Tinkerers, Mechanics and Inventors of Lancaster County

By John Ward Willson Loose

A few caveats are in order. My essay is not an "in depth" study of each and every tinkerer, mechanic and inventor that ever worked in Lancaster County, nor does it attempt to single out every person who contributed in some substantial way to the mechanical arts. We don't know the identity of all these persons even if we had the time and space to list them. The purpose of this paper is to inspire some of you to dig deeply into the contributions of some of the more productive and useful inventors. Another purpose I have intended is to increase your pride in the diverse talents of Lancaster Countians. When I come to the end of this paper I hope many of you will want to add more to our knowledge of this largely untouched subject.

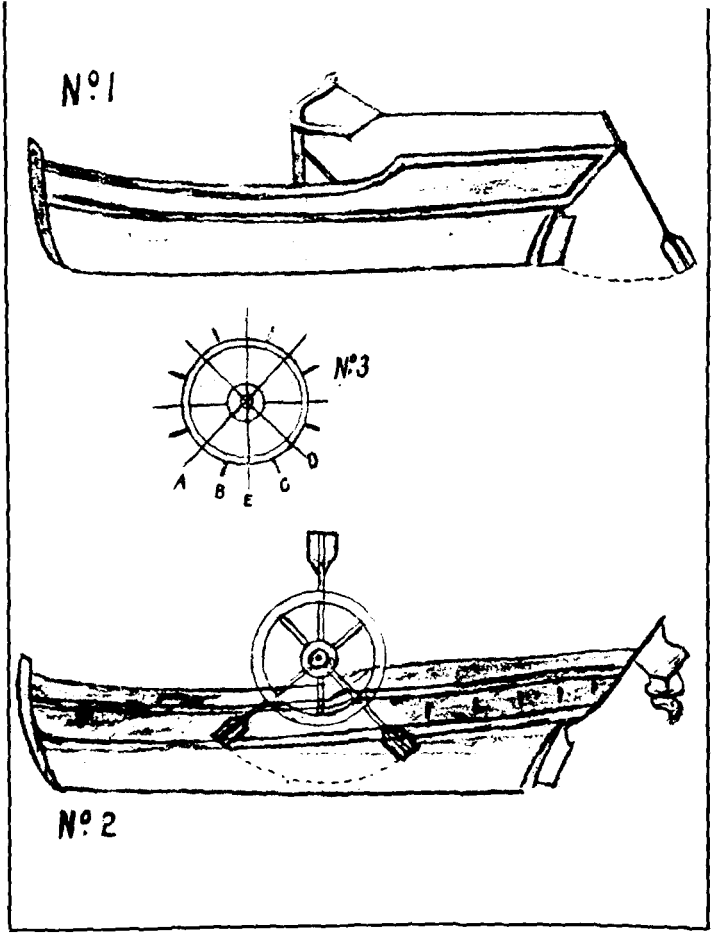
I have no doubt that tinkering and inventing began in Lancaster County whenever the first human beings set foot on this ground. Such activity is a characteristic of all intelligent human beings; indeed, it is one of the more reliable signals of an advanced intellect, more so than the artificial measurements such as intelligence tests which depend so heavily on the ability to read and understand what one has read.

Surely those hearty settlers near Willow Street in 1710 found new ways to make everyday life less tedious and more productive. The unrelenting wilderness creates tremendous opportunities for those who respond enthusiastically to challenges.

By the mid-18th century when Lancaster was the last civilized outpost on the western frontier during the French and Indian wars its workshops already were turning out wagons, guns, clothing and numerous items for the protection of the Pennsylvania hinterland. Who can say how many of those artisans and mechanics "invented" day-by-day little improvements in their efforts to produce? Today our machine designers and tool and die makers contrive all sorts of devices to position work so identical operations such as boring and shaping will produce or duplicate hundreds or thousands of items—each one identical and each able to fit other parts so produced. We know from our studies of early tools and machinery that mechanics centuries ago made little jigs and fixtures to improve their efforts. A little stick nailed here, a small wire fastened there—and you have the beginnings of modern mechanical design.

