THE MELTMINDER

A PUBLICATION BY BENTON FOUNDRY, INC.

Web Site: http://www.bentonfoundry.com

1st Quarter 2023

Benton Foundry History

In this quarter's newsletter we will introduce the first part of a series of interesting historical articles on Benton Foundry, formerly known as the Harrington Foundry. The Harrington family operated the foundry for 100 years prior to it becoming Benton Foundry.

The history of the Harrington Foundry would not be complete without the story of the Harrington Family and how they came to settle in this area.

The first American Harrington was Charles Norman son of Robert Harrington of England, who by all accounts was an English gentleman. Charles Norman came to America in 1642 and settled in Waterman Massachusetts. He is the original ancestor of the American Harringtons.

In this family there always seems to have been a John Harrington. In England, John Harrington, a writer, was born in 1561 and died in 1612. He was the god-son of Queen Elizabeth.

In America, the Harringtons were soldiers and patriots in the Revolutionary War. There is a monument erected, honoring their service, in Massachusetts. They moved from Massachusetts to Stonington, Connecticut then on to Rensselaer County, New York, then on to the Wyoming Valley where they operated a ferry across the Susquehanna River. During the famous Wyoming Massacre, they ferried women and children on a flat boat down the river to escape the Indians. Finally, they came to Huntington Township, Luzerne County.

Jacob Harrington was the son of Jesse Harrington, who was a solider in the American Revolution. Jacob was born in New York in 1799 and came to Pine Creek, Huntington Township in 1821. In 1836 he moved to upper Coles Creek, Sugarloaf Township where he bought 500 acres of land and operated a lumber business and manufactured shingles by the shaving process until 1841. At this time he erected a sawmill adjoining the property of Joshua B. Davis. He later sold the mill to Mr. Davis when he retired in 1866. He died in 1878.

When Jacob was a young boy, 8 years old, he watched Robert Fulton steam down the Hudson River in his steam boat, the Clearmont. He fought in the Wyoming Massacre and his father was killed in a battle with the Pennanites and Indians at Tillbury Creek near Plymouth during the Revolutionary War.

Our next article will discuss Newton Harrington, son of Jacob and Elizabeth Baker Harrington, who established the original foundry.

Solex Sand Heater

Benton Foundry was recently featured in Foundry Management & Technology Magazine. The following article was written by Scott Harris, featuring our new Solex Sand Heater. This heat-exchange technology, minimizes airborne sand, improves sand temperature controls and sand conditioning. It helps metalcasters mitigate workers' exposure to crystalline silica dust.

In September 2022, the U.S. Occupational Safety and Health Administration announced it would be stepping up enforcement of its existing workplace health safety standards—specifically, high-emphasis hazards such as exposure to crystalline silica dust in the workplace.

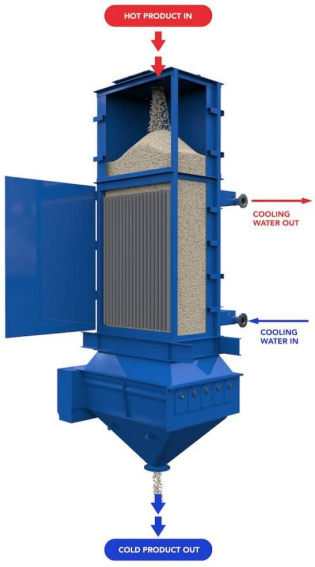
This enhanced oversight is forcing metalcasters to take a closer look at the technologies now in place in their foundries, and deciding whether the current capabilities for addressing airborne particulates are either helping or hurting their efforts to meet those regulations.

Direct-contact temperature control methods, such as foundry sand fluid-bed heaters and coolers, are contributing to the challenge of mitigating personnel exposure to respirable crystalline silica in the workplace. Here, our objective is to examine how indirect sand conditioning solutions such as plate-based moving-bed heat exchangers (MBHEs) provide a more effective answer not only for mitigating silica exposure but also for addressing a developing need for better energy-consumption management.

