ASCE. He was one of *Engineering News Record's* "Top 25 Newsmakers Who Served Construction" in 2000 and was named a Distinguished Member of ASCE in 2005 and a Fellow of ASEE in 2017.

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A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty.

-Winston Churchill

## Young Engineer of the Year Alexa F. Rooney, EIT, JD



Alexa traveling in Talkeetna, Alaska. The Denali Mountain range in the background.

As a child, Alexa Rooney loved to work with her hands and figure out the skeletons of buildings she visited. This translated into her love and passion for Civil Engineering. Alexa received B.S. Degrees in Architectural Engineering and Civil Engineering from Missouri University of Science and Technology (formally University of Missouri – Rolla). She then went on to receive her Juris Doctorate from Concord Law School in 2016.

Alexa currently works at PPL, Electric Utilities (PPL), as a Senior Transmission Regulatory and Rates Specialist. Previously, she spent three years as a Transmission Engineering Design Supervisor. Prior to that she had eight years of experience with Transmission Line Design working at companies in Michigan, Kansas, Missouri, and New Mexico.

Alexa currently serves as a Director of Lehigh Valley Chapter, Pennsylvania Society of Professional Engineers. She's also a member of Lehigh Valley Chapter of American Society of Civil Engineers, Treasurer for Lehigh Valley Chapter of Society of Women Engineers, and member-at-large on PPL Business Resource Groups, PPL Tomorrow and POWER Network. Alexa is also a foster parent and a very active volunteer with the Salvation Army – Office of Foster Care.

In Alexa's spare time, she enjoys traveling and cheering for her favorite sports teams, which are: the Kansas City Chiefs and Kansas City Royals. Go Chiefs!

## John Wanner's "Legislative Update": Zoom Presentation to the LVPSPE Board of Directors, January 27, 2021

This month the legislature begins its 2021-2022 legislative session. No bills have been introduced yet, but it's not difficult to project PSPE's major issues for the session. That's not to say additional topics won't arise, but here are five topics that I anticipate will head our legislative agenda.

1. Transportation funding - Lack of transportation funding was brewing long before the pandemic flattened gas tax revenues. PennDOT made a last-minute attempt at getting more revenue in the state budget to prevent halting dozens of projects in late November. And even though that effort failed, those projects remained operational. Subsequent revenue developments (i.e. federal funds) may create the illusion that the crisis has passed. The truth is that Pennsylvania can't continue to kick this problem down the road much further.

2. Registration Act Amendments - One of the more disappointing developments of the last session was the PSPE supported amendments to our licensing law failed to receive a final vote in the Senate after passing the House and Senate committees unanimously. Ostensibly, the holdup was caused by opposition from some sectors of the GIS community. PSPE plans to have the bill reintroduced in the House as well as the Senate.

3. Anti-Indemnification - Last session, PSPE supported a bill to eliminate the use of anti-indemnification clauses in construction contracts. Nearly every other state in the country already has such a law. Initially, the legislation only applied to construction contractors. We had the bill amended to include engineers before it passed the House committee. Unfortunately, the House adjourned before acting on the bill. Reintroduction is expected early this year.

4. Commonwealth Budget - As in previous years, the state budget's adoption holds several areas of interest to the engineering community. Of particular interest to PSPE is the funding for the MATHCOUNTS® grant. The current fiscal year's budget includes funding for the MATHCOUNTS grant. We will once again need to lobby for the continuation of that line item.

Continued on page 12

## **SCHOLARSHIP SPONSORS**

A great way to be involved in the LVPSPE Chapter is to contribute to the **LVPSPE SCHOLARSHIP FUND**. Please Contact the Valley Engineer Editor to sponsor scholarships for the remainder of the calendar year.

If you would like to contribute any amount – please send your TAX-DEDUCTIBLE donation to PA ENGINEERING FUND. Donations should be mailed to:

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Please note “LVPSPE Scholarship Fund” on the comment line.

Or, you may also contribute via the LVPSPE website <http://www.lvpspe.org/Donations>.

