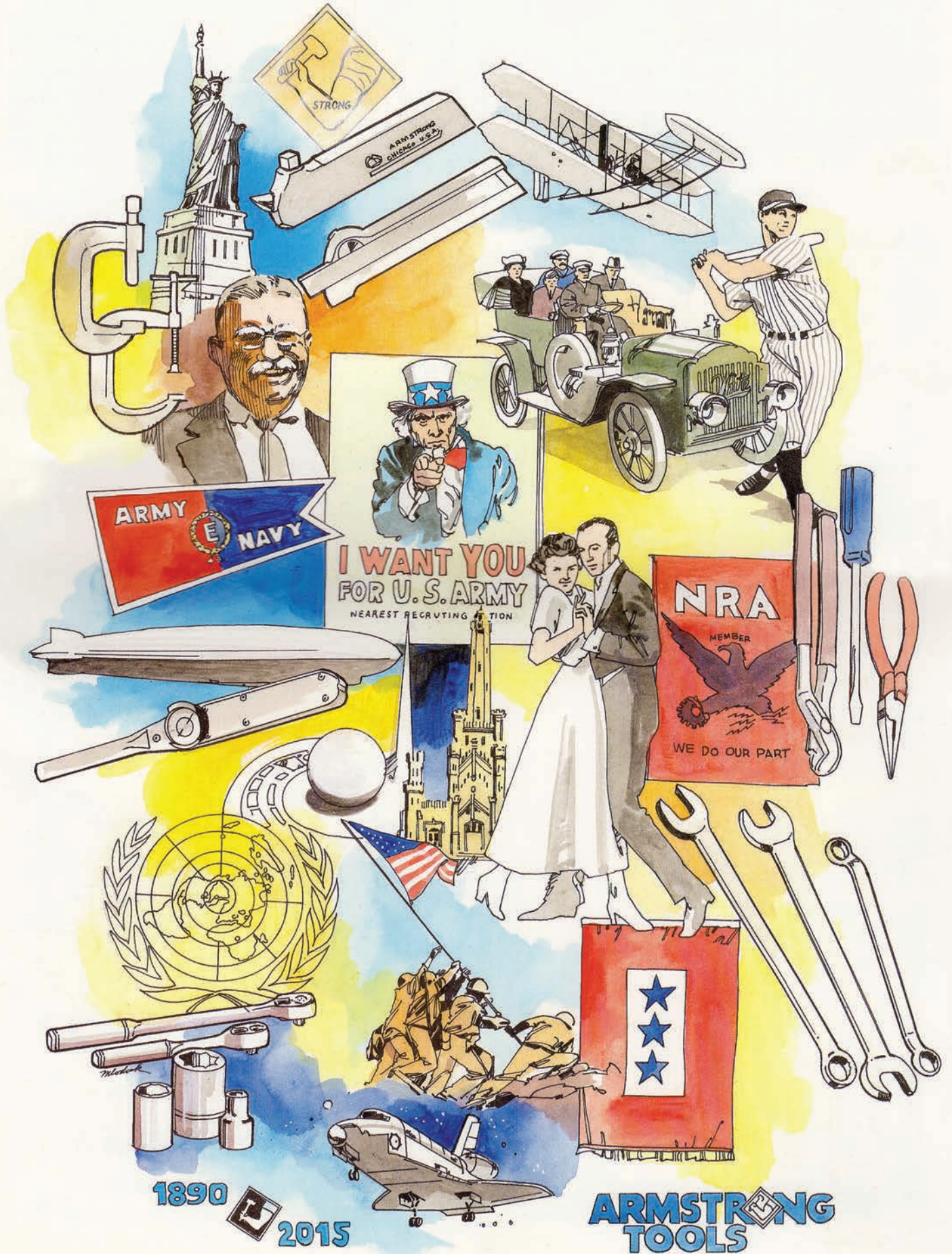
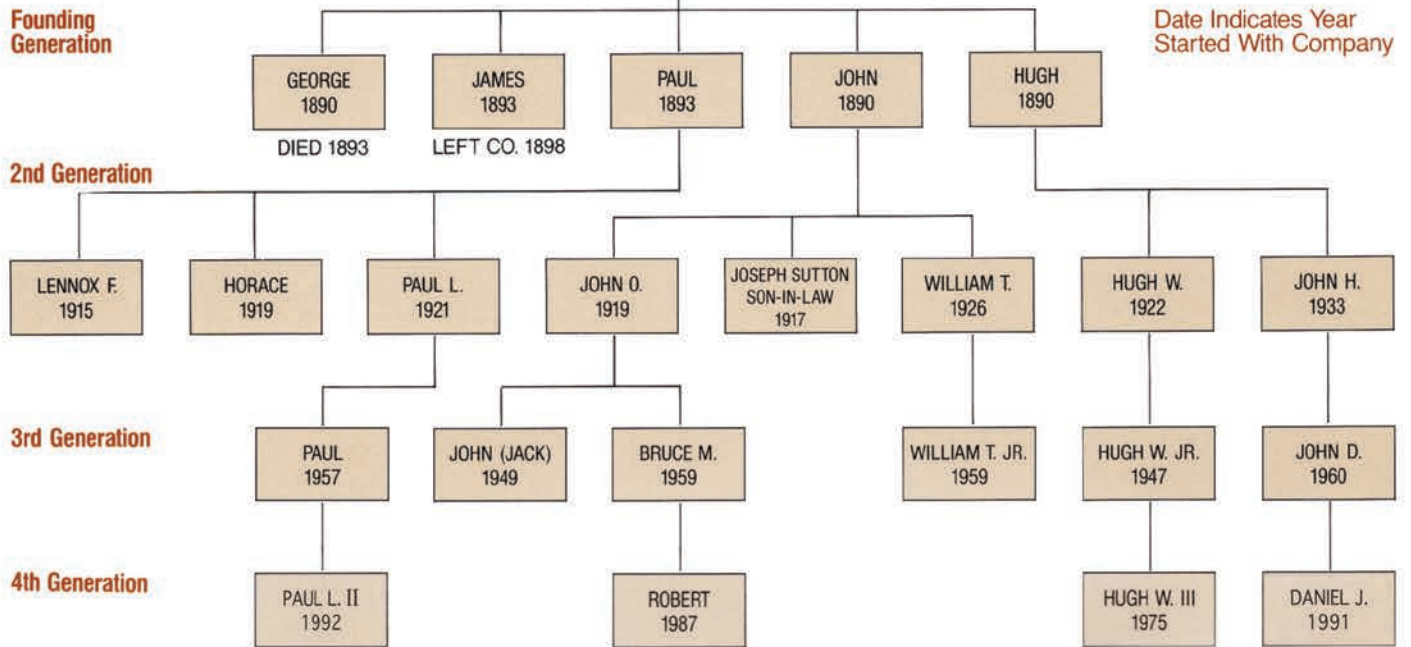


# ARMSTRONG BROS. TOOL CO.





# JOHN P. J. ARMSTRONG



## IMPORTANT DATES IN ARMSTRONG BROS. TOOL CO. HISTORY

- 1866** John P.J. Armstrong moves his family to Chicago from Scotland by way of Canada.
- 1890** The sons of John P.J. open a bicycle parts shop on Washington Street. A building to manufacture bicycle parts and tools is built on Edgewood Avenue.
- 1893** Armstrong Tool Holder patent issues—company expands to a new one story frame building at 78 Edgewood Avenue.
- 1895** John, Hugh, Paul and Jim incorporate under the name of Armstrong Bros. Tool Co. George W. Snyder is hired as a manufacturer's agent.
- 1898** The original shop on Washington Street is closed.
- 1900** Company moves to larger facility at 617 Austin Avenue. Armstrong Tool Holder wins award at Universal Exposition, Paris, France.
- 1902** Austin Avenue Plant burns to the ground—larger plant is built on the same site.
- 1904** Armstrong Tool Holder wins Gold Award at Louisiana Purchase Exposition
- 1905** Company moves to a new 3 story brick building (100,000 sq. ft.) at North Francisco Avenue.
- 1909** Forge Shop is installed at Francisco Avenue Plant, Armstrong forges first wrenches and some shop tools.
- 1910** First Armstrong "C"-Clamps are forged.
- 1915** Armstrong forges first Alloy Steel Tappet Wrenches.
- 1917** Armstrong forges Eye Bolts and Strap Clamps.
- 1927** Alloy Steel Open End Wrenches are forged and added to the line.
- 1930** First subsidiary was formed in partnership with E.P. Barrus Ltd. of England.
- 1942** Armstrong Bros. Tool Co. is awarded the coveted Army and Navy "E".
- 1948** Armstrong moves to new 200,000 sq. ft. building at 5200 W. Armstrong Avenue (present location).
- 1960** Screwdrivers, Punches, Chisels and other hand tools are added to the line.
- 1962** Armstrong acquires Armstrong Mfg.
- 1974** New Plant in Fayetteville, Arkansas goes into production.
- 1977** Armstrong Bros. Tool Co. opens a new subsidiary in England.
- 1979** Armstrong-Bray & Co. is acquired.
- 1981** The company is awarded the Commerce Department's "E" Award.
- 1983** Company acquires Griswold Machine and Engineering, Inc.
- 1990** Armstrong Bros. Tool Co. celebrates its First Hundred Years!



## ARMSTRONG HISTORY

Tools, it has been said, are the “shapers of civilization,” the indispensable implements of man’s survival over the ages and his one sure means to a better life.

“A tool is but an extension of a man’s hand,” Henry Ward Beecher wrote a century ago.

But what an extension!

Tools in their vital, almost beautiful simplicity increase and vary human power; they economize human time; they make possible the conversion of raw substances into valuable and useful products.

They are, in all their glorious harmony of line and function, more than mere “shapers of civilization.” They have made the story of civilization possible.

Many thousands of years ago, primitive man used stone arrowheads and bone implements in his struggle to survive. No one knows for sure how long this era of the caveman and his crude tools lasted, but historians and archaeologists are generally agreed that the introduction of metal tools—mainly weapons of copper and bronze—can be traced back to the discovery of metallurgy in the Near East (circa 4,000 B.C.).

This so-called Bronze Age was followed about three thousand years later (circa 1100 B.C.) by the Age of Iron, and it was during this period of “revealed” history that metal tools became more than just weapons of war and began augmenting man’s control over nature and the productivity of labor.

We also know that by the time Roman armies were subjugating most of Europe all of the basic manual tools that we use today had been invented. In the years since, through the Dark Ages and Medieval times to the present, generation after generation of tool builders have been striving to better whatever tool could be bettered, to help mankind make something more from something less, to provide the more complicated and more precise tools required in ever greater diversity and

numbers. From the advent of the industrial revolution in the 1800’s through the birth of the Space Age in the 20th Century, this quest for new and better tools has reached even greater intensity.

Many tool builders made their mark during these decades of burgeoning technology. Most have faded into history. A few, however, in existence before the turn of the century, have survived, among them Armstrong Bros. Tool Co.

A journalist would search in vain for the spectacular in this small but unusual family-owned firm so totally dedicated to the tool business. Its story is instead the story of five generations of an American family united in a business that has not only endured for 100 years but a business that has also touched and enriched the lives of thousands of Americans, from the many employees who have depended on the company for their livelihood to the many craftsmen and workers of industry who prefer and appreciate the special “feel” and “heft” of an Armstrong Tool.

“Since a company is ‘people,’ we’re not perfect,” the Armstrongs of 1990 emphasize. “But in today’s atmosphere of a questioning and critical attitude toward business, we believe we stand as a favorable example of the free enterprise system. Our company has provided employment for thousands of people over the years, serviced the needs of industry around the World in good times and bad, and maintained an unfaltering dedication to quality.”

This, then, is the Armstrong story, a typical but seldom-told tale of free enterprise American-style, and a company whose achievements combined with the achievements of thousands of other small manufacturing companies have flourished in this country and helped forge the greatness of the America we know today.

Jan. 1, 1990  
One Hundreth Anniversary

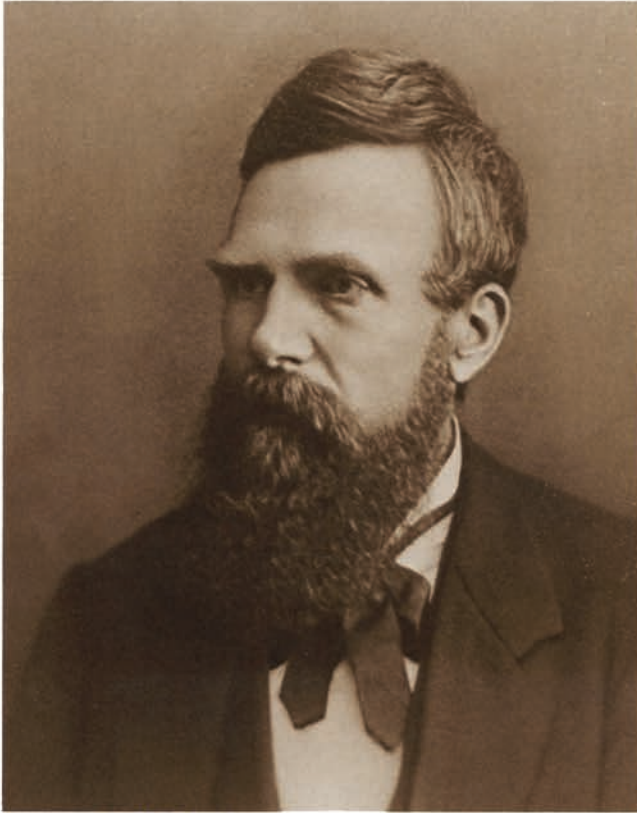
## Caledonia

Caledonia,  
Thou rockbound cradle  
Of that master race of men  
Who find their joy in hardships,  
Whose stubborn thrift has conquered deserts  
And builded cities.

The pioneers,  
Meeting savage man and beast  
In every new country in the globe.  
Cool, far-seeing, fearless, strong, frugal.  
Oh, what a heritage is theirs.  
Better far than gold and riches!

—a poem of praise to his native Scotland that may have been written by Paul Armstrong in 1911. It was found in one of his old pocket notebooks.





John P.J. Armstrong

### THE CORFU INCIDENT

Every venture has its germination point—that one magic moment and place in time, that memorable incident that stands out in a family's history, and seemingly “sets the stage” for all the “actors” that follow.

For the Armstrong family, the island of Corfu under occupation by British troops during the Crimean War of the mid-1850s provided both time and place. The man involved was a hard-headed, red-bearded, and defiant Scotsman by the name of John Armstrong. An adventurous sort, young Armstrong had run away to sea at the age of 13 and later peddled his talents as an itinerant blacksmith in fishing villages along Scotland's River Forth before giving military service a try.

The incident of historic note touched on a matter dear to the heart of all Americans—freedom to worship in the church of one's choice.

It seems that each Sunday commanders of John Armstrong's Highland regiment would line up every manjack in the outfit, willing or not, and march them off to Protestant services. There were no exceptions and no excuses.

Young Armstrong, as the story is told, went along with this mass parade to the pulpit for a few of his sabbaths. But one Sunday he bluntly refused. Religion to him, he notified his commanding officers, was a matter of personal choice, and his destination that Sunday was not a Protestant house of the Lord but a local Catholic church.

His shocked superiors ordered him back into line. Such insubordination was insufferable. Again he refused. To the rigidly disciplined British military mind this was mutiny pure and simple and there was only one solution—the stockade.

So the young and stubborn soldier, instead of spending his Sunday in a church pew, spent it under guard in a military prison. Each Sunday, because of the unusual nature of his case, he was released by his jailers and brought out to stand in line with the other church-bound soldiers in his regiment. And each Sunday after his unbending refusal it was a quick trip back to the stockade.

This frustrating situation continued for several months to the consternation and bedevilment of the regimental officers, and the impasse might have continued indefinitely but for the intercession of a Catholic priest. Young Armstrong, thanks to this clerical appeal, was returned to the ranks, and his right to worship in the church of his choice grudgingly acknowledged.

That choice, because of his ordeal with the Protestants and the kindness of a Catholic priest, was Catholicism, a faith followed by many of his descendants in the New World to this day.

### THE NEW WORLD

Armstrong managed to survive the Crimean War and eventually completed his tour of duty with the Highlanders, returning to his native Scotland. There he met and married Helen Lennox, a pretty and practical young lady with a good business head on her shoulders, as evidenced by her eventual success in managing a candy store in America.

Unfortunately for the family's composure, a brother of Armstrong's young bride had gotten into a scrape poaching deer, and to escape the consequences of his folly, he had emigrated to Australia.

As the years passed, uneventful except for the addition of three sons and one daughter to the family circle, a certain restlessness set in. The economic situation in Scotland was static or declining. Opportunities for a traveling blacksmith



were meager; and with relatives in Australia and America, the time seemed ripe for a move. Helen, undoubtedly thinking of her brother, convinced John that Australia was the proper destination. But she made the mistake of sending her husband to buy the tickets. When he returned, after being sidetracked by some glorious tales about life in the New World, he had tickets in his pocket, but they were tickets for Canada, not the land of the kangaroo and koala bear.