How it works

MBHEs that use vertical plate technology are derived from traditional plate heat exchangers (PHEs), which are still commonplace in numerous process industries. While PHEs allow heat transfer from one fluid (liquid or gas) to another fluid, MBHEs that use vertical plate technology allow indirect heat transfer between solids and fluids.

In an MBHE, the material enters the unit and flows by gravity through banks or parallel vertical stainless-steel plates. A heat transfer fluid - typically water passes through the plates to heat or cool the material by conduction.



A discharge feeder in place at the exit of the MBHE controls the rate of flow through the heat exchanger while providing uniform mass drawdown. Thermal modeling calculations using material property data ensures precise discharge temperature control.

This passive, indirect form of heat transfer - the velocity typically is less than 0.3m/min - means MBHEs do not contribute to any additional dust formation or degradation of sand quality. By reducing the generation of dust and mitigating the chance of dust egress, moving bed heat exchangers also lessen the loads on existing baghouses and dust collectors.

In contrast, direct-contact methods such as fluidized beds rely on ambient air drawn into the system using high-horsepower fans. The air is blown through the sand - and while this provides an effective way to condition the sand, it is a highly agitating process that leads to abrasion, attrition and the formation of large quantities of dust.

Fluidized beds also require blowers, ducting and associated air-handling and cleaning equipment to circulate the air and then clean it before it can be discharged to the environment. MBHEs do not use air, meaning plant operators can realize significant savings in energy requirements along with a reduced potential to generate dust while cooling the sand.

MBHEs in practice

In 2022, Solex Thermal Science worked with Benton Foundry as it began an expansion program aimed at the doubling its core making capacity from 5,000 to 10,000 tons of cores annually.

The northeastern Pennsylvania gray and ductile iron foundry, which has been in continuous operation since the mid-1800s, was using a fluidized bed to condition the sand it uses to manufacture cores for valves, flanges, pipe fittings and auto, truck and tractor parts.

The cast house required an updated air-quality control capability that would match the increased throughput while also offering tighter process controls.

Benton selected Solex to develop a customized, pillow-plate MBHE that is rated for an average 8,000 lbs./hr. up to a maximum of 14,000 lbs./hr. With accurate sand discharge temperatures guaranteed, the new MBHE also minimizes energy consumption.

Commissioned in mid-2022, the Solex solution has proven to be a "unit of choice," according to Tim Brown, vice president at Benton Foundry. Brown noted that the MBHE creates near-zero shear forces with conditioning the sand and that, due to its gentle handling of the sand, does not fracture or breakdown the grains. This has made it a good fit with several recent significant dust-control and energy-management initiatives that earned Benton Foundry the American Foundry Society's 2022 Green Foundry Sustainability & Stakeholder Engagement Award. For example, the foundry also installed new robotic grinders and cleaning machines to automate the finishing process for castings, while also mitigating additional dust exposure to foundry workers.

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Local Leaders Visit Benton Foundry

Benton Foundry hosted the new State Representative for Columbia County, Robert Leadbeter. He replaces long-time Representative Dave Millard. Representative Millard in conjunction with Senator John Gordner secured a RCAP (Redevelopment Assistance Capital Program) grant through the State of Pennsylvania for $3,000,000. According to Senator Gordner, this was the largest RCAP grant in Columbia County history.

Representative Leadbeter previously worked for Anheuser-Busch. He also owned his own business. He lives in Catawissa with his wife and children. Representative Leadbeter is very energetic, engaged and willing to help. He really enjoyed his tour of the foundry and was introduced to a number of employees that live in his legislative district, which is the 109th District.

From Left to Right: **Representative Robert Leadbeter, Tim Brown, BF Vice-President, James May**

Subjects covered were related to issues of both the employees of Benton Foundry and the company as well. They included RGGI (Regional Greenhouse Gas Initiative) that was implemented by former Governor Wolfe. RGGI will cost Pennsylvania consumers over $650 million dollars with no appreciable reduction in CO_2. This will be on all of our electric bills.

