



**P&H**<sup>®</sup>

A History of  
P&H Mining Equipment Inc.



It is an awe-inspiring image, one of many photographs captured by the crew of Apollo 11 during their history-making Moon mission back in July 1969.

As their spacecraft moved in swift, eerie silence around Earth's natural satellite, the sight of their "Blue Marble" home rising quickly above the Moon horizon dramatized the enormity of the miracle of life on our planet. Our home back in 1969 sustained 3.6 billion people. That number would grow to 6.7 billion people just 40 years later in 2009.

Our existence on planet Earth depends upon many things, including our fortunate distance of 93 million miles from the Sun that makes possible a modest range of temperatures that sustains our atmosphere and life-giving oceans. And the Moon itself helps brake and govern Earth's rate of spin for moderate weather patterns that further encourage an amazing range of plant and animal life.

Beyond these factors, however, we are otherwise on our own when it comes to survival. We rely upon agriculture to supply our food, and the forest industry to supply building materials and paper for communication and packaging.

Above all, we depend upon a highly efficient mining industry to supply our global economy with valuable minerals and energy sources to help sustain life on our planet. We are all consumers of minerals.

In nine out of ten surface mines you will find powerful, smart, highly productive and reliable digging and drilling machines bearing a familiar black-and-yellow "P&H" trademark.

The sun never sets on that trademark.

This is the story behind the P&H trademark, and above all, the remarkable people who, starting in 1884, built one of the great industrial manufacturing enterprises that today proudly serves the global mining industry.

It is a saga of superb craftsmanship and an enduring tenacity of purpose.

This is the story of P&H Mining Equipment.





# Preparation Meets Opportunity

## Pawling Joins Forces with Harnischfeger

It was one of those delightful “Indian Summer” days in late October 1884 in Milwaukee, Wisconsin. A frosty morning quickly gave way to a sunny, blue-sky day, lifting everyone’s spirits. It was certainly so for Alonzo Pawling as sunlight filled his office in the little wooden factory building at 292 Florida Street on the South Side of Milwaukee. Alonzo was proud of his Milwaukee Tool and Pattern Shop launched the previous year.

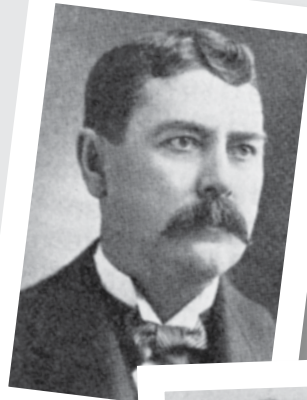
Despite the fine autumn day, however, Alonzo was uneasy. Another cold, dark winter was coming on. Of greater concern to Pawling: The mortgage on his business would be payable in full in November.

Business had been fair and sometimes good for the wooden foundry casting patterns and machined components that his shop produced for larger

industrial firms in Milwaukee. And yet young Pawling, a steady manufacturing veteran despite being just 27 years old, kept thinking “We could use more machining know-how than what we’ve got here right now. More tools, too. I must pay a visit to Henry Harnischfeger.”

Pawling was impressed with the 29-year-old Henry Harnischfeger with whom he served for a time at the Whitehill Sewing Machine Company in Milwaukee. Henry was a fine machinist with excellent business instincts. He arrived in America 12 years prior from his homeland of Germany where he served a locksmith apprenticeship.

Young Harnischfeger saw great opportunity on the fast-industrializing East Coast of America. At age 16, Henry persuaded his father to let him immigrate to the United States to seek his fortune. A cousin, Michael Habig, had immigrated to the USA six years earlier. He offered Henry encouragement – and a place to stay until Harnischfeger could establish a position and a place of his own.



## Young Harnischfeger Studied Engineering

Henry arrived at Castle Gardens, New Jersey on April 9, 1872. He quickly found work as a machinist with the Singer Sewing Machine Company. When business fell off, young Harnischfeger quickly found work elsewhere, including with the Long Island Locomotive Works, with Vernier calipers manufacturer Brown & Sharpe, and even as a waiter in a saloon in Brooklyn, New York when industrial jobs were scarce. Henry recognized the importance of engineering throughout his industrial work, prompting him to study that discipline in his spare time.



*Pawling & Harnischfeger Machine and Pattern Shop circa summer of 1885 in Old Milwaukee.*

In 1881, a sewing machine designer invited Henry Harnischfeger to join his Whitehill Sewing Machine Company manufacturing operation as a machine shop foreman in Milwaukee. It was there that Henry first worked with Alonzo Pawling.

Alonzo and Henry soon realized that the Whitehill business was lacking in business discipline as it struggled to effectively transform customer requirements and manufacturing inputs into valuable sewing machinery. By the autumn of 1883, Whitehill discontinued its sewing machine business and carried on as a general jobbing shop.

Alonzo Pawling departed Whitehill in 1883 to start his own Milwaukee Tool & Pattern Shop. His business badly needed the help of a machining and manufacturing veteran, however. Alonzo realized that if his business were to succeed, he needed someone of the caliber of young Henry Harnischfeger at his side.

