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Some Petroleum Pioneers of Pittsburgh

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Introduction

This is the story of a few individuals who pioneered in developing what has become the worldwide petroleum industry. Common traits of these men include vision, foresight, and determination. We owe them a debt of gratitude for their efforts. Western Pennsylvania possesses a rich heritage in all of the energy industries.

In 1859 Edwin Drake was the first person in the world to apply well drilling technology to produce significant quantities of crude petroleum, at Titusville, Pennsylvania¹⁻⁸. However, it is a little known fact that Samuel Kier of Pittsburgh, Pennsylvania was the first person to refine crude oil by distillation, five years earlier than Drake's discovery, in about 1854. Kier's primary product was kerosene, a clean burning lamp fuel. In addition, in 1861 Charles Lockhart built the first commercial scale oil refinery, also in Pittsburgh. That plant was put to use to refine crude oil produced at Titusville.

To commemorate the 150th anniversary of the drilling of the Drake well, the American Chemical Society (ACS) presented a National Historical Chemical Landmark award to the Drake Well Museum at Titusville on August 27, 2009. In addition, an ACS National Historical Chemical Landmark award commemorating Samuel Kier's work was presented in Pittsburgh on August 26. Today's extensive worldwide petroleum industry is a direct outgrowth of the efforts of Drake and Kier, first demonstrated in Western Pennsylvania.

Early History of Petroleum

Numerous ancient cultures, including Persians, Sumatrans and pre-Columbian Indians, believed that crude oil has medicinal properties. Marco Polo found it used in the Caspian Sea region to treat camels for mange, and the first oil exported from Venezuela, in 1539, was intended as a gout treatment for the Holy Roman Emperor Charles V. In Mesopotamia around 4000 BC, uses other than medicinal included caulking for ships, a setting for jewels and mosaics, and an adhesive to secure well handles. The ancient

Egyptians used it for embalming, and the walls of Babylon and the Pyramids were held together with it. The early history of petroleum is summarized by Williamson and Daum⁹, among others.

As pointed out by Cadman¹⁰, from ancient times there were only three major uses for crude petroleum: in construction as asphalt, in medicine, and to a limited degree for lighting and heating. This was the result of (1) the unique chemical and physical characteristics of petroleum and (2) the lack of suitable equipment for using it more effectively. These limitations were overcome by Samuel Kier's development of petroleum refining, a single dramatic event. The resulting products made from petroleum could readily be utilized in a variety of applications, including lighting, powering manufacturing equipment, and fueling vehicles.

Long before Drake's accomplishment, petroleum (literally, "rock oil") had been gathered at numerous natural seeps. The Seneca tribe of Native Americans, one of the tribes of the Iroquois Nation, used and traded seep oil for hundreds of years. It was collected in shallow pits; one method of recovery was to spread blankets over the oil, then wring out the blankets. The Seneca used the oil as salve, mosquito repellent, purge and tonic, as well as wigwam waterproofing, body paint, and for various religious practices. European explorers found about 2000 ceremonial troughs near Oil Creek in Venango County, Pennsylvania. In the early days, the product was called Seneca Oil, and was widely used for medicinal purposes such as treating sprains and rheumatism. A photograph in *Time* magazine for January 22, 2007 shows a man in Azerbaijan soaking in a tub of crude oil for therapeutic purposes, a practice still considered beneficial in that country.

Some European settlers in Pennsylvania collected seep oil as early as 1792, using it for medicinal purposes, and local manufacturers used it to lubricate their machinery. Oil was recovered at the rate of a few gallons per day. Other than these uses, no major applications were found until petroleum could be refined.