To compound the family's travel plans even more, and further confuse wife Helen and the children, there was another switch in destination before the great sea voyage westward began.

Chicago is where you should go, an enthusiastic friend told Armstrong. It's the hub city of the great American Midwest; the nation's westernmost point for making stamp mills and machinery for the gold mines; a place of great opportunity for any man handy with his hands.

So 1866 Chicago, a sprawling and dusty city just beginning to flex its manufacturing muscle after the Civil War, became the new home of the Armstrong family, and soon thereafter the birthplace of two more sons. Six children now graced the Armstrong home—George, James, Janet, (the eldest child and only daughter), Paul, John, and Hugh (the youngest and the last).

### THE EARLY YEARS—1890 to 1909

It didn't take the Armstrong family long to conclude with some relief and satisfaction that their choice of a hometown in the new world was a good one. Chicago was already blessed with a sizeable population of Scottish immigrants, and the Armstrongs soon felt comfortable in their new environment. Even the Great Chicago Fire of 1871—which 8-year-old Paul watched from between the legs of adult observers—was generous to these new residents, leaving their home on the far north side of the city untouched.

These final decades of the 19th Century were exciting and challenging times, not only in America's heartland but throughout the nation. Railroads had spanned the continent, and America was beginning to think steel and steam. Cities were growing at a phenomenal rate and so were population figures. A fellow named Barnum merged with a fellow named Bailey to produce the "Greatest Show on Earth", and Buffalo Bill's Western spectacles boasted Annie Oakley, Sitting Bull, and scores of gun totin' cowboys. Baseball had organized a National League with its young, handlebar-moustachioed heroes. And, thanks to France, a famous lady took up permanent residence in New York Harbor to welcome the "tired and poor", many of whom, like the Armstrongs,

Chicago in the 1890's





had gravitated to Chicago, where a bumper crop of new millionaires housed themselves in fantastic mansions full of bric-a-brac, over-stuffed furniture, and potted palms, soothed their ills with Lydia Pinkham's Vegetable Compound, and climbed on (and often fell off of) an astonishing assortment of bicycles.

In fact, it was this bicycle craze that inspired a number of families—among them the Wright family in Dayton, Ohio—to convert every nook and cranny of spare space at home into a bicycle shop.

Actually, Orville and Wilbur Wright started their climb to fame as bicycle merchants and mechanics in 1892, a full two years after the five Armstrong brothers, with a few dollars of family capital, had opened a bicycle supply store at 98 West Washington Street in Chicago, where they provided sprockets, hubs, handlebars, and most of the other parts and tools needed to make or to equip bicycles and tandems. (The Armstrong brothers probably never flew in a flying machine built by the Wright brothers, but the Wright brothers certainly availed themselves of the Armstrong brothers' tools. Some of the early ones are still on display at the Wright Brothers Museum in Kitty Hawk, North Carolina.)

The Armstrongs, as it turned out, were ideally suited for the bicycle venture, particularly where the manufacturing of bicycle parts was involved. James (Jim) was a toolmaker and inventor. He had designed, and in 1896 built, the first automobile to run on the streets of Chicago, a steam car brought to a sudden and inglorious end when City Hall, even then a potent force in Chicago political life, decreed that each vehicle would need a "boiler license." Both Jim and George had served their apprenticeship as machinists with an iron works in Chicago. John was a patternmaker by trade. Paul, who had attended a church school in Montreal and the Kent College of Law, had the aptitude and enough education to handle the financial and legal side of business matters. Hugh, the youngest of the five, worked as a mailman by day, and in the shop at night.

The original \$1,800 in seed money for the bicycle shop came from a nestegg saved by their mother, Helen, from her candy store proceeds. Another promising source of venture capital for the boys was promised but never materialized. An uncle on their mother's side had earned a lot of money building railroads for the South, and he had been paid in Confederate bonds, legal

tender not worth a "plugged nickel" as the old saying went.

So the Armstrongs made do with the capital at hand, plus a liberal infusion of ingenuity.

Mrs. Armstrong had given each of her five sons a 25-foot lot in the one hundred block of Edgewood (now Lyndale) Avenue, in Chicago. Across the back of these five lots the boys built a shed in which to manufacture bicycle parts and tools for sale through the retail outlet.

One of the tools the Armstrongs experimented with early on, was the tool holder. Eldest brother George had observed during his apprenticeship that great amounts of time were wasted by machinists as they forged, ground, and hardened cutting tools from raw bars of steel. These tools were then used on lathes and other machine tools to shape work pieces to a desired form.

A tool holder, he had decided, made economically and simply from stock sizes and shapes of steel, and used with a small piece of cutting steel requiring the least amount of grinding for its shaping and maintenance, was the answer to a machinist's prayer. He had previously experimented with tool holders of various forms, and now perfected his design, applied for a patent, and the company began production on a very small scale in 1890, the same year the bicycle shop was getting underway. By May of 1891, the project looked promising enough for George to form a separate partnership with brothers John and Hugh. On February 28, 1893, the patent on George Armstrong's tool holder was issued.

Manufacturing capacity was expanded with the erection of a one-story, 16' by 16' frame shop in the rear of a lot owned by their father at 78 Edgewood Avenue. The old Scottish soldier not only provided a site for this expansion, he also entered his son's employ and remained actively at work in the plant until about two months before his death in 1900 at the age of 75.



Edgewood Factory (Shown With Addition)





The Little Family Tool Company (At Edgewood Avenue Plant, Around 1895)

The three brothers moved from the original shed, and equipped their new facility with a lathe, drill press, grinder, 12-inch shaper, and a small hardening plant. Power was supplied by a 4 hp gasoline engine.

The new shop also came equipped with some immediate production problems, the most difficult being the need to make a square, true “socket” of correct and uniform angle through the solid steel from which the tool holders were made. Specialists of that day had taken a hard look at the operation and declared that it was so difficult it would render the cost of the product prohibitive.

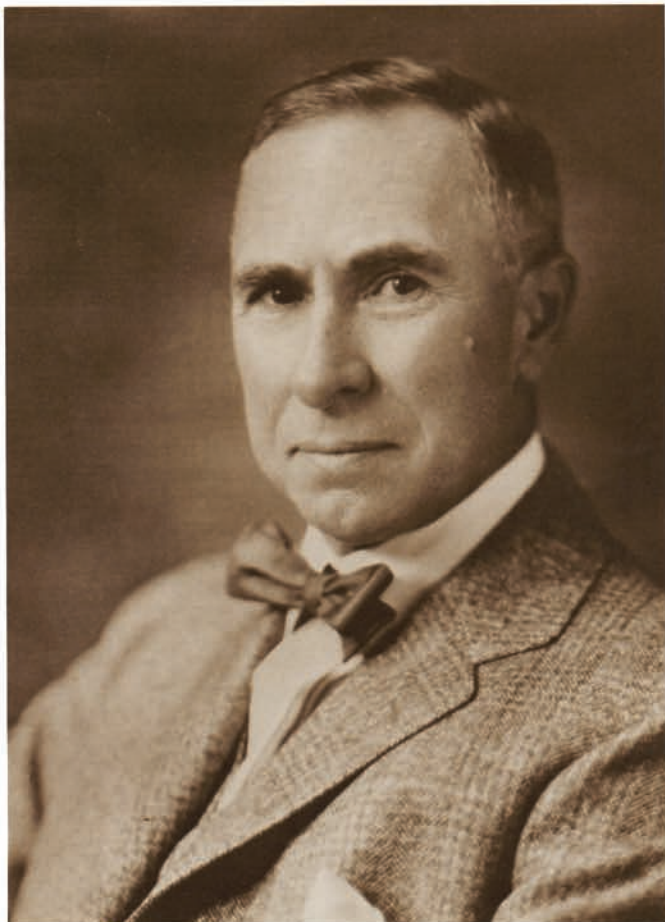
The specialists, however, didn’t reckon on the determination and resourcefulness of the Armstrong brothers. Undaunted by the experts, they managed to overcome the difficulty by fabricating special jigs and broaching machines.

With this production problem conquered, the fledgling tool business was on its way. There were setbacks in 1893, when the death of George Armstrong and the economic “panic” of that year had their impact on operations. But on the brighter side, John and Hugh brought their other two brothers, Jim and Paul, into the firm. And they received a mental boost when their tool holders, selected for use in the World’s Fair machine shop, received high praise from officials of the 1893 Columbian Exposition.

Two years later, in 1895, the four brothers incorporated under the name that has survived without change to this day—Armstrong Bros. Tool Co. John became the first president under the rules of incorporation, with Hugh listed as treasurer, and Paul, secretary.

Revenues were only \$15,981.37 that first year, but the ledger showed sales to an impressive list



**FOUNDING GENERATION****Paul Armstrong**

of customers—Standard Oil, Purdue University, Cincinnati Milling Machine, Pratt & Whitney, Brown & Sharpe, The Stanley Works, Pennsylvania Railroad, Nordberg Manufacturing, the Norfolk & Western Railway, and the Fairbanks Co. among many others. There was even one order from faraway Kharkof, Russia.

It was during 1895 that the Armstrongs signed up their first manufacturers' agent, a widely traveled gentleman by the name of George W. Snyder. On one swing after taking on the Armstrong line of tools in April of 1895, Snyder covered Philadelphia, northeastern Pennsylvania, and the Camden and Trenton areas, along with most of central and northern New Jersey. He then backtracked to hit Philadelphia again, Wilmington, northern New Jersey, and New York City before heading into the New England states.

The trip kept Snyder away from his home in Grand Rapids, Michigan for about 2½ months. But his sales for that jaunt east, plus his sales dur-

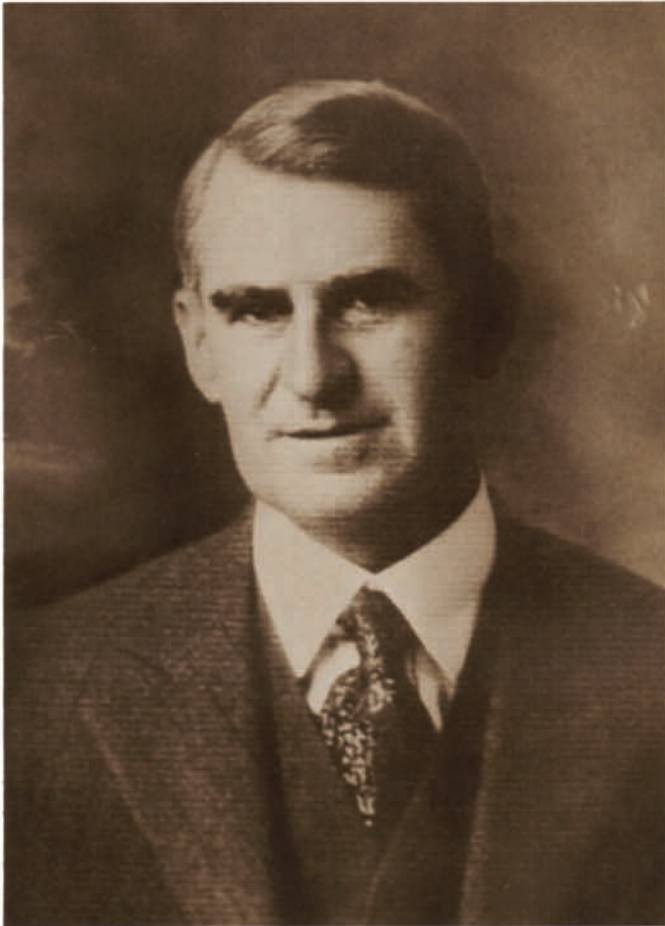
**Hugh Armstrong**

ing the remaining six months of the year, came to \$4,970, or nearly one-third of the company's total income from all sales for 1895.

Fortunately, costs were low in the "Gay '90's." A quart of milk cost 6 cents, a pound of steak 12 cents, a gallon of gasoline 11 cents, a ton of coke 6 dollars. And the average worker was willing to labor for 50 hours a week to earn his 12 dollars. But if costs were low, so was corporate cash. The Tool company's checking account balance on July 20, 1896, was exactly \$37.06.

By 1900, the lathe tool holder appeared to have such promise, and the bicycle parts business had become so unprofitable (the store on Washington Avenue had been closed in 1898), that the brothers began devoting their full time to manufacturing tools. This decision, along with the decision to move from their small backyard building on Edgewood Avenue to a single large plant facility at 617 Austin Avenue in Chicago, laid the necessary groundwork for future growth and diversification.





John Armstrong

There was little doubt that in their tool holder the Armstrongs did, indeed, have a “hot” item; a tool and a tool system in mushrooming demand by metalworking shops because of its unique ability to save steel and cut the downtime of both men and machinery.

Basically, these holders replaced the heavy, individually forged cutting tools that until then had been necessary for lathe work. With the Armstrong system, a forged permanent shank was used with various shapes of small, interchangeable cutting tools. In their advertising—and the Armstrong brothers were avid advertisers from their beginning year—they emphasized repeatedly that their tool system actually did save “all forging, and 70 percent of grinding.” Such spectacular results could only stimulate rapid change, and by the mid 1900’s, the use of forged cutting tools in machine shops was a “thing of the past.” Most had been replaced, instead, by the “Armstrong System of Tool Holders.”



The Armstrong Tool Holder

A history of this revolutionary tool, written years ago by Paul Armstrong, touched on the need for new methods.

“Who is there among practical men,” he wrote, “having experience under the old order of things in machine shop practice, who, looking back, cannot see again the restful attitude assumed by the old-time machinist while waiting in the blacksmith shop (his daily chance for a smoke and a chat) for a tool to be forged?”

“Afterward, the tool had to be patiently ground, or *reshaped* rather, because the blacksmith was sure that *he* knew better than a mere machinist how a tool ought to be dressed, and, while there was often a wordy war about it, the blacksmith would *not* be bossed by a machinist, and he generally had his way about it.”

The sales curve during those first few years of the 20th Century slanted steadily upward for the Armstrong brothers. By 1903 they reached a point where they were manufacturing tool holders in styles and sizes suitable for every operation on the lathe, planer, shaper, and slotter. To broaden its line, the company also diversified into universal ratchet drills, planer jacks, lathe dogs, tool cabinets, special machines for cutting off and grinding self-hardening steel, and specialty items for the railroads. The line now included 130 different products.



**IF YOU KNOW**

that Nine out of every Ten Pounds of High Priced Tool Steel used in Forged Lathe and Planer Tools is absolutely wasted and that **ARMSTRONG TOOL HOLDERS** will save Nine Dollars out of Ten you now pay for Tool Steel, besides saving **ALL FORGING** and nearly all Grinding, while giving you Tools which will do more and better work. **AWARDED GOLD MEDAL** at St. Louis.

HIGHEST AWARD FOR ECONOMY, CONVENIENCE, ORIGINALITY AND GENERAL EXCELLENCE.

**WHAT'S  
THE USE  
IF YOU  
DON'T  
ACT?**

WRITE FOR  
CATALOG.



**Armstrong Bros. Tool Co.,** "THE TOOL HOLDER PEOPLE" **613 Austin Ave., Chicago, U.S.A.**

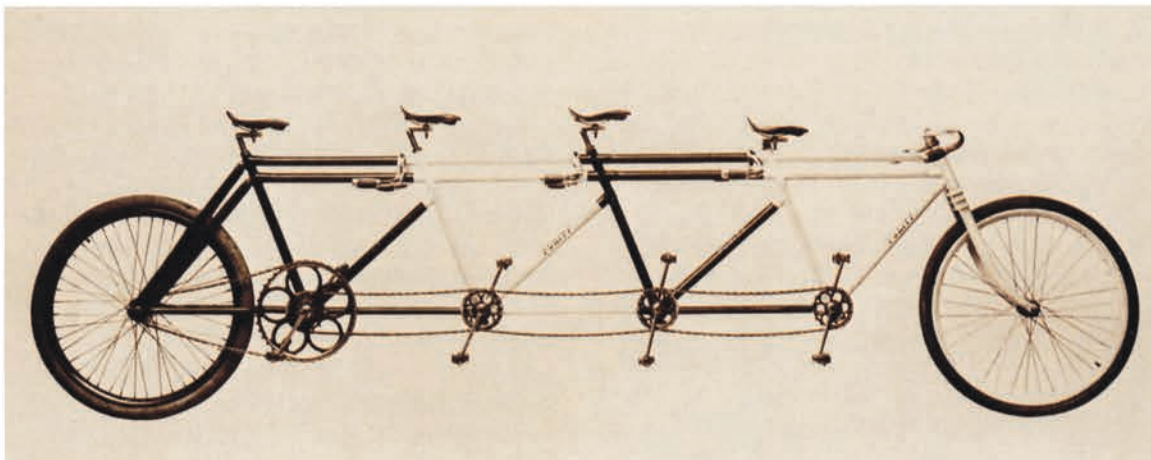
IMITATIONS ARE UNSATISFACTORY—INFRINGEMENTS ARE UNLAWFUL.