Much to his relief, Henry agreed to join Alonzo. Henry brought with him a good amount of capital – some \$2,500 that he invested in new machine tools plus a wealth of industrial working knowledge acquired over nearly 16 years. Harnischfeger also possessed a fierce determination to make the venture succeed through excellence in the delivery of superior quality and service to the customer.

## **A Business is Born on December 1, 1884**

Alonzo Pawling and Henry Harnischfeger launched their partnership with a contract and a handshake on December 1, 1884 and got to work. It was turning out to be another in a series of five severe winters in Milwaukee, thanks to many megatons of volcanic ash and sulfur dioxide that had been injected into the Earth's stratosphere by the spectacular August 26, 1883 eruption of Mount Krakatoa in faraway Indonesia – an exotic land that would one day be the location of a mountaintop copper and gold mine that would employ powerful digging machines bearing a trademark inspired by Pawling & Harnischfeger.



*Milwaukee beer breweries were among the early customers for products from Pawling & Harnischfeger, suppliers of "pitching" or beer keg sealing machines including several built for the Joseph Schlitz Brewery.*

Thanks to their focus on quality and service excellence, Alonzo and Henry quickly demonstrated their dependability as machine and pattern shop suppliers to larger manufacturing firms in Milwaukee.

Early customers for industrial castings patterns, machinery components and complete assemblies from the Pawling & Harnischfeger Machine and Pattern Shop included knitting machine makers, brick manufacturers, beer

breweries, steam engine manufacturers, farm equipment factories and newspaper typeset machine makers.

## **Overhead Cranes: A Product of Their Own**

In 1887, just three years after the start-up of their business, an overhead traveling bridge crane built by another firm catastrophically collapsed in an attempt to lift a load well beyond its rated capacity in a foundry near the Pawling & Harnischfeger shop. As the foundry, operated by the Edward P. Allis Company, was already a customer of Pawling & Harnischfeger and well understood their capabilities with regard to industrial machinery, they engaged



*Pawling & Harnischfeger worked with crane specialist A.J. Shaw to rebuild a failed overhead crane on behalf of the Edward P. Allis Manufacturing Company in 1888. Soon after, manufacturing firms began to clamor for more such cranes designed and built by Pawling & Harnischfeger. Suddenly, the firm had a product line all its own.*



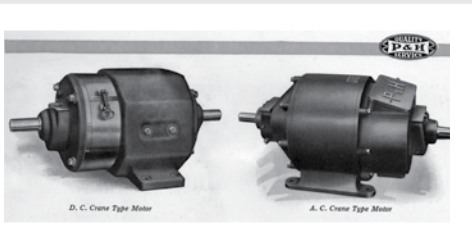
the small Machine and Pattern Shop to rebuild the crane – and improve upon its design if at all possible.

Pawling and Harnischfeger – and a business partner named A.J. Shaw with some experience in overhead cranes – replaced the damaged crane’s complex array of ropes and pulleys with a simplified set of motors and gearboxes, one each for the hoist, trolley and bridge drives. The crane went back into service in early 1888 and was an immediate success. Before long, Pawling & Harnischfeger were building their own overhead cranes and expanding their business to meet demand.

## Electric Motors Join the P&H Product Mix

Pawling & Harnischfeger in 1893 determined that they needed greater quality control over the electric motors they sourced from other firms and applied to their cranes. When the Westinghouse Electric Company bought a rival, the Gibbs Electric

Company, Pawling & Harnischfeger moved quickly to purchase Gibbs’ engineering and manufacturing assets and began making their own industrial-grade AC and DC motors and controls.



*Needing greater control over AC and DC electric motor design and quality obtained from motor suppliers, Pawling & Harnischfeger in 1893 acquired engineering and manufacturing assets of the Gibbs Electric Company*

Also in 1893, however, over-investment in railroads caused a general “bank panic” across America. The ensuing recession weakened crane demand.

Pawling & Harnischfeger realized they needed an expanded product line that might reduce the risk of over-reliance on just one product. But, what might constitute that product line? Where might growth opportunities be found?

America at that time was rapidly developing its industrial base and infrastructure of roads and ports, mines and utility transmission systems. There was a growing demand for digging machines that could move lots of earth and speed those projects along. Pawling & Harnischfeger – by this time they were referred to by

their growing numbers of appreciative customers as simply “P&H” – began looking into their own line of digging machines.

Alonzo Pawling, however, was stricken with a chronic illness around 1911 and realized he needed to end his involvement in the business. He sold his interest to Henry Harnischfeger and made just one parting request: Please forever keep the “P&H” trademark displayed on the firm’s product line going forward.

As the P&H brand by then had clearly established a reputation for exceptional Quality and Service excellence, Henry gladly concurred. Pawling would pass away three years later.