Western Pennsylvania has large underground brine deposits and had been an important supplier of salt since the 1790s. To access the brine, holes several hundred feet deep were dug by dropping a metal weight down a shaft, thereby crushing the rock and releasing the brine which flowed to the surface. A Pennsylvania Historical Marker was erected at Lawrence Corners, Crawford County, on PA Route 198, one mile east of the Ohio state line, commemorating an oil-producing salt well drilled by Samuel Magaw and William Clark in 1815 to recover brine for salt production¹¹. When the well was deepened to 300 feet in 1819, oil was struck. Because of this unwanted oil, the well and salt works were closed in 1821. This recovery of by-product oil from a salt well occurred some 40 years before Edwin Drake [**Photo**] drilled his oil well in 1859.

In 1845, Lewis Peterson of Tarentum, PA brought a petroleum sample to the Hope Cotton Factory in Allegheny, Pennsylvania, now Pittsburgh's Northside. Morrison Foster and David Anderson of Hope Cotton combined petroleum with sperm oil to produce a better lubricant for the spindles, at a much lower cost. For ten years, this lubricant was used by Hope Cotton without the knowledge of anyone else¹².

Samuel Kier (1813-1874) and the First Petroleum Still

Samuel Martin Kier **[Photo]** was born near Livermore, Conemaugh Township, Indiana County, PA ^{13, 14, 15}. His great-grandfather Andrew Kier had emigrated from Scotland to the Saltsburg area in the late 1700s. After a rudimentary education, Samuel Kier moved to Pittsburgh and entered the freight forwarding business. Although initially successful, he went bankrupt in the financial panic of 1837. He then reorganized the company as Kier, Royer and Co., which began operating flatboats that carried coal from Pittsburgh to Philadelphia via the Pennsylvania Canal.

James Buchanan, who was to become the 15th President of the United States, joined Kier's company in 1846. After canal transportation became obsolete with the development of the railroads, the company shifted to firebrick manufacture, iron and steel works, and coal mines. B.F. Jones, who also joined this venture, went on to become one of the founders of the Jones & Laughlin Steel Corporation, a major producer of steel in the 19th and 20th centuries.

Kier's father operated two salt wells near Tarentum, at about the present location of the PPG plant at Creighton. Petroleum was skimmed off before the brine was boiled down to produce crystalline salt. At times the unwanted petroleum was dumped into the nearby Pennsylvania Canal. Since the resulting oil slick frequently caught fire, this practice had to be abandoned.

Prior to his work on distilling crude oil, Samuel Kier was already involved with promoting petroleum's reputed therapeutic value ¹⁶. When his wife developed consumption, her doctor prescribed "American Medicinal Oil," obtained from a well near Burkesville, KY. It is not clear whether this treatment was effective, but Samuel Kier thought that this oil was the same as the petroleum that was recovered from his salt wells. He was thus inspired to bottle and sell Rock Oil, beginning in Pittsburgh about 1847. Selling for 50 cents per half-pint bottle, it was advertised as a cure-all for internal and external application, treating rheumatism, gout, neuralgia, coughs, sprains, bruises, and many other conditions. One of Kier's advertising circulars **[Photo]** claimed:

- A remedy of wonderful efficacy
- Lame would walk, blind could see
- Cure for rheumatism, gout, neuralgia
- Put up as it flows from the bosom of the earth, without anything added or taken from it

Kier published another advertisement as a "Bank Note" in 1852 **[Photo]**, which read: [Oil] "discovered in A.D. 1848 in boring for salt water near the Bank of the Allegheny River, in Allegheny County, Penns'a. about 400 feet below the earth's surface, is pumped up with the salt water, floats on top, when a quantity accumulates, is drawn off into barrels, is bottled in its natural state without any preparation or admixture." The Bank Notes showed two derricks as well as a battery of tanks used to produce and recover the oil.

Yet another circular advertised “Kier’s Petroleum or Rock Oil, Celebrated for Its Wonderful Curative Powers. A Natural Remedy! Procured from a Well in Allegheny County, Pa., Four Hundred Feet Below the Earth’s Surface. Put Up and Sold by Samuel Kier, 363 Liberty Street, Pittsburg, Penn’a.

