"URBS RECONDITA."

HISTORY

OF

CHICAGO.

FROM THE

EARLIEST PERIOD TO THE PRESENT TIME.

IN THREE VOLUMES.

VOLUME III.—FROM THE FIRE OF 1871 UNTIL 1885.

BY A. T. ANDREAS.

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1886.

MAIN BRANCH.

Street.	Length.	Width.	Material.	When built.
Rush	240	59	iron	1884
State	184	36	iron	1872
Clark	180	37½	combination	1872
Wells	190	35¼	iron	1872

SOUTH BRANCH.

Street.	Length.	Width.	Material.	When built.
Lake	185	33	combination	1859
Randolph	157	34	iron	1864
Madison	157	31½	iron	1857*
Adams	160	32	iron	1872
Van Buren	163	34	combination	1872
Harrison	175	31	iron	1877†
Polk	154	31	iron	1872
Twelfth	202	32¾	combination	1868
Eighteenth	175	32	combination	1868
Twenty-second	210	32	combination	1871
Archer Avenue (Ogden Slip)	115	40	combination	1871
South Halsted	150	31¼	iron	1872
Main	152	29	combination	1868

*Main structure re-built in 1875. †Begun in 1872.

NORTH BRANCH.

Street.	Length.	Width.	Material.	When built.
Kinzie	170	31½	combination	1870
Indiana	163	32	combination	1869
Erie	200	32	combination	1871
Chicago Avenue	175	32½	combination	1872
N. Halsted and River	140	20	combination	1866
N. Halsted and Canal	228	32	combination	1874
Division and River	180	29	iron	1869
Division and Canal	176	--	combination	1870
North Avenue	150	29	combination	1865
Clybourn Place	140	32	combination	1873
Fullerton Avenue	125	20	combination	1875

SOUTH FORK OF SOUTH BRANCH.

Street.	Length.	Width.	Material.	When built.
Fuller	127	19½	combination	1865
Archer	152	28¾	combination	1870
Douglas	141½	21⅓	combination	1874

WEST FORK OF SOUTH BRANCH.

Street.	Length.	Width.	Material.	When built.
Ashland Avenue	160	20½	iron	1883
Western Avenue	118	18	iron	1881

ALEXANDER KIRKLAND, commissioner of the Department of Public Buildings, is a sturdy, educated Scotchman, and his life experience has well qualified him to perform his duties. Born in Kilbarchen, Renfrewshire, Scotland, on September 24, 1824, his father had already been retired on account of wounds he had received as a captain under Wellington at Waterloo. He also served under that great commander in the Peninsular campaign. Captain James Kirkland died in 1859. Young Kirkland attended the parish school of his neighborhood, finally entering the high school at Glasgow and subsequently the college, from which he graduated in 1844. During his collegiate course, Mr. Kirkland had commenced the study of architecture and engineering, and, after completing his studies, he successfully practiced his profession for over twenty years. In 1868, he came to this country, locating in Jefferson County, Wis. Three years afterward he removed to Chicago, and, in May, 1879, was appointed commissioner of public buildings. Mr. Kirkland's first wife, Jane Hewittson, died in 1847. In 1855, he married Miss Eliza Maria Kirkland, a second cousin. His two sons by his first wife are R. B. Kirkland, for four years district attorney of Jefferson County, and who has just formed a partnership with Congressman James H. Ward; and James K., the assistant manager of the machine shops of the Grand Trunk Railroad, at Port Huron, Mich. Jeannette Law, daughter by the present marriage, is now the wife of William Edgar, secretary of the Building Department. At present Mr. Kirkland is not connected with any secret society in this city, but while a resident of Scotland was a prominent member of the Masonic fraternity, and past-master of a flourishing lodge. He has been a member of the St. Andrew's Society since his arrival here, is an active worker in that body, and has three times been its president.

DAVID S. MEAD, secretary of the Department of Public Works, was born at Tarrytown, Westchester Co., N. Y., on July 13, 1827. His father, Ezra Mead, was one of the early settlers of Tarrytown, and fought through the war of 1812. His mother was Elizabeth Van Wert, whose family was identified with the capture of Major André during the struggle of 1776. Mr. Mead commenced his education at a select school, erected on the spot made historical by the execution of André. In 1836, his family removed to Orleans County, where his education was completed. In 1854, he moved to Buffalo, and was engaged in steamboating during the life of the passenger steamers plying between Buffalo, Cleveland, Toledo and Detroit, after which he entered the employ of the Toledo, Wabash & Western Railroad, having charge of the freight and ticket business at the western terminus of the line, then located at State Line City, Ind. He came to this city in 1865, holding important positions with the Merchants' Insurance Company of Chicago. He entered the employ of the city in 1867, and was assigned to duty in the Special Assessment Department. In August, 1876, he was appointed secretary of the Board of Public Works, under the administration of Mayor Rice, which position he still holds. Not being a partisan, he possesses the confidence and esteem of all political parties. Mr. Mead was married in October, 1850, to Miss Adelia L. Munn, daughter of Abner Munn, a well-known farmer of Orleans County, N. Y., and has two children,—Morton E. and Walter W. Although educated a strict sectarian, Mr. Mead is progressive and liberal in his religious ideas, and was among the first, with his family, to join in the organization of the Central Church Society of Chicago, of which he is now an officer.