In addition, there was talk of major state subsidies for warehouses located along interstates. These warehouses pay no state income tax, generally, since they take things off one truck and put them on another. There is no income or profit created, therefore no tax. Some of these warehouses get major subsidies that Benton Foundry and other long-time businesses in PA do not receive.

Tim Brown is explaining our manufacturing process, in our Discovery Center prior to their plant tour.

Also discussed was Benton Foundry's Self Insurance for Workman's Compensation and the reporting requirements. These reporting requirements cost the foundry an extra $25,000/year.

Also attending the meeting was James May, who worked a long-time with PennDOT and currently was representing Congressman Dan Meuser's office. Jim was cognizant of issues important in Meuser's District. He also enjoyed the tour and in particular the 2600°F liquid iron pouring out of the furnaces. It does not matter if you are 8 or 80 years old, it is always the highlight of the tour.

Representative Leadbeter has a total of 243 constituents who work at Benton Foundry including their spouses and children. We wish Representative Leadbeter well in his new role and look forward to his representation. We look forward to a time in Pennsylvania of financial stability with government and common sense solutions that are middle-of-the-road and negotiated as opposed to partisan ranting.

Debt

There have been numerous reports on personal debt and the debt of our federal government. What follows is a 10,000 foot view of the situation by the numbers. The amount of debt on average is staggering. The US government as a percentage of GDP (Gross Domestic Product) is at levels not seen since we were paying for the cost of fighting World War II. Debt was 113% of GDP after WWII and hit 135% of GDP in 2020.

First, let us look at personal debt. To focus – a trillion dollars is $1,000,000,000,000.

Personal Debt:

Mortgages	$11.39 Trillion
Student Loans	1.59 "
Auto Loans	1.50 "
Credit Cards	.89 "
Home Equity Loans	.32 "
Other	.47 "
Total Person Debt:	$16.16 Trillion Dollars

There are approximately 330 million people in the US - $16,160,000,000,000
People 330,000,000

So the average amount of debt per person is $48,969 – now realize that is for every man, woman and child, so a family of four is $195,878.

Now let us turn to the US Federal Government debt. The current debt is over $31.3 trillion dollars or $31,300,000,000,000. Now this debt is owed by the United States, but paid only by the tax payers. From recent reports, there are 148,245,929 tax payers according to the IRS. This means each tax payer owes $211,338.

This amount due per tax payer has exploded over the past number of years.

2022	31.3 Billion	135% GDP
2020	26.9 Billion	128% GDP
2015	18.1 Billion	100% GDP
2010	13.5 Billion	91% GDP
2005	7.9 Billion	62% GDP
2000	5.6 Billion	56% GDP
1990	3.2 Billion	54% GDP
1980	.9 Billion	32% GDP

You can see how we are spinning out of control as a country. This is not a partisan statement, since both sides of the political aisle have contributed to this precarious position. The long-term issue is who is going to pay the bill and when? There is no free lunch. We are leaving our children and grandchildren with quite a mess. Unfortunately, inflation is the current approach as to a solution. You pay last years bills with dollars that are worth less each year, so they are reduced in value by inflation. That is not a long-term solution.

Congratulations - Employees of the Quarter

Congratulations to **Amanda Hartman** (above), Benton Foundry's 1st Shift Employee of the Quarter. Amanda has worked at the Foundry since December of 2011. She works as the Assistant Supervisor in our Core Room. Amanda received her Associates Degree in Automation Technology through our Scholarship Program at Pennsylvania College of Technology. Amanda lives in Benton with her daughter Payton. She enjoys spending time with her family and baking when she isn't working.

Awesome Job Amanda!

Congratulations to **Ed Evans** (below), Benton Foundry's 2nd shift Employee of the Quarter. Ed has been employed at the Foundry since September of 1995. He works in our Molding Department as an automatic molder. He has received this award in the past. Ed lives in Benton with his wife, Kim and their children. He enjoys spending time with his family, hunting and fishing in his spare time.

Congratulations Ed!