Surely one of the first men of mechanical genius in Lancaster County was William Henry. Henry's abilities in gunsmithing and his outstanding contributions to winning the American Revolution have been described well by Samuel Dyke and others of the gunsmithing fraternity. The manufacture of guns obviously presented numerous challenges to the creative mechanic. A number of mechanical operations were required in making rifles and muskets. Metal had to be cut, shaped, welded, bored and forged. Wood had to be shaped, and the whole thing assembled. With pressure on them to manufacture more guns with fewer men under wartime conditions, those revolutionary gunsmiths were at their wit's ends to find better and quicker ways to meet the demand. William Henry had the intellect and mechanical skills to seize upon such opportunities.

However, William Henry had achieved a reputation beyond gunsmithing. His native mechanical intelligence earned him the respect of his fellow townsmen, and to him they came when a particularly thorny problem arose. It was to Henry that the young Robert Fulton turned, and there is sufficient evidence to believe Fulton's inventive genius was inspired and encouraged by Henry. The screw auger supposedly was invented by William Henry. Inasmuch as the patent system had not been introduced in America, we do not have much documentary evidence to support this claim. According to Dr. Herbert Beck, writing in Vol. 54 of our Society's *Journal,* William Henry's son, John Joseph (1758-1811), stated that he watched his father develop the auger. First he made a lead model which was used to bore into a turnip. Then he made an iron auger which worked well in poplar wood but not in oak. William Henry took the pattern to



Fulton's first plan for steam navigation. Made in 1793, fourteen years before the launching of the Clearmont. *These drawings were sent by Fulton to the Right Honorable Earl of Stanhope in November, 1793.*

fellow Moravian, Johann Heinrich Rauch, the gimletmaker at Lititz, who produced the auger in tempered steel. It was successful in the harder woods, and both Henry and Pauch, in partnership, manufactured the tool in quantity.

Other inventions of William Henry included a steam heating system, a steam turbine, and the application of steam to navigation. The latter idea was developed to the point where Henry put a steam engine on a small

wooden boat and equipped it with paddles. This was in 1763, two years before Robert Fulton was born. The steam boat was tried out on the Conestoga River, but the pounding of the engine was too much for the frail boat, and the experiment had to be halted before success could be claimed. He then made improvements on this first effort, and we are led to assume it was tried with some success about 1766 or 1767 on the Conestoga. William Henry was a valued member of the American Philosophical Society, and his lectures on his work are preserved in that organization's records. Many of us have heard that John Fitch actually built a successful steamboat prior to Robert Fulton's commercially successful steamboats, but it is not so well known that Fitch came to Lancaster in 1785 to discuss with William Henry problems he had encountered with his efforts. Henry showed Fitch a model of his own steamboat. Much later, when controversy arose between Fitch and James Rumsey over which of the two had "invented" the steamboat, Fitch credited William Henry with developing the boat before either Fitch or Rumsey. Perhaps William Henry's interest in steam technology caused him to journey to England in 1760 to visit James Watt, the inventor of the multi-purpose steam engine.

Robert Fulton, whose boyhood was spent in company with William Henry and his mechanics, absorbing all the principles of mechanical engineering he could acquire, went on, as we all know, to invent many pieces of machinery for earthmoving, canal-building, and naval ordnance. He envisaged the submarine, and he actually invented the depth charge. Much of the credit for the naval torpedo must be given to Fulton. Of course, we all know his success as the first to build and operate steamboats successfully on a commercial basis.

Not all Lancaster County inventors shook their earth with the products of their genius. Perhaps Henry Witmer was not in the same league with Robert Fulton and William Henry, but Witmer must be credited with an improved whisky still that facilitated the distilling of a purer liquid.

The next important inventor was Peter Getz of Lancaster. Getz was born near Lancaster about 1768. He was made a Mason in Lodge #43 in 1786, and as a silver- and goldsmith, he made the jewels for the Lodge. Getz was a self-taught mechanic. In addition to being a skilled worker in precious metals and stones, he loved to tinker with mechanical objects. In everything he did he imparted to his products a touch of rare beauty, of "extraordinary elegance" as one of his lodge brothers put it. In 1792 he was a candidate for the position of Chief Coiner or Engraver of the U.S. Mint. Although he was turned down for this position, he was commissioned in 1792 to design and engrave the pattern for the Washington cent and the half dollar piece.