The healthful balm, from Nature’s secret spring,
The bloom of health, and life, to man will bring;
As from her depths the magic liquid flows,
To calm our sufferings, and assuage our woes.”

Kier added to the circular the following statement: “Caution – As many persons are now going about and vending an article of a spurious character, calling it Petroleum, or Rock Oil, we would caution the public against all preparations bearing that name not having the name of S.M. Kier written on the label of the bottle.” This remedy was sold all over the Northeast by peddlers in highly decorated wagons, with about 50 sales agents at peak. Kier finally abandoned this sales approach because of high distribution costs, and started selling directly to pharmacies.

George Bissell and the Concept of Drilling for Oil

In 1853, Francis Brewer, MD, **[Photo]** a graduate of Dartmouth College living in Titusville, took a sample of seep oil skimmed from Oil Creek to the Chemistry Department at Dartmouth. George Bissell (1824-1888) **[Photo]** was a New York City lawyer who graduated from Dartmouth College in 1845. Around 1856, Bissell saw a Kier “Bank Note” in a drugstore window on Broadway, New York City. Shortly thereafter, when visiting Dartmouth, Bissell saw the petroleum sample that had been brought there by Francis Brewer and recognized its similarity to Kier’s Rock Oil ¹⁷.

Bissell soon went to Titusville and leased 105 acres from Brewer for 99 years for \$5000. This was the world’s first oil lease. In 1854, Bissell sent a petroleum sample to Prof. Benjamin Silliman, Jr. at Yale. Silliman recommended distilling crude oil to recover kerosene and other products such as paraffin and naphtha, and his report, projecting profitability, began to attract investors. Then it became clear that a dependable supply of oil was needed. As a result, Bissell organized the nation’s first oil company, the Pennsylvania Rock Oil Co., on December 30, 1854. This firm later was reorganized to form the Seneca Oil Co. In addition to Bissell’s entrepreneurship, a major contribution was the concept of drilling for oil, analogous to drilling for brine, an idea that was stimulated by Bissell’s seeing one of Kier’s Bank Notes.

Edwin Drake and the First Oil Well

Despite the fact that the drilling concept was generally treated with great skepticism, Bissell and his partners contracted with Edwin Drake (1819-1880) **[Photo]**, a former railroad conductor and jack-of-all-trades, to drill for oil in the Oil Creek region. Under the auspices of the Seneca Oil Co., Drake went to Titusville in 1857. After experimenting with damming creeks and digging shafts in unsuccessful efforts to recover petroleum, Drake became convinced of the drilling concept. “Drake’s Folly” was the term used by the numerous skeptics in the area. Drake visited the Kier brine well at

Tarentum, where he engaged the services of William “Uncle Billy” Smith **[Photo]**, who was the Kier family’s salt well driller. After some hesitation, Smith went to Titusville and tackled the job. The rest is history. Smith successfully brought in the first oil well on August 27, 1859, using a 5-inch diameter iron pipe. The drilling apparatus consisted of a bit attached to the end of a rope, powered by a steam-driven windlass. The well was drilled to 69 ½ feet and yielded about 20 barrels per day.

It should be noted that James Miller (1818-1890) actually drilled an oil well in Ontario, Canada about a year prior to Drake’s accomplishment. However, that project yielded limited quantities of crude and was quickly surpassed by Pennsylvania oil production.

Edwin Drake was proud of his genealogy, including ancestors who fought in the Revolutionary War. Active in the local Episcopal Church, Drake became a respected citizen of Titusville. He did not patent the drilling technique that he promoted. By 1862, his health was failing and he was out of money. Diagnosed with muscular neuralgia, he spent his remaining years in an invalid chair. In 1873, the people of Titusville petitioned the Commonwealth of Pennsylvania for a pension, which was granted. The \$1500 annual stipend supported Drake until his death in 1880 and his widow until her death in 1916. The Drakes were buried in Woodlawn Cemetery, Titusville. The Drake Well Museum in Titusville has an excellent collection of implements used in the production and refining of crude oil.