*Introduced in 1914, the P&H® T-1 Tamper was the first earth-altering machine to be offered by the firm that would become today’s P&H Mining Equipment. The T-1 was equipped with pavement-cutting tools and a flat plate used for tamping down earth following pipeline installations.*

## First ‘P&H’ Digging Machines in 1914

Around 1914, the first earth-altering “P&H” machine appeared. It was the P&H T-1 tamper / pavement cutter used effectively for starting and finishing pipeline installations on city streets. Wheel-type and ladder-type trenching machines for agriculture and water pipeline projects followed with good success.





*Powered by the customer's choice of a Waukesha gasoline engine, a Buda diesel engine, or a P&H electric motor, the P&H® 206 excavator introduced in 1920 would be the first in a long line of high performance digging machines bearing the P&H trademark.*

A P&H® 205 power shovel appeared around 1919. It worked well enough, but had some design shortcomings. P&H engineers and manufacturing personnel addressed all of those performance gaps with the rollout of the P&H 206 power shovel. Rated at

½-cubic-yard dipper capacity, the P&H 206 was an immediate success.

Batches of P&H 206 machines were soon placed into service across North America and into South America and beyond, including Mumbai, India.

policy would forever be central to the firm's value-delivery philosophy.



*In 1927, P&H® 300 'convertibles' joined the P&H product line. The customer could choose from many functional options including power shovel, dragline, "Skim-Scoop," pile driver, clamshell and magnet crane attachments.*

During the 1920s, the firm introduced a line of P&H 300 "8-in-1 convertibles" machines featuring a common lower crawler works and revolving frame platform, upon which the customer could choose from a range of options including power shovel, dragline, construction hook crane, clamshell, pile-driver, magnet, "Skim-Scoop" and back-filler.



*A P&H® 152 ladder-type trenching machine circa 1915 quickly claws a pipeline trench through the earth in what is today the southeast parking lot of the P&H Mining Equipment factory in West Milwaukee.*

At the same time, P&H established a network of service mechanics in key regions to provide support to P&H shovel customers. From the very start of their business, Pawling & Harnischfeger provided their customers with expert service support. That

## **Great Depression Triggers Strategy Maneuvers**

Orders poured in for P&H construction and mining machines as well as P&H overhead cranes. And then



the New York stock market crashed on October 29, 1929. By the spring of 1930, demand for P&H equipment began to collapse. Some customers sadly returned their recently purchased P&H machines. The Great Depression had set in.

P&H co-founder Henry Harnischfeger passed away in November 1930. His son, Walter Harnischfeger, stepped into the leadership role and maneuvered the enterprise with great skill through the next four decades.

To better manage business risk and generate growth and profits, P&H began expanding its product offerings during this time to include diesel engines, prefabricated homes, and welding machines.

Welding machines were particularly significant because P&H had long excelled in using and developing best-available manufacturing processes. Every facet of the manufacturing process was state-of-the-art, from advanced castings materials and technology through the machining of transmission components and milling structural components for perfect fit and superb machine performance. While welding technology was mostly experimental during the first two decades of the 1900s, by 1930 the application of welding as a replacement for riveted-design machines was clearly a superior alternative.

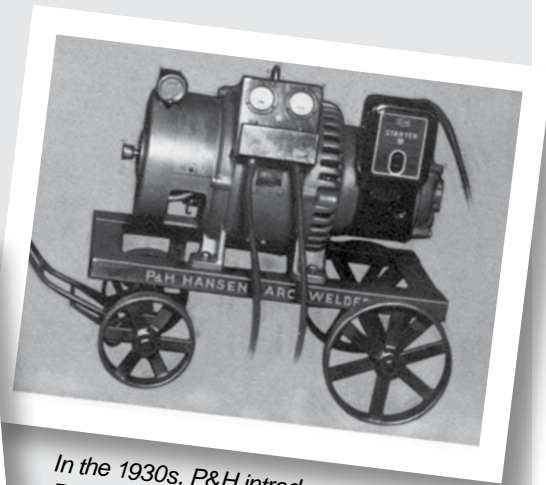


*For increased strength, reduced working weight and bigger payloads, P&H began applying all-welded design to its product line starting around 1932. P&H® 1200WL shovels equipped with Ward-Leonard DC drive controls were among the first P&H all-welded digging machines.*



*Hundreds of Milwaukeeans turn out in early December 1936 to inspect the new P&H "Progress Home" – a Quonset-type structure offering "every modern convenience including summer and winter air conditioning, with the utmost in strength and durability, at very low cost" and featuring "five spacious, well-lighted rooms completely insulated and sealed against weather." Far more attractive P&H pre-fabricated homes would be offered in ensuing years.*

P&H completed the transformation of its product line to all-welded design and manufacture between 1932 and 1935. For our customers, the value obtained included lighter, stronger machines that could deliver more payload at lower cost-per-ton. Simultaneous with this development, P&H began designing and building our own line of P&H arc welding machines and consumables for industrial use.



