



# Valley Engineer Newsletter

SEPTEMBER-OCTOBER, 2017

## UPCOMING PROGRAMS

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**PENNSYLVANIA SOCIETY  
 OF  
 PROFESSIONAL ENGINEERS**

**LEHIGH VALLEY CHAPTER  
 (ORGANIZED 1935)**

CARBON, LEHIGH, MONROE, & NORTHAMPTON COUNTIES

## PRESIDENT’S MESSAGE

Brian Kutz, PE  
 September 2017

First, I would like to thank the Board and members of the Lehigh Valley Chapter, Pennsylvania Society of Professional Engineers for entrusting me with the Chapter leadership. I have been under the tutelage of Al Gruenke for two years, so I’m confident that I will be able to execute my duties successfully.

But, changes are inevitable, and the first change will be the venue for the monthly Chapter meetings. After four years at the offices of Barry Isett in Fogelsville, we are now meeting in the offices of my present employer, Liberty Property Trust in downtown Bethlehem. There is a parking deck connected to the offices; we will pass out parking vouchers for everyone attending. This facility has the added advantage of a fine restaurant and bar serving adult beverages right next door!

Our Chapter continues in leading the State in its service to the engineering community, and the community at-large. Kevin Campbell will continue his leadership of MATHCOUNTS®, and Alfred Gruenke will again head up the MATHCOUNTS and Scholarship fundraising efforts. Al reports that he has contacted everyone on his list, and donations are already coming in.

Alex Dezubay will organize the PDH tours. His first tour, to the National Museum of Industrial History, was very well received. His second tour, was to Freshpet, a pet food manufacturer located in the Industrial Park along Bath Pike. Al is asking members to offer suggestions for future tours. Make the initial contact, send the info to him, and he will make arrangements.

I'm looking forward to guiding the Lehigh Valley Chapter for the coming year. With your help, we will continue to be a major contributor to the community.

Attached to this Newsletter is a letter from John Nawn, President of PSPE last year. Professional licensing is under attack in many states and needs your support. If we don't speak up and support licensing, who will?

**What is industrial history?**

Alfred Gruenke, PE

"Billowing smokestacks, hulking factories. The deafening sounds of machinery and shift whistles in gritty cities. These sights and sounds evoke America's industrial heritage."

"But American industry is also the story of the men, women, and children who made products world markets demanded. It is the story of companies solving problems through innovation and ingenuity."

"Industrialists and workers – encouraged by government – tapped vast natural resources, harnessed power, built transportation and communication networks, and transformed the American landscape, launching America as an industrial powerhouse."

"Explore the stories of these people and their machines. Our national legacy begins with local stories."

Thus, begins our journey into industrial nostalgia.

More than twenty members and guests of the Lehigh Valley Chapter, Pennsylvania Society of Professional Engineers gathered on a balmy late-summer evening to tour the National Museum of Industrial History.

Describing a tour of a museum is inherently difficult, especially if the contents have affected the life of the writer directly or indirectly. It's difficult to be totally objective.

The National Museum of Industrial History is no exception. Situated in the former Bethlehem Steel electrical repair shop built in 1913, the

museum is a tribute to American industry, not merely a museum of Bethlehem Steel. The overall theme of the museum, and the various exhibits, is the industrial might and innovation of the American peoples.

It traverses more than 150 years of American industry from the steam engines of the mid-1850 to the last pour from the blast furnaces in 1995.



Floor of the electrical repair shop

Historian Mike Piersa guided the group through the exhibits, with commentary beyond the informational placards.

Mike explained that many of the exhibits are contributions from the Smithsonian, "The Nation's Attic," in Washington DC. Only 20% of the available exhibits are on display.

The 19<sup>th</sup> Century was the Age of Steam and many of the displays are from this era.

Most of the exhibited machinery is American made, with a few exceptions. Frick Company, Waynesboro, PA, 1877; Gleason Works, Rochester, NY, 1876; Fred Wolf, Chicago, IL, 1884; Sulzer, Switzerland; The Snow Steam Pump Works, Buffalo, NY; James Nasmyth and Company, Manchester, England; Babcock & Wilcox Boiler, 1920; D.L. Harris & Co., Springfield, MA., 1856; Bullard & Parsons, Hartford, CT, mid-1860's; Hills & Jones Co., Wilmington, DE c. 1884; Bethlehem Steel, Bethlehem, PA, 1953; Pennsylvania Ready Motor Co., Philadelphia, PA,

Continued on page 3

1874; Schleicher-Schlumm, Philadelphia, PA, 1882; Sipp Machine Co., Paterson, NJ, 1940s. Most of these companies are no longer in existence.