Although the company's bicycle business had faded into the past, the bicycle continued to be a primary means of locomotion for many Chicagoans. This included the four Armstrong brothers, who could be seen on their daily commute to work from Edgewood Avenue. This trip would usually be made by means of their homemade quadripede—a four-passenger two-wheeler, with Hugh, the youngest, up front manipulating the handle bars.

Success with the tool holder naturally stimulated considerable competition from imitators of the Armstrong Line. Some of these small manufacturers actually copied whole pages of text and illustration from Armstrong advertisements and catalog presentations. A few even went beyond this simple plagiarism to more serious infringements of Armstrong patents (at least 13 had been registered by 1903).

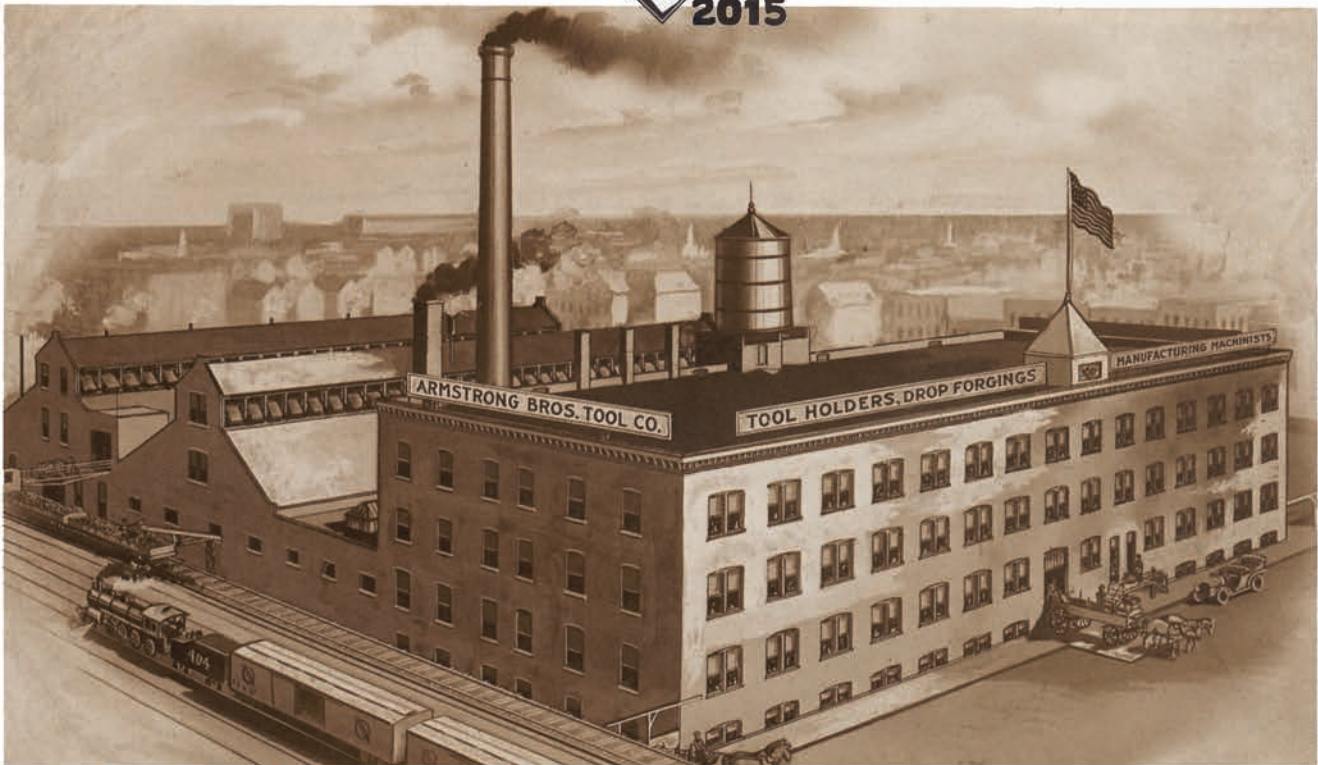
Fire, as it turned out, was to prove a more potent threat to the company's immediate survival than a few pesky but harmless encroachments by companies as impermanent as the snowflakes in spring. On April Fool's Day in 1902, the Austin Avenue plant burned to the ground; no one was quite sure why. The happening, although an unexpected disaster, was not without its touch of humor.

As an April Fool's joke, brother Paul, unbeknownst to anyone, had tiptoed out of bed in the middle of the night and set all the clocks in their home ahead by one hour. His wife, Berthe, could not understand his dallying so long into the morning over his coffee; and his children were understandably confused by their early arrival at an empty schoolhouse, but they weren't half as upset as their father. He had left home right on time, probably chuckling to himself, only to find



A Bicycle Built For Four Brothers





The New Factory Built At 317 North Francisco Avenue in 1905

his plant not only empty, but a smoldering heap of rubble.

The Armstrongs, faced with sudden misfortune, weren't the type of people to sit on their backsides and moan about the vicissitudes of fate. Nor were their employees, who put their feelings about the situation into a personal letter to John Armstrong. "We shall certainly make it our business to put the plant in as good a working order again as it was before the fire," their letter

read. It was signed by 23 employees and dated April 19, 1902.

Encouraged by such overtures of support, the Armstrongs promptly salvaged and reconditioned their inventory, rebuilt the plant (doubling floor space in the process), and continued their previous pattern of service and growth. In fact, growth was so rapid that by 1905 more production space was needed, and a suitable piece of property was purchased at 317 North Francisco Avenue for a new, 100,000-square-foot, three-story brick factory.



Employees At The Francisco Avenue Factory





By this time, scattered national awareness of Armstrong Bros. Tool Co. and its quality line of products had expanded into a more broad-based recognition of the value of the Armstrong Tool Holder System. This system was now advertised in all the major machinists' trade journals, and was listed in hundreds of catalogs published by the nation's leading suppliers of tools to industrial manufacturing plants. The System had also found its way overseas, and was used to a greater or lesser degree in virtually every industrialized country throughout the World.

"While we base our claim to patronage solely upon the merits of our specialties and upon our legal rights, we take legitimate pride in the fact that we are *pioneers* in our chosen field and bear, by common consent, the distinctive title of 'The Tool Holder People.'"

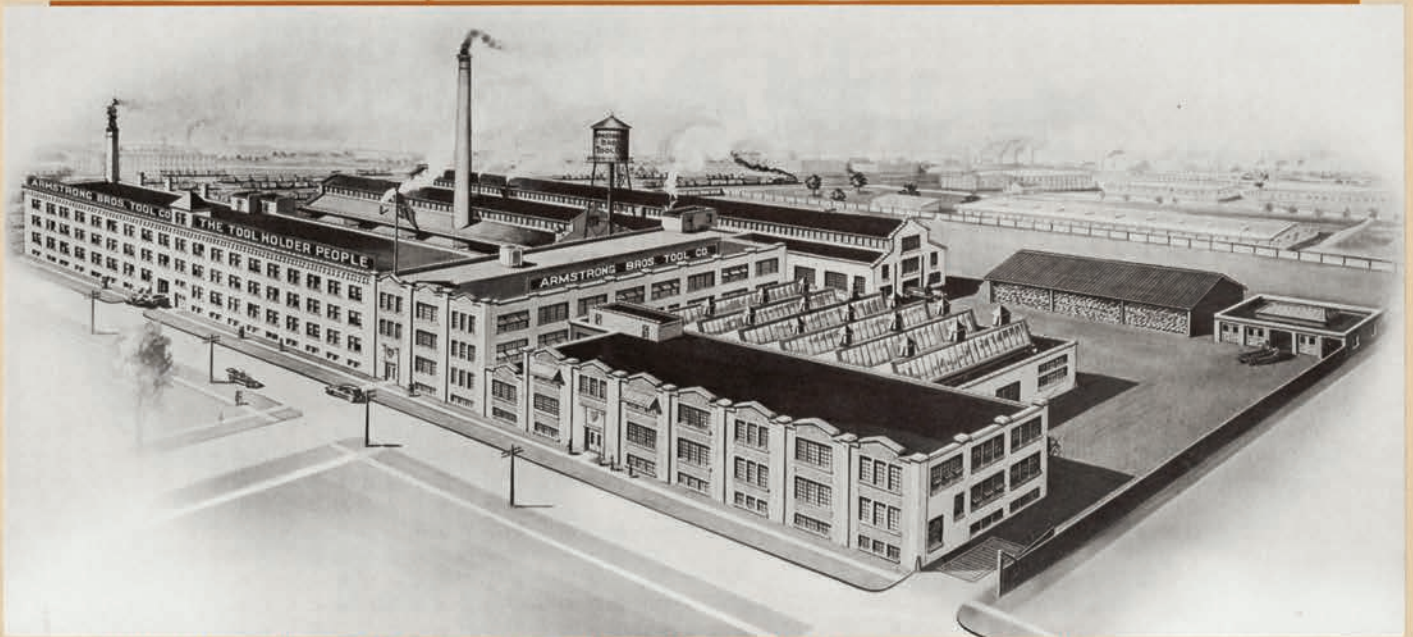
This statement taken from an old Armstrong sales catalog indicates that the brothers were

not unaware of their prominent position in tool holders and other specialties. They were also proud enough of their principal products to risk their display and critical inspection by experts at international expositions in Europe and the United States.

In 1900, the company had exhibited its tools at the Universal Exposition in Paris, France, and won two bronze medals—highest awards in the tool category. This international triumph was followed in 1904 by a gold medal award at the Louisiana Purchase Exposition in St. Louis, and a year later by a top of its class bronze medal at the Universal Exposition in Liege, Belgium.

The company had, indeed, come of age in an era when American industry, inspired by the short, historic flight of the Wright brothers at Kitty Hawk, was poised for unprecedented growth.





In 1909 A Major Addition To The Francisco Avenue Factory Was Completed (New Forge Shop Shown Below)

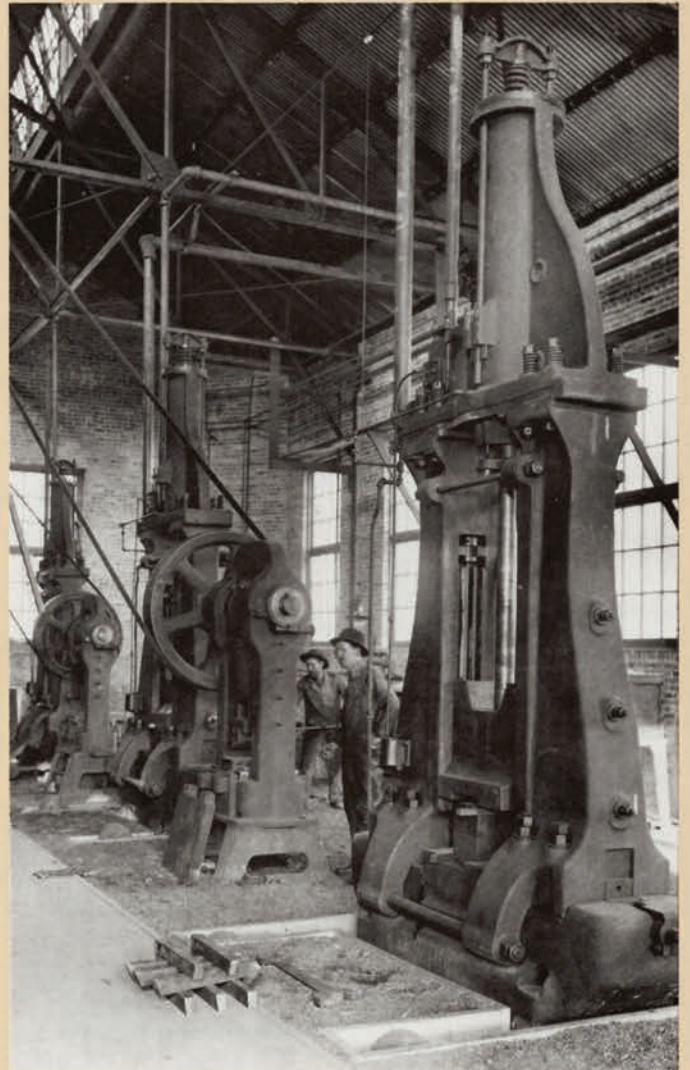
### THE BOOM YEARS

It was an exciting era—those first three decades of the 20th Century—and an era of substantial expansion for the tool company.

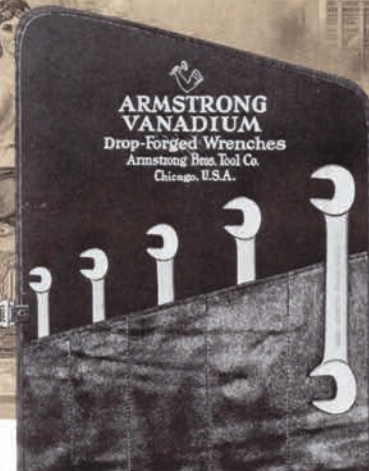
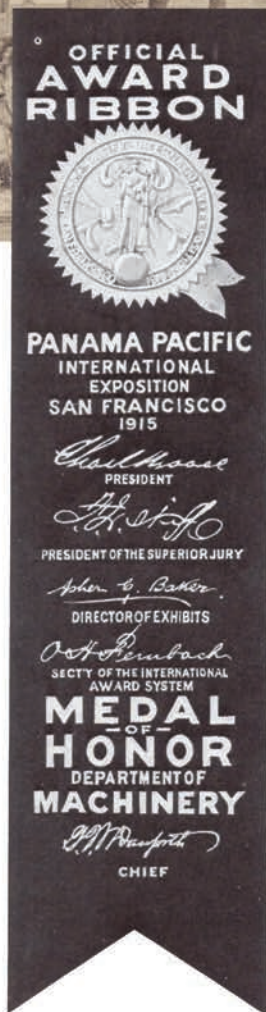
People were turkey-trotting to “Alexander’s Ragtime Band” and a small army of militant suffragettes was parading at the drop of a hat. Black Jack Pershing chased Pancho Villa in northern Mexico, and there were warnings not to be a slacker in the “war to end war.” Arizona and New Mexico entered the union. The Panama Canal opened. Barney Oldfield drove his racer at 131.7 mph and Americans at soundless movies chuckled at Charlie Chaplin and were vamped by Theda Bara. Robert Frost’s poems and “Riders of the Purple Sage” were bestsellers, along with the first Tarzan books of Edgar Rice Burroughs, who was a friend and neighbor of the Armstrongs during his years in Chicago.

In 1909, a “springboard” year into new products for the company, a forge shop, complete with modern steam hammers, heat treating facilities, and electrical generating equipment, was installed at the Francisco Avenue facility.

Expansion of such scope always entails a certain amount of risk, and it was “red ink” going for awhile at the forges. An old statement covering the first month of forge shop operations in October, 1909, shows that three employees were paid \$239.72 to produce 43,875 pounds of forgings. Sales of these forgings at one-half cent a pound returned \$219.38—a loss to the company for that month of \$20.34.







Armstrong Drop Forges First Wrenches

This "loss" situation in the forge shop was not permitted to exist for long. The company immediately began drop-forging its first wrenches, and by 1912, taking full advantage of its new manufacturing capabilities, it had branched out to include an even larger assortment of shop and cutting tools.

In 1915 two First awards were earned at the Panama Pacific International Exposition in San Francisco, one for tool holders, one for machine shop tools and accessories.

On the administrative side, John Armstrong, who had become President of the company in 1893 upon the death of his brother George, continued in that position until his own death in 1923. Paul Armstrong, who carried the not-too-accurate title of Secretary, managed the sales end of the business; and Hugh Armstrong filled the role of company Treasurer and Chief Financial Officer.



Jim Armstrong, creator of the ill-fated steam car, decided to move on to new adventures. He sold his stock to his three brothers, built a boat, and in 1898 moved with it to Florida. The records are unclear, but it would appear the boat was of sizeable proportions, and when it sank a year later, Jim returned to Chicago. He never bought back into the Company, but hired on as tool room foreman. While washing up after work one evening in 1910, he announced to the others that he was 50 years old, had no enjoyment out of life (he had started as a machinist apprentice at age 9), and was quitting. This he did, moving back to Florida, where he spent the remainder of his life.

Also during the early years of the 20th century, the sons of the three remaining founders were moving through childhood and adolescence. It was naturally assumed by their fathers that these boys, upon reaching manhood, would enter the company and perpetuate the now flourishing business that had been created.

The entry of the United States into World War I delayed these plans, as several of the young Armstrongs were of military age and quickly volunteered for active duty.

Three of these sons had an unusual tour. The Government had sent out a call to private boat owners to join a "Mosquito Fleet"—private yachts



Machinists Mate First Class  
Paul L. Armstrong

Ensign Horace Armstrong

that would be refitted, armed and commissioned as Navy patrol boats.

Rumor had it that the Germans had stationed snipers and saboteurs along the St. Clair River north of Detroit, intent upon sinking shipping and thereby blocking the passage of vital ore carriers on the Great Lakes. It would be the job of the Mosquito Fleet to block this evil undertaking.