Scholarship application is at <http://www.lvpspe.org/Scholarships>. Any questions regarding scholarships can be directed to

Alex Dezubay, PE  
610-597-2007  
[Scholarship@LVPSPE.org](mailto:Scholarship@LVPSPE.org)

### **PSPE SCHOLARSHIPS**

The Pennsylvania Engineering Foundation currently administers the following scholarships for engineering students:

#### **Undergraduate**

- \$1,000 PEF Grant: (two awards)

#### **Upperclassman**

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Applications and guidelines are on-line now at <http://www.pspe.org/scholarships>

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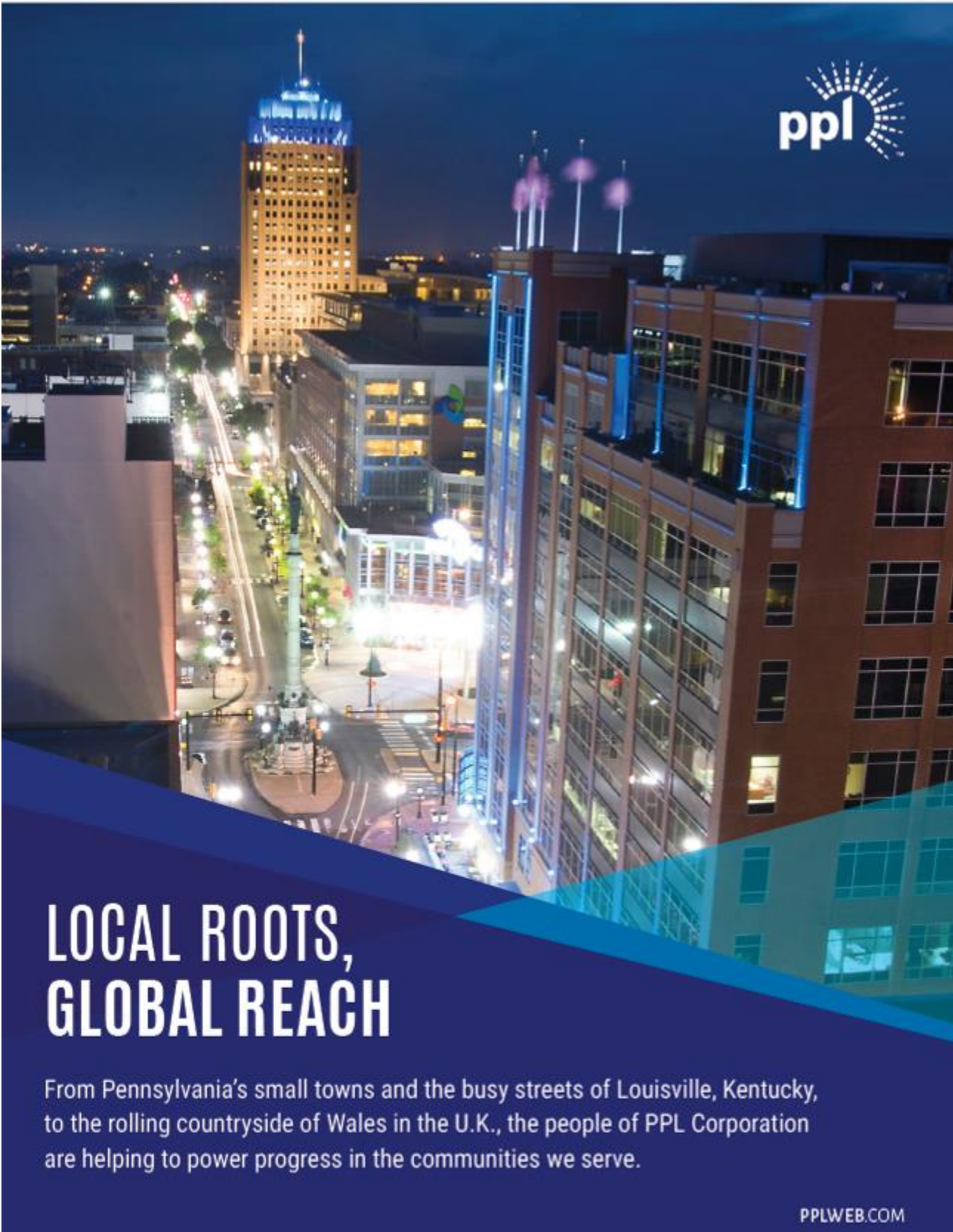


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**Board of Direction Meetings**

The monthly Board of Direction meetings are 6:00 PM on the second (2<sup>nd</sup>) Monday of each month. Open to all members; they are held via Zoom meetings in 2021 until further notice.

**2020 – 2021 Chapter Officers**

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Alex Dezubay, PE  
[President@LVPSPE.org](mailto:President@LVPSPE.org)                      610-597-2007

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5. Two Other Issues - Several issues that we worked on during the last session will undoubtedly reappear during 2021. Expect new legislation addressing home inspectors licensing and conventional oil/gas drilling procedures, both vetoed by Governor Wolf in December 2020.