*In the 1930s, P&H introduced a line of P&H electric arc welding machines and welding rods for industrial use.*

## 1930s Launch of Ward-Leonard DC Drive

Also during the 1930s, P&H adopted Ward-Leonard DC motor drive for application to P&H cranes and shovels. Ward-Leonard systems also resulted in easy-to-use hand controls

replacing arrays of large levers requiring great push-pull arms and hand strength on the part of the machine operator. Greater operator comfort meant greater alertness and machine productivity.

"There's a reason for this comfort and ease of operation," noted a P&H brochure in 1934. "It is by reducing physical effort that the operator is able to get more done in a day's work. The machines are built to take punishment without breakdown or sacrifice of efficiency. The human body is not."



With the outbreak of World War II in 1939, P&H steadily began to recover from the Great Depression doldrums. When the USA entered the conflict in 1941, P&H focused on building cranes, hoists and digging machines for domestic industry and for military applications. The war effort required enormous volumes of minerals, and P&H shovels saw great demand in iron ore, copper, bauxite, coal and other mining operations.



*During the 1950s, the P&H product line included road stabilizer machines.*

During the 1950s, the P&H product line was broad and thriving. Demand was good for everything from P&H diesel engines, welding machines, road stabilizers and pre-fabricated homes to P&H overhead and construction cranes and P&H shovels as well. By the mid 1960s, however, returns on the company's investment in diesel

engines, welding machines and homes began to falter. Around 1968, the company sold those business units and concentrated on its core cranes, hoists and shovel products.

## **P&H 2800-Class Shovels Introduced in 1968**

It was also in 1968 that P&H introduced a rugged new electric mining shovel, the P&H® 2800 Mark II. The first three P&H 2800s went into service in a metallurgical coal mine in Western Canada. Twenty years later, each of those original



*One of the best-selling modern-era electric mining shovels emerged in 1968. It was the P&H 2800 Mark II. P&H 2800-class shovels remain a highly sought-after loading tool 40 years later.*

machines remained highly productive and had long before surpassed 100,000 working hours.

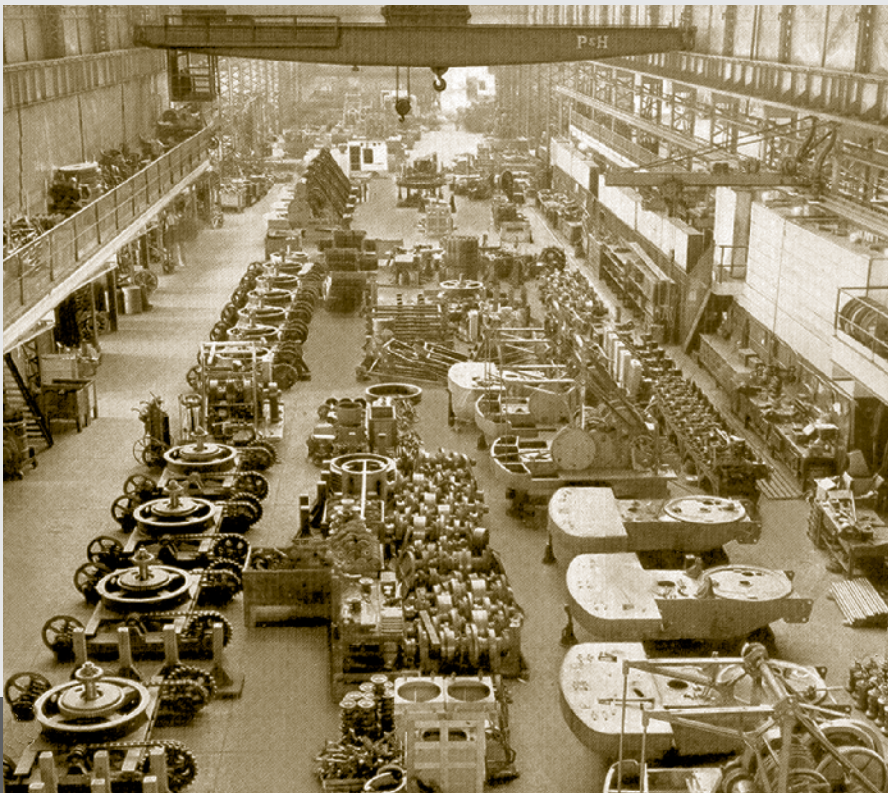
P&H 2800-series electric shovels would soon become the world's best-selling, modern-era electric rope excavators, a mark that

would remain intact until the year 2010 when they will be surpassed by another P&H shovel model introduced in 1991, the P&H® 4100s.

## **1970s Mega-Forces Challenge P&H**

As much as possible, a business strives for excellence in how it manages its marketing, operations, financial and administrative functions to obtain needed growth and profitability. There are times,

*Bay 1 in Building 110 of the P&H factory was the assembly area for large batches of P&H® 255 and other excavator models needed for construction and mining during World War II, including road and airfield projects handled by the US Army Corps of Engineers and the US Navy Seabees.*







*P&H truck-mounted, crawler and rough-terrain hydraulic construction cranes were among the best-in-class between 1920 and the year 1988 when that product line was sold. Terex continues to offer "P&H" construction cranes.*

however, when powerful economic and other mega-forces can test even the best-managed business, and that is what happened during the 1970s.