Among Getz's manufactures were delicate scales and measuring devices and surveying instruments. According to Getz's grandson, an English surveyor-engineer was surveying lands in Lancaster County during which he broke his transit. At that time—in the late 18th century—it was impossible to find anyone in the young United States who could fix the instrument. The engineer was amused when he was told young Getz could fix it, but when the native son convinced him he could do the task, he permitted him to try. Getz quickly rebuilt the surveying instrument "better than new" and the astonished Englishman is supposed to have heaped Getz's hand full of gold.

While still a very young man Peter Getz made a fire engine for Lancaster borough, and it worked so well that in 1797 he was engaged to build a second engine. This model contained 200 gallons of water, and was capable of throwing 200 gallons a minute a height of 90 to 100 feet. He used metal valves instead of leather, an improvement adopted many years later by commercial manufacturers of fire apparatus. After the new engine was put in service Getz was put in charge of the borough's fire engine maintenance for which he was paid 4 pounds 10 shillings a year.

Another invention credited to Getz was a system of rollers to replace the screw on printing presses. When he died in 1809, aged 45, Getz was eulogized as a "man famous for his ingenuity."

With the development of railroads Lancaster Countians got into the act with their own inventions for efficiency and safety. In 1829 James Wright of Columbia patented the beveled tread wheel. This invention permitted rigid-frame cars to adapt to curvatures in the track, a feature of utmost importance in the days before double-truck railroad cars. Three more Columbians, Samuel Truscott, George Wolf and James Dougherty, in 1838 were granted the first patent for a solid railroad car wheel casting.

As the iron industry, both primary and secondary, that is, pig iron production and wrought iron shapes, and articles made from cast or wrought iron, developed in Lancaster County the interest in machinery and steam engines grew. The combination of iron and steam power seemed to stimulate the creative minds of our county to feverish activity. Creativity knew no bounds, no classes, no economic levels. From unschooled tinkerers to trained mechanics the urge to perfect machines seemed almost a national pastime—and in Lancaster County the urge found full expression. Whether it was Philip Benedict inventing a new stove—which the Society has in its collection—or Martin Shreiner, the renowned clockmaker, building an elegant new fire engine for the Sun Fire Company, the Red Rose city was not about to let the New England Yankee mechanics claim all the credit for mechanical genius.

Benedict's stove, patented in 1830, was an improvement on the old ten-plate stove then in common use. Efficiency of fuel consumption was Benedict's aim, and tests revealed the stove produced the same amount of heat from less than one ton of coal than the old stoves yielded by burning four cords of wood. Another advantage claimed by Benedict was the improved safety, and housewives did not fail to notice the absence of disagreeable smoky flavor to food cooked on the stove. Mr. Benedict also is credited with manufacturing the Indian weathervane on the old Cotton Mill No. 1, now the P. Lorillard tobacco warehouse on South Prince Street.

Martin Shreiner's hand-pump was not much of an improvement over other hand-pumpers such as those made by Peter Getz, but is was reputed to be an exceptionally beautiful piece of apparatus, proving that modern volunteer firemen have honest precedents for their attention to prize-winning fire trucks. The Shreiner pumper is still in existence, and recently was for sale by a Lebanon owner.

When Shreiner wasn't making fabulous grandfather clocks and fire engines, he busied himself manufacturing scientific and astronomical instruments. In 1832 the local newspapers waxed ecstatically over Shreiner's Tellurian and Lunarian," a device that showed the motions of the sun and planets. Today we call such a mechanism an orrery.