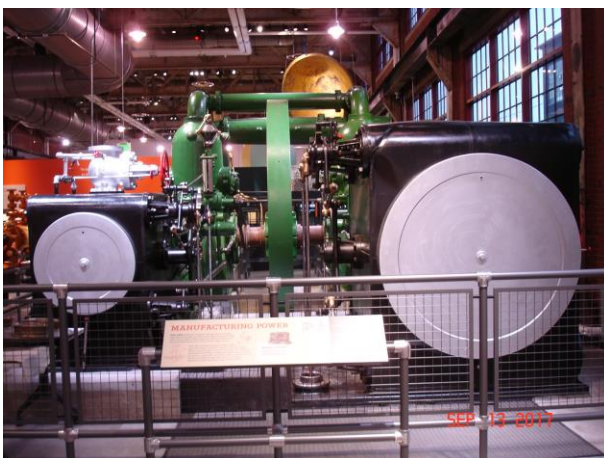
Two of the machines had been displayed at the 1876 Industrial Exhibition in Philadelphia. Among other attractions, the Exhibition featured Machinery Hall, which covering over fourteen acres. The Industrial Exhibition was the event that put American industry on the world stage, to the amazement of the established European powers. It should be noted that the Battle of Little Big Horn was also in 1876, so American industrial power was in its infancy.

The museum has industrial equipment large and small, from working electric motors the size of a soccer ball to a humongous steam driven water pump, built by the Snow Pump Works of Buffalo, NY. It powered the municipal water pumps for the city of York, Pa, from 1914 to 1956. It was reactivated in 1972 when hurricane Agnes flooded the electric pumps.

The predecessor of Bethlehem Steel was Bethlehem Iron Company, who made many of the railroad rails that were laid in the latter part of the 19<sup>th</sup> Century. The site was chosen because of the proximity to the anthracite coal regions and the railroads that brought the raw material for steel making. For a hundred years Bethlehem Steel took the coal, iron ore, and limestone and turned it into ships, armaments, structural steel, and the myriad of products that built America.



Fabricated beam - Bethlehem Steel Wide-Flange "H" beam



York PA, municipal water system pump.

Henry Grey developed the Grey Mill (Universal Mill) for rolling H beams. Charles Schwab, the first president of Bethlehem Steel, obtained the exclusive American license and became the first US Company to successfully produce an "H" beam from a single piece of steel by rolling. This single innovation revolutionized construction and allowed the massive buildings, bridges, and other structures of the past century. Bethlehem beams are part of the Empire State and the Chrysler Buildings in New York, the Golden Gate Bridge in San Francisco, and many structures in between. By 1940 80% of the New York City skyline was built with Bethlehem beams.

Continued on page 16



Nameplate of York water system pump

## **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.

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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  
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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 at the office of Liberty Property Trust, 74 W. Broad Street, Suite 240, Bethlehem, PA.

## 2017 – 2018 Chapter Officers

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"The Steel" affected almost everyone in the Lehigh Valley either directly or indirectly. Employment brought prosperity, and stability. In the 1960s the hourly and salaried payroll was 14,000 people. Workers came from as far as Hazleton in car pools, leaving home at 3:00 AM for the 7:00 AM shift.

It contributed to the general prosperity of the area. My father-in-law was a crane operator in the beam yards for 35 years. He bought a single home in Allentown's East Side, raised four children, and always drove Buicks, all thanks to "The Steel".

Patterson, NJ to the Lehigh Valley in 1881, a source of cheap and available labor.

While men prevailed at "The Steel" and similar industries, women and children were predominant in the many textile companies. Stamina and dexterity were more important than brawn. They were not pleasant places. There are stories of long hours in stiflingly hot, lint-filled buildings, low pay, and little job security. The health and safety of the workers was not a consideration. Conditions in these mills led to the women suffrage and child labor laws of the early 1900s, somewhat improving their condition.



No. 2 Machine Shop

During the 1960s I often went to No. 2 Machine shop to repair the IBM keypunch equipment that was used to record production. The shop was over 1,500 feet long, at one time the longest machine shop in the world. It still had 25 Hz. motors. Motor and generator rotors for Westinghouse were machined there, equipment that eventually found its way to Hoover Dam. Once I observed the barrel of a forty-foot long gun being drilled out. One of the attendants told me that foot-thick armor plating for battleships to protect them from torpedoes had been fabricated in this shop

Not all the exhibits are of "heavy" industries. Prominent is a large section dedicated to the silk mill industry, source of employment in the Lehigh Valley for many years. The machinery for these tended to be lighter, more delicate, and seemingly more complex. The industry moved from



