



Valley Engineer Newsletter

November, 2014

UPCOMING PROGRAMS

- October 30 - November 1 - 2014 Northeast Regional Meeting/ Maryland Engineers Conference,
- December 11 - Holiday dinner at Buckeye Tavern
- January Plant Tour (?)
- February Engineer's week



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President's Message

Kevin T. Campbell, PE, LEED AP

The new season has only recently gotten under way, but the Lehigh Valley Chapter is in full swing in organizing MATHCOUNTS® and Scholarship fundraising activities. We are combining MATHCOUNTS and Scholarship Fund contributions this year in order to simplify the process. Al Gruenke is contacting his list of donors, and I'm concentrating on previous MATHCOUNTS donors. We have started the process, and the initial responses have been good.

Tracy Torres and I have already been working behind the scenes and we have quite a few things settled. Tracy has sent out the first letter to the coaches, ordered the awards and testing materials, and is tracking registrations. Chris Williams will again be coordinating volunteers. Due to changing circumstances within the Allentown School District, we will have a change of venue this year. MATHCOUNTS will be held at Springhouse Middle School on Saturday February 7, 2015 with a snow day on Sunday, February 8. With Peter Staffeld volunteering to emcee the Countdown Round, we have a great team in place. Both of our judges are also back this year. We are planning the same food as in the past several years and I'll start lining up our favorite bagel, pretzel and pizza vendors. These are great kids, but kids and hot pizza on a cold day seem to have a natural affinity to each other!

Continued on page 2

Peter Staffeld has been tasked to obtain a list of candidates for 2015-2016. Many of us have been an officer or Board member for quite a few years, and are quite willing to hand the reigns to some new blood. I urge anyone wishing to become a member of the governing body to contact Peter. He will be happy to accommodate you.

We're always looking for new members. You can help by having a colleague get involved by bringing them to one of LVPSPE's monthly events or tours. Not only will they enjoy the event, but they will benefit from the networking as well. This strengthens LVPSPE and benefits everyone.

You can give back to the community by giving some of your time to LVPSPE. We are always looking for volunteers to help with MATHCOUNTS and/ or to help select scholarship recipients for our annual awards banquet. Our Chapter is one of the most active in the state, and has been recognized for its achievements by the PSPE two years in a row. Success begets success, we're on a roll!

You will note that we do not have any activities planned for January. If anyone has a suggestion, please let me know. If you make the initial contact we will follow up with the details. There is a good industrial base here in the Lehigh Valley, and lots of opportunities to enhance our knowledge, and obtain PDHs.

Thanksgiving and the Christmas season is rapidly approaching. Our holiday dinner is at Buckeye Tavern in Macungie, on Thursday, December 11. There will be someone to give a presentation on what is happening at the Allentown Waterfront. The Waterfront project is an extension of the revitalization of downtown Allentown and should give us a good picture of the Allentown of the future. I was also thinking that the Buckeye itself has an interesting history and we can probably get a tour/presentation on that also. Check our website for information. This event is a

good opportunity to socialize and partake of good food and libations. See you there!

The man who views the world at fifty the same as he did at twenty has wasted thirty years of his life.
-Muhammad Ali

In God we trust, all others must bring data.
-W. Edwards Deming

A man should keep his friendship in constant repair.
- Samuel Johnson (1755)

To learn who rules over you, simply find out who you are not allowed to criticize.
-Voltaire"

Ocean Spray Cranberries, Good Health in a Bottle

Alfred Gruenke PE



Thirty LVPSPE members and guests recently gathered on a cool fall evening to tour the Lehigh Valley's newest addition to its growing manufacturing base, Ocean Spray®. The 295,313 sq. ft. facility, located on Boulder Drive near the intersection of Schantz Road and Route 100 in Breinigsville, went on-line in March of this year. It employs 175 – 200 people in what can only be described as a state-of-the-art, iPhone modern facility. It is in operation around the clock, five days per week.

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Ocean Spray Cranberries is a food processing facility, hence is governed by more stringent sanitary regulations. Members of the tour had to wear hair and beard nets as well as eye protection. There are strict security procedures. All key areas of the plant have "swipe-card" access for safety and security. Floors are "eat off the floor" clean. The air in the building has three to six air changes per hour. The fuel for the hot water boilers is gas.

Purchasing Manager Louis Quaglia guided the group, explaining the process to us. The core ingredient of almost all Ocean Spray products is cranberry juice, which comes from cranberries. Cranberries grow in acidic bogs throughout mostly the cooler regions of North America. The primary cranberry regions are Massachusetts, New Jersey, Oregon, Washington, British Columbia, and Wisconsin. Another source is Chile. During the growing season cranberry beds are not flooded. They are flooded in the autumn to facilitate harvest and again during the winter to protect against low temperatures. The harvested berries are frozen, then converted to concentrate that is shipped to processing and bottling facilities



Sample of the more than seven miles of stainless steel piping and 1,609 control valves

The concentrate is delivered to the plant in stainless steel truck trailers and is unloaded at 100 gpm. Because juice is a food product, each tanker comes with certificates which list the three previous products they held. The concentrate is pumped to blending tanks, where "tasters" sample the product and blend the various components. The tasters are recertified every year.