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Being powerful is like being a lady. If you have to tell people you are, you aren't. - Margaret Thatcher

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Believe in yourself,  
Even when no one else will.  
-Sasquatch

## Grist Mills Here, Grist Mills There, Grist Mills, Grist Mills, Everywhere

Alfred Gruenke, PE

At the beginning of the COVID shutdown and when gyms were closed, I hiked the Saucon Rail Trail for exercise. Little did I know that this would lead me to a new direction of interest, grist mills. These were small-scale industries that utilized local farms for their raw material and served nearby large cities for their product.

According to Jeff Donat of the Whitehall Historical Preservation Society, there were around a hundred grist mills in the area. The grist mills ground cereal grains such as wheat, rye, oats, and others into flour. The number of mills is a testament to the general prosperity of farmers in the area, the availability of transportation facilities to nearby metropolitan areas, and the many local streams to power the mills. Some mills were built in the late 18<sup>th</sup> century and remained in operation until well into the 20<sup>th</sup> century.

Kris Kwant of the Triple Sun Spirits Company confirmed another use of the product of grist mills. Beer and whiskey, primarily made from rye. Beer and whiskey production has been part of this country's heritage since the beginning of colonial settlements. Whiskey is grain concentrated, much easier to ship to markets, and much more profitable. Ground grain was fermented, distilled, and flavoring added. It was heavily taxed. In the 1790s there was a rebellion in Western Pennsylvania against this tax, but a show of force by President George Washington ended all thoughts of insurrection, and so the excise tax remains to this day.

Jeff introduced me to SPOOM, the Society for the Preservation of Old Mills. He presented me with their quarterly publication, "Old Mill News". The slick magazine is fil-

Continued on page 13

led with articles on mill restoration and people of interest during the hey-day of water powered mills. Advertisements range from handcrafted waterwheels to a historic grist mill farm for sale for \$625,000.00

After my introduction to grist mills in spring I found grist mills everywhere. They have similar characteristics. The buildings are around 40' x 50', 2½ or 3 stories high, usually built out of local field stones and mortared together. Some sort of water source and accompanying raceways supplied the power. An easily identifiable feature is an approximately 30" hoist hood from the peak of the roof, with doors on each floor of the structure. The hoist hood had a hoist attached and was used to unload grain and load flour.



Hoist hood of the Haines Mill.

Besides the Wagner mill, I had the opportunity to visit two more mills in the area, and "looked over" a couple of others.

Unfortunately, most of the grist mills in the area have been gutted, to an extent it's difficult to follow the power train from the head race to grinding the grain and shipping. A notable exception is the Haines Mill, located in Cetronia just east of Dorney Park. The water source for the mill is Cedar Creek. A dam is across Haines Mill road, forming a rather large pond inhabited by numerous geese, ducks, and two swans. The mill race is built of concrete.

Inspecting the exterior of the building I was fortunate to meet Ken Haines. His grandfather was Ira Haines, miller and part owner for much of the previous century. Ken gave me a personal tour of the mill.



Haines Brothers Flour Mill

The mill dates back to 1759, when John George Knauss built the original mill as a saw mill. It utilized an undershot water wheel, the same as the Wagner mill originally. The present mill was built in 1840. It remained in the Knauss family until 1867 when it was purchased by the Lichtenwalner family. A contribution of the Lichtenwalner era was the installation of grind rolls, replacing the original grindstones. Grind rolls consist of two down turning cylinders grinding the grain between them.

In 1906 the mill was acquired by Jacob S. Haines. Two years later the interior was destroyed by a fire. It was rebuilt in 1909. The original water wheel was replaced by a McCormick turbine, about the same time as the installation of turbines in the Erhart and Wagner mills.

The Haines brothers, Ira and William, assumed management in 1923. Ira was the miller, and William was the millwright, keeping all that machinery operating. The mill ground wheat, corn, rye, oats, and buckwheat. William was involved in local

Continued on page 14

events and organized and was the first fire chief of the Cetronia Fire Co.

What makes the Haines mill special is, the machinery is intact, and operating. Power transmission is shafts, pulleys, and belts. Ken said that belts made from buffalo hide were the most durable. Canvas was also utilized, especially for bucket elevator belts. Pulleys and shafts were metal, but the various chutes, elevator casings, and structure was wood. One can only marvel at the quality of the woodwork, the precision of the joints throughout the structure!