Crew Of The U.S.S. Terrier

(Left To Right) Harry J. Blum, Paul L. Armstrong, Horace Armstrong, George Waage, Roy Maize, John O. Armstrong





**SECOND GENERATION****Lennox F. Armstrong**

In July 1917 the USS Terrier—a 40-foot cabin cruiser that had been built for Paul Armstrong and now met the Navy’s specifications—sailed from Chicago. Two of Paul’s sons, Horace and Paul L., were aboard as Ensign in command and Machinists Mate First Class respectively; and his nephew, Fireman 1st Class John “J.O.” Armstrong, the eldest son of brother John, was also among the crew.

The Terrier was apparently highly successful in fulfilling its assignment, for history reveals not a single incident of sunken ships in the St. Clair area as the result of hostile activities during World War I. Its mission was terminated in October of 1918, and the three Armstrongs moved on to other assignments.

Horace saw action with the U.S. Fleet operating in the North Atlantic, where he became executive officer of the USS Stewart, a “four-stacker” destroyer. J.O. was assigned to a 110-foot submarine chaser in the Mediterranean. Paul L. went into lighter-than-air flight school, and was among the nation’s first naval aviators.

Lennox, founder Paul’s eldest son, was also among the nation’s first naval aviators. Having

**Horace Armstrong**

graduated from the University of Illinois, he had begun working for the company in 1915. In 1917 he left to join the Navy, where he soon found himself piloting a more current model of the Wright Brothers’ invention.

With the end of the war, the young Armstrongs returned to resume their normal lives. Lennox returned to the company, and both Horace and J.O. began full-time, during the latter part of 1919. Together with founder John’s son-in-law, Joseph Sutton, who had begun with the company in 1917, there were now four second generation members active in the business.

Eventually there would be a total of eight. Founder Paul’s third son, Paul L., started in 1921 after graduating from the University of Illinois and working for a year in the chemistry lab of Midvale Steel Co., Philadelphia; Founder John’s younger son William also graduated from Illinois and began with the company in 1926.

Hugh’s two sons, Hugh and John H., came with the company in 1922 and 1933 respectively. Hugh had graduated from Illinois. John H., another Armstrong attracted to the field first pioneered by the Wright Brothers, had attended Ryan Aviation





John O. Armstrong



Joseph J. Sutton



Paul L. Armstrong



Hugh W. Armstrong





William T. Armstrong



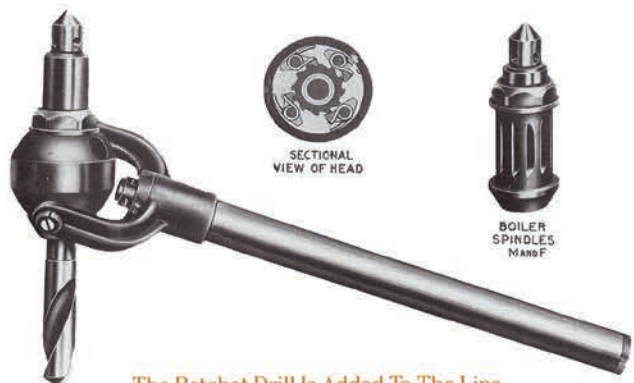
John H. Armstrong

School in San Diego, California, where he became a licensed pilot before settling in with the Tool company.

Lennox, J.O., Paul and John H. moved into manufacturing roles; Horace followed his father Paul Sr. into sales; Bill also worked in the sales area, at one point handling the company's advertising, and subsequently managing export sales; young Hugh went into purchasing; and Joe Sutton worked into the financial end of the business.

The war years had naturally inhibited change at the company, but as the "Roaring Twenties" debuted, the Armstrongs concentrated on "beefing up" production facilities. They added more hammers and auxiliary equipment in the forge shop. Their heat treating department was upgraded until it rated with the finest in the country.

The company's initial product, the tool holder, was an item used by industrial manufacturing plants. Not surprisingly, the company's subsequent growth and success was achieved in this same industrial market. The first products added to the line after tool holders had been machine shop accessory items complimentary to the tool holder—lathe dogs, planer jacks and drill drifts.



The Ratchet Drill Is Added To The Line.

Another early addition, the ratchet drill, was thought to hold great potential, for this was the first portable tool designed to drill holes in steel and other hard metals. Unfortunately for the Armstrongs, the portable electric drill was introduced almost at the same time, and while ratchet drills are used even today for certain special requirements, the demand for this tool never became significant.

In 1910 the company produced its first "C" Clamps, another industrially oriented product. The first carbon steel wrenches were made in

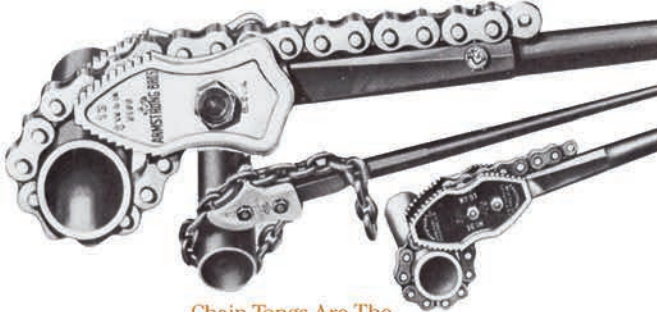


1917, along with eye bolts, strap clamps and cutting tools to be used with the company's tool holders.



First "C"-Clamps Are Forged

In the early 20's, the company entered the pipe tool business with the introduction of their first chain tongs. These tools were demonstrated by Horace Armstrong throughout the oil fields of the Southwest, and led to the gradual introduction of a complete pipe tool line.



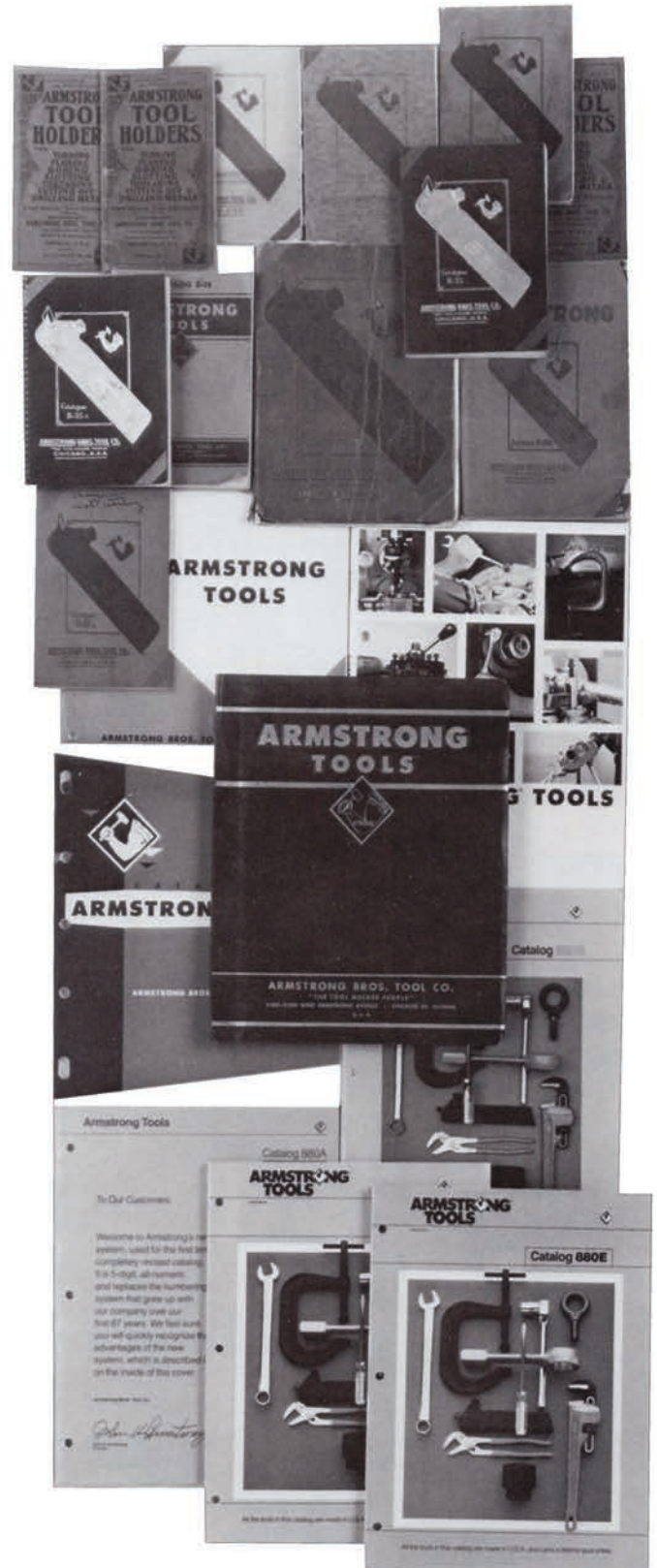
Chain Tongs Are The First Of The Pipe Tools

Export business also began to blossom in the 20's. In 1923, the company landed its largest order from a foreign buyer—a freight car load of tool holders for the National Railways of Mexico. It was subsequently learned that there was one slight hitch—the Railway lacked the equipment on which to use the holders.

In 1930, a subsidiary was formed in partnership with E.P. Barrus, Ltd. of England. This subsidiary stocked and sold the Armstrong product line throughout Europe. The going was difficult, for prices on American-made tools were much higher than those of European manufacture. But the Armstrong product was successfully sold on the basis of its quality.

The subsidiary flourished until the outbreak of World War II in 1939, at which time operations were suspended.


On the domestic front, the company was honored with a handsome scroll containing woodcuts depicting scenes from Rear Admiral Richard E. Byrd's Antarctic Expedition of 1928-1930.




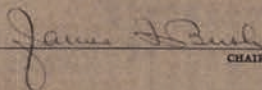
Catalog Changes As The Line Keeps Growing



*Rear Admiral Richard E. Byrd*  
*U.S.N. (Retired)*  
*and the Executive Committee*  
*of the Byrd Aviation Associates*  
*express to*  
*Armstrong Bros. Tool Co.*  
*their enduring appreciation*  
*of the most valuable co-operation in the*  
*equipping of the*  
*Byrd Antarctic Expedition*  
*It is our privilege to attest, and we most gratefully*  
*acknowledge, that without such assistance the*  
*accomplishment of the Expedition in*  
*the Antarctic would not have been possible.*



  
LEADER

  
CHAIRMAN

{ MCMXXVIII-MCMXXX }

Harold Butterfield del.



The scroll, signed by Admiral Byrd, was presented in 1930 in recognition of the company's part in outfitting the expedition with tools.

"Without such assistance," Admiral Byrd wrote, "the accomplishments of the expedition would not have been possible."

From time to time along the way, the company foraged into markets outside the industrial field, but never with much success. In 1919 the first alloy steel tappet wrenches were introduced as specials, and this created some short-lived interest in the auto mechanic field; and for a brief period about this same time, the company had salesmen calling on hardware stores in the Chicago market.

But the make-up of the line was industrial, and invariably the successes achieved were, and continue to be, in that area. Even in 1890, there existed specialists who sold only to the industrial trade—"Mill Supply Distributors" they were called. But most industrial products were then sold through wholesale hardware companies. Over the years, the true industrial distributor evolved, and as this occurred, Armstrong Bros. Tool Co. itself became more intensely focused on serving this specialized class of distributor.

There was one moderately successful venture outside the industrial field. As modern-day mechanics hand tools, such as alloy wrenches and detachable sockets, gained popularity during the 1920's, Armstrong management concluded that it would make sense to expand their production of heavy, industrial hand tools into this new and more sophisticated type of product. Drop-forged alloy steel open-end wrenches first appeared in the 1927 catalog.

Rather than produce their own sockets, the company entered into an agreement with the Blackhawk Manufacturing Co. of Milwaukee, Wisconsin, to do this. Blackhawk, who sold jacks into the automotive aftermarket, had decided to add hand tools to their line and were already producing their own sockets. But they lacked the capability for producing drop forged wrenches.

So Blackhawk would make sockets for Armstrong to be sold industrially; and Armstrong would make forged wrenches for Blackhawk's automotive aftermarket.

This relationship was initiated in 1928, and Armstrong continued making wrenches for Blackhawk until the outbreak of World War II. Following the war, a few forged wrenches were again made for Blackhawk; but the relationship never again

really flourished, and Blackhawk eventually sold their hand tool line to the New Britain Machine Tool Co. of New Britain, Connecticut.

### THE DEPRESSION YEARS

The three continuing founders of the company died within five years of each other. With John's death in 1923, Hugh assumed the presidency; and with Hugh's passing in 1925, Paul served as president until his own death in 1928. Now quite suddenly, the baton of leadership had been passed to the second generation.

Since Paul had been in ill health toward the end of his presidency, Lennox, the eldest Armstrong of the second generation, had assumed many of his responsibilities. Lennox was elected President of the company, a position in which he served until his retirement in 1964.





**U. S. Gov't Arsenal and Navy Yards**

see large orders of Armstrong Tool Holders, recognition for their tools made regularly and with such frequency as to indicate that they are placed in U. S. GOVERNMENT STANDARD  
**UNCLE SAM** has the reputation of being a good thing when he tries, and the following verified facts (governmental hold order specifications of recent date) show that recognition and acceptance are almost automatic by him:  
 "All of the above tools in fact are of the best quality and of Armstrong Bros. Tool Co.'s manufacture, and there and no others will answer the necessities of the service."

**Armstrong Planer Tools**

This tool is pronounced by all who have used it to be a **MONEY SAVER**

The shank is drop forged of steel and case hardened. The cutters are of self-hardening steel rectangular in shape and of stock size.

By means of ground serris into which they are slanted the cutters may be quickly adjusted to any desired angle, and at the same time so locked into position as to render slipping impossible.

One of these tools equipped with an assortment of properly ground cutters will effectively equal a complete set of forged planer tools.

Each Tool is wrapped in Oiled Paper and packed in a cardboard box, and price includes a Drop Forged Wrench and two Self-Hardening Steel Cutters ground to shape.

No.	Size of Shank	Length	Size Cutter	Price, Complete	Eng. Order Card
40	1/2" x 1/2" x 1/2"	7 inches	3/4" x 1/2" x 1/2"	\$ 2.75	2028
41	3/4" x 3/4" x 3/4"	8 1/2"	1" x 3/4" x 3/4"	3.50	2029
42	1" x 1" x 1"	10"	1 1/4" x 1" x 1"	4.75	2030
43	1 1/4" x 1 1/4" x 1 1/4"	12"	1 3/4" x 1 1/4" x 1 1/4"	7.00	2031
44	1 3/4" x 1 3/4" x 1 3/4"	14"	2" x 1 3/4" x 1 3/4"	11.00	2032
45	2" x 2" x 2"	16"	2 1/2" x 2" x 2"	16.00	2033
46	2 1/2" x 2 1/2" x 2 1/2"	18"	3" x 2 1/2" x 2 1/2"	25.00	2034

The distinctive slotted design of the Armstrong Planer Tool makes it necessary only to cut once, and the resulting rectangular shape of the cutters permits the use of the same set of tools on a variety of work.

**The Armstrong Slotter Tool**

This tool is very stiff and easily adjustable to different lengths of stroke, and can be rotated conveniently for working into corners or in different positions. It has a spring joint block which saves the cutter joint from wear and tear of the return stroke, and is so constructed as to be protected from chips and dirt. The cutter is fixed at an angle which allows it to take a clean curling chip without excessive top grinding, and as the point can be projected beyond the end of the bar, it is possible to cut right down to the table.

**PRICE LIST**

Complete with Drop Forged Wrench and two Self-Hardening Steel Cutters

No.	Fe. Size	Diameter of Bar	Length Over All	Size of Cutter	Price, Complete	Eng. Order Card
47	1 1/2" x 1 1/2"	1 1/2" dia.	18 inches	2" x 1 1/2" x 1 1/2"	\$25.00	2035
48	2" x 2"	2" dia.	24 "	2 1/2" x 2" x 2"	35.00	2036
49	2 1/2" x 2 1/2"	2 1/2" dia.	30 "	3" x 2 1/2" x 2 1/2"	45.00	2037
50	3" x 3"	3" dia.	36 "	3 1/2" x 3" x 3"	65.00	2038

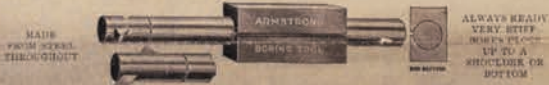
Note—As there is considerable difference in size of the T slots of machines of different manufacturers the diameter and hole length of this tool are made of larger size to allow for fitting.

ARMSTRONG TOOLS have not only won divisions for their products and a reputation for their manufacturers, in the machine shops of the world, but their tools have been recognized and accepted by THREE WORLD'S FAIR EXHIBITIONS, in each case winning the Highest Award in their class, at PARIS, 1904; ST. LOUIS, 1904; and SEATTLE, 1909.