A sharp increase in the volume of paper currency issued by central banks led to a difficult period of high, stagnating inflation or "stagflation." Commodity prices, in particu-

lar for oil, soared. Currency exchange rates became highly volatile. In such an environment, managing the P&H business became increasingly challenging.

On the one hand, high oil prices prompted a move toward cheaper, abundant alternative energy sources. That led to the accelerated development of the coal-rich Powder River Basin in Wyoming and in other major coal-producing regions. Before long, demand would increase for P&H shovels applied to coal mine overburden handling. What's more, demand also grew for P&H construction cranes applied to the Alaska oil pipeline and other energy projects.

On the other hand, central bank interest rates soared to help reduce rampant inflation. The weak US dollar soon began to surge in value versus other currencies. P&H construction cranes once built with inflated US dollars in Cedar Rapids, Iowa and Escanaba, Michigan could no longer compete with lower-cost identical models built by P&H licensee Kobe Steel in Japan. P&H sold its construction equipment product line in 1988.

## **P&H Acquires Page Walking Draglines**

It was also in 1988 that P&H acquired the walking dragline product line of Chicago-based Page Engineering. P&H had been offering crawler-mounted draglines since 1920. However, credit for the first

practical dragline belongs to John W. Page, founder of the Page Engineering Company based near Chicago back in 1903.

While P&H designed and built a well-regarded line of crawler-mounted draglines ranging from the P&H 300 in the 1920s through the P&H® 2355 starting in 1980, the firm recognized an opportunity to broaden the range of its material handling solutions in the mining industry by acquiring the Page Engineering walking dragline product line. In so doing, P&H positioned itself to offer a wider range of high-capacity, cost-efficient earthmoving options to solve any pit challenge.

P&H engineers began a methodical effort to fully understand the needs and expectations of walking dragline operations managers for an ideal machine that could deliver exceptional productivity while providing ease-of-maintenance for lower-cost operation. That effort resulted in an all-new dragline, the 60 cubic-meter-class P&H 9020 that quickly prompted orders from the coal-rich Eastern Australia coal region as well as Canada.



*P&H Mining Equipment engineers and manufacturing personnel embarked on a program to develop an all-new P&H walking dragline based on voice-of-customer inputs. The resulting P&H® 9020 60-cubic-meter class draglines introduced in 1996 were quickly recognized as a good investment for coal mines in Australia and Canada.*

## **Planetary Transmissions, P&H® 4100s Emerge**

The year 1988 also saw the introduction of highly reliable, efficient and easy-to-maintain P&H planetary transmissions. P&H shovels equipped with compact, dual planetary propel transmissions quickly demonstrated gains in maneuverability and longevity in the severe-duty mining environment. P&H planetary transmissions remain a key value factor advantage for P&H shovels and draglines today.

As haulage trucks grew dramatically with regard to size and payloads up to 240 tons around 1990, P&H engineers and manufacturing personnel began an effort to bring a bigger electric shovel to the mining industry. The result was the P&H 4100 introduced in 1991 with significantly greater payload and also major ease-of-maintenance features for low cost-per-ton performance.



*P&H Mining Equipment introduced the P&H 4100-class shovel in 1991.*

## **P&H Acquires GD Drilling Rig Line**

Rotary blast hole drilling rigs joined the P&H product line in 1991 with the purchase of the Gardner-Denver product line. As with the walking dragline product line, P&H engineers and manufacturing specialists launched a program to fully understand customer requirements, and then fine-tune and elevate the performance of a new P&H drilling rig product line, starting with an upgrade of the GD120 heavyweight star of iron ore and other hard-rock operations. The P&H® 120A soon made its appearance and found welcome placements in severe-duty mine environments. A more advanced P&H 320XPC is the latest, well-received successor to the original GD120.

Other important advances in the P&H product line during the 1990s included the bigger-faster-smarter

*Next-generation P&H earth moving technology for high-throughput mining operations includes P&H in-pit crushing-conveying systems matched to P&H electric shovels.*



*P&H Mining Equipment acquired the Gardner-Denver line of blast hole drilling rigs in 1991. A customer-driven continuous improvement program over ensuing years would result in high-performance models including the P&H® 320XPC heavy-duty drill.*

P&H® 4100XPB and the P&H® 4100BOSS developed primarily for oil sand loading operations.

## **Centurion, AC Drive, IPCC Systems**

During the first decade following the 2000 millennium, P&H began to apply a powerful new machine drive and control system to its products. Known as Centurion, the fast, high-capacity machine supervisory control and data acquisition system would make possible significant gains in machine productivity, reliability and maintenance efficiency.

An AC-drive P&H 4100BOSS shovel emerged smoothly and with excellent results in 2007 in the Oil Sands region of Canada. An AC-drive P&H 4100XPC joins the P&H fleet and technology evolution saga starting in 2010.