JOHN M. BROWN, of the Bureau of Streets, Department of Public Works, was born in Chicago on March 15, 1858. He is a son of the late Hugh Brown, a builder and contractor, who settled here in the forties. Mr. Brown has held the position he now occupies since 1879, and to him is due the credit of compiling the street-paving statistics, published in the second volume of this History. His integrity and close attention to duty have won for him high encomiums from his superiors in the municipal government.

WATER DEPARTMENT.—The Water Department of the Board of Public Works suffered more severely in 1871, than any other branch of the supply service in the city. The fire of October 9 reached the Chicago pumping works at 3 o'clock Monday morning, and, although the walls of that structure were but slightly injured, the roof, floors, and other portions of the building were entirely destroyed. The water-tower was unharmed and the machinery only slightly damaged. The loss on the buildings and machinery was $75,000. The machine-shop, a substantial brick structure, 50 x 120 feet, was almost a total loss. The damage to the North and South division reservoirs amounted to $20,000, and their use was permanently discontinued. Some 15,000 water service pipes were melted and damaged, and a serious loss of water ensued. Great trouble was caused by débris covering the supply pipes and by the loss of water books.

The repairs to hydrants in the burned district aggregated $10,000, and 370 water meters were repaired and re-set at a cost of $6,000. On account of the immense waste of water, the amount pumped for six months ending April 1, 1872, was larger than at any other corresponding period in the history of the city, this loss of water costing the city $97,410. A set of water maps, showing the location of water mains, and the drawing of the details of the construction of the lake tunnel, were

destroyed. This latter, a record of one of the most important works ever undertaken by the city, received a prize medal at the Paris exposition of 1867. Numerous other papers and records in the engineer's office were burned, only a portion of some plat books being saved. The entire loss at the works was $248,910.

During 1871–72 no considerable amount of improvements were made, attention being mainly directed to the forwarding of work already commenced, and the repairing of the fire damage. The injunction suit, which had stayed the commencement of the new lake tunnel for eighteen months, was decided in favor of the city, and Steel & McMahon were awarded the contract for this work, which they commenced on July 12, 1872, with a limit for its completion fixed at July 1, 1874. The old tunnel of 1867 needed no repair, but the water works machine-shop was re-constructed as before. The engine of 1867 was put in operation October 17, that of 1857, November 10, and that of 1853, November 30; but being insufficient, in their operation, to the augmented needs of the city, a new engine was procured. This was put in place, except the setting of the boilers and the perfecting of the water and steam connections. Its adoption was found necessary immediately after the fire, the old engines, despite the fact that several factories near the river, private wells and artificial lakes had supplied some of the demand, forcing only a medium head of water.

In 1871–72 the quantity of water delivered was 8,423,890,966 gallons, being an increase of 497,206,126 gallons over the previous year. There were 91,129 feet of pipes laid, costing $316,165.19, making 287 miles and 3,581 feet then laid, 3,153 1456-2000 tons of pipe being purchased; 115 fire hydrants were erected, making a total in use of 1,667, and 3,187 taps were made. The receipts from all water assessments and taxes were $445,834.64; total income to April 1, 1872, $4,127,419.32. The total cost of additions to the works for the year was $432,719.29, the State appropriating funds for the January interest on the bonded debt. To the date named, including work then in progress, the total expenses of the water works were $4,712,615.18; paid for by 6 per cent. bonds, $1,030,000; 7 per cent., $3,790,000; making $4,820,000, less discount and cash, $953.517.88; amount of one mill tax of 1871, $289,746.47; balance from water rents, $556,386.59. The cost of delivering water in 1872, per million gallons, was $12.02.