**GENUINE**  
**ARMSTRONG  
 TOOL HOLDERS**



**Make One Pound of Tool Steel Equal to Ten Pounds Used in Forged Lathe and Planer Tools**



**Also Save All Forging, 70 per Cent of Grinding and Most of the Time USUALLY WASTED by Men at the Forge and Grindstone while their Machines Stand Idle.**



Remember the **GENUINE** Armstrong Tool Holders are Manufactured Only by

**ARMSTRONG BROS. TOOL CO.**  
 "THE TOOL HOLDER PEOPLE"

101-124 N. Francisco Avenue CHICAGO, ILL., U.S.A.

**THE BEST IS THE CHEAPEST**  
 REFUSE ALL SUBSTITUTES OR IMITATIONS

ARMSTRONG TOOL HOLDERS are made in All States and Foreign for use on American made Machines. Tools & Tool Holders for every job on Lathes, Planers, Shapers, Turners, Drills, Pumps, Cold Chisels, Saws, Taps and Cutters and Dies. We also manufacture Bench Drills, Drill Holders, Floor Jacks, Chain Blocks, Bolt Drivers, Vices, Holders and Tool Makers Hand Vices.

At this time, Lennox was 35 years of age; Joe Sutton, 37; Horace, 33; Paul L., 32; John O., 31; Hugh, 28; Bill, 23. John H. Armstrong was yet a high school student of only 16 years.

Little did these young men realize they were standing at the threshold of the greatest economic disaster in the history of their country.

The stock market crash of 1929 deepened into the "Great Depression" of the 1930's. The tool company soon discovered that it was not immune to the economic impact of those hard and dismal years. Nor were other tool builders, and a number of them fell by the wayside.

In 1931, when the effects of the depression were beginning to be felt, and the company was hard pressed to meet its forge shop payroll, a policy against selling to the chains and mail order houses was relaxed temporarily, and the company took a large order from Montgomery Ward for long-handled axes. Some 60,000 wooden-shanked, 4 1/2 pound axes were eventually produced for Wards at a price of \$6 a dozen unfinished and \$8 a dozen with finished heads.

The company during these lean years also produced five-piece wrench sets for Wards. And in the mid '30's, disturbed by the fact that 32 screw machines were standing idle, Armstrong assumed production of their own detachable socket wrenches from Blackhawk.

Throughout those dreary years, the company never shut its doors nor had a complete lay-off. There were cutbacks, of course, and short work-weeks as the depression deepened. Armstrong capital, most of it in the form of Liberty Bonds, dwindled from \$500,000 to a low of \$28,000. But even with the pinch on cash flow and support capital, the company managed to pay its bills without borrowing a single dollar from the money markets.

The Depression years also intensified the company's drift away from excessive reliance on the tool holder line. Had this not been done, it is questionable that the company would have survived, and almost certain that things would have been more difficult. For while the tool holder and shop tool line were still the core business, overall



potential for these products was limited and could not support adequate growth, especially when conditions were as severe as during the Depression.

The Depression left a mark on the second-generation Armstrongs that would remain with them throughout their business lives. So terrible were conditions during that period, and so tenuous the company's position, that business decisions thereafter would always be impacted, at least to some degree, by thoughts of the depression period.

It was a time that required not only intense dedication to the day-to-day management of the company, but creative action as well—witness the Montgomery Ward venture outside the traditional industrial market, and the noteworthy feat of teaching one's self how to make axes and socket wrenches.

In 1933-1934, the company's products were displayed—for the last time, as it turned out—in a World's Fair, the Century of Progress Exposition in Chicago.

Chicago World's Fair, Century of Progress, 1933-1934







The Army-Navy "E"

### RECOVERY, WAR, AND A NEW GENERATION

In the early 1940's, our country fought the greatest war in its history. Women couldn't buy nylon or silk stockings, so they painted their legs. Gas was rationed and so was meat. Bobbysoxers swooned when Frank Sinatra sang at New York's Paramount Theater. Even Joe Palooka went to war and many a girl, including quite a few at the tool company became "Rosie the Riveter." *Oklahoma!*, and *A Streetcar Named Desire* came to Broadway. There were brown-outs, dim-outs, black-outs, air-raided wardens.

Whereas management's abilities had been taxed simply to survive during the Depression, it now required an all-out effort just to meet the needs of the war effort. The company's production was allocated by government decree to those products it seemed best able to produce—shop tools, and the heavier industrial hand tools.

While this was profitable at the time, it was harmful to long-range marketing objectives, since it effectively took the company out of its newly developing mechanics' hand tool business for the duration of the war.

In addition to its traditional products, the company was in the unique position at the start of World War II of being the only tool company making the 15 special tools needed to service the Wright motor, an aircraft engine now suddenly in great demand by the military. Production of this engine eventually reached 1,000 units a week, with Armstrong providing most of the service tools.

Early in the war, Horace Armstrong returned to active duty in the U.S. Navy with the rank of Lieutenant Commander. Always a devotee of the sea, Horace had been promised sea duty when he re-entered service, but was distressed to find himself assigned to a desk job in Washington, D.C.

John H. Armstrong was more at home in the sky—he had never lost his love of flying. In 1940, with the war in Europe underway, John left the company and joined Darr Aero Tech in Albany, Georgia, a private contractor to the Army Air Corps. There, as Director of Flying, he supervised the training of thousands of pilots, both British and American, during the course of the war.

One of these cadets was a fellow by the name of Hugh W. Armstrong Jr., John's nephew, who would one day succeed him as President of Armstrong Bros. Tool Co.

The remaining family members, and those other company employees who had not entered



the service, put their shoulders to the war effort and cranked out the tools that eventually led to victory. Early-on (Sept. 15, 1942) the Armstrong effort was recognized with the presentation of the coveted Army-Navy "E" award for excellence in meeting the production needs of the war effort.

When the War ended in 1945, it seemed that the equipment in the shop had been worn almost to uselessness. None the less, the Federal Government, on the assumption that companies such as Armstrong had reaped unwarranted profits as a result of the war effort, "renegotiated" corporate taxes, and the liability that resulted for Armstrong Bros. Tool Co. was a difficult burden to overcome.

Such shortages had developed during the war, that retailers and distributors of industrial products could sell just about anything they could lay their hands on. The company was approached by Sears Roebuck and Co., who wanted to purchase its entire production of tool holders. But Armstrong management was committed to long-term, traditional relationships, and the largest potential order in the company's history was turned down in favor of servicing the hundreds of industrial supply distributors who now looked to the Company as a major supplier.

Also with the end of the war, the third generation of Armstrongs began entering the business. Just as World War I had interrupted the plans of the second generation, so had World War II

Standing Far Left: Horace Armstrong. Seated Right To Left: Lennox Armstrong, Jake Arvey, Mayor Edward Kelly



Lennox Accepts The Award

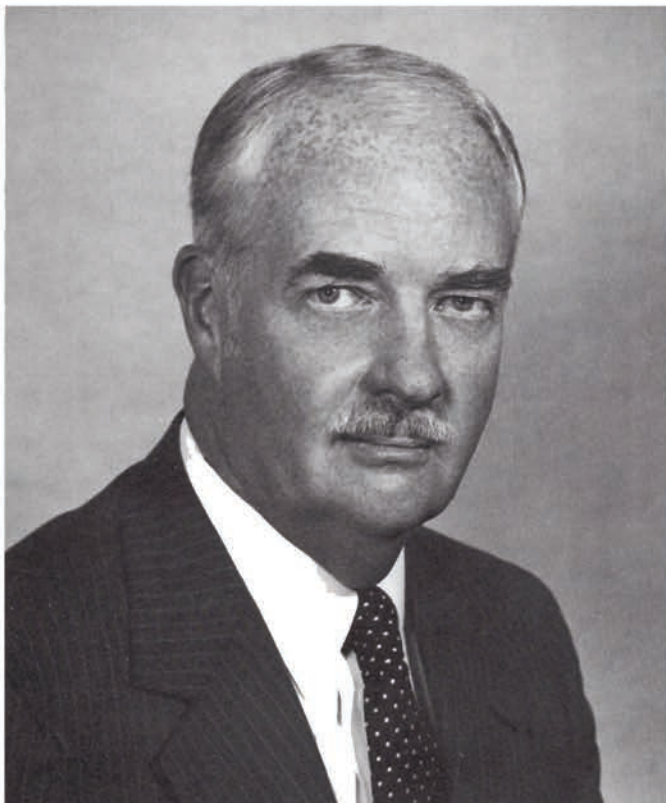


Army Band And Employees At Award Presentation

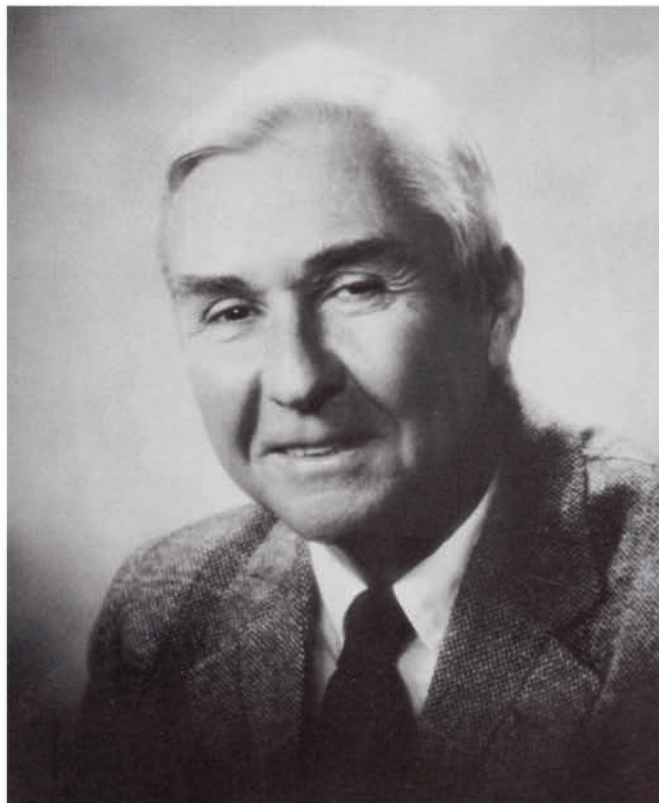




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**THIRD GENERATION**

Hugh W. Armstrong, Jr.



Paul Armstrong

affected the plans of the third. John O's eldest son, John (Jack), served in the U.S. Army in the South Pacific and was wounded during the battle for New Guinea. Hugh (eldest son of Hugh) served in the Army Air Corps, as previously noted. He was discharged from active duty in 1945, returned to school at St. Mary's College in Winona, Minnesota, and started with the company in 1947.

Jack returned from active duty, graduated from Cornell University in Ithaca, New York, and started at Armstrong in 1949. Following the customary indoctrination and training periods, Hugh went into purchasing and Jack, having first worked in sales, moved into the financial end of the business. He served the company in that area until his death at age 51 in 1974.

Early on, the second generation recognized that it would be unworkable for all of their offspring to enter the company. So they agreed to a plan whereby participation by the third generation would be limited, and limited only to sons. Eventually, a total of six third generation sons would enter and manage the business.

As these first of the third generation Armstrongs started with the company, the effects of World War II



William T. Armstrong, Jr.





Bruce M. Armstrong

were still very much in evidence. The three-story brick building that had been the company's headquarters since 1905 was by now quite out of date and had become run down as a result of the war effort. The product line was substantially as it had been prior to the war, but marketing efforts to the general trade had been virtually suspended during the war years.

Lennox Armstrong continued in the capacity of President, with the other officers being: John O., Vice President; Paul L., 2nd Vice President; Horace, Vice President and Secretary; Joe Sutton,



John D. Armstrong

Treasurer; Hugh W., Vice President and Asst. Treasurer; William T., Asst. Secretary. Lennox, Horace, John O., Hugh and Joe Sutton served as directors.

It was obvious to this management group that a new plant must be built. 10 acres of land were purchased on the far northwest side of Chicago (management had set the requirement that any new plant must be located within the corporate limits of the City of Chicago), and in 1947 construction was started on a modern, 1-story brick building containing approximately 200,000 square feet of floor space.



Plant at Armstrong Avenue



The move into this new building was begun in mid-1947 and completed in early 1948, with significant disruption to production efforts.

During the 1950's more third generation Armstrongs gradually entered the business; Paul, son of Paul L. in 1957; in 1959, Bruce, son of John O.; and William, son of William T. Paul went into the sales and marketing end of the business; Bruce, manufacturing; and Bill, engineering. In 1960 the last of the third generation arrived. John D., son of John H., spent four years as a territory salesman, then went into the financial area.

In the early 1920's, when the second generation had come onto the scene, the company was still a fledgling. The basic line of tool holders had been well-established, and the opportunity to expand sales by building on this product line was easily identified. Manufacturing capabilities were still in the early stages, and needed improvements were obvious.

The third generation, on the other hand, found a mature, well-known and respected company some 60 years of age. The shop tool market had matured and was thoroughly penetrated. Mechanics' hand tools presented an attractive potential, but restrictions of the war years had impeded efforts in this area, and the line had been virtually ignored for a five-year period.

Additionally, there was some sentiment among second generation Armstrongs that hand tools, while offering potentially great volume, could not be produced and sold as profitably as the traditional shop tool line.

### **CHANGING OF THE GUARD—AND BEYOND**

The 'sixties and early 'seventies brought with them a business and social climate as unique as they were unanticipated. In 1963 John Kennedy was assassinated, then Robert Kennedy and Martin Luther King. The Vietnam War started as a minor involvement, but soon protest marches and rallies led to arrests and even deaths. Riots broke out at the 1968 Democratic Convention in Chicago.

The Beatles were followed by the Rolling Stones. The drug culture flourished, and half-naked hippies and yuppies converged on Woodstock, New York.

"Environment" was a clean word, "profit" a dirty word. An oil shortage developed, and long lines formed at gasoline pumps. Inflation soared to over 5%, prompting the imposition of wage and price controls.

In 1956, Hugh Armstrong had died, the first of the second generation lost to the company. Joe Sutton retired in 1962 at the mandated age of 71.

In 1964, Lennox Armstrong retired, also at age 71. He had served as president for 36 years, through the trials of the depression and the pressures of World War II and the Korean Conflict. He had moved the company from its 43-year-old building in Chicago's inner city area to new, modern facilities that continue to serve the company well, even to the writing of this history for the company's centennial 42 years later.

The company had also weathered the occasional disagreements common to any family-owned business, an achievement in which Lennox took special pride. For while he was a strong leader, and as a result often the focal point of these disagreements, he was also fiercely loyal to his family and their Company.

Upon Lennox's retirement, Horace Armstrong became president. Horace had, since his earliest days with the company, managed the sales and marketing end of the business. Lennox, in addition to serving as President, had supervised manufacturing. With the void created by Lennox's retirement and Horace's ascent to the presidency, two members of the third generation assumed additional responsibilities, Hugh, Jr. in manufacturing, Paul in sales and marketing.

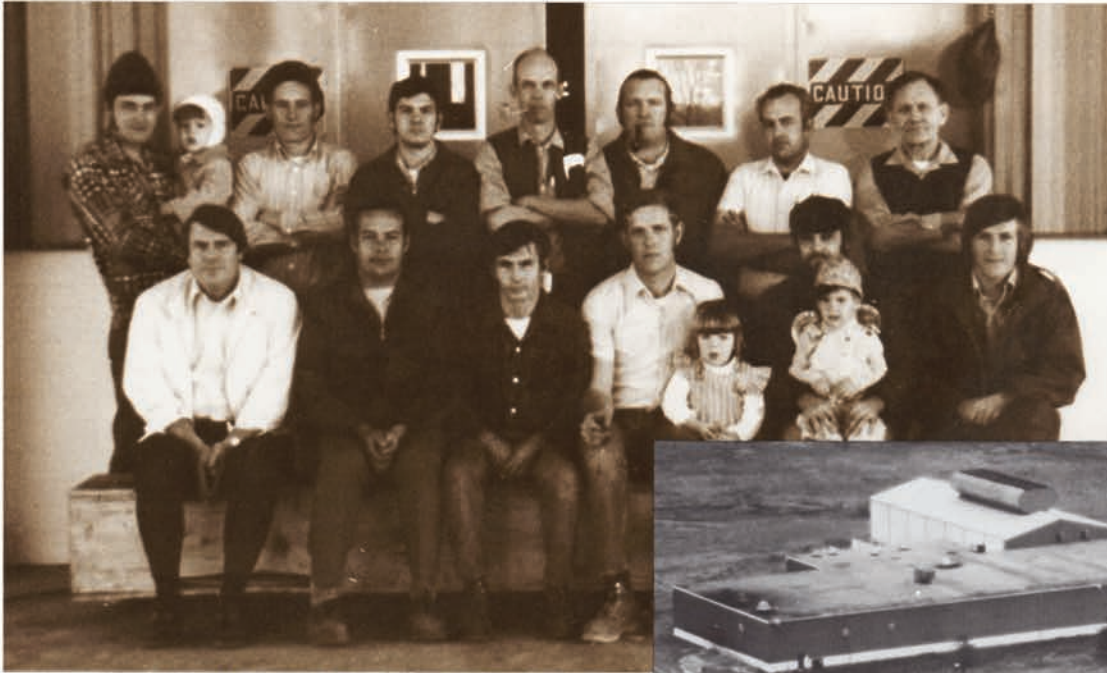
Horace served as President until his retirement in 1966, at which time John O. relinquished his responsibilities in the manufacturing end of the business to assume the role of President. Paul L. became Vice President, and served in that capacity until his retirement in 1967. When John O. retired in 1968, John H. Armstrong became President. He and William T. Armstrong, who served as Corporate Secretary and handled export sales activities, were now the last of the second generation. Paul Armstrong was elected Vice President, Hugh, Jr., 2nd Vice President. John D. Armstrong succeeded his father John H. as Treasurer.