P&H Mining Equipment in 2008 announced plans for a new material processing and handling system – an in-pit crushing and conveying (IPCC) system featuring a P&H® 4170C mobile mining crusher matched to P&H electric shovels and outfitted with crushing-conveying technology from Joy Mining Machinery. P&H IPCCs represent an important new material handling strategy option for mines.



*A successful roll-out of AC-drive P&H 4100BOSS shovels in 2007 launched further AC-drive shovel offerings including AC P&H® 4100XPCs in 2010.*





# Quality, Service and Safety

## Quality, Service and Safety: The Principles for Which We Stand

*"You buy a shovel or crane for one purpose – to handle materials at the lowest possible cost. In the final analysis, the first cost of the shovel or crane is unimportant. But the cost per yard is very important. Users realize this and before buying they carefully consider the manufacturer, his plant and experience; the construction features of the machine; the performance of the machine in the field; and the manufacturer's service."*

- Excerpt from P&H brochure "Greater Yardage at Lower Cost" published in 1929

## Quality

Pawling and Harnischfeger were fully aware that the machines they designed and built needed to deliver superior performance value for their customers. Power shovels and other such machines appeared long before the start-up of the P&H business. It was in 1835 that William Smith Otis collaborated with Charles Howe French to develop the first steam-powered earth-moving machine. Many other firms were building power shovels when Pawling & Harnischfeger began to tinker with their own line of digging machines.

To stand out from the rest of the field, Pawling & Harnischfeger decided they needed to concentrate on building

the very best machines of their kind, tailored to the needs of the customer for great productivity, reliability and ease-of-maintenance.

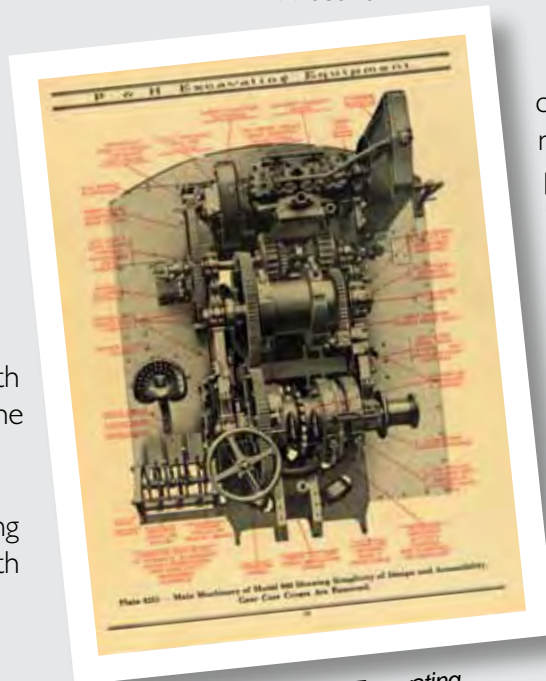
Because their success thus far had been achieved in large part due to their craftsmanship excellence, Pawling & Harnischfeger set out to design, build and support best-in-class machines using best-available materials and state-of-the-art manufacturing equipment and processes.

By 1929, P&H had accumulated 45 years of experience and had built up a work force of 2,000 skilled craftsmen, engineers, service and administrative personnel.

Its factory in West Milwaukee, Wisconsin



*Excerpt from 1929 P&H brochure titled "Greater Yardage at Lower Cost."*



*Excerpt from 1927 "P&H Excavating Equipment" brochure.*

contained a considerable \$10 million capital investment in plant and equipment. Every facet of the manufacturing process was state-of-the-art.

Engineering excellence was of particular importance to the P&H business. P&H co-founder Henry Harnischfeger saw fit to study engineering during his early years in the USA, and he knew the firm needed enduring strength in that discipline as well as in manufacturing, marketing, finance and human resources administration.

The strength and weakness of all previous machines was an open book to P&H engineers. They knew which parts had given limited service, and which parts had stood the test of time without breakage.

Ultimately, the focus was on Quality in pursuit of customer value.

“An excavator represents a large investment and you cannot afford to take a chance on unproved designs or experiments,” noted a P&H brochure published in 1927. “When you buy a P&H, you get a machine that has an established record for steady, dependable operation and for earning substantial profits.

“Excavators are subject to abnormal stresses in service. For this reason, P&H excavators are of ‘all steel’ construction from the ground-up. The corduroy traction shoes, frame, car body, revolving frame, drum side frames and other parts are single-piece annealed steel castings of extra large section and strength.

“All gears are of steel with cut teeth and pinions cut from solid forgings. Shafting is either of forged steel or is turned from special alloy steels and then heat treated and ground for micrometer fits.

“There is no substitute for good materials and workmanship. Every part of the P&H is of the highest type of construction made in our own shops under our own supervision. The quality construction of the P&H together with the constant improvements mean longer life and lower maintenance which in turn mean greater profits to the customer.”

Quality excellence was of prime importance to Pawling and Harnischfeger from the very start of their enterprise. Quality remains a core value for P&H employees going forward.