Recent Trail Camera Pictures

Solex Sand Heater

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More points in favor

Brown noted that the new MBHE also helped Benton realize some valuable energy savings. Because the system does not require high-horsepower air-handling and –cleaning equipment, he estimated energy consumption is nearly half the requirements of the previous unit, with savings projected at around 100,000 kWh annually.

"It is definitely saving us money through reduced energy consumption, but also fewer repairs and less maintenance because it has fewer moving parts," Brown said.

OSHA's heightened enforcement of regulations covering crystalline-silica dust exposure in the workplace means many industries in the U.S. will re-evaluate the performance and effectiveness of their technologies for controlling the particulates in the workplace atmosphere. Metalcasting operations are certainly among these.

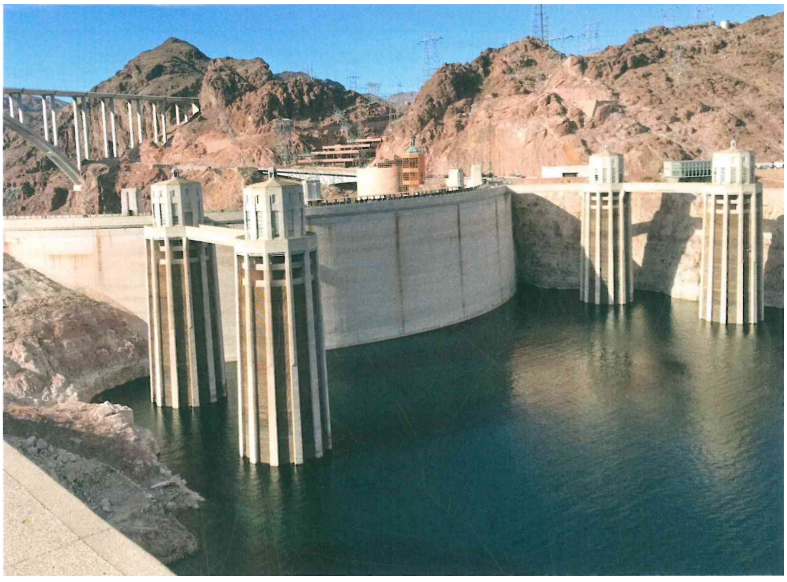
This means that systems based on today's technologies will need to do more, to perform better. In the case of sand conditioning, it is not enough just to provide accurate temperature control. It's also important to address emerging needs, like reducing energy consumption and containing dust emissions. How that's accomplished has become increasingly important.

Plate-based moving bed heat exchangers provide that opportunity for metalcasters to maintain tighter process controls while also protecting workers from crystalline silica dust particles - and to realize significant energy savings along the way.

Scott Harris *is Regional Director, Americas for* ***Solex Thermal Science****, a developer of indirect heat exchange technology for the heating, cooling and drying of free-flowing granular materials.*

Best Dam Castings

AFS Corporate Member Monett Metals is supplying castings in a renovation of Hoover Dam's intake towers - a complete set of castings has been delivered for the first tower. The five-year project will replace the gate stem assemblies of all four towers. The tier 1 contractor for the reno is New-Hampshire-based Quabbin Inc., a replacement component supplier for the water, wastewater, hydroelectric and power industries.



To make the replacement parts for just one of the four towers: Quabbin purchased 165,750 lbs. of stainless steel and machined 1,602 ft. of stem, which is 352 ft. more than the height of the upper observation deck of the Empire State Building and 148 feet more than the tip of its antenna. Each of Hoover Dam's four intake towers has an upper and lower cylinder gate to allow Colorado River water to enter for hydroelectric generation.

Quabbin has completed Year 1 of the project, called "Replacement of Intake Tower Cylinder Gate Stem Assemblies.

Casting Source
MAR/APR 2023

Trivia Question???

Benton Foundry owned another gray iron and aluminum foundry in the 1980's what was the name of that foundry?

Answer will be in 2nd Quarter 2023

Answer from 4th Quarter question:

In what year did Fritz Hall become President of Benton Foundry?