The water for the mixes is purified by several reverse osmosis filters to ensure purity and consistency. Seven miles of stainless steel pipe, 126 pumps, and 1,609 control valves transport the liquid to the various storage and bottling locations.

The storage and pumping, though fascinating, are static displays. The bottling and handling of the juice, however, are a high speed, tightly choreographed, chorus line of motion. One machine makes the bottles, another machine fills the bottles, another machine puts the labels on the bottles, all at a blinding speed almost impossible for the eye to follow. Twenty-four heads produce up to 480 bottles per minute or 28,000 bottles per hour. One Krones Modulfill 96 Valve Filler runs 60 or 64oz. bottles at 400 per minute. The Krones Modulfill 72 Valve Filler run 10oz to 128oz. bottles from 600 to 350 bottles per minute. Specialized conveyor belts transport the bottles and loads them into cartons. Huge robots, seemingly out of place for such a delicate operation, take the cartons and stack them onto pallets. Stretch wrapping completes the process. Fork lifts (with human operators) move the pallets onto trucks for transport to outside storage.

Product sizes range from 128 oz. bottles to 125 ml juice boxes popular with youngsters. The latter are filled by specialized machinery.

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Louis was asked what happens if there is a malfunction. He conceded that it can get messy!



Spiral conveyor

Though cranberry juice is the signature product, Ocean Spray Cranberries also blends cranberry juice with apple juice, mango juice, and other fruit juices. Grapefruit juices are another product line.



One of the many robots in the storage and packing area

The plant prides itself on safety, efficiency, and minimal environmental impact. Using a color-coded system keeps recyclable mate-

rials separate at their "point of origin" saving time at the balers. Cap boxes are wrapped for re-use instead of recycling and do not get baled. A combination of recycling and incineration by the waste hauler enables the Lehigh Valley plant to be a Zero Landfill facility. Forklifts are battery operated to eliminate any emissions. The charging area is in the southwest corner of plant, ideal location for future installation of solar chargers

Ocean Spray has a unique corporate structure. It is an agricultural co-operative of cranberries and grapefruit growers. It currently has over 700 member growers. The cooperative employs about 2,000 people, with sales of \$2.2 billion in fiscal year 2013.

We thank Louis Quaglia for a fact filled tour of a squeaky-clean facility, filled with a dazzling display of robotics.

When choosing between two evils, I always like to try the one I've never tried before.
-Mae West

If at first you don't succeed, destroy all evidence that you tried.
-Anonymous

You can always amend a big plan, but you can never expand a little one. I don't believe in little plans. I believe in plans big enough to meet a situation which we can't possibly foresee now.
-Harry S. Truman

As we express our gratitude, we must never forget that the highest appreciation is not to utter words, but to live by them.
-John Fitzgerald Kennedy

Get your facts first, and then you can distort them as much as you please.
-Mark Twain

Vigo, Spain

Alfred Gruenke PE

A couple of years ago I was tasked to go to a machine shop in Vigo, Spain to ensure delivery of some vertical mill parts to be shipped to Korea. Our CEO at the time, Elmer Gates, had promised shipment by a certain date and I was to make sure it happened. It was an interesting assignment.

Vigo is located in northwest Spain, just north of Portugal. It has two claims to fame: it was the port to which Columbus returned after he discovered America and is the ancestral home of Fidel Castro. My language skills were not good enough to tell if these were something they were proud of or not, and I was too polite to ask.

My first surprise was my inability to understand the language! Admittedly, my Spanish was rudimentary, but I expected some level of comprehension. Then, I noted the strange street names. In Spanish, a street is named Calle this or Calle that. Instead, the streets were Rua this or Rua that. The French word for street is Rue. I was confused. Did I get off the plane in the wrong country, or what?

Our resident QA/QC person gave me a history lesson. Vigo is in the province of Galicia, which has its own language, Galician. Galician is a mixture of Spanish and French, explaining the word Rua. I also questioned the nickname of the local soccer team, the Celtics. I always associated Celts with the Irish and Scots, not Spain. My host explained that at one time it was populated by the Celts. Traveling certainly broadens one's outlook.

The architecture, and the city in general, reminded me of Cuenca, Ecuador. Both had small balconies outside of upper story windows, among other similarities.



Vigo street scene

The machine shop was top quality and had a European nuclear rating, meaning it was certified to make equipment for nuclear plants throughout Europe. The shop had state-of-the-art equipment and the skills to use them. They certainly impressed a sparky like me!