During 1872, the Board of Public Works purchased a lot of ground on Canal A, at the intersection of Ashland and Blue Island avenues, containing 133,792 square feet, upon which it was designed to erect a new pumping works to supply the southwestern portion of the city. The new water-tunnel running to the crib, and thence by a land tunnel across the city, was to supply these works, and on this tunnel work was commenced on the shore end July 12, 1872, at the crib end October 2. The new engine at the water works, designed by Chief-Engineer Cregier, and constructed by the Knapp Fort Pitt Foundry Works, was completed and started to supply water to the city through a 36-inch main pipe on November 27, 1872. This engine completed the mechanical equipment of the works most perfectly. Its steam cylinders, 70 inches in diameter, had a 10-foot stroke, and rested upon plates supported by four 9-inch columns extending from lower plates, and the working beams were 28 feet, of cast iron, and weighed 20 tons each. The main columns were 24 feet 7½ inches from base of pedestal to top of cap, and weighed 17 tons each, serving as air vessels, and connected with the check-valve chamber by 30 inch pipe, the water-pumps having a diameter of 57 inches and a 10-foot stroke. The upper bed plate was 39 feet, 3½ inches long, weight 18 tons, the crank end resting on stone foundations, and the fly wheel was 25 feet in diameter and weighed 40 tons. There were three boilers, each 20 feet long, 12 feet in diameter and having sixty-six 5½ inch tubes. This splendid engine—which, with the boilers, cost $188,400—has proven its value and utility since being put in place, in 1873–74 pumping 58 per cent. of all the water delivered in the city, and during its first six and one-half months' operations, with two and one-half million revolutions, pumping 6,448,000,000 gallons.

By 1873, a long line of water improvements had been consummated, among them the completion of a new water tunnel on May 19, it having been commenced on January 15, and costing $13,279.70. This was under the river near Rush-street bridge. Two shafts, one 84 feet, at Michigan Avenue, and one of 68 feet, at Pine Street, were also sunk, to form a four hundred and ninety-two feet drift. The old pipes were broken, and this tunnel was increased in dimensions, shafts 8 feet, tunnel proper 6 feet in internal diameter, costing $13,279.70.

In July, 1873, the Department ordered the commencement of the land extension of the new lake-tunnel across the city to the West pumping works. Working shafts were sunk at Illinois, Franklin, Polk and Waller streets, and the fire shafts at Erie, Kinzie, Market and Taylor streets. The tunnel of 1867 had a capacity of 50,000,000 gallons, and cost to construct $457,844.95. The new one, with which the land extensions noted connected, had double this capacity, although its cost was only $400,000. On July 7, 1874, the land and water structures were both completed, and water turned in the water-tunnel, which cost $411,510.16 and the land extension $545,000. On October 26, of the same year, Murphy & Co., Quintard Iron Works, contracted to supply the two pumping engines for the West Division pumping works designed to cost $243,500, and to have a capacity of raising 30,000,000 U. S. gallons 155 feet high every 24 hours. The new crib structure was completed and telegraph cables extended through the tunnel to the same from the new pumping works. After the completion of the West Division pumping works, two new engines were added at that place, making ten engines in operation, with a combined capacity of 130,000,000 gallons daily. By 1884, the water system of the city had attained a marvelous perfection and utility.

For that year the total water delivered reached 29,286,584,465 gallons, a daily average of 80,017,900 gallons, or about 9 52-100 per cent. above the average of 1883. The cost of delivery was $187,697.46, average cost per million gallons $6.40 90-100. There were in use, of water pipes of 4 to 36 inches diameter, 543⅜ miles; total number of valves, 4,022; fire hydrants, 4,616; fire cisterns, 26; new house-service taps, 92,133; water meters, 2,685; water motors, 445. Of the water produced at a cost during 1884 of $202,604.27, the North pumping works supplied 15,405,650,785 gallons, with six engines, expense $133,250.07, and the West pumping works, four engines, 13,880,933,680 gallons, at a cost of $69,354.20. The water works receipts were $1,288,941.26, and the total expenditures, $1,152,044.15. Up to December 31, 1884, the total cost of the water works of the city was $10,099,658.07, of which amount only $1,020,160.21 was expended previous to 1861, when the works were transferred from the water commissioners to the Board of Public Works. The total revenue from water rents up to 1885, has been $15,530,071.67, the operating expenses and maintenance, including interest ($5,407,008.93) on bonded debt, and bonds cancelled being $11,878,555.40; the total surplus over expenses, $3,651,516.21. The amount of water furnished up to 1871 was 43,854,000,000 gallons, revenue $3,423.624.12, average revenue per million gallons, $74.53 7-10.