Few local mechanics ever have exceeded the genius of John Brandt, the Lancaster blacksmith who graduated to locomotive-building. Brandt was born not long after the Revolutionary War. He served the usual apprenticeship with a blacksmith. That training did not include any mechanical drawing or making scale drawings. He carried on the ordinary trade of blacksmithing until a young man, Coleman Sellers, came into his life. The Lancaster entrepreneur, James Humes, was operating a cotton factory in 1826, and while visiting the Philadelphia firm of Nathan Sellers to obtain some wire cards, he happened to show the proprietor a sample of machine-made fillet or ribbon cards that made the teeth more firmly set in the leather than the best hand-made. Humes explained the cards were made by an ordinary blacksmith in Lancaster, John Brandt. Coleman Sellers' father then came to Lancaster to see for himself the blacksmith and the machine he built to manufacture the cards. The concept of the machine was perfect and it functioned well, but the design of the machine was crude and reflected Brandt's lack of training.

The success of Brandt's cardmaking machine lay in his use of carefully-made dies to draw and shape the wires. The machine inserted about 100

teeth per minute which constituted approximately 900 separate operations performed by the machine in that one minute. This was far faster than any hand-operation could achieve—and the teeth were attached more firmly than was possible by hand operations. The operations were put in sequence and implemented by a brass barrel into which were inserted cam studs similar to a music box. The older Sellers urged Brandt to come to Philadelphia to see how machines were designed so that he could incorporate refinements into his machines. While in our city Sellers suggested longer cam studs might improve his machine.

A short time later Brandt went to Philadelphia, lugging with him his old machine. After seeing the state of the art in machine design, Brandt set to work rebuilding his machine. Inasmuch as he could not understand drawings, Brandt whittled out of wood models for his parts which he would fit together by trial and error until the whole thing worked. In 1828 the firm of Sellers, Brandt & Co. was formed to manufacture the card machines. Recognizing his shortcomings, Brandt proposed to Coleman Sellers that he would teach the young man how to forge and temper tools if Sellers would teach him mechanical drawing. In a few weeks Brandt had taught Sellers the craft of blacksmithing—an art Brandt claimed his master had extended over three years—but when it was Sellers' turn to teach drafting to Brandt, the older man could not comprehend drawings. He learned to copy beautiful sketches, but everything he drew had to be in full scale. Then Sellers realized the problem. Brandt did not know how to scale the measurements. With Sellers' patient help, Brandt eventually learned how to make scale drawings and lay out work from the drawings. According to Sellers' journal, some interesting incidents occurred while the instruction was going on. One day Brandt showed Sellers a full-size drawing of a crank made on thin sheet iron, and asked Sellers to reduce it to half-size. "Why don't you do it?" Sellers asked. "You have two centers on a line." "Yes, I know, and I have done it, but it don't [sic] look right. I want you to do it." Sellers reduced it for him, and Brandt replied that it looked too small. Sellers told him to measure it from center to center, and he would find it right. Brandt scratched his head, said "Ja,wohl," and walked away. Shortly after that he returned to Sellers with the crank templates cut out—both full-size and half-size. "I have weighed both. There is something wrong. The half-size does not weigh one-fourth as much as the full-size." Brandt persisted in trying to learn the mathematics necessary for mechanical drawing, and in time he mastered the subject although he was over forty years of age by that time.

In October 1829 he moved back to Lancaster to resume his old trade of blacksmithing. His wife did not like the ways of the big city of Philadelphia. In 1833 Brandt took a position as foreman of the Pennsylvania Railroad shops at Parkesburg. When Sellers visited him at the shops he

found Brandt fearful that he had accepted a position beyond his ability. His office was covered with working models of steam valves, rocker shafts and eccentrics—all in full size. His reason for continuing to work up models in full-size was that he thought in full-size!