Shipping these parts, some of which weighed 25 tons or more and were odd shaped, was another matter. For some reason the shop had little interest in shipping, so I had to become involved. The whole concept of international shipping was new to me. I met with ship agents, shipping agents, insurance agents, port agents, and agent agents, many of whom were Swiss! Amazing, that citizens of a land-locked country such as Switzerland have such a propensity for international shipping. I consequently learned more about international shipping than I ever desired to know. The parts were odd-shaped and were too big to fit in a standard shipping container, so the captain has the right to refuse to load them. When loading, the port and its insurance carrier are responsible for the cargo until it crosses the ship's handrail. Then, they are the responsibility of the ship and its insurance carrier. The cargo is loaded

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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 in any amount – please send your TAX DEDUCTIBLE donation to “Pennsylvania Engineering Foundation” or “PEF”. Donations should be mailed to:

Peter O. Staffeld, PhD, PE, F.NSPE
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Please note “LVPSPE Scholarship Fund” on the comment line.

Or, you may 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

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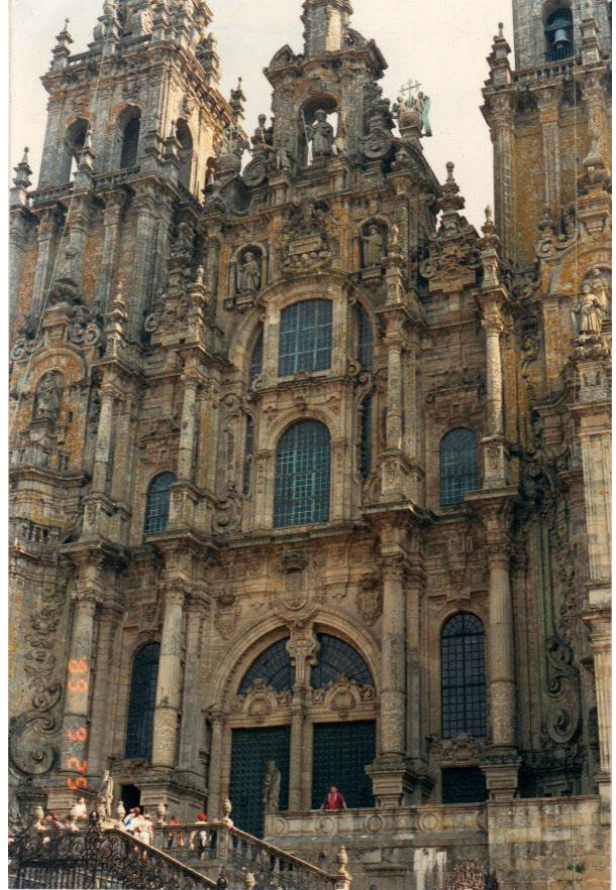
on smaller coastal freighters, which transport the cargo to major ports such as Le Havre, France, Rotterdam, Netherlands, or Bremerhaven, Germany. At these ports the cargo is unloaded and loaded onto large, ocean going vessels to be transported to a similar large port at the other end, where it is loaded onto smaller coastal freighters for delivery.

Some of the parts were shipped out of the local Vigo port. I was at the port at 5:00 AM and waited for the ship's lights to come on, then went and introduced myself to the captain. We chatted a bit, and he agreed to load the overfilled containers. The rest of the parts were trucked to Bilbao, twelve hours east. I had the trucks loaded, then jumped on a plane to Bilbao. The next morning I went to the docks and greeted the trucks as they arrived. Naturally, there was a Swiss shipping agent present. The parts were loaded onto another small coastal freighter.

Everything eventually worked out, and all parts were shipped. My work schedule kept me quite busy, but I did have some opportunities for sightseeing. The beach is very nice, if undeveloped, and quite warm even in October. It was filled every weekend. The latitude is the same as Boston but there are palm trees! Also, one feature of the city of which the citizens are proud of is the black swans that live in the ponds and streams near the castle. I don't know much about such things, but apparently black swans are quite rare. Google black swans, and you get a couple of articles about black swans in Australia and New Guinea. Don't know if the Spanish version is an Australian transplant. Regardless of their source, they are quite an attraction.

I also went to another machine shop in Santiago de Compostela, a university town and the destination of pilgrims from Europe since the 9th century. The cathedral is the supposed site of the remains of the Apostle James. It was revered as a shrine second

only to Rome and Jerusalem. The Old Town is a UNESCO World Heritage Site, and teems with enough sidewalk cafes and restaurants to keep any disciple of Bacchus happy!



Basilica de Santiago, Spain

My travels have taught me to adapt to local situations. My usual breakfast fare was *huevos y jamon con expresso doble*, ham and eggs with a double coffee. Spain has raised the production of ham to an art form, so I was in pig's heaven, so to speak. I also learned quickly to mix water with the wine for lunch to avoid dozing off by mid-afternoon. I pride myself on learning something useful everywhere I go!

My tour included a trip to Belgium, a trip up the Neckar to Heidelberg, and a cold night in Schellklingen in the German Alps, but that's for another day.