The company was now much more heavily into mechanics' hand tools than it had ever been before. In 1960, the first significant addition of

#### **New Products Are Added To The Hand Tool Line**







Original Fayetteville Employees Re-Enact  
The Edgewood Factory Photo (see page 5)



The Fayetteville Plant is Located at 2501 Armstrong Avenue

hand tools outside the wrench category had been made to the line. This included a relatively short selection of screwdrivers, punches and chisels. From that point on, the hand tool portion of the line continued to be broadened, both in new product groups—such as pliers, torque tools, and wheel pullers—and with a broader range of products within the various hand tool groups themselves.

Perhaps the most significant problem facing John H. as he assumed the presidency was the company's inability to keep pace with the rapidly expanding demand for all these hand tools. By 1972, it was obvious that plant capacity must be expanded in order to meet this need. Not so obvious was how this should be done.

The existing plant had already been expanded twice since its original construction in 1947-48, and land was getting scarce. Further, the surrounding community had been built up over the years, and noise created by the forge shop had become an environmental consideration. Since the most pressing need was in the area of forging capacity, this became an important factor in deciding to build new facilities removed from the existing plant.

At this point, the Armstrong family had lived in the Chicago area for 106 years since the arrival of the old Scottish soldier. Family and company roots were deeply implanted in the Chicago area.

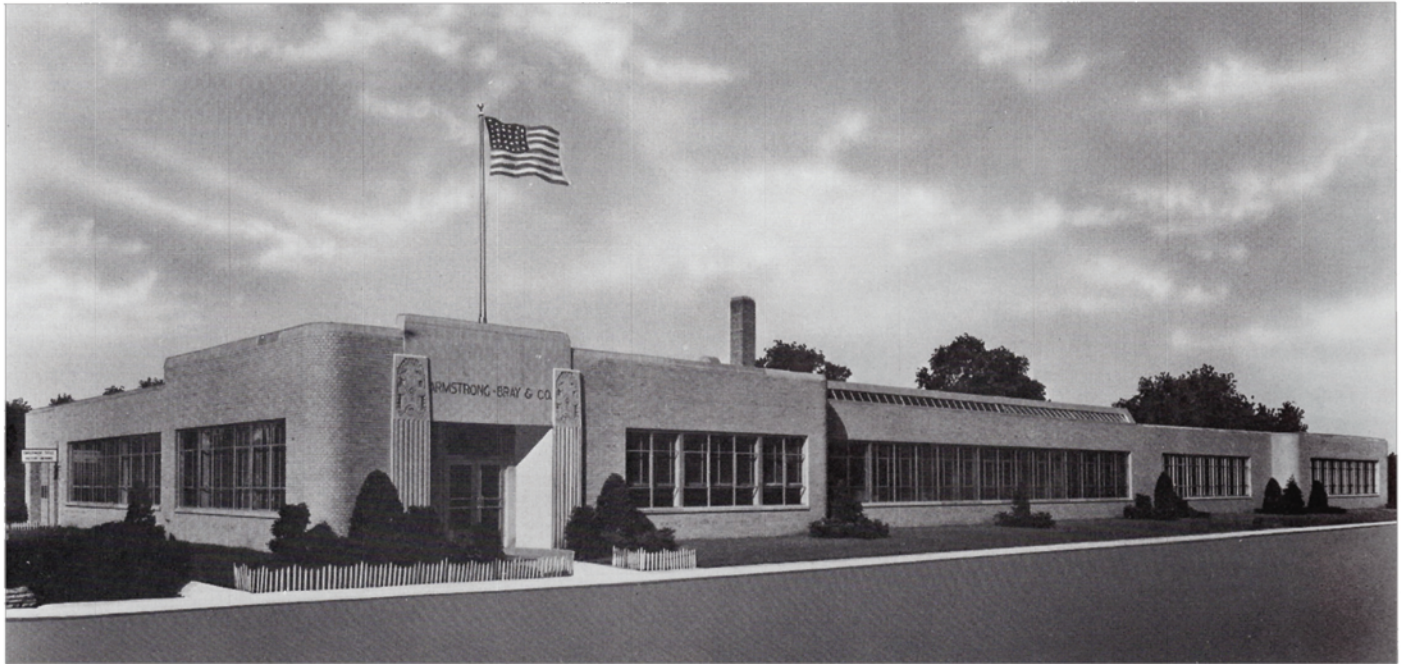
But as management considered their options, it was felt that the general attitude toward manufacturing businesses in Chicago—and for that matter in the State of Illinois—had deteriorated. States in the southern part of the country, on the other hand, were aggressively seeking new manufacturing facilities.

After an intensive plant site evaluation process, it was decided to build a 42,000-square-foot plant in an industrial park in Fayetteville, Arkansas. 63 acres were purchased and construction was begun in 1973. The plant was outfitted with the most up-to-date forging equipment available, and on April 18, 1974, a message was sent to Chicago by Bruce Armstrong, who had moved with his family to Fayetteville to supervise construction and manage the new plant when completed.

Ironically, the message stated that the first shipment from the new plant that had been built primarily to improve hand tool capacity, consisted of 14,000 eye bolts. It was not long thereafter, however, that hand tools began flowing from the new plant, and this added capacity did in fact greatly improve the company's ability to keep up with the demand for drop-forged hand tools.

Bill Armstrong retired in 1975, with no logical successor as export manager. Since its earliest days, the company had exported throughout the World, and while World War II had resulted in the loss of almost all overseas sales contacts, the





Armstrong-Bray & Co.

business had been gradually built up over the ensuing years to the point that it was significant.

In 1977 an export marketing manager was hired, and more aggressive export efforts were begun. One of these efforts involved the opening in 1978 of a subsidiary in England, from which tools were marketed in the United Kingdom and on the European Continent. Initial success with distributors serving North Sea oil drilling operations faded as the world oil glut of the 1980's developed. Eventually this operation was phased out as a subsidiary and turned over to the company's English representative as an independent distributorship selling not only Armstrong Tools, but other products as well.

The U.K. activity, together with efforts in other export markets, resulted in substantial sales, and in 1981 the company was awarded the U.S. Commerce Department's "E" award for achievement in export sales.

In 1979, Armstrong Bros. Tool Co. made its first significant acquisition, Armstrong-Bray & Co. Armstrong-Bray manufactured wheel and gear pullers, and belt lacing.

Another significant occurrence of the late 70's was the release of catalog "880". This book, for the first time, showed the hand tool portion of the line in front, with shop tools following. Even more revolutionary was the introduction of a new numbering system.

The original numbering system had grown topsy-turvy over the previous 80 years since the company's founding. In many cases, the same number was used to identify more than one tool; numerals and letters had been combined to form product numbers of wildly varying length and structure. With the broadening of the line, it had become necessary to completely rebuild the catalog, and it was decided to take advantage of this opportunity to create a more sensible numbering system.

The system that resulted was composed of 5-digit, all numeric numbers. As a further improvement, since all the tools had to be renumbered, the catalog was designed in such a way that the lowest number appeared first in the catalog, and all additional tools (by now there were over 4000 in the line) came in numeric sequence.

The result was a catalog and price sheet unique in their simplicity, and a numbering system that was easily adapted to distributor and user data processing systems and warehouses.

In April of 1981, John H. Armstrong died while still serving as President. By this time, the Fayetteville plant was functioning with great efficiency, and the company had moved into position as a leading manufacturer of industrial hand tools. The machine shop tool portion of the line had also been expanded with the addi-



tion of new items. A European subsidiary had been opened, and exports overall had increased substantially. The company's first major acquisition had been made.

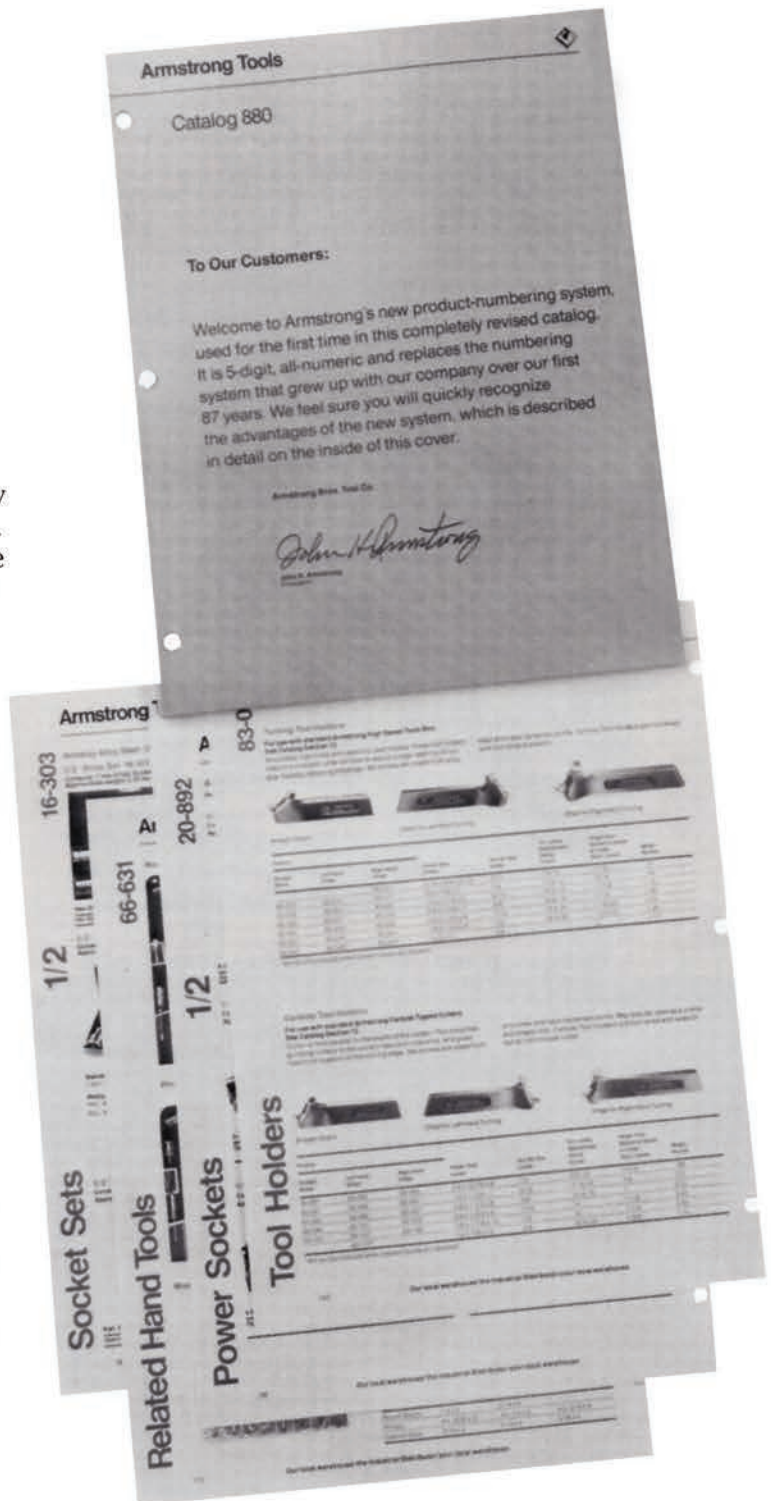
During his 13-year term, the company's sales had increased 249%, or an average of over 19% per year.

Through all the years, John had never lost his love of flying. While studying as a teenager at Ryan Institute in the early 1930's, he had earned spending money by flying Santa Clauses over shopping centers, into which they would parachute to the great delight of the patrons, both young and old. At age 64, he suffered an aneurysm, resulting in the loss of his license to fly engine-driven aircraft; so he took to flying gliders. In between, he spent every spare minute of his life in and around airplanes of every description, and achieved prominence as a judge of international aerobatics competitions.

With John's death, the last of the second generation was now gone from the company. All of these men were unique individuals, each with his own strengths. Their excellent business sense and dedication to the company through good times and bad had brought Armstrong Bros. Tool Co. to a unique position—large enough to be a major factor in an important market, but still owned and operated by family members.

That the company continued under family management was itself of great value to its customers. For by this time the era of corporate conglomerates had arrived. As competitors were absorbed into larger, less personalized companies, they tended to lose their closeness to customers and feel for the market. Lightly spoofing themselves and their conglomerate competitors, Armstrong sales management members began carrying business cards containing no identification other than the phrase, "The Little Family Tool Company from the Northwest Side of Chicago," and the now famous arm-and-hammer trademark.

In 1983, Armstrong became something of a conglomerate itself, with a second significant acquisition—Griswold Machine and Engineering, Inc., of Union City, Michigan. Founded in 1960, this company had become prominent in two fields; first, as a supplier of welded pallet racks to the major automobile manufacturers, and then as a producer of trench shields—sturdy, box-like shoring structures used to protect workers in trenches.



Whereas the second generation had been suddenly thrust into positions of responsibility due to the early deaths of the founders, the third generation had the advantage of a more gradual transition of succession to management. In fact,



by the time of John Harper's death in 1981, the first of the fourth generation was with the company— Hugh W. Armstrong, III, whose father, Hugh Jr., now assumed the role of President.

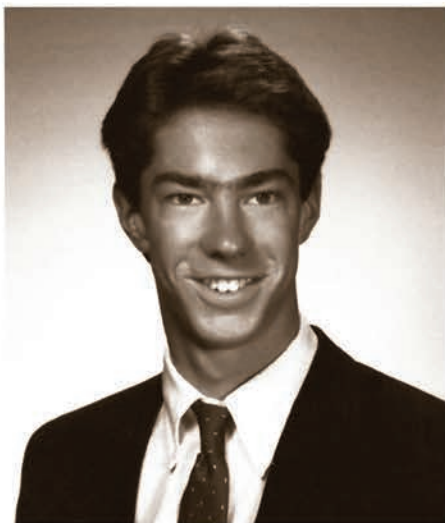
Third generation members Paul, John and Bill continued as Vice President; Treasurer; and Vice President, Engineering respectively. Young Hugh III, who had started in 1975, first worked through various management training assignments, spent time with the Armstrong-Bray operation, and eventually went into the manufacturing end of the business. A second fourth-generation member, Robert Armstrong, joined the company in 1987. His father, Bruce, continues to manage the Fayetteville plant.

#### **THE CENTENNIAL YEARS**

A third fourth-generation member joined the company shortly after the Centennial Celebration which the first edition of this book was written for.

Daniel J. Armstrong began in early 1991 and spent his first few months going through the usual family indoctrination, working his way through the different departments of the Company. Eventually he ended up being in the financial area under his father, John D. Armstrong.

In the spring of 1992 Paul L. Armstrong II started with the company. He was a licensed architect and after making the usual rounds through the forge shop and other areas of the business, and upon the announcement that Bill Armstrong was retiring from the position of Vice President, Engineering, he assumed that position. With Paul there, a milestone had been reached. The original three Armstrong brothers who worked together in 1890 all had a fourth-generation descendant at the company.

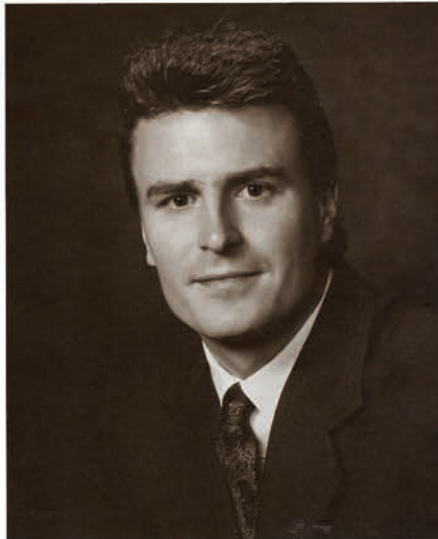


Daniel J. Armstrong

#### **FOURTH GENERATION**



Hugh W. Armstrong III



Robert Armstrong



Paul L. Armstrong II





Early Plant Photo



Sales Meeting, 1952



Plant Photo, 1950



1st Meeting Quarter Century Club-1928



Sales Meeting, 1960



Old Plant Photo



Office At Armstrong Avenue, 1949





Employees In Front Of Francisco Avenue Factory 1926



Breaking Ground For Addition At Armstrong Avenue Plant, 1967



Commerce Department "E" Award (1981)



"C"-Clamp And Wrenches, Post WW II



Baseball Team, 1966



Constant Up-Grading of Equipment



Cold Forming Sockets



Third And Fourth Generations





Engineering Featuring CAD



Sales Meeting, 1974



Sales Meeting, 1985



Sales Meeting, 1989

**Tool Lions.**

**Stash, John, Fred and Hal Armstrong, Armstrong Bros. Tool Co.**

The year is 1985. It's our year here, even if it's not the year of the 100th Anniversary. For the past 90 years, the Harris Bank has been a strong supporter of the Harris Bank. We've been a part of the Harris Bank's success for over 90 years. We've been a part of the Harris Bank's success for over 90 years. We've been a part of the Harris Bank's success for over 90 years.