At that time the Pennsylvania Railroad—then known as the Penna. State Works—had an English locomotive, and Sellers had arrived at Parkesburg on the train it pulled. Brandt disapproved of the English design, because if had 9-inch cylinders with only 3-inch length of valve ports. Brandt complained it went "pish,pish,pish" as the locomotive went past. To Brandt the ports should be at least as long as 2/3rds the diameter of the cylinder. He was proved correct. Brandt went on to become master mechanic of the New York and Erie RR. While there he designed a 10-wheel locomotive with three pairs of drivers and a 4-wheel truck for heavy freight hauling. The Erie refused to build it, and the Baldwin shops said it wouldn't work. The Norris works in Philadelphia liked what they saw, and built such a locomotive. The Reading RR was enthusiastic about the locomotive, and had the Norris works build them a 10-wheeler, but it had a few alternations from Brandt's plans. "A few refinements," they explained. However, the locomotive soon was altered back to Brandt's original plans, and it performed magnificently. Next Brandt went to the Paterson (NJ) Locomotive Works which he managed, but the yearning for the Pennsylvania German country was stirring in Mrs. Brandt. He sold out his interest and returned to Lancaster where he became superintendent of the newly-organized Lancaster Locomotive Works in 1853. Eleven locomotives were made the first year of operation. Brandt died shortly after this, and his sons, John, Jr. and Abraham, continued in the business until it was closed by the panic of 1857. Later the Norris brothers operated a locomotive works in the same buildings between Plum and Ann streets, along the railroad tracks.

*W*hile the mechanics were devising improvements to machinery, a tinkerer of another kind was fiddling around with chemicals in the first block of West King Street. Dr. William B. Fahnestock and James Damant became interested in Louis Daguerre's experiments with photography. Dr. Fahnestock, a prominent physician, was born in Lancaster in 1804, and had the good fortune to marry into the noted Reigart family. He always was in advance of his times, and even tried to hypnotize his patients.

James Damant, an Englishman, opened a girls' boarding school in Lancaster in 1830. In addition to being an educator, he was a scientist and organist. To his duties as organist at St. James's, he planned and supervised the construction of the wall and gate of St. James's churchyard.

Fahnestock and Damant combined their efforts in experimenting with photography. Fahnestock ground his own lens and built his own camera. The oldest surviving photograph of Lancaster—and the only one that shows the old Courthouse in Centre Square—was made by Fahnestock about 1845.*

John Griffen who became the superintendent of the Safe Harbor Iron Works was aware that cannon cast in the traditional manner had the annoying habit of bursting. Knowing the high tensile strength of wrought iron, which the Safe Harbor rolling mill produced, Griffen patented a new method of making cannon barrels by fusing wrought iron rods around a mandrel, overlapping them in plys similar to modern tire construction. His patent was granted 1855. As nearly everyone knows, the military is extremely traditional and is loath to adopt new ways of doing things. The Griffin cannon was lighter and stronger, and its adoption during the Civil War was accomplished with much suspicion. One of the Griffen cannon was called "Old Buck" and was used around Lancaster by the Franklin and Marshall College boys to celebrate James Buchanan's victory. In 1882 the election of John McGonigle to the mayor's office caused the Democrats to celebrate the victory by hauling out the ancient cannon. It was fired, and it burst, killing one person and crippling another. It was a good cannon, and Griffin deserves credit for his invention.

In an agricultural paradise the invention of farm machinery would be expected. Joseph Fawkes of Bart Township invented a number of machines including the steam plow. He exhibited this monster in August 1859 at the Lancaster Fairgrounds (then near the New Holland Pike and Plum Street). Later he won a $3,000 prize for it at the Freeport, Illinois Fair.

In 1869 Jacob Mowrer patented in 1869 a double corn shovel harrow. His son, Nathaniel, when only 18 years old, invented a corn-cob crusher and a degerminating device for extracting the eye out of corn before grinding. Another labor-saving device for farmers was invented by Joseph Shirk of East Earl Township. Shirk was born in 1820 in a log house on the farm that was settled by his grandfather, Ulrich Shirk, When Joseph's father, Peter, built a new house, the old log house was given to Joseph to use as a workshop. He used water power from a nearby stream to operate his primitive machinery.

**See "Early Photography in Lancaster" by Rosemary A. Patterson in L.C.H.S. Journal Vol. 87 No. 2. A reproduction of the oldest surviving photograph is shown on page 40.*

While serving an apprenticeship with his uncle, a tanner, Joseph studied surveying. Soon he became a master of the mathematical formulations required in surveying. He was able to correct the errors of surveyors with long experience. For more than sixty years Joseph Shirk was reputed to be the most accurate surveyor in eastern Lancaster County. He was called upon frequently to mediate boundary disputes caused by surveyors' errors.