The floor of a silk mill



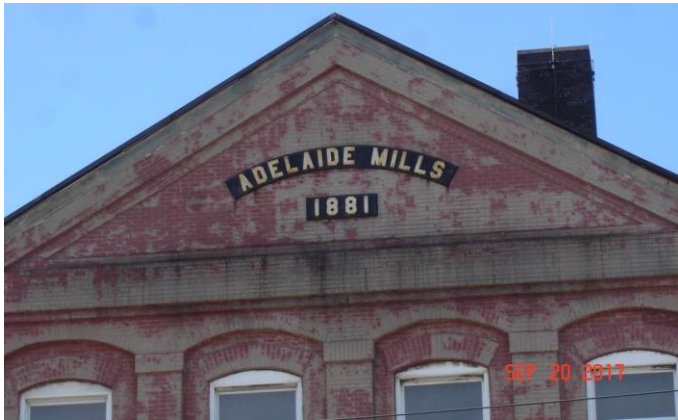
Apartments on North Third Street, Allentown

In the early 1900s there were over twenty silk mills in the Lehigh Valley area, providing employ-

Continued on page 17

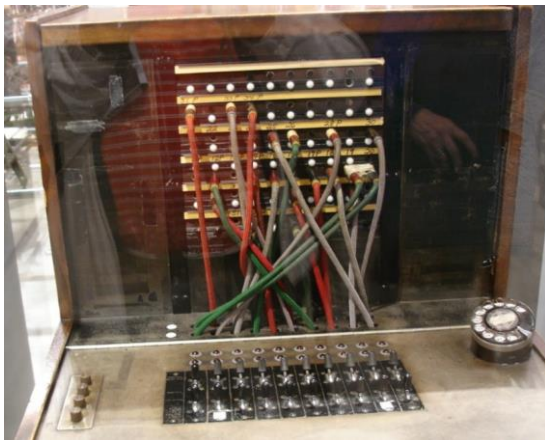


ment to thousands. Silk mills tended to be large, three or four stories high, and longer than a football field. They were invariably built with red bricks. The last silk mill in the Lehigh Valley closed in 1989. Many buildings have been converted to other uses, especially luxury apartments, maintaining the structure if not the character of the original.



Adelaide Mills on North Race Street in Allentown

On a lesser note, there is a telephone Private Branch Exchange (PBX) on display.



The once ubiquitous PBX

Before the 1970s every company had a PBX switchboard that received incoming calls. An operator answered and routed the call to the requested person. When I was a young lad I worked at the Morning Call at night and went to technical school during the day. Twice an evening I relieved the regular operator for a half hour so she could go on break. It was challenging, especially after a sporting event, when people called for scores!

The Morning Call PBX was about twice the size of the one on display.

The National Museum of Industrial History is more than a display of antiquated machinery. It is a tribute to what made this nation great. We thank Mike Piersa and the NMIH staff for an interesting and informative evening.

The following are quotes from the displays:

The world knows a great deal more about us now than it ever did before.  
-General Joseph Hawley, 1876

The American invents as the Greek sculptured and the Italian painted: It is genius.  
-The Times (London), 1876

In America . . . the exercise of ingenuity, the application of science to the work of man, is the shortest road to wealth.  
-Oscar Wilde, 1883

The men in the steel industry . . . were adding strength to the of the cause of their comrades in all industry  
-John L. Lewis

My address is like my shoes. It travels with me. I abide where there is a fight against wrong.  
-Mary Harris "Mother" Jones

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The true measure of a man is how he treats someone who can do him absolutely no good.  
-Samuel Johnson

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It's a damn poor mind indeed which can't think of at least two ways to spell a word.  
-Andrew Jackson

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Beer has dispelled the illness which was in me.  
-Late Egyptian, translated by Dr. Kent Weeks

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When something needs to be said, it doesn't mean that it needs to be heard as well.  
-Valantis Gaoutis

Dear PSPE Member,

The Pennsylvania Society of Professional Engineers works tirelessly to promote the engineer's viewpoint in public policy. Our advocacy aims to protect the integrity of the PE license, and improves legislation and regulations by providing the engineer's perspective. Whether it's an environmental regulation, a building code revision or a matter of professional practice, PSPE provides input with public safety in mind.

A new legislative session has just begun and there is no shortage of issues. To name a few, PSPE will be working on:

- Lobbying for increased public investment in infrastructure.
- Promoting continued state support for math and engineering education initiatives
- Opposing proposals that would endanger the public from unqualified individuals practicing engineering
- Opposing proposals that would drive engineering jobs out of Pennsylvania such as levying a sales tax on engineering services.

Listing all the issues on which PSPE lobbies would make this letter unbearably long. The point is that the Society's advocacy program is active and successful.

We do need your help. Make a contribution to PSPE Political Action Committee (PAC). Your donation is used to support State House and Senate members who understand our issues and are helping. A well-funded PAC is essential to the success of our legislative program. All donations we make are to Pennsylvania elected officials. PSPE continues to work for the advancement of the engineering profession on many fronts. We need your help!