1975

Tidbits

Ascensus is the plan sponsor that Benton Foundry uses for the record keeping of our 401K plan. Ascensus was ranked number one for plan assets from $5mm to $25mm.

plansponsor.com

50-70% - That's how much stores profit off extended warranties.

Flights before 8 a.m. are half as likely to be delayed as those after 9 a.m.

aarp.org/ bulletin april 2023

Good Job

Dave Straub - Highest Molding Efficiency

Ed Evans - Lowest Scrap Rate Molding

Gilberth Aleman - Highest Foxall Grinding Efficiency

Martha Ponce - Highest Grinding Efficiency

Otilia Miranda - Highest Core Machine Operator Efficiency

Myriam Mayorga - Highest Core Assembly Efficiency

Congratulations to **Don Copeland** for being in the top five AFS (e-learning) students in the month of January.

Awesome Job to **Stanley Shuleski,** 2nd shift Grinding Room Forklift operator - Stan is always willing to assist the Lab when staging parts for our outside vendors, along with any internal scrap. He does this safely and efficiently.

Good Job to **Jacob Hartman,** Melt Department - Jacob is always willing to assist and stay late, if necessary until the last coupon is good.

Thank you goes out to the **Maintenance** and **IT** Departments from Quality for getting the New QC Area up and running in the shipping room.

Knoebels

Save The Date:
Saturday -
August 12, 2023

Condolences

Bryan Puderbaugh

Our condolences go out to the family of Bryan Puderbaugh.

Bryan worked in our Core Room operating a number of different core machines over the years, including the Laempe LB25. He retired in 2018, after 33 years at the foundry. Bryan enjoyed operating his ham radio and being outdoors. He passed away on January 16, 2023. This is a picture of Bryan from our 2022 Knoebel's picnic.

Birthdays

May	June	July
Ed Fedder	Edgardo Rodriguez	Douglas Cortez
Leidy Taveras	Ilka Mayorga	Logan Miller
Myriam Mayorga	Brock Smith	Frank Packer
Ed Posluszny	Glenn Cregar	Albert Phillips
Cynthia Newhart	Jackie Showers	Clarence Cupp
Jervin Barrientos	Sheila Vansock	Matt Herr
Valentina Rivera	Nick Wilson	Roxi Ortiz
John Hospodar	Robert Houser	Steven Saxe
Cheryl Brown	Xenia Ponce	Ben Gonzalez
Cody Snyder	Colin Jandrasitz	Camilo Ruiz
Robert Johnson	Boyd Lore	Don Copeland
Bo Boston	Cristian Magliocca	Bobby Campbell
Milissa Sulbaran	Morgan Hoover	David Benitez
Joe Vanderlick	John Harvey	Elizabeth Strauch
Travis Hayman	Irving Wolfe	Theresa Kubasek
Lynn Miller	Robbie Swigart	Tamara Mabus
Chad Davis	Dave Eveland	Jhonatan Bernal
Roberto Acevedo	Jordan Winn	Brittan Kittle
Jonathan Hernandez	Taylor Berkey	William Ferguson
Matt Kittle	Allan Rodriguez	Tim M. Schechterly
Sabina Lopez	Joy Wolfe	Amanda Carrasquillo
Rob Smith	Cody Bown	Bill Ferguson Jr.
Nathaniel Chyko	Jeffril Romero	Didimo Gamboa
Justin Lloyd		Kevin Trychta
David Emmett		Duane Eshleman
Crystal Applegate		Sergio Aguilera
		Rob Bowman
		Lucia Burgos
		Jim Lechleitner
		Dave McLucas
		Deb Clocker
		Douglas Perez
		Jerling Alvarez
		Mike Parsons
		Martha E. Pineda

Want $500?

Company Referral Plan

Refer a Potential Employee to Morgan
(Before They Come In)
If Hired,
After 90 days of Employment
You Get $250.
After 6 months of Employment
You Get Another $250.

"The Wisdom Well"

"Success doesn't come from what you do occasionally. It comes from what you do consistently."

~Marie Forles

BENTON FOUNDRY, INC.