**Their Bank: The Harris.**

The Harris Bank is a strong supporter of the Harris Bank. We've been a part of the Harris Bank's success for over 90 years. We've been a part of the Harris Bank's success for over 90 years. We've been a part of the Harris Bank's success for over 90 years.

**Move up to the Banking Lion.**



Ad Run By Harris Bank Featuring Armstrong Bros. Tool Co.



Filming TV Commercial, 1982

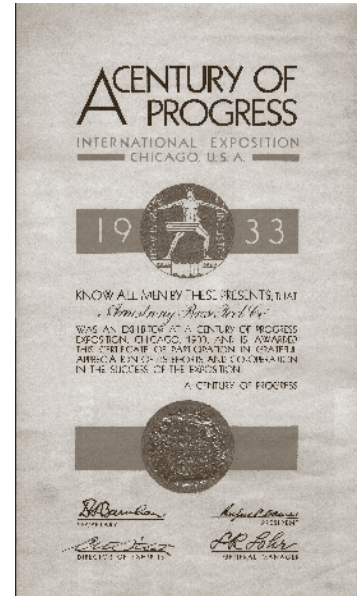
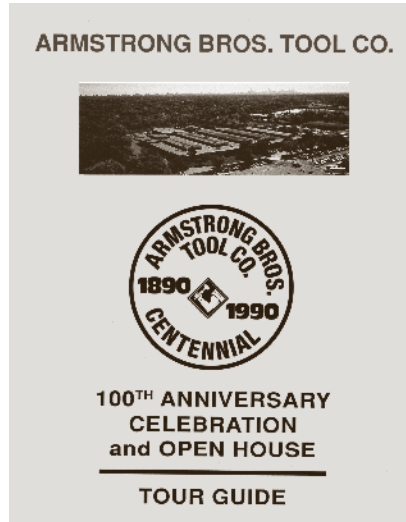


On a sunny summer day in 1990 the Company celebrated its Centennial at the Chicago Plant. The event consisted of an open house and block party all tied into one where Company employees, management, extended families and Chicago politicians of the day celebrated together. Company president Paul Armstrong and a spokesperson from Mayor Richard M. Daley's office joined other Company and family speakers as they relived milestones throughout one hundred years of company history. There were three generations of Armstrong's represented as the president's father, Paul L. Armstrong, attended the open house and toured the plant to see modern CNC machines at work. He was 93 years old at the time.

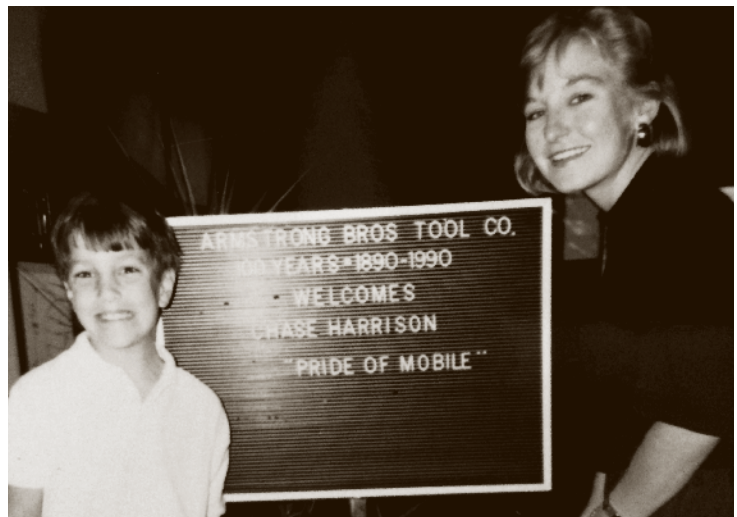
In the years leading up to the centennial celebration it had been decided that the engineering department would undertake a project to improve the aesthetics and functional characteristics of the hand tool line. The goal was to improve the wrench, ratchet and socket line to a level never before achieved. A potential yardstick by which to judge the new quality level would be competitor Snap-on Tool Co., whose products were considered by many tool users to be of the highest quality available.

The redesigned tools were indeed a big hit, however it took many years of effort for the changes and improvements to be made. And the effort had been costly. Equipment required included new forging dies and process equipment for the wrenches, new expensive castings and friction welding equipment for the ratchets and new CNC equipment and cold-forming presses for the sockets.

The years immediately following the centennial were difficult for business in general, with the U.S. economy suffering from the effects of a recession. In addition, Armstrong was having challenges with growing internal costs and growing external pressure from competitors.



Fourth Generation Armstrongs at Centennial Celebration Picnic







# TEAM ARMSTRONG

**E**very successful team has its unsung heroes—people you never see and may never even speak to. People whose contribution, however, makes the team a winner! We'd like to introduce you to a few of the unsung heroes of Team Armstrong—Our Information and Computer Services People.

Their responsibility is information flow—an increasingly vital link in any Manufacturer/Distributor relationship. Timely, accurate and detailed exchange of information that enables you to better serve your customers while keeping your business running smoother, more profitably. Our Information Service People make this all possible in an easy-to-use, hassle-free "On-Line" service that starts at your computer terminal.

Here's what Armstrong's New "On-Line" System lets you do:

- DIRECT ORDER ENTRY
- STOCK CHECKS
- ORDER STATUS
- COMPETITOR CONVERSIONS
- ELECTRONIC MAIL

**And, it's all at your fingertips**

It's easy to see—Team Armstrong isn't just another arms-length partnering cliché! It represents an all new level of commitment to our Distributors and their customers. On-Line is just one example of how Team Armstrong is meeting the challenges of the 90's. Want more details? Ask your Armstrong Salesperson, or call Tom Kaiser at (312) 763-3333.

Armstrong Bros. Tool Co., 5200 W. Armstrong Ave., Chicago, IL 60646, 1-312-763-3333, FAX: 312-763-2922

**ARMSTRONG TOOLS**  
Fine tools that encourage good work

In particular, Snap-On purchased J.H. Williams & Co. Williams had been a head-to-head competitor since the early 1900's, but had gradually deteriorated over the previous few years. In the process, Armstrong had acquired many of their major distributors. The acquisition by Snap-on presented a major threat to that business. In addition, price competition from another traditional competitor, Proto Tool Company, had intensified as the result of their acquisition by Stanley Tool Works.



# TEAM ARMSTRONG

**E**very successful team has its unsung heroes—people you never see and may never even speak to. People whose contribution, however, makes the team a winner! We'd like to introduce you to a few of the unsung heroes of Team Armstrong—The members of our Quality Assurance Team.

Quality is not just a currently fashionable catch phrase of Armstrong. For over 100 years we've chosen to make quality a part of our business. It's not just a goal that demands the dedication of our employees, it's a goal that demands the dedication of every Team Armstrong member.

So, our members analyze steel and choose the grade, inspect and inspect products for strength, vitamins, up-grade and quality to withstand abuse. Our engineering and R&D teams carefully review tool design and manufacturing procedures to ensure quality performance.

Quality is not just a currently fashionable catch phrase of Armstrong. It's a goal that demands the dedication of every Team Armstrong member.

We're dedicated to quality. That's why you can't inspect quality. Quality is a process, not a product. It's the primary concern of every Armstrong member. We're dedicated to quality performance.

**Armstrong Tools, the brand you can sell with absolute confidence.**  
Armstrong Bros. Tool Co., 5200 W. Armstrong Ave., Chicago, IL 60646, 1-312-763-3333, FAX: 312-763-2922

**ARMSTRONG TOOLS**  
Fine tools that encourage good work



# TEAM ARMSTRONG

**E**very successful team has its unsung heroes—people you never see and may never even speak to. People whose contribution, however, makes the team a winner! We'd like to introduce you to a few of the unsung heroes of Team Armstrong—Some of the people from our design team.

The first and most critical step in tool making, design, is the design of the tool. It's not just a matter of drawing and cutting and the optimum grade of steel must be carefully selected.

Through their design team, our members must spend a great deal of time in the design room, and in the design room, our members must spend a great deal of time in the design room.

**Armstrong Tools, the brand you can sell with absolute confidence.**  
Armstrong Bros. Tool Co., 5200 W. Armstrong Ave., Chicago, IL 60646, 1-312-763-3333, FAX: 312-763-2922

**ARMSTRONG TOOLS**  
Fine tools that encourage good work

By 1993, efforts had been undertaken to reduce costs other than those necessary to achieve the improvements in hand tool design and manufacturing. Consultants had been brought in to assist with this effort. All areas of the business were dissected and looked at for cost savings. Around this time, after the retirement of John D. Armstrong, Paul L. and Dan began to look into more cost effective ways to manufacture the hand tool line, which included acquiring "blanks" or semi-finished sockets from other sources and finishing them to Armstrong's quality specifications.



This movement entailed trips to other manufacturing plants including those of Danaher Corp., the company that manufactured most of the sockets and wrenches for the Sears Craftsman Brand. In addition to Craftsman and the DIY market, Danaher had penetration through their Matco Tool Line in the Automotive market, and in the hardware channel with their Allen brand. Danaher lacked, however, a broad, quality line suitable to Armstrong's industrial distributor market.

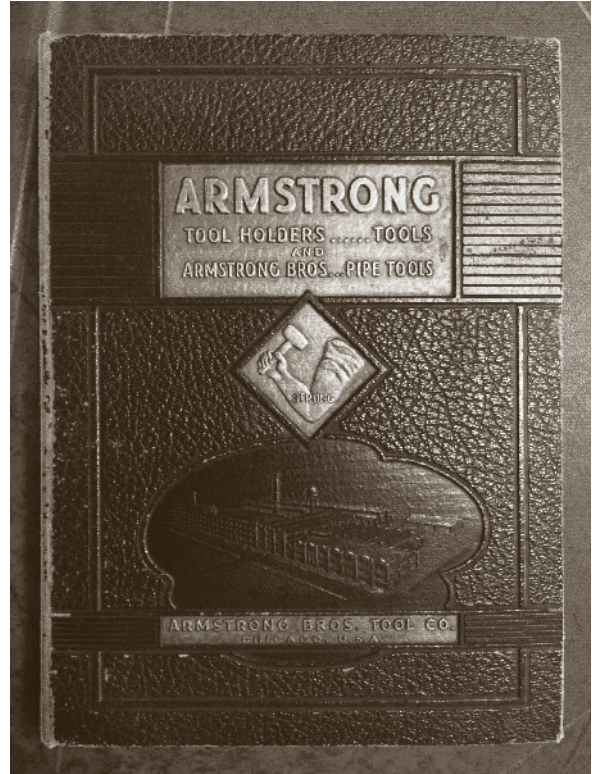
During a visit to Danaher's Springdale Arkansas facility, Paul L. was given a tour of that impressive manufacturing plant. Afterwards he entered the main conference room where displayed on the wall were wrench sets representing all the major brands of hand tools in order of perceived aesthetic value. Right next to the top set of Snap-on was the Armstrong set, testimony to the effectiveness of the efforts made to improve the wrench and socket line.

### THE DANAHER YEARS

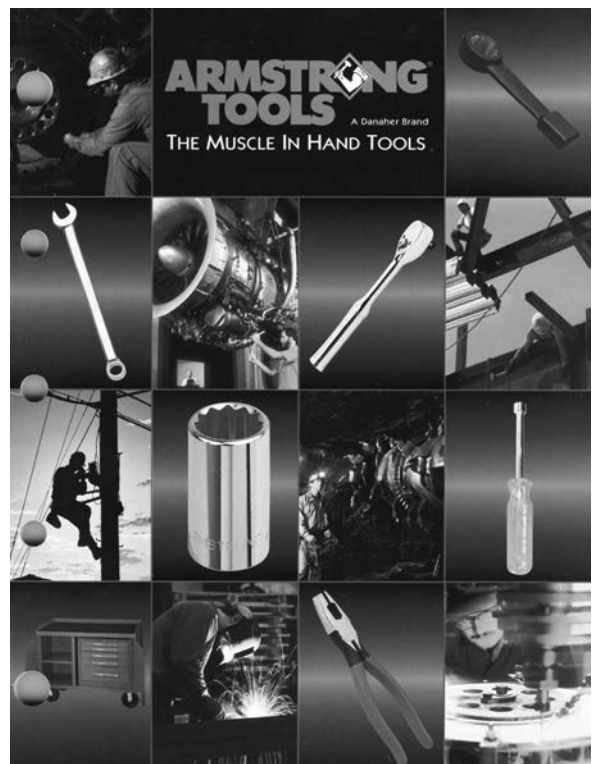
In March of 1994, President Paul Armstrong was approached by the CEO of Danaher. It was made clear that Armstrong Bros. Tool Co. was not for sale, but in discussions over the next several months, aimed at working out an arrangement whereby Armstrong might work with Danaher to supplement their need for an industrial quality line, it became apparent that the only way to satisfy Danaher's needs would be to sell the company to them.

It also became apparent to Armstrong management that Danaher was a strong and rapidly growing company. The much larger Danaher would be in a better position to deal with the building competitive pressures faced by Armstrong.

In the fall of 1994, the 80-some Armstrong shareholders voted to sell the hand tool business to Danaher. On December 31, 1994, the last of the documents were signed, and Armstrong shareholders soon received shares of Danaher in exchange for their Armstrong holdings. The Company's subsidiary, Griswold Machine and Engineering, was not included in the sale. The Armstrong family members who had been active in the business prior to the sale continued in various roles after the acquisition by Danaher. Paul Armstrong, the serving president and last of the third generation, remained on to oversee the transition until retiring a few months later. Hugh Armstrong left the company during the first year of the transition and went into the printing business, opening a Sir Speedy franchise near Chicago.

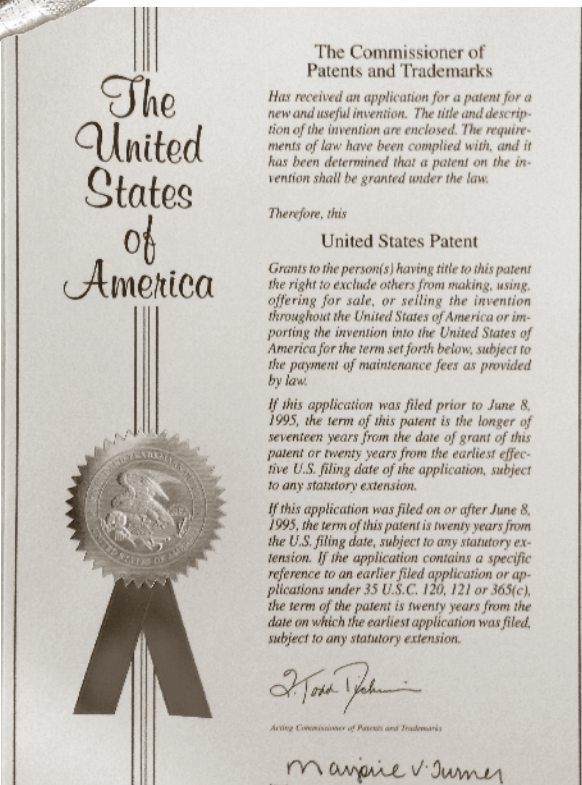
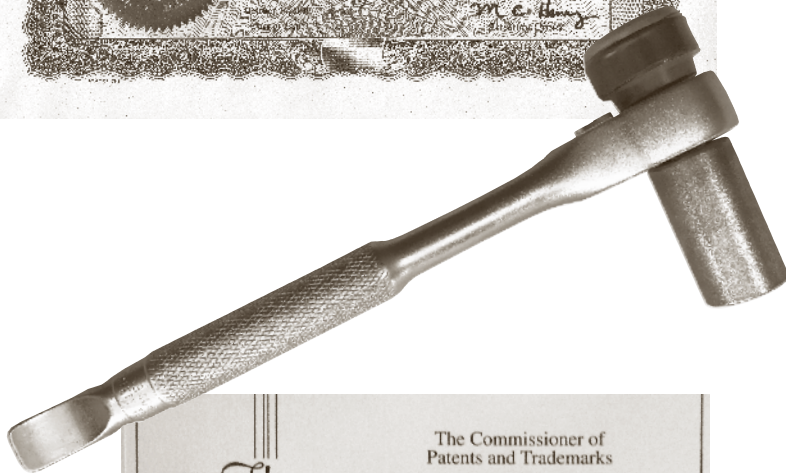


Catalog circa 1940's



First catalog post Danaher





Rob, Dan and Paul L. were all integral parts of the transition and served in high profile positions for the new Danaher Tool Group. Rob served for 5 years as Director of Marketing and as National Accounts Manager of the Industrial Products Division of Danaher Tool Group. He left Danaher in 1999 and shortly thereafter opened an independent insurance agency, Armstrong-Hailey Insurance Co., in Fayetteville Arkansas.