John A. Nawn, P.E.  
President

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**I support the work of the PSPE Political Action Committee for 2017!**

**Enclosed is my personal donation.**  \$500  \$100  \$50  Other \_\_\_\_\_

Name: \_\_\_\_\_

Company: \_\_\_\_\_

E-mail address: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Please make personal checks payable to PSPE/PAC and return them to:  
908 N. Second Street, Harrisburg, PA 17102.  
(Political Action Committees are restricted by law from accepting corporate checks.)



**Lehigh Valley Chapter**  
**Pennsylvania Society of Professional Engineers**  
*Lehigh, Northampton, Monroe and Carbon Counties*



□ Minutes for the September 18, 2017 Board of Directors Meeting  
6:00 pm at the office of Liberty Property Trust, 74 West Broad Street, Suite 240, Bethlehem, PA 18018

Attendees: Al Gruenke, Brian Kutz, Al Dezubay, Kevin Campbell, Frank Walsh, Ray Szczucki, Chris Williams

- A. Call to Order – Brian Kutz called the meeting to order at 6:01 pm.
- B. President – Brian Kutz
  - Presented plaque to Al Gruenke. Thanks for your service to the Chapter over the years!
- C. Programs – Al Dezubay
  - Al will organize monthly programs
    1. September: Held tour of National Museum of Industrial History. 25 attended.
    2. October: Fresh Pet (10am on 10/12) or Victaulic
    3. November: Possibly Walmart warehouse. Brian will look into this opportunity.
    4. December: Holiday Banquet.
      - a. Possibly have PennDOT discuss road improvement projects in the Lehigh Valley, like 22 bridge over Lehigh River.
      - b. Possible Locations: Morgans (\$1,684 for about 36 people last year), Kingfish, Bethlehem Brew Works
    5. May: Banquet at DeSales
- D. Newsletter
  - Al can provide articles on travel.
  - We should include a request for article submissions, specifying number of words, topics, etc.
- E. Fundraising
  - Al collects checks from our P.O. box and sends to PEF. He finally received all funds from last year's fundraising campaign. Total: \$15,000.
  - We should apply for special award at annual conference for our scholarship fundraising efforts.
  - We should determine who will manage updates to website.
  - Al has solicited EOY and YEOY candidates with previous fundraising efforts.
  - Frank and Ray could take care of EOY and YEOY reviews going forward.
- F. MATHCOUNTS
  - Kevin is happy to continue serving as MATHCOUNTS coordinator.
  - MATHCOUNTS leadership is a concern in other chapters.
  - Will begin planning in next few weeks, with possible event date of Feb 10<sup>th</sup>.
- G. State Director
  - Need to push for depth with membership. Kevin will contact local engineering firms to solicit new members.
  - State PAC fund has extremely low funding.

H. Treasurer – Ray Szczucki

- Accounts (8/31/17):
  1. Checking: \$7586.89
  2. Business Market Rate Account: \$13,301.29
- Ray reviewed finances from last year.
- Ray filed 990 IRS form.
- Chris will check on status of Chapter audit.

I. Adjournment at 7:15 pm on a motion from Frank, seconded by Ray.

Minutes for the October 9, 2017 Board of Directors Meeting

6:00 pm at the office of Liberty Property Trust, 74 West Broad Street, Suite 240, Bethlehem, PA 18018

Attendees: Al Gruenke, Brian Kutz, Al Dezubay, Kevin Campbell, Angelika Forndran, Chris Williams and Mary Rooney

- A. Call to Order – Brian Kutz called the meeting to order at 6:00 pm.
- B. Programs – Al Dezubay
  - Fresh Pet tour coming up on Thursday 10/11. Tour is 10am-noon. 12 people are signed up so far.
  - November – Brian may be able to coordinate warehouse tour.
  - December – Holiday party. Al to investigate locations. Possibly having representative from PennDOT speak at dinner.
  - January – Possible tours of UL, Martin Guitar, Dorney Park and Allen Organ.
- C. Newsletter – Brian Kutz
  - Wrapping up October newsletter shortly.
  - John Nawn article on PSPE PAC. Could include in October newsletter.
- D. Membership – Kevin Campbell
  - Kevin will continue speaking with leaders at local engineering firms to solicit new members.
- E. MATHCOUNTS – Kevin Campbell
  - Event to be held Feb 10<sup>th</sup> at Nitschmann Middle School. Facility is large enough. Parking may be an issue.
  - Same leadership team in place as last year.
- F. Fundraising – Al Gruenke
  - Al reached out to contacts and started receiving a few donations. Will follow up with contacts later.
- G. Scholarships – Al Dezubay
  - Typically reach out to schools in January.
  - Applications are due 1<sup>st</sup> Sunday in March.
- H. Treasurer – Ray Szczucki (not present)
  - Chris confirmed that Harry Garman will have the audit completed in November.
- I. Adjournment on a motion from Angelika, seconded by Kevin.