Edwin Drake’s vision and persistence enabled him to produce oil by drilling, despite widespread opposition and lack of support. Drake’s technological breakthrough, coupled with Kier’s pioneering efforts to refine crude oil, served as two major foundations of the modern oil business.

While living in the oil region from 1859 to 1863, Bissell continued to invest in oil wells, a barrel factory, and a banking house, becoming quite wealthy. He returned to New York City in 1863, remaining active in the oil business and becoming President of the Peruvian Petroleum Co. Williamson and Daum provide an extensive summary of the Drake well discovery and related events ¹⁸.

Kier’s Refinery -- First in Western Hemisphere

Back in Pittsburgh, Samuel Kier had become interested in petroleum for uses other than medicinal, such as a lubricant, using it on machinery in various factories. He also sent a sample of crude oil to James Curtis Booth, Professor of Chemistry Applied to the Arts at the University of Pennsylvania, Philadelphia. Booth had studied at the University of Pennsylvania and Rensselaer Polytechnic, continuing his studies in Europe. He spent 1832-1835 working in the laboratories of Friedrich Wöhler in Göttingen and Gustav Magnus in Berlin, as well as studying chemistry at other locations in Germany and England. Booth’s courses on chemical analysis and industrial chemistry, given at the Franklin Institute in Philadelphia from 1836 on, were considered to be the finest in the United States. Booth established the first commercial chemical laboratory in this country in Philadelphia in 1836.

Booth's advice to Kier was to distill crude oil to produce an illuminant to serve as a replacement for whale oil, which had become scarce and expensive. Booth also provided Kier with drawings of a still. Based on this information, about 1854 Kier set up a wrought iron whiskey still of one barrel capacity, equipped with a condenser^{19, 20, 21}. This apparatus was located at Kier's offices at 363 Liberty St. (now Liberty Ave.), Downtown Pittsburgh. Initially using as raw material the petroleum recovered from his father's brine wells at Tarentum, Kier sold the liquid product as an illuminant, calling it "carbon oil."

An Improved Oil-Burning Lamp

A significant problem developed: burning carbon oil in existing lamps used for coal oil and whale oil produced smoke and odor. To remedy this, Kier devised a lamp having a four-pronged holder for the wick that eliminated these problems, and he proceeded to manufacture and sell this lamp^{22, 23, 24}. **[Photo]** In time, demand for Kier's lamp oil increased, as it was cheaper than the other available illuminants. Of course, the demand for oil-burning lamps was ultimately superseded by the invention of the incandescent electric light by Thomas Edison in 1879.

Kier's Expanded Refining Capacity

Demand for carbon oil soon increased to the extent that Kier had to expand his operation to a larger scale. To achieve this, he built another wrought iron still **[Photo]**, having a capacity of five barrels, housed in a one-story building about 12 x 24 ft. at Seventh Avenue and Grant Street in Pittsburgh, the present site of the U.S. Steel Building. This second-generation still, a cylinder measuring 42 inches in diameter and 56 inches in height, had thick circular top and bottom plates with a 12-inch hole cut into the top plate. This apparatus has been preserved and is displayed at the Drake Well Museum. Kier's early refining operation is commemorated by a Pennsylvania Historical Marker **[Photo]** at the site of his operation.

A.C. Ferris, a New York businessman, soon ordered a supply of carbon oil from Kier and began experimenting with its illumination potential. Responding to customer complaints regarding odor, Ferris adopted an additional refining step that consisted of washing with sulfuric acid followed by caustic soda. He sold about 1000 gallons of purified illuminating oil in 1858, cultivating markets that quickly made this product the nation's most popular illuminant.