Power transmission shafts, pulleys, and belts.

milling system with another. Instead of once-through grinding, the Haines mill has four grind roll mills that operate in series. The first breaks up the shell. A sifter separates the bran from the flour. Bucket elevators transported the flour to the next grind roll mill. Each grind roll mill reduces the particle size further, until the last grind roll mill. The last bucket elevator lifts the meal from a grind roll to screens made from silk, which separates the fine particles from the coarse. Fines became product, coarse go back for further size reduction.



Grind roll mills, which replaced grind stones



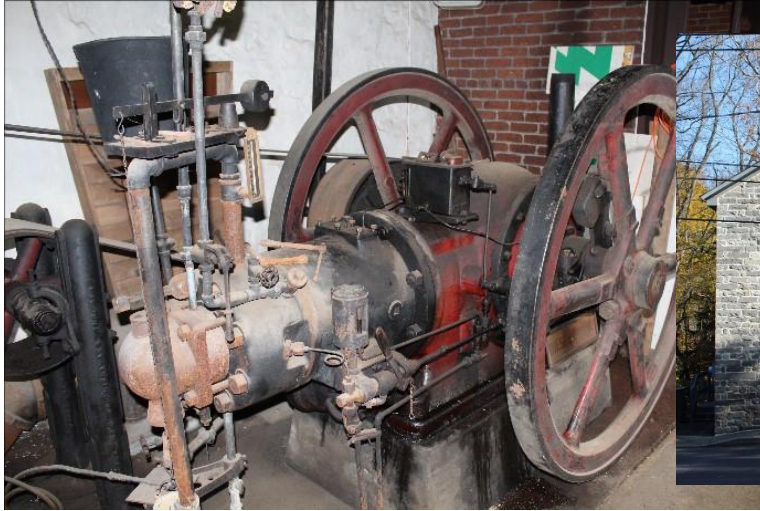
"Down" side of a bucket elevator. The buckets are approximately 6" wide.

During my tour Ken "turned on" the turbine, and everything in the building came to life! Shafts, pulleys, belts, grind rollers all turning. It was nice and quiet, attesting to the maintenance the mill has received.

Jacob Haines also installed a one-cylinder Fairbanks-Morse diesel engine to keep the mill operating in the event the water system failed. Ken said that starting the engine was quite tricky. Give the engine a spin by stepping on the spokes of the flywheel. If you slip and the engine starts, it could break your leg, or worse! Exiting times.

Replacing grind stones with grind roll mills was more than just replacing one type of

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Diesel engine



Helfrich Springs Grist Mill. Note hoist attachment above the three blue doors.

Ken pointed out a feature of barns and other structures in the area. The large, approximately two-foot diameter stars which adorn many of such structures are not for decoration. Instead, they are connected to tie-rods that span the building to stabilize it.

The mill was part of a working farm. Other structures include a home, shed, summer kitchen, and a schoolhouse.

The mill is on the National Register of Historic Places. The Lehigh County Historical Society offers tours from May – September; Saturdays and Sundays from 1 to 4 p.m.

Another mill I toured was the Helfrich Springs Grist Mill on Mickley Road in Whitehall, adjacent to a branch of Jordan Creek. It was built in 1807 by Peter Grim. This mill was unique in that it was not powered by a running stream. Instead, the water came from a nearby spring and pond. The power came from a 16' under-shot water wheel.

Grim resided in the brick home on the northwest corner of Mickley Road and Lehnert Road, which now houses the Whitehall Historical Preservation Society. Ruben Helfrich purchased the mill in 1872. The mill remained in operation until 1930.



Head race, from pond to mill

Jeff Donat of the Whitehall Historical Preservation Society took me on a tour. Jeff is a wellspring of information not only of the Helfrich mill but other grist mills in the Lehigh Valley area. He has a series of presentations on grist mills and other points of historical interests which he would be happy to present once the COVID epidemic is over.

Continued on page 16

Unfortunately, the machinery inside was destroyed during World War II so the metal could be used for the war effort. Fortunately, Jeff was able to fill me in on the details.

The building has numerous displays of historical interest and is an excellent example of Early American construction techniques.