The following table shows the amount of water furnished and revenue received, year by year, since that time:

Year.	Millions of gallons furnished.	Revenue.	Revenue for million gallons.
1871	8,423	$445,834 64	$52 93
1872	10,051	544,465 90	54 17
1873	11,723	708,804 32	60 46
1874	13,903	705,926 64	50 77
1875	10,957	635,996 54	58 04
1876	15,346	771,940 38	50 30
1877	19,047	908,509 64	47 70
1878	19,564	944,190 97	48 31
1879	20,557	922,001 26	44 85
1880	21,002	865,618 35	41 21
1881	23,331	936,922 07	40 16
*1882	24,150	1,049,576 90	43 46
1883	26,742	1,142,868 54	42 73
1884	29,286	1,204,338 74	41 12

* In 1882, the water in the old tunnel was pumped out and an examination made to ascertain its contents and condition. On January 24, City Engineer Cregier and others made a personal inspection, and from the shore end to the crib found the tunnel without a crack.

internal diameter and 167 feet high, with a 30-inch branch pipe leading to the discharge mains of the engines. S. G. Artingstall designed the engine and boiler houses and the tower, Earnshaw & Gobel did the masonry work, Gindele Brothers the cut-stone work, and the American Bridge Company the iron work. There were six boilers, 7 feet long, with 68 four and one-half inch tubes in each boiler. In 1876, the extension to these works was projected, and was completed for regular service in July, 1884, the machinery being similar to that used in the main structure, at a cost of $257,500; the total being $371,681.01. The repairs to engines and boilers for eight years, ending with 1884, has been $9,640.17.

In 1884, these pumping works delivered 37,926,048 gallons per day, under a head of 90.5 feet, and at an expenditure of $69,354.20. The number of gallons pumped since the works were started, and cost of same, are given in the following table:

Year.	Gallons pumped.	Head.	Cost of repairs of engines and boilers.	Cost of repairs per million gallons.	Cost of coal per ton.	Cost per million.	Cost per million one foot high.
1877	7,088,127,000	109.0	$1,123 61	$0 15 85-100	$5 22	$6 66	$0 06 11-100
1878	8,418,918,000	106.0	583 66	06 93-100	3 67	5 45	05 14-100
1879	9,404,588,000	101.0	1,879 70	23 19-100	2 62	5 02	04 98-100
1880	8,648,673,000	98.3	366 96	04 24-100	3 60	5 15	05 24-100
1881	9,572,845,000	90.0	1,100 18	11 38-100	3 60	5 25	05 83-100
1882	10,000,750,000	88.2	854 90	08 64-100	3 90	5 00	05 68-100
1883	10,376,678,000	85.1	2,345 63	22 60-100	4 10	5 09	05 98-100
1884	13,880,933,680	90.5	1,285 53	09 26 100	2 96	4 96	05 48-100

The daily consumption of water per capita, in 1884, averaged nearly 114 gallons. There were in use at the end of that year, of 36-inch diameter pipe, 41,174 feet; 30-inch, 39; 28-inch, 160; 24-inch, 80,230; 16-inch, 68,143; 12-inch, 158,664; 10-inch, 8,012; 8-inch, 570,149; 6-inch, 1,176,369; 4-inch, 750,385; 3-inch, 15,637; total 2,868,962 feet or 543 1922-5280 miles.

On July 10, 1874, the Board of Public Works advertised for two pumping engines, with boilers capable of working separately or connected, with a capacity each of delivering fifteen million United States gallons of water daily, that were to lift above the surface of the water in the well 155 feet, and to consume not more than 100 pounds of coal per ninety million pounds of water raised one foot high. They were to be completed by October 1, 1875, and to be removed if they failed in any of the requirements made. These engines were designed for use at the West pumping works on Ashland Avenue, and the stringency of the terms to bidders was severely criticised at the time. The Quintard Iron Works, however, performed the work with A. A. Wilson as designing engineer and Henry Mason as superintendent of construction. The engines and boilers cost $243,500. The foundations for the engines and buildings were built by William D. Cox, with William Bryson as engineer in charge. These foundations included a weir well, supply and dry well, the land-tunnel being connected with the semi-circular weir well, 26 feet in diameter, by a branch tunnel 7 feet in diameter. The supply-well was 44 feet long and 10 feet wide. The foundation was built of large-sized blocks of stone, and the engine and boiler-houses were constructed of brick, with pressed brick and stone trimmings on front. The engine room was 100 x 66 feet, the tower 190 feet high, and the stand-pipe in the tower was five feet

HERMANN LIEB, formerly superintendent of the Water Department, was born in the canton of Turgau, Switzerland, on May 24, 1826. From the year 1845 until the revolution of 1848, in company with his elder brother, he followed mercantile pursuits in Paris, France. Entering the "Garde Mobile," after the eventful days of February, 1848, he took part in all the fierce conflicts which raged in the streets of the capital. Coming to America in 1851, he engaged in business in New York, afterward moving to Boston, and, in 1854, to Cincinnati. In 1856, Mr. Lieb located at Decatur, Ill. On April 15, 1861, two days after the bombardment of Fort Sumter, he enlisted as a private in what was subsequently Co. "B," 8th Illinois Infantry, under General Richard J. Oglesby. In July of the same year