## Service

“Clinging to the side of a mountain out in the Western U.S. Cascade mountain range, a P&H shovel is at work, grading for a new highway, the spearhead of a project that may involve hundreds, even thousands of men,” notes a passage from a brochure marking the first 50 years of P&H in 1934. “It must

be kept going. Every hour counts. Every digging cycle is important.

“If anything breaks, if that shovel is forced out of commission, the whole job must wait.

“Now, a P&H shovel is built to stay on the job. But steel is only steel and occasionally it fails. Then there comes the real test of a service organization: Get the replacement part through quickly. Cut the red tape. Speed up!”

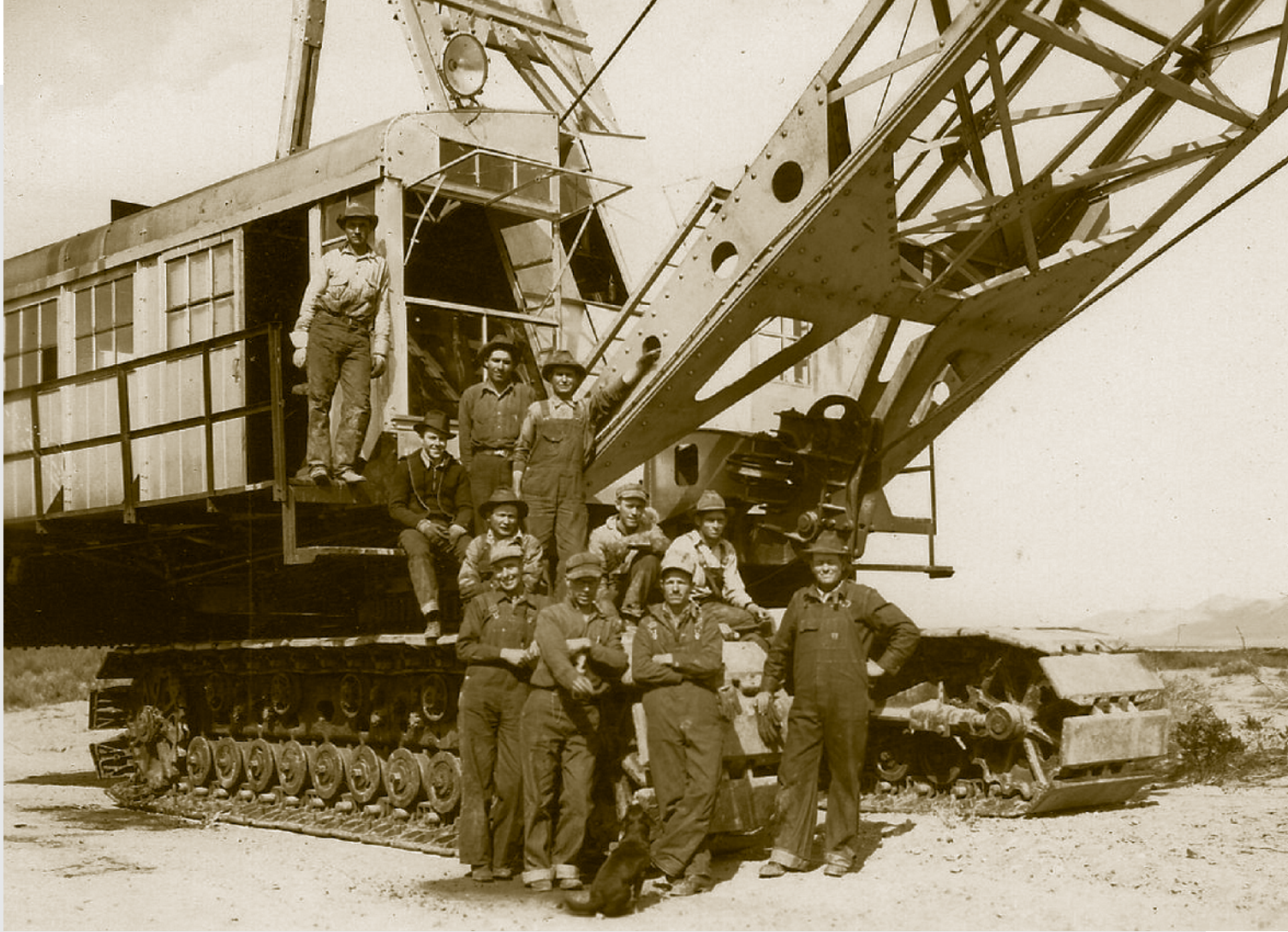
Pawling and Harnischfeger concentrated on Service in equal proportion to Quality from the very beginning of their enterprise. Because they were most familiar with the design, the materials, the mechanics, and construction of their equipment, they gladly provided their customers with the service, repairs and rebuild support needed to optimize the value of their investment in P&H machines.