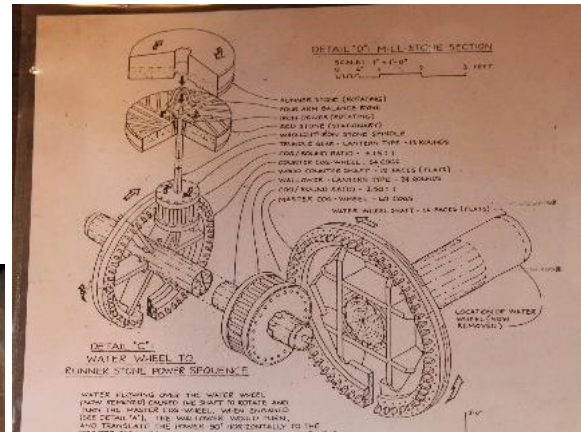
Wooden beams; note wooden pegs.



Helical gear section

I mentioned the engineering that was obviously needed to ensure all the wheels turned when the water was turned on! Ken stated that these mills were pretty much designed and built by the owners, European immigrants who brought their skill with them. They usually were part of

a farm thus had homes and a variety of associated structures nearby.



Power flows from input shaft, lower right, to mill stone, upper left. The grinding takes place between the rotating runner (upper) stone and the stationary bed (lower) stone. The mill was fed through the "eye" in the middle of the rotating upper stone.

The mill was placed on the National Register of Historic Sites in 1977. The Whitehall Historical Preservation Society began preservation of the mill in 1984.

A bit off Martin Luther King Jr. Drive (previously Lawrence St.) on St. Elmo St. in Allentown is a building with the characteristic hoist hood. For many years I remember seeing a sign, Hawk Flour, but paid no attention to its significance. The building is mostly gutted with only a very deteriorated turbine installed. The water supply is Cedar Creek and Union Terrace pond. It had four Anchor roller mills which were dismantled and donated to the Muddy Creek Forks Historical District, in York County. The owner lives next door.

And then, there is The Old Seems Mill, located on Orchid Road in Lower Macungie Township. In the 1950s my father worked on the adjacent "gentleman's farm" and five orchid greenhouses owned by a doctor in Allentown. I often fished in the Little Lehigh and worked there in the summer when I was in high school. I

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remember the dam (which is what drew me back) but took no notice of its significance until I became interested in grist mills. Going back stirred up some old memories of hauling hay; feeding sheep; trapping and shooting groundhogs; and washing clay pots in preparation for orchid replanting.

The original owners sold the property years ago. What had been a run-down building is now a private residence, obviously rebuilt. The owner, said that originally this was a linseed mill built by a David Deschler in the early 1800s.



A linseed oil mill, restored as a residence.

The mill was part of the early Moravian settlement in Emmaus (Emaus?). There is a long iron shaft on the property, apparently for power transmission. There is a corner stone with writing etched on it but is so worn it's illegible. The owner would like someone with the skills to restore the writing.

The Lehigh Valley area has been part of the industrialization of America since early colonial times, thanks to the hardiness and inventiveness of the inhabitants. I have had an interest in the local contribution to the industrialization of America for years, but my interest heretofore has been cement and steel. Grist mills are a new addition.

My thanks to Jeff Donat, Ken Haines, Kris Kwant, and others who have contributed

to this article, and my interest in grist mills.

"I wonder if the snow loves the trees and fields, that it kisses them so gently? And then it covers them up snug, you know, with a white quilt; and perhaps it says "Go to sleep, darlings, till the summer comes again."

-Lewis Carroll, [\*Alice's Adventures in Wonderland & Through the Looking-Glass\*](#)

Only a man who knows what it is like to be defeated can reach down to the bottom of his soul and come up with the extra ounce of power it takes to win when the match is even.

-Muhammad Ali

I love cooking with wine.  
Sometimes I even put it in the food.

I like cats too.  
Let's exchange recipes  
-Alf

McTeagle's Corollary states that "a sealed box of any type of fasteners shipped to a job site, will, upon opening, be found to be short a number of fasteners proportional to the number of fasteners required to complete the most critical joint on the final structure to be erected prior to receiving the contract acceptance certificate."

I would like to take you seriously, but to do so would affront your intelligence.  
-William F. Buckley Jr.

I predict future happiness for Americans if they can prevent the government from wasting the labors of the people under the pretense of taking care of them."  
-Thomas Jefferson



Minutes for the January 11, 2021 BOARD OF DIRECTORS MEETING  
6:00 pm Zoom Meeting

Attendees: Chris Williams, Al Dezubay, Frank Walsh, Mike Basta, Al Gruenke, Mary Rooney, Jeff Kutz, and Ray Szczucki.