Refining as practiced by Kier consisted primarily of distillation. Kier found that double distillation produced a much improved, lighter colored liquid. He produced about six barrels of distillate per day, which sold for \$1.50 per gallon. Although this operation was profitable, competition soon arose from another source: coal oil (referred to above) distilled from coal by a process developed by Abraham Gesner in Canada and by James Young in Scotland. By the late 1850s, coal oil had become so plentiful and the price so reasonable that Kier's relatively small scale production of petroleum based distillate could not compete. Coal oil was initially also known as kerosene, a term which ultimately was applied to petroleum-derived lamp oil. It should be noted that a major use of kerosene today is as jet fuel

Relocation of Kier's Refinery

In addition to competition from coal oil, Kier faced the challenge of community complaints regarding odor and fire hazard at his Downtown operation. To comply with an 1861 ordinance, Kier moved the refinery outside the Pittsburgh city limits, to 43rd St. (formerly Ewalt St.) at the Allegheny River, in Lawrenceville (now a part of Pittsburgh)²⁵. This installation, known as the Radiant Oil Works, was shown in Pittsburgh City directories, 1864-1865 and 1872, and continued to operate almost up to the time of Kier's death in 1874. In the move from Downtown Pittsburgh to Lawrenceville, the original 1-barrel whiskey still was stolen and never recovered.

Samuel Kier's Final Days

There is no remaining trace of Kier's refinery. Despite his success in operating the western Hemisphere's first petroleum refinery, Kier did not patent his petroleum still or his lamp. He earned little for his efforts in the oil business, though he was involved in a refinery at Freedom, Beaver County. He was, however, active in several other enterprises, pioneering in the manufacture of firebrick. Other interests included coal mining, pottery manufacture, insurance, and banking.

Samuel Kier lived the rest of his life on 51st St. near Butler St., Lawrenceville. He was known as a philanthropist, endowing churches and hospitals. He died on October 6, 1874, and was buried in the family plot in Allegheny Cemetery. **[Photo]**

Samuel Kier can be credited with a major step in opening up the new field of petroleum, and particularly the refining industry. His advertising circulars were responsible for George Bissell's inspiration to produce crude oil by drilling for it in salt formations. Through his pioneering efforts in petroleum distillation, he helped set the stage for the massive enterprise now known as the worldwide oil business. To quote W.K. Cadman¹⁰, "It would be difficult to overestimate the importance of distillation in the history of petroleum; and the still is the heart of that vital process." It is noteworthy that Kier's initiative in producing lamp oil from petroleum was a major factor in saving the whales from extinction.

Charles Lockhart and the World's First Major Oil Refinery

Another Pittsburgher who greatly expanded the scope and magnitude of the petroleum industry was Charles Lockhart **[Photo]**, born in Scotland on August 2, 1818, the son of John Lockhart and Sarah Walker²⁶. Charles Lockhart emigrated to America with his family in June 1836. After first coming to Pittsburgh, where they sought a suitable farmstead, the family soon settled in Trumbull County, Ohio.

Lockhart's Early Days in Pittsburgh

Charles Lockhart stayed in Pittsburgh, where he first worked as an errand boy, then as a clerk for James McCully, a Downtown merchant dealing in dry goods and produce. Lockhart stayed in McCully's employ for 19 years. Along with fellow clerk William Frew, who was a nephew of McCully, Lockhart became a partner in the business in 1855.

Isaac Huff of Tarentum was a supplier of salt to McCully. In 1852, Huff floated down the Allegheny River on a skiff carrying three barrels of crude oil, a by-product of the salt well of which he was a part owner. Appearing at McCully's store, he was greeted by Charles Lockhart, who purchased the oil for 31 ¼ cents per gallon. Lockhart in turn sold the oil to Samuel Kier for refining, at 62 ½ cents per gallon. Lockhart contracted with Huff to purchase all the crude that he could produce for five years, at 31 ¼ cents per gallon. This was the first known instance of buying and selling crude oil in advance of production^{27, 28}.

Once oil production began in the Titusville area, the crude was transported over a relatively short distance to what is now known as Oil City. From there, the Allegheny River provided a direct shipping route to Pittsburgh. Titusville is a little more than 100 miles north of Pittsburgh. Shortly after the completion of Drake's well, Lockhart and Frew, among many others, began producing crude oil in the Oil Creek area. Most of the crude was shipped to Pittsburgh, where it was initially refined by Samuel Kier for sale. Lockhart's crude oil was the first oil from Oil Creek to come down the Allegheny River, and Kier was the first to distill it. The partners soon sank additional wells near Oil Creek. Lockhart claimed that while some others used divining rods to locate wells, his method was to simply insert a dry limb into a rotten stump, announcing that drilling should be done there.

Lockhart's Expanded Oil Business

In May 1860, Lockhart sailed to England. Among his belongings were a gallon can of Pennsylvania crude oil and a gallon can of lamp oil produced as distillate from Kier's refinery. While there, Lockhart successfully demonstrated lighting a lamp with the distillate. This signaled the beginning of international oil trading, now a major factor in the modern economy. In England, Charles Lockhart met Jane Walker of Scotland, and on his next trip in 1862 Charles married Jane. The couple returned to Pittsburgh, where Lockhart's interests focused on the growing oil business.

In 1861, Lockhart, Frew and partners built the first commercial scale oil refinery in the United States, at Brilliant Station on the south bank of the Allegheny River near Negley Run. This installation was on land originally part of the farm developed by the prominent Negley family but by then owned by James McCully. The refinery was named Brilliant Oil Works **[Photo]**. Cooling water, required for condensing the products obtained by distillation, was conveyed by gravity via pipeline from a reservoir, Lake Carnegie, in what is now Pittsburgh's Highland Park. This lake was named in honor of Andrew Carnegie, the wealthy industrialist and philanthropist.

Refinery capacity was 250 barrels/day. The technology used at Brilliant involved distillation, probably followed by treatment with caustic soda, sulfuric acid and finally water washing. The refinery is shown on Pittsburgh city maps of 1872, 1876, and 1882, but it was dismantled in the 1880s.

In the lower left-hand corner of the Brilliant Oil Works photograph is a caption identifying a piece of equipment as "Lockhart & Gracie's Patent Still." John Gracie was

General Manager of the Imperial Refining Co., built in 1871 in Siverlyville (near Oil City PA) ²⁸. Significant advances in early refining were attributed to Gracie; his name appears frequently in the literature of the first two decades of oil (1860s and 1870s) ²⁹. U.S. Patent No. 40,632, dated November 17, 1863, entitled *Improvement in Stills for Petroleum, &c.*, was assigned to Charles Lockhart and John Gracie. Williamson and Daum ³⁰ describe several improvements in refining technology developed by these two men.

By 1863, Lockhart & Frew had bought out the interests of their other partners and were buying up other refineries, owning seven refineries by 1872. At this time there were over 60 refineries in the Pittsburgh area, and the business was plagued by excess capacity. In 1865, Lockhart expanded his operation by building, in partnership with William Warden, the Atlantic Refinery in Philadelphia. This plant served to supply the overseas market with refined products.

Formation of Standard Oil Company

In 1872, Lockhart teamed with John D. Rockefeller and others to start the South Improvement Co., which was formed for the purpose of forcing out of business refiners who refused to join. This plan was defeated, as was a subsequent one. This group finally established the Standard Oil Co. Lockhart received Standard Oil stock in exchange for his seven refineries, and from 1874 to 1892, Lockhart served as President. The interaction between Lockhart and Rockefeller is detailed by Chernow ³¹.

In 1879, Lockhart was indicted, along with other Standard Oil officials, for conspiracy to restrain trade. The case was settled out of court in 1880. Lockhart was named a Director of the Standard Oil Trust in 1882, and became President of Atlantic Refining Co. when the Trust was dissolved in 1892. Ida Tarbell, who grew up in Titusville, gives her version of the alleged monopoly practices of Standard Oil under Rockefeller in *The History of the Standard Oil Company* ³². A book commemorating the centennial of the Peoples Natural Gas Company ³³ describes Standard Oil as a company "...that first saw the world as an integrated market, that had a continuing commitment to technical superiority, and that coordinated and unified all its functions."

Lockhart the Man

According to John D. Rockefeller, Lockhart was "one of the most experienced, self-contained, and self-controlled men in business." John McLaurin wrote ⁶ that "time has dealt gently with Mr. Lockhart, who is young in heart and sympathy and good-fellowship. His compliments have the juiciness of the peach, his pleasant jokes are spiced with originality, his years sit on him lightly and his old friends are not forgotten. He is happy in his social and business relations, in recalling the past and awaiting the future, in wealth gained worthily and enjoyed wisely and in a life crowded with usefulness and blessing."

In his oil industry activities, Charles Lockhart proved to be responsible for some significant innovations still practiced in the industry today. For example, when Lockhart encountered Isaac Huff of Tarentum in 1852 he contracted to purchase all the crude oil

Huff could produce for five years. As mentioned previously, this was the first known instance of buying and selling oil that had not yet been produced. In addition, Lockhart initiated the international oil trade when he delivered a gallon of crude oil and a gallon of distillate to Great Britain in 1860.

Although involved in the management of Standard Oil, Charles Lockhart diversified into other businesses, a number of which were in Pittsburgh, including:

- Founder, American & Red Star Steamship Lines
- Gold mining in Colorado and Idaho
- Lumbering in Alabama
- Director, Pittsburgh Locomotive Works
- President, Pittsburgh National Bank of Commerce
- Director, Pittsburgh Plate Glass Co.
- Wheat farms in Red River Valley, Minnesota
- Cement works, Easton PA
- Shipbuilding, Philadelphia
- Director, Western Union Telegraph Co.
- Owner, Hubbard, Bakewell & Co., axe and shovel manufacturers
- Owner of Liberty Hall, a three-story building at Penn and Centre Avenues, in the East Liberty section of Pittsburgh, which was used for gatherings, entertainment, theatricals, and bazaars. It was also the home of the East Liberty YMCA for several years beginning in 1889, provided by Charles Lockhart free of charge.

Lockhart was a major benefactor of Second United Presbyterian Church (now Eastminster) on North Highland Avenue in the East Liberty section of Pittsburgh. In addition, he quietly supported a number of philanthropies, including four major Pittsburgh hospitals, the Society for the Improvement of the Poor, and the School for Deaf Children.

In 1900, Jane Walker Lockhart died and Charles Lockhart retired. They had five children: three daughters and two sons. The Lockharts owned a palatial home **[Photo]** at 608 North Highland Avenue, East Liberty. The home, which housed a great art collection, was torn down in 1952 and the land donated by Lockhart's descendants to the Pittsburgh Theological Seminary, which was built there in 1954. As stated in *Collecting in the Gilded Age*³⁴, the Lockhart art collection predated those of some more famous Pittsburgh millionaires by at least a decade, and can be said to have helped set the standard at the time. [The Lockharts'] "collecting patterns suggest they were well informed about art and were prepared to take risks that set them apart from their contemporaries."

In the late 1940s George Lockhart, a grandson of Charles Lockhart founded an independent law firm along with other partners, now known as Kirkpatrick and Lockhart, a Pittsburgh firm. Another branch of the Lockhart family now manages the McCune Family Foundation of Pittsburgh³⁵.

Charles Lockhart died on January 26, 1905 in Pittsburgh, at age 87, and was buried in Allegheny Cemetery.

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Note: Some references and text material quoted in this article use the name Pittsburg for the city currently known as Pittsburgh. These are not misprints; at certain times in the past, Pittsburg was the official spelling.