When still a boy Shirk noticed the inefficiency of the scythe and grain cradle as the men wielded these tools on his father's farm. Joseph took a cradle, and attached a wooden projection to the frame which he believed would result in a quicker, cleaner sweep of the grain. His father refused to try the implement, and condemned the lad for his foolishness. When the farmer and his hired hands interrupted their labors for dinner, Joseph got out his little invention and proceeded to cut several swaths through the field, leaving the ground clean of fallen grain. When the men returned to work they were astonished at the improvement made by Joseph's invention, and the boy gained new respect for his creative genius. Later he made the first compass ever constructed in Lancaster County. It was graduated in half degrees, with double verniers, reading in single minutes, and had tangent screws and springs. It was equipped with a vertical circle with degrees. The compass is a model of careful craftsmanship, and is still in the Shirk family at Blue Ball.

One day while shooting—Shirk was an excellent marksman—he wondered why a gun could not be made that would fire a series of shots in quick succession. This led to his invention of a gun that would fire seven shots without reloading. According to legend, while travelling in Ohio he showed his new gun to some New England Yankees, among them one Colonel Samuel Colt. He sold his gun to them, and returned home.

He also made improvements to the printing press and developed a sewing maching, but it was in the field of precise surveying instruments that Shirk made his mark. In 1857 the Mont Cenis Tunnel through the Alps was begun. The surveying instruments had to be absolutely accurate. After the instruments were manufactured by a Philadelphia firm of scientific instruments makers, Shirk was commissioned to test the instruments and make the final calibrations. When the 7½ mile tunnel was finished in 1870, the error of variation was only 2 inches.

Shirk also made scales that calculated the cost of meat weighed on them. Joseph Shirk's son, Peter, also was an inventor, and had many patents to his credit. Joseph died in 1902 and is buried near Union Grove.

Shirk's improvement of the grain cradle should remind us that during the first four decades of the 19th century Drumore Township had a number

of scythe and sickle mills, most of them along Fishing Creek and Puddle Duck Creek. An 1820 local newspaper report stated the scythes manufactured in Lancaster County were so superior to the English import that the local product was driving the English scythes off the market!

And it was in Lancaster County that Ashmore Patterson—a southern end inventor—helped to make Shirk's grain cradle and the Drumore scythes obsolete by inventing devices that were patented and sold to McCormick, and which were incorporated into the famous reaper manufactured by Cyrus McCormick.

Although we think of steam turbines as the fairly modern successor to the old reciprocating steam engines, a Lancaster mechanic developed a steam turbine in 1870. Samuel Gibson, a Safe Harbor machinist, designed and built what he called a "rotary steam engine." It was demonstrated for a group of Lancaster industrial promoters that included the Hon. Alexander L. Hayes, the Hon. Oliver J. Dickey, Postmaster H. W. Hager, and Charles Hager of the Hager Store. The chief improvement in the rotary steam engine was the absence of vibration and jarring caused by pistons acting in cylinders. Moreover, it was designed to be manufactured in various sizes, from very small applications to powering large machinery. During the demonstration the engine was permitted to achieve such velocity that the iron castings flew apart, causing the death of one workman and severe injuries to another. Although the design of the machine was not at fault, holes bored in the castings to balance the wheel or rotor weakened the metal. The steam turbine of Samuel Gibson received a patent in 1870, and a second patent the following year. Although Judge Hayes was discouraged by the explosion of the engine and refused to invest in its production, he lost no time in pressing Gibson's claim to the invention of the turbine when the machine was perfected years later.