*In a jungle clearing somewhere in México circa 1936, a P&H service crew changes out the track belts on a P&H shovel.*

As the P&H business grew, so did the P&H service team. It was a local, Milwaukee team at first, and then it was a regional Midwestern U.S. operation. By the early 1900s, P&H service mechanics were stationed throughout the USA in places like Philadelphia, San Francisco, Los Angeles, Seattle, and Jacksonville. They were available upon short notice. It was safe to say that P&H Service excellence had sold many machines – and would continue to do so into modern times.





*P&H service crew pauses with a canine friend at a P&H dragline assembly site in New Mexico in 1934.*

As P&H equipment found its way to mine sites around the world, a global network of service support depots and mechanics and electricians grew to meet customer requirements. In 1996, that global network was formalized into what is today known as P&H MinePro Services comprised of 2,000 warehouse logistics, mechanical, electrical and welding specialists, all of whom concentrate on helping P&H customers keep their P&H and other machinery up and running for reduced cost operations.

MinePro employees are proudly local. They are recruited from, and live within the mining regions in which they serve. They help build strong mining operations and communities as well.

## **Safety**

Our ability to provide our customers with valuable equipment and service support depends upon our ability to work safely and avoid situations that can cause injury.

P&H Mining Equipment and P&H MinePro Services embrace a concerted effort to manage an injury-free workplace. In P&H shops and offices, at the mine site, and wherever they live, commute and play, P&H and MinePro employees believe that all injuries can and must be prevented.

So much depends upon our ability to work safely. Our families, our customers, our co-workers, and our communities all benefit when we live and work injury-free.

Safety is the foundation upon which all else is possible, including our ability to deliver exceptional Quality and Service value for our customers.





# Great People Drive P&H

## P&H Craftsmanship and Our Tenacious Purpose

The year was 1934. It was the mid-point of the Great Depression era. Unemployment was at one point over 25 percent of the available work force.



P&H observed 50 continuous years of operations in 1934. Our business had been hit hard, our customers were hurting, and many of our employees were furloughed.



And yet, we persisted. We endured. We maneuvered. We focused on Quality and Service. And we survived.

Alonzo Pawling and Henry Harnischfeger knew their enterprise could succeed as long as they applied good discipline in understanding the needs and expectations of their customers. They did not falter in that regard.

Their commitment to excellence attracted great people of similar high standards throughout the



ensuing 125 years and beyond. People of that caliber continue to drive the P&H enterprise to this very day.

“Today, we cannot look back, without looking forward,” P&H employees declared in our 1934 50th anniversary booklet. “And in so doing, inevitably, we see you, our customer, as a vital part of our future. Certainly, there were many times when the future looked dark and foreboding. But each time, craftsmanship and a tenacious purpose triumphed.”



“If we can continue to build to meet your demands, however exacting; if we can keep pace with your demands; if we can contribute, in each of our fields, equipment that will do its job faithfully and economically – then the next Fifty Years should take care of themselves.

“To the future, then . . . to Another and a New Beginning, we dedicate the resources that a half century has built for us.”

What Alonzo Pawling and Henry Harnischfeger believed in and applied with such great effect back in 1884 remains alive and well today as P&H Mining Equipment forges ahead into the exciting future.

## Epilogue

### ‘P&H’ Cranes Carry On as Mining Hall of Fame Honors P&H Co-Founders

They were the very first official all-P&H product line back in 1887, but 110 years later the P&H industrial cranes product line was transferred to what is now Morris Material Handling, itself a world recognized material handling equipment solutions leader.

Tens of thousands of cranes bearing the familiar ‘P&H’ trademark were placed into service around the world since 1887. While most were out of the public eye in manufacturing and warehouse and other industrial operations, some were highly visible, including a well-maintained tandem of 150-ton capacity P&H overhead cranes in the turbine operations of Hoover Dam, built in the mid-1930s along the Nevada-Arizona border in the Southwestern United States.

Morris Material Handling applies a philosophy of Lifelong Lifting™ to its P&H cranes that are designed

to last a very long time – an approach to value delivery entirely in keeping with the tenets advanced by Alonzo Pawling and Henry Harnischfeger starting in 1884.



*Tandem of 1936-vintage P&H 150-ton capacity cranes at Hoover Dam (above), and a modern-era P&H overhead crane handles copper cathodes in an Arizona copper mining operation (top).*

Meanwhile, nearly 125 years after they launched the business that would become P&H Mining Equipment, Alonzo Pawling and Henry Harnischfeger were formally inducted into the National Mining Hall of Fame on September 12, 2009 in Leadville, Colorado.

In so doing, they joined over 200 visionaries, inventors and leaders that have helped to strengthen and transform the mining industry as it continues to evolve in support of our global economy and civilization.



Photo courtesy of Craig Talbert

It was a proud and humbling moment as that large gathering of today's mining industry movers and shakers assembled in Leadville – situated over 10,000 feet above sea level in an historic Rocky Mountains silver, gold and molybdenum mining region – to pay their respects to two earnest, hard-working industrial artisans who set their sights and enterprise on a road to excellence back on December 1, 1884.



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