Paul continued on with the post-merger management team in Chicago as Director of New Product Development and Production Manager for Wrenches and Ratchets. He worked with other Danaher facilities implementing strategic plans for the transition and integration of the Armstrong Brand and he helped bring the 220 mostly union Chicago employees into the Danaher Business System.

During this time, Paul managed the development of new products with various marketing groups throughout the Danaher organization. He also designed and field-tested many customized tools for industry leaders such as Caterpillar and Amoco. Like Dan and Rob he became fluent in the language of Total Quality Management (TQM) and used tools such as Kaizen, KanBan and others specific to Just In Time Manufacturing. He was also active in implementing the ISO 9001 quality control system which increased productivity over 35% in two-years. Paul L. left Danaher in 2001 and in 2003 purchased Edward A. Anderson Company, Inc. a century old construction company located in Winnetka, Illinois.

Early in the new millennium the Chicago plant was beginning to shut down while production and some long time employees moved to other Danaher facilities. The plant was eventually demolished and the property sold, to be used for single-family homes.

Dan moved to Fayetteville Arkansas to become Manager of the Armstrong Plant there. He then moved to Alpharetta Georgia, as Plant Manager for JS Technologies where Danaher Torque Wrenches were manufactured. Dan stayed on with Danaher the longest of all the Armstrong's. In 2003 he left Danaher and bought a residential cabinetry manufacturer outside of Atlanta, Georgia.





With Dan's departure, the last of the Armstrong family had relinquished involvement with the product line that had been initiated by Dan's great grandfather and his great grandfather's brothers 113 years earlier.

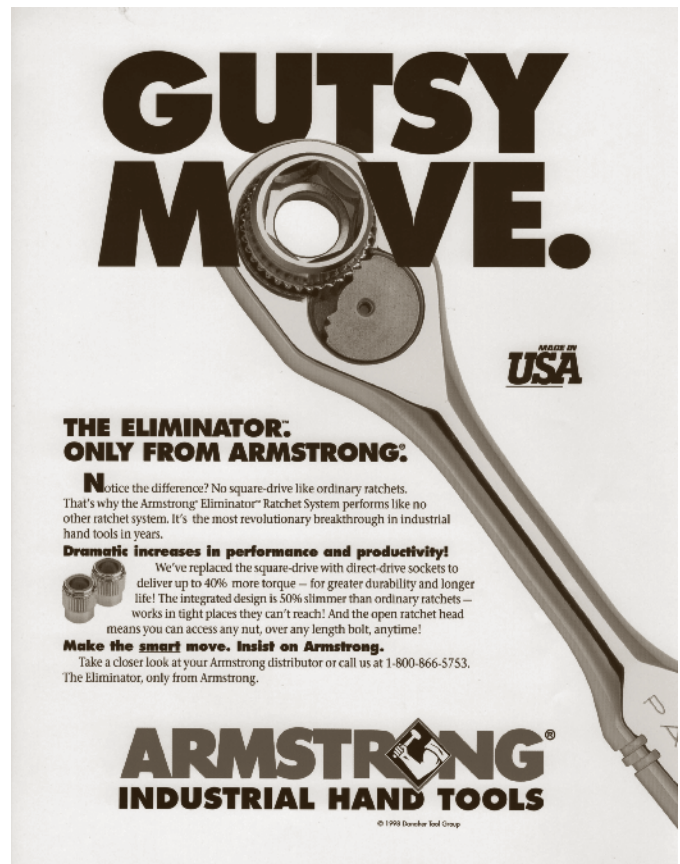
During the early years of Danaher ownership, the Armstrong line had continued to grow as an important part of the Danaher Tool Group. There had been a great deal of enthusiasm and new product development. Danaher continued to use Armstrong as its industrial market flagship brand, and also continued the work in product improvement that had been initiated prior to the purchase. But as time passed, Danaher's focus began to change. Their acquisition efforts became increasingly centered on companies with products of a more technical nature.

In July of 2010, Danaher combined their Tool Group, of which the Armstrong line had become a major part, with the Tool Division of Cooper Industries, to form Apex Tool Group. Cooper's line of Tools and Danaher's

complemented each other almost perfectly, with very little overlapping of product. Thus formed, Apex immediately became an extremely potent worldwide force in the tool industry.

Danaher and Cooper continued their joint ownership of Apex until early 2013, at which time the company was sold for \$1.6 billion to Bain Capital.

The Armstrong line had gone from the little bicycle repair shop behind the three Armstrong brothers' Chicago homes in 1890, through World Wars I and II, the Great Depression, periods of post-war recession and explosive growth, to finally come to rest in the hands of a company that will long be remembered as a source of contention during the presidential election of 2014, a company put on the map during his previous career by presidential candidate Mitt Romney.



**THE ELIMINATOR.  
ONLY FROM ARMSTRONG.**

**N**otice the difference? No square-drive like ordinary ratchets. That's why the Armstrong® Eliminator™ Ratchet System performs like no other ratchet system. It's the most revolutionary breakthrough in industrial hand tools in years.

**Dramatic increases in performance and productivity!**

We've replaced the square-drive with direct-drive sockets to deliver up to 40% more torque – for greater durability and longer life! The integrated design is 50% slimmer than ordinary ratchets – works in tight places they can't reach! And the open ratchet head means you can access any nut, over any length bolt, anytime!

**Make the smart move. Insist on Armstrong.**

Take a closer look at your Armstrong distributor or call us at 1-800-866-5753. The Eliminator, only from Armstrong.

**ARMSTRONG®  
INDUSTRIAL HAND TOOLS**

© 1999 Drexler Tool Group



### ARMSTRONG BROS. HOLDING CO.

During negotiations in 1994 for the purchase of the tool business, Danaher had specifically stated they had no interest in the company's subsidiary, Griswold Machine and Engineering. They did not want to get involved with the automotive industry, and the majority of GME's sales at that time had been for welded pallet racks used by General Motors and Ford.

In the process of working out details of the tool business sale to Danaher, a new company had been formed, Armstrong Bros. Holding Co. (care had been taken to name the new company as closely as possible to the original company, in honor of the Armstrong family and its company founders). GME was rolled over into the new holding company, and Armstrong Bros. Tool Co. was then sold to Danaher.

The plan was for the holding company to eventually acquire additional companies, but with the exception of one GME competitor, while a few were eventually looked at, none was ever acquired.

As part of the plan under which Armstrong Bros. Holding Co. was established, it was agreed no family members would be active with this new organization. Nor would they serve on the Board of Directors. A "Liaison Committee" would be formed to provide input

to the Board, representing the wishes of the 80-some family member stockholders. The initial Liaison Committee was composed of the seven Board members serving at the time the agreement was reached to sell the tool business to Danaher.

In addition to its rack (pallet) business, GME manufactured trench shoring and safety items. While the trench equipment business represented only about 40% of the company's total sales, it was estimated that GME's market share on this product was well in excess of 50%, unlike the tool business's market share which was well below 10%.

Racks were quoted on a job basis, and though profitable, prices were highly competitive. Trench products, on the other hand, were cataloged, sold through distributors, and even more profitable. In addition, trench safety was a rapidly growing market. Contractors across the country had a history of fatal cave-ins, and while the Occupational Safety and Health Administration had been active in the area for some time, old habits were hard to break, and accidents continued from time to time.

Gradually over time, the trench product business grew at such a pace as to become the greater percentage of the company's sales volume. A manufacturing plant was built near Carson City Nevada, to service the West Coast, and the competing manufacturer, located near Lansing Michigan, was acquired.



Board of Directors (from L to R) Kenneth Groenewold, Patrick Cunningham, Joe Settini, James Rudnicki and Don Sepeta





**GME Port-A-Bridge™**

**The short-span solution that keeps things moving**

The Port-A-Bridge™ by GME® is a modular bridge system designed for rapid delivery and installation at the jobsite. The Port-A-Bridge™ is available in 10' increments, from 20' to 50' long. Each section is 6' wide. Two units join together to form a 12' wide single lane structure that allows vehicles, equipment, or foot traffic to proceed over or around the construction site or impassable area.

Typically, a bridge can be installed on-site in minutes, making it ideal for short to medium term usage. Units can be loaded on a truck with a heavy-duty fork truck or small crane. Contractors on-site can install the units using excavators, or small rough terrain cranes.

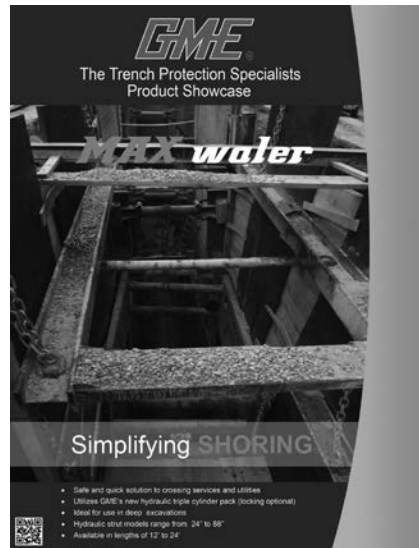
This system is designed to permit the formation of multiple spans in multiple lanes, utilizing our standard length units. The fully-welded structural steel units feature steel decking for maximum durability. They are designed to meet specific U.S. loading criteria, in accordance with AASHTO-US bridge design code by licensed professional engineers. Each unit can safely handle H20E loading and typical heavy-duty dump trucks. Units also feature a vehicular crash barrier, also designed and detailed to accommodate pedestrian traffic.

For complete technical specifications and purchase or rental information, contact your local GME Distributor or contact GME via email at [port-a-bridge@gme.com](mailto:port-a-bridge@gme.com)

**Port-A-Bridge™ Applications**

- Highway Contractors** - Detour structures
- Municipalities** - New construction and emergency replacement for permanent structures
- Utility Contractors** - Healing roads and access over excavations
- Utility Companies** - Access to remote areas and off-road applications
- Developers** - New construction development
- Parks and Golf Courses** - New construction and replacement of existing structures
- Events** - Walkways or access lines for concerts, sporting events, conventions

**GME** 800-248-2054 • [www.gme-shields.com](http://www.gme-shields.com)  
The Trench Protection Specialists



**GME**

The Trench Protection Specialists  
Product Showcase

**MAX WATER**

**Simplifying SHORING**

- Safe and quick solution to crossing services and utilities
- Utilizes GME's new hydraulic triple cylinder pack (locking optional)
- Ideal for use in deep excavations
- Hydraulic stud modes range from 24" to 88"
- Available in lengths of 12' to 24'

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The Trench Protection Specialists



**GME Exit Grid GME**

**Shake off loose mud, dirt and stones before your vehicles hit the highway!**

**GME Exit Grids** are designed to shake loose debris that's lodged in your truck's tires before your trucks leave the jobsite.

Simply place the Exit Grid on the haul road just before your vehicles enter the gravel streets. When vehicles drive over the Exit Grid, the tires will be shaken and flexed, to dislodge rocks, dirt and other debris from the tread.

This cleaning process helps remove the excess dirt and debris that may be distributed on paved streets and highways. It also removes stones and rocks that can result in broken windshields and insurance claims. It will reduce the time and money involved in street cleaning and water truck use, and help build goodwill with the neighboring public.

The GME Exit Grid System consists of two 6' x 12' mats, and two 8' x 12' foot sections. It is constructed of angular structural steel, welded to beams and steel tubing for maximum rigidity and durability.

The unit can be installed in minutes and left in place for prolonged periods. When necessary after periodic use, debris can be easily removed from under the GME Exit Grid.

More and more states and municipalities will be requiring that preventive control measures like the GME Exit Grid be employed, to help maintain environmental standards for air quality and keep streets cleaner and safer for all vehicles.

For complete specifications and purchase or rental information, contact your local GME distributor or call 800-248-2054.

**GME** 800-248-2054 • [www.gme-shields.com](http://www.gme-shields.com)  
The Trench Protection Specialists

In order to provide more space for trench product production at the manufacturing plants at the headquarters city in Union City, Michigan, a new plant was purchased for the manufacture of racks, in Ravenna Ohio. But not long after that plant had gone into operation, it was decided the trench business was growing so rapidly, and so profitable as to be deserving of all the company's attention. The rack business was discontinued, and the Ravenna plant sold.

### THE FINAL CHAPTER

By 2010, serious consideration was being given to possible sale of the company. Though the stock repurchase plan that had existed prior to the sale of the tool business continued to be offered to stockholders of Armstrong Bros. Holding Co., it was felt it would be in their best interests to place the value of the company directly in the stockholders' hands.

In 2012, the sale of GME then was finalized. Assets and liabilities of the company were sold to Trinity Industries, a diversified company headquartered in Dallas, Texas for approximately \$40 million. By the beginning of 2016 all filings with the government had been completed and final disbursements were mailed out to all remaining stockholders. With this event 25 years had passed since the Armstrong Tool Centennial celebration and 125 years since the founding of the company by the Armstrong Brothers.

In the company history published in 1990 in conjunction with the 100-year anniversary, no

non-Armstrong-family member employees were mentioned by name. In part, this was because the history was intended to be a record of the family's involvement with the company, in part because there were so many who contributed to the company's success over the 100 year period that it would have been impractical to mention them all.

In the case of Armstrong Bros. Holding Co. and GME, no family members have been involved, and there are again more non-family members who contributed greatly than can be mentioned by name. There are three, however, Kenneth Groenewold, George Krauss and Donald Sepeta, who deserve special mention for their many contributions to the company's success.

During the 1980s, soon after Armstrong Bros. Tool Co. had acquired GME, George Krauss came to GME from a management position with Republic Steel. Replacing the general manager who had come along with the acquisition, and whose management technique had been detrimental to the business, George quickly turned things around and saw to continued company growth and profitability until his retirement many years later.

Ken Groenewold started with Armstrong Bros. Tool Co. as Chief Financial Officer shortly after the 1990 Centennial. As CFO, he was involved with GME as well as the tool company, and played a major role in the negotiations with Danaher. After the sale of the tool business and creation of Armstrong Bros. Holding Co., he served as Chairman of the Holding Company Board. Over the years, he also served as coordinator between the Armstrong Family Liaison Committee and the Holding Company Board.





Armstrong family stockholders present at the last stockholders meeting. Paul Armstrong, former President during the sale to Danaher and last surviving member of the third generation management team is on the far left.

In 1998 upon George Krauss's retirement, Don Sepeta took over the reins as Holding Company and GME president and Board member. His thoughtful, professional management skills carried the company to new heights both in sales and profitability. Don also played a major role in negotiations that led to the sale of GME...at a price, incidentally, considerably higher than that for which the tool business had been sold to Danaher some 18 years earlier.

With the sale of GME and liquidation of Armstrong Bros. Holding Co., the final chapter of the story that began in the Chicago bicycle shop of the original Armstrong Brothers had been written, at least so far as Armstrong Family ownership was concerned. However, both brands, Armstrong Tools and GME Trench Safety Products, remain strong and continue to grow under their new ownership, which is testimony to the hard work and creativity of the original brothers and the many others, both family and non-family, stockholders and employees across a 125-year span of world history.

In September of 2015 as the final business chapter was being written for the Armstrong family through the sale of GME, Armstrong Tools Inc. was celebrating a 125 year anniversary and as part of the celebration the company announced a realignment that brought several well known brands under the Armstrong Industrial Hand Tools banner. The announcement reported by Yahoo – Finance read "...Armstrong Tools Inc. announces

that Campbell chain, JOBOX tool storage, GearWrench and Crescent hand tools and others are now positioned in the industrial market as part of the Armstrong offering. Armstrong Industrial Hand Tools has long been known for its extensive line of over 4,000 Made in the USA hand tools. By leading the industrial portfolio, Armstrong will now represent over 15,000 products and 10 brands; Armstrong Industrial Hand Tools has focused on a broad range of strong, durable tool solutions to demanding industrial, commercial, government and military operations for over 125 years."

Altogether, thousands of people have touched the companies over the years and continue to do so in one way or another, and each of these individuals has had his or her effect, large or small. The routine daily actions of all these people, including the Armstrongs, seem so insignificant at the time they are performed. Yet these many independent actions are what keep the companies in constant motion, vital, thriving, changing. Looking back, we can take a snap-shot of history, but even as the camera clicks, new history is unfolding all around us.

*To find out more about the history of this famous American hand tool brand go to the company website; [www.armstrongtools.com](http://www.armstrongtools.com) and click on 'Heritage' or go to our family Facebook page where you can see this booklet and share your Armstrong Family story.*

**ARMSTRONG BROS. TOOL FAMILY / FACEBOOK**



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