In modern times the name Iske suggests inventive genius. Anthony Iske was called the "Edison of Lancaster" because he had more than 200 inventions to his credit. A resident of Lancaster's famous Cabbage Hill, Anthony Iske was born in 1832 in Alsace, France, where he learned the trade of cabinetmaker. He came to USA in 1853 and set out for Lancaster, New York. Fortunately for us, his broken English was misunderstood, and he ended up in Lancaster, Pennsylvania. St. Joseph's Roman Catholic Church was being built at the time, and Iske found work building the pulpit and three altars. His competence in making church furniture soon earned him fame around the Commonwealth. He was commissioned next to build a 25-foot high altar for St. August's Church in Pittsburgh. His first invention was a set of extension steps for fortifications, and the idea was stolen immediately by an Englishman. Out of the High Street cabinet-

making shop flowed a steady stream of ideas and inventions. One idea that preoccupied his mind—as it has many inventors over the centuries—was a perpetual motion machine. It never worked, however, as we all know.

His son, Albert, worked with him, and made many of the models for his inventions. Early in his career Iske became fascinated by electricity. Among his inventions were batteries and motors. Probably the most useful and visible inventions that came from Iske's fertile mind were the elevating coal wagon and the elevating trolley wire repair wagon. All Conestoga Traction Company overhead wires were maintained and repaired by workmen using the Iske invention. He invented a "fire ladder" which could be extended, and it was used by the U.S. Army Signal Corps. In 1898 he invented and patented a meat cutter. Then came a patent for a cigar press. and a velocipede. Lancaster housewives were gladdened by the next Iske invention: the reversible window sash that permitted the window to be washed inside and out from the inside of the home.

An electric fire alarm system, and an electric "push and pull" door bell were other Iske inventions. Despite his creative genius, his inventions netted him little income and in 1900 he was nearly penniless. In his last years he worked along with his son at the Fidelity Electric Company as a machinist. Anthony's grandson, Harry, also was a "tinkerer," whose hobby was building an automated Christmas yard complete with an amusement park. Many of Anthony and Albert Iske's models are located at the Penna. Farm Museum at Landis Valley.

Although I do not know who developed them, fans and special motors manufactured by the Fidelity Electric Company were reportedly invented and patented by employees of that company. It is not the purpose of this essay, however, to cover industrial inventions and patents of modern times.

W. J. Clarke, the lecturer on electricity and wireless telegraphy, was not a Lancastrian, but he spent some time in Lancaster in the 1890s working on various experiments. According to *The Electrical Engineer* (2 December 1897), Clarke, while in Lancaster succeeded in starting electric motors by remote control.

In the Gap-Christiana area lived William C. Ruth and Howard L. Rutter. Mr. Ruth, a black man, had an ingenious mind for inventions. He formed a partnership with Mr. Rutter to produce the results of his talents. Among his inventions were a baler feeder and a cinder spreader. Mrs. Warren Ammon of the Christiana Machine Company recalls Mr. Ruth's frequent visits to the company to have patterns and castings made. As with many inventors whose many skills do not include hard bargaining with potential manufacturers of their creations, Mr. Ruth found himself

coming out "second best" in an effort to sell an invention to a farm equipment company.

Among the inventions and patent models the Lancaster County Historical Society has in its collection are a Peerless Track Brake of 1906, a Mason Jar Lid Opener made in 1917 by the John Best Co. of Lancaster, and the Galena Wireless Telegraph Detector invented and made by the Lancaster firm named "Barco." Another prolific local inventor in the field of watchmaking was Emanuel Fenstermacher. Richard Schmoyer invented a new type of sun dial. In Lancaster County where leaf tobacco has been a major crop the harvesting of the tobacco was facilitated by a shears invented by Paris Gerfin.

We would be remiss in not mentioning the brickmaking machinery invented by Henry Martin. The Henry Martin Brickmaking Machine Manufacturing Co. was an important industry in Lancaster in the last decades of the 19th century and early 20th century.

In recent times Lancaster resident Herman Rueger contributed much to the invention and development of mechanical devices and connectors for electrical machinery.

With the growth of large manufacturers with vast research and development departments—companies such as Armstrong World Industries, the former Hamilton Watch Company, RCA, and Sperry/New Holland—inventions are produced under conditions more favorable for practical applications, and usually by anonymous scientists and engineers. Nonetheless, nearly every machine shop possesses some character with hidden talent waiting for the golden opportunity to be another Edison or Westinghouse.

Now a plea! Which inventors and mechanical geniuses would you like to add to this survey?