**Call to Order: Al Dezubay called the meeting to order at 6:01 PM**

**Discussion:**

- Minutes from the December meeting were approved unanimously.
- Need to update LVPSPE banner with new logo. Al to investigate how to get updated banner printed without replacing entire unit.
- Event in January – Legislative update with John Wanner scheduled for Wednesday 1/27.
- Al Gruenke has done great with the newsletter. Will be writing on local grist mills he's visited. Al met a gentleman who is very knowledgeable on the topic and is willing to lead a PowerPoint presentation. Al will review his presentation and determine if it's a good fit for a PDH presentation.
- Steve Ressler made presentation on Roman aqueduct engineering. Al will coordinate with Tracy on sending PDHs to attendees.
- Chris to coordinate with Kevin Campbell on MATHCOUNTS and whether we'll be providing trophies.
- All discussed Young Engineer of the Year options.
- Frank discussed fundraising efforts in December and early January.
  - Received \$4,600.00
  - Pledged \$5,300.00
  - Tomorrow Frank will be mailing checks to the state.
  - Ray received check from PEF, will coordinate with Frank to get the check back to PEF for processing.
  - Frank discussed various other fundraising contacts and coordination.
- Jeff will post solicitation for donations on LinkedIn page.
- Al received two scholarship applications. First round of notifications go out to schools in early January.
- Mary suggested outdoor scholarship event with pavilion. Could be a catered event. May need to book well in advance. All were interested in pursuing this option. Al will look into pavilion options.
- Peter will move into new role at PSPE soon, likely on 1/16. Angelika will fill in on meeting attendance going forward, likely April or May.
- Al will reach out to Brian Kutz about the officer slate for next year.
- Al reached out to Wild Apricot to find out about security warning related to LVPSPE.org. Will follow up with Board on their feedback.
- Treasurer report (Ray Szczucki)
  - \$1,977.54 checking balance
  - \$9,865.10 savings balance
  - Transactions were related to Wild Apricot and PDH deposits.
  - AffiniPay is now processing donations/payments on our website.

- Website contact limit is 500 people. It appears that some people are counting as multiple contacts due to having multiple emails registered. Ray will look into deleting duplicate and/or invalid entries.

**Adjournment at 6:46 on a motion by Frank, seconded by Mary.**

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Minutes for the February 8, 2021 BOARD OF DIRECTORS MEETING  
6:00 pm Zoom Meeting

Attendees: Mary Rooney, Alexa Rooney, Al Dezybay, Chris Williams, Frank Walsh, Mike Basta, Jeff Kutz, Angelika Forndran, and Ray Szczucki.

**Call to Order: Al Dezubay called the meeting to order at 6:02 PM**

**Discussion:**

- January presentation from John Wanner was great. Should consider another presentation from him next year.
- Al D. will provide his event notes to Al Gruenke for inclusion in the newsletter.
- No February event scheduled.
- Mike mentioned the NSPE conference will be virtual. PSPE conference undecided.
- We'd like to hand out EOY (Steve Ressler) and YEOY (Alexa Rooney) awards at May banquet hopefully.
- Approximately \$8,000.00 pledged, \$5,800.00 received. About \$5,000.00 in contributions last year that we haven't seen this year. Frank will follow up.
- Frank discussed various contributors to follow up with.
- Jeff – Scholarship applications will be uploaded to Google Drive and distributed.
- Scholarship review team is Jeff, Chris, Mary, Al D., and hopefully Don Kohn. Alexa to serve as tiebreaker if needed.
- Peter moving to new role with PSPE, was approved by Board in January. New role is Chairman of PEF, helping with fundraising programs. Mike will follow up with the Board on details of Peter's role.
- Al will follow up on EOY and YEOY plaques, got them from Gebhardt's Enterprises on Airport Road last year.
- Decided not to provide ad to LVBJ this year announcing our winners. We will post on LinkedIn and website.
- Al will discuss next year's officer slate with Brian Kutz.
- Angelika will attend next state meeting now with Peter moving on.
- Reminder to all – Renew your license this year. Need 24 PDHs.
- Discussed miscellaneous recent payments made.
- Discussed account balances.
  - \$1,887.00 checking
  - \$9,865.00 savings
  - \$3,259.00 PayPal
- July 2020 was most recent dues receipt from the state. Frank will follow up with Jennifer Somers to see if we have more dues owed.
- Discussed grant options with state. All agreed we should attempt receiving a grant. Mike will follow up on grant application process.

**Adjournment at 6:50.**