

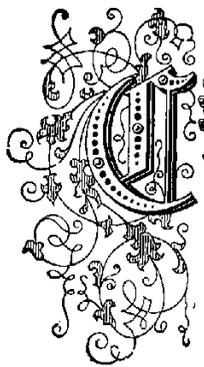
CHICAGO
Past and Present



PHOTOGRAPHICALLY ILLUSTRATED

BY

J. LANDY.

A large, ornate, blackletter-style initial letter 'C' is positioned on the left side of the page. It is highly decorative, with intricate flourishes and scrollwork extending from its base and sides. The letter 'C' is the first letter of the word 'Cincinnati' in the title.

Cincinnati Past and Present:

OR,

Its Industrial History,

AS EXHIBITED IN THE LIFE-LABORS OF ITS LEADING MEN.

BY

M. JOBLIN & CO.

Photographically Illustrated

BY

JAMES LANDY.



CINCINNATI:

PRINTED BY THE ELM STREET PRINTING COMPANY, NOS. 176 AND 178 ELM STREET.

1872.



LANDY PHOTO.

CINCINNATI O.

T. R. SCOWDEN.

DISTINGUISHED among the sons of Cincinnati, who have added to her reputation by scientific attainments, is the eminent engineer whose name heads this article. Like the majority of those who have battled with the hardships and vicissitudes of life his success is due to a peculiar social and professional adaptation, self reliance, firmness of purpose and the untiring pursuit of an object.

Theodore R. Scowden, son of Theodore Scowden, of Pittsburg, Pennsylvania, was born June 8, 1815. On leaving college his preference for mechanics led him to apprentice himself to Harkness, Pierce & Co., where he received his first lessons in engine building. During his boyhood he planned and built a miniature steamboat, twenty-four feet long, fitting up all the machinery himself. It was then he also conceived the designs for his famous revolving, breech-loading, self-firing cannon, discharging sixty rounds of cartridges per minute. It was perfected when he was twenty-two years of age. Many of our older citizens still remember the excitement created at the successful trial of this novel invention. Mr. Scowden retains the original drawings of his cannon yet, although designed thirty-five years ago. It was the first revolving, breech-loading fire arm that was ever invented. He next engaged himself as engineer at the old rolling mill, on East Front Street, then owned by Shreeve, Steele & Co. But a desire to learn more of his profession, for he was already studying every spare moment to qualify himself for it, induced him to accept a position as engineer on one of the western steamers. While serving in this capacity he invented and applied the first steam dial indicator, which has since come into such general use, and published a small work containing a table, with explanations and useful rules for engineers, and which is still highly valued by his old steamboat comrades for its practical worth. Subsequent to this he built a model of a machine called a "Fire Escalade," which, although not appreciated by the public guardians of Cincinnati at the time, received the approval of the press and many citizens who were eminently qualified to be judges of the practicability of the invention.

About 1845 Mr. Scowden was appointed engineer of the Water-works, in this city, the primitive works then existing being inadequate to its increased wants. The water was conveyed in log pipes, and the work before Mr. Scowden was to replace these logs by iron pipes, and design and erect new works. Being obliged to place the new reservoir and engine-house in the exact spot of the old, and at the same time keep up the supply of water to the city, the construction was necessarily extended through nearly seven years; during which time from forty to fifty miles of iron pipe were laid, and a reservoir of great capacity constructed. This was his first great public work completed, and it was a perfect success. The first low-pressure engine ever successfully used in the Ohio and Mississippi Valleys was designed by Mr. Scowden and introduced into these works. It was found that the sedementary matter of the Ohio River cut the valves in the condensing apparatus, and so destroying the vacuum rendered the working of the engine ineffective.

This our subject overcame by introducing vulcanized india-rubber valves seated on a grating. It was also while engaged in these works that he invented and put in use his stop valve for water pipes, which like all his inventions was valuable for its simplicity and economy.

In 1851 Mr. Scowden was commissioned by the city of Cincinnati to make the tour of England and France for the purpose of examining the principles and workings of public docks, sewerage, paving and water-works. After returning and making his report, he resigned his post and went to Cleveland for the purpose of constructing the water-works now in operation in that city; the engineering difficulties to be surmounted in the erection of which work were of so extraordinary a character that Mr. Scowden's most sanguine supporters doubted his ability to overcome them; but modest confidence in his own resources sustained him until success rewarded him with the recognition of his rank among the ablest engineers in the country. We will here give a brief history of the principal public works upon which Mr. Scowden has been engaged since the completion of the Cincinnati Water-works, as furnished by another pen, and commencing with those of Cleveland:

In order to avoid the pernicious discharges of the Cuyahoga River he had no alternative but to erect the works on a low marshy shore, bordering on the old bed of that river, where iron rods twelve feet long would sink out of sight lengthwise from their own weight. The foundations were begun by floating the timbers to their places and bailing out the treacherous material underneath two feet in depth, which was then refilled with gravel, and the spaces between the timbers, a foot in width, were packed closely with concrete. Then a second row of timbers crossing the first thoroughly interlaid with concrete formed the bed for the engine-house foundations; a model piece of masonry composed of inverted arches, so accurately planned and constructed that when the large superstructure, the immense Cornish engines and pumps, boilers, houses and stand-pipe tower, containing a heavy wrought plate pipe filled with a column of water thirty-six inches in diameter and one hundred and sixty feet high, were completed, their immense weights were so carefully estimated and equally distributed over the foundations that to this day not a crack has appeared in the whole building, nor can a ripple of water be discovered in a vessel placed upon the top floor of the house, while the immense walking beams, weighing forty-six tons each, are in motion. The violent gales upon the lake discolor and affect the water near the shore so unwholesomely that a large wrought plate pipe several hundred feet in length was laid under the bed of the lake, the pipe having an iron tower at its extremity projecting above its surface to prevent the sand from entering and obstructing the water-way. This iron water-way was connected at the shore with a spacious brick aqueduct three thousand feet long, during the construction of which Mr. Scowden had to again encounter the doubts of his friends and scientific men relative to the success of building a large aqueduct through this floating quagmire. A high railroad embankment had first to be tunneled and passed through, then came a long dreary waste of marsh, quicksand and springs, three thousand feet in length, to excavate, dam off, and keep pumped out while the aqueduct was being built; yet so thoroughly and skillfully was all this accomplished that no flaw shows in any part of this long structure.

Mr. Scowden's difficulties did not end here; for on account of the level nature of the country, the reservoir had to be placed upon a high embankment made of earth, which was built up in layers of two feet in thickness, each layer carefully wet and packed before the next was begun; and so it was constructed to the top, until Cleveland has now a reservoir with a head of water, above the highest point in the city, of eighty feet. Still the Cuyahoga River had to be crossed to supply East Cleveland with water; this was effected by dredging out the bottom of the river to a considerable depth, and sinking a large wrought plate pipe across the river, connecting at the shore with the main distributing pipes on each side. In the short space of two and one-half years this arduous enterprise was completed and put in successful operation, a specimen of work, in its standard of engineering scale and working capacity, that ranks with the first in this or any other country, and probably the only instance on record where a large heavy structure and long aqueduct were ever built in swamp and quicksand without the aid of a costly system of piles.

In 1857 Mr. Scowden commenced the construction of the water-works at Louisville, Kentucky. A water supply was found about four miles above the city, at a desirable point, where deep water flows by the shore and a high range of hills near by affords an excellent site for a reservoir. The works are distinguished particularly for the beauty of their design and accurate workmanship, the large Cornish engines performing their "duty" so smoothly and noiselessly that scarcely a sound can be heard or a jar felt in the pumping house. The architecture is of the Corinthian order, a main building, with a large front pediment supported by massive Corinthian columns forming the front, with wings for boiler houses on each side. Immediately in front, at a short distance from the engine-house, the stand-pipe tower is situated, a beautiful Corinthian column, one hundred and ninety feet high, surrounded

at its base with steps leading to a circular portico which is supported by ten Corinthian columns, the entablature surmounted with a balustrade, and pedestals over each column bearing statues of Ceres, Flora, Diana and the Horæ in part. Of the delicate beauty of the house and tower Mr. Hermany, the present engineer in charge of the Louisville Water-works, thus reports: "These structures are so symmetrical in their individual proportions as well as their relative locations as to present to the observer, from whichever standpoint, the river, the road, the reservoir, hill, or from within close proximity he may view them, a beautiful architectural picture, which lacks nothing to complete it. The reservoir is situated on a neighboring hill, close to the engine-house, having a head of eighty-one and one-half feet above the level of the city." Of the Louisville Water-works completed, the present engineer thus speaks in his report: "The principle of order and beauty, ever inseparable from utility, pervades the works from beginning to end, and the city of Louisville is particularly indebted to T. R. Scowden, chief engineer of the works, for the taste, skill and capacity displayed in the selection of the efficient and beautiful site, designing the engines, buildings, and all that pertains to the works, and furnishing the requisite information to all engaged for the successful construction of their respective branches." No more need be said, for this deserving tribute from an eminent brother engineer must certainly afford Mr. Scowden just pride.

Soon after the completion of this work the steamboatmen's and merchants' convention, held in Louisville in the latter part of June, 1859, for the purpose of considering the proposed improvements at the Falls of the Ohio, to which the following gentlemen from Cincinnati were chosen delegates: William Hooper, Richard Smith, Lewis Whiteman, Samuel Davis, Jr., Edmund Dexter, William Glenn, W. W. Scarborough, Thomas Sherlock and John Williamson, to which body Mr. Scowden submitted a map of the Falls of the Ohio, with plans for the enlargement and extension of the old Louisville and Portland Canal, which received the unanimous approval of the convention. Soon after this Mr. Scowden was appointed engineer by the canal directors, and as the history of this important public improvement is interesting to every business man in the West, we annex it to his sketch.

As soon as the preliminary surveys, specifications and plans could be made, the work was promptly begun by contract, in the fall of 1860, at prices much lower than the engineer's estimate; but the system and energy with which the work was prosecuted by the contractors not only proved they would make fair profits, but promised an early completion of their contract; promises, though, that were soon turned to discouraging uncertainty and heavy losses from the effects of the war. Material and labor quickly advanced three hundred per cent., but notwithstanding these unlooked-for consequences the work was pushed on with undiminished vigor. The earth excavation in the branch canal, five hundred and forty-three thousand and ninety-six cubic yards, was soon completed by means of steam excavators, and the large earth embankments on each side of the branch canal were formed by raising the earth to the top of the high banks, up inclined railways, by stationary steam engines, then carried off by cars on portable railway tracks to their place of deposit. The rock excavation in the branch canal, one hundred and sixty thousand four hundred and sixty-two cubic yards, was likewise disposed of by steam, steam drills being employed in connection with large gangs of quarrymen to make the excavations, and portable steam derricks were used for handling the large masses of stone, which were removed in the same manner as the earth; some of it placed at convenient points to be afterward returned for backing in the lock walls, and the rest of it deposited on the river shore to protect the banks from washing. It may be safely said that in no work in America or in the Old World was there ever better or more complete machinery used to execute such work as was done upon the canal; for both the contractors and the engineer, assisted by the earnest co-operation of the canal directors, left no means untried to provide the latest and best facilities used on public works to hasten the completion of the canal. The rock bar, under water, at the mouth of the locks, could not be worked by hand on account of the swift current which sweeps past the shore at the foot of the falls, so heavy steam drills and chisel boats were anchored into the channel and the excavation was successfully completed by them. The material which was not washed away by the strong current was loaded upon barges by floating steam derricks and dredge boats; it was then boated off and deposited on the river shore below the mouth of the locks to protect the river slope, as was likewise the slate rock which was taken from the branch canal used for the same purpose above the mouth of the locks; so that no injury can ever be done to the locks from the destructive cutting of the river banks in the neighborhood of the falls, a danger Mr. Scowden has thus cautiously guarded against. During the time these extensive excavations were progressing to their end, the stone for the lock and bridge masonry was being quarried and cut at a sandstone quarry in Indiana, one hundred and twenty miles down the river. Every course in the lock and bridge masonry on the canal is two feet in thickness. Each stone was shaped from a full-sized diagram prepared by the engineer and cut so accurately from it that a mallet and chisel were never used upon a stone delivered at the canal, but each one went to its particular place with the nicety of machinery.

On the 21st of September, 1862, the corner-stone of the largest locks in the world was laid, and so quietly done that no one but the workmen, who gathered around the engineer, when he was setting the massive block to its place, knew the great work had begun. The contractors desired to make a public demonstration when the first stone was

laid, but Mr. Scowden, with characteristic modesty, persistently opposed it. The lock masonry, like every other branch of the work, was constructed by means of steam machinery, movable steam derricks and immense carriage cranes being used in raising and lowering the large stones to their places.

While this work was being thus energetically prosecuted, the excavations and embankments on the enlarged canal were carried on with equal vigor, large gangs of men being employed along its whole length. One force was building the long wing dam on the rocks at the head of the canal; some excavated the solid rock for the guard lock, near the upper end of the canal; the walls of which were soon completed by the masons; others were taking down the old walls that lined the old canal; more were building the long dry walls; others were blasting out rock for increasing the width of the canal, and another large force was finishing the iron swing bridge across the canal. About this time, and when the lock masonry was about half completed, at the gloomiest period of the war, Mr. T. D. Barton, leading contractor, was fatally injured by falling from one of the elevated railways for transporting stone. The rebels had captured one of the company's steamboats, used for towing the barges, loaded with the lock stone from the quarry to the canal, and the prices for labor and materials had reached such an extravagant rate that the Hon. James Guthrie, president of the canal, by order of the board, increased the contract prices to a reasonable figure. With commendable zeal the work was still pushed steadily forward till all the lock gate timbers were finished and stacked up; all the gate machinery was completed and delivered; the bridges (two iron swing bridges) were built; and the lock masonry was nearly done when Mr. Guthrie, by another resolution of the board, released the contractors from their unfortunate contract. Then the work was given in charge of Mr. Scowden to continue till all the money in the hands of the Canal Company should be consumed. This money was so prudently expended that the engineer was enabled to have all the stone used in the construction of the locks delivered at the canal, and the last stone laid in the lock walls was set to its place in October, 1865. But before the coping course of two of the mitre sills laid across the bottom of the locks, for the gates to leap against, could be set, the work was reluctantly suspended for the want of money, not one of the least unfortunate results of our late unhappy war.

As we have said before, the locks of the Louisville and Portland Canal are the largest in the world, not excepting the Suez Canal. The masonry can not be excelled in design and workmanship by any ancient or modern work, each lock being three hundred and fifty feet long and eighty feet wide, and the whole lift in both locks twenty-six feet. The quality of the masonry of the locks and bridges can best be understood by a description. Every course is uniformly two feet in thickness, composed of alternate headers and stretchers. Each header is three feet wide on the face and laps back six feet on the wall, and each stretcher is seven feet long with a three feet bed. Every stone, the straight headers and stretchers, the hollow and square quoins, the curved stones, the steps, mitre sills, breast walls, bridge piers, bridge abutments and parapets, are all cut from iron patterns prepared under the direction of the engineer. The masonry was laid in the best hydraulic cement, the backing in every course being thoroughly grouted and set before the next course was begun.

Before suspending the canal, Mr. Scowden, as is his custom, carefully revised the plans of each department of the engineering, showing every detail of the work. Maps, profiles and cross sections were also drawn, representing the amount of work done; and monthly estimates clearly defining the character of the work finished each month, including measurements and cost, together with a final estimate, were made and left for record in the hands of the canal directors. Mr. Scowden has adopted this rule for the double purpose of reference and investigations, and for facilitating future repairs or extensions from his original plans.

The burden of enormous prices for labor and material was not the only evil the war brought upon the canal. When we consider that one of the contractor's tug boats was captured and burned by the rebels, and the other two were frequently pressed into the Government transport service, and that their dredge-boats were taken to Vicksburg and performed an important part in excavating Grant's famous cut-off, and that the hands on the canal were often compelled to build roads, rifle pits and fortifications about Louisville, and that the engineers, contractors and all were employed in building plank roads and a pontoon bridge across the Ohio when Bragg threatened Louisville, and that a strong guard was stationed at the engineer's office, under his orders, to protect the work, some idea may be formed of the difficulty and patience required in managing such an extensive work in those troublous times, a difficulty which would have stopped the work early in its progress had not the canal directors, led by the stanch, clear-headed Guthrie, lent their valuable aid and counsel to the engineer.

During Mr. Scowden's residence in Louisville, he, in connection with the Hon. James Guthrie, Joshua Speed, and a few others, organized a company which established a bank and bought up the water power and celebrated cement lands and mills on the Kentucky side of the falls, forming one of the largest manufacturing concerns in America. This concern is making as good quality of

cement as is produced in the world, in such large quantities that most of the South and West are supplied from their mills. The works have been extended since the Company was founded to the cement lands in Indiana, and embrace steam barrel factories, white lime works, etc.

Mr. Scowden having large real estate interests in Cleveland, Ohio, and one of the most beautiful homes on the justly celebrated Euclid Avenue, concluded to remove there and engage in the manufacture of iron. He built a rolling mill for the American Boiler Plate Company; after this a steel manufacturing company organized in New York for the purpose of developing the Barron patent steel process, requiring an engineer and practical iron worker to construct their works, Mr. Scowden was engaged for that purpose, taking considerable stock in the Company himself. With his accustomed industry and clear practical method he soon developed steel by the process equal to the best in the market. A branch concern is already established and at work in Louisville for supplying the Southern trade, which in connection with another branch to be built at Cincinnati must eventually do a heavy business in the West and South. After the steel works were put in working order Mr. Scowden was appointed engineer of the Newport Water-works; and was subsequently employed by the Cincinnati Council and Water-works Trustees to survey the river shore above the city on the Ohio side, for the purpose of locating new water-works for the city. He was also engineer for the Dubuque Water-works, which were completed last fall, and consultant engineer for the Cleveland Water-works. In January, 1872, the canal directors fearing the lock gates would prove too weak, from trials recently made, they sent for Mr. Scowden to plan additional braces and tension rods to strengthen the new gates, which was soon done, and the gates put in working operation, when he had the honor of opening the canal to commerce on the 26th of February, 1872, when the first steamboats were locked through the canal.

Mr. Scowden has in a great measure hidden himself from public notice. Never voluntarily appearing in print, and shrinking habitually from newspaper notice, he relies wholly upon his works to prove his engineering capacity; and his systematic method of recording his plans and estimates in every detail, explain and testify to the economy and uprightness of his management. And there can be no plainer evidence of his correctness in this direction than to say that upon every enterprise in which he has been engaged, when future extensions and enlargements were to be made, he has always been employed to plan and supervise the additions, and upon no branch of any of the works he has finished, from the time he started at the Cincinnati Water-works, a young man, till now, has any accident or mistake occurred in any of his operations. This skill has not been acquired without a great deal of labor, many long years of practical working, and many weary hours of hard study and investigation.

In his business habits he is methodical and exact, and gives attention to the minutest detail of his engineering projects; and being cautious, economical, energetic and precise, it is not strange that he has been so singularly successful in all undertakings. He is of a genial and frank disposition, and devotedly attached to his home, which he has beautified with artistic care. Situated on Euclid Avenue, in Cleveland, the grounds surrounding the house are ornamented with drives, walks, statuary, artificial cliffs, cascades, miniature ruins, alpine scenes, rustic bridges, graceful arrangement of shrubbery, etc., from designs made by himself. We trust he may long live to enjoy the fruit of his labor, and the esteem of the large circle of acquaintances that his sterling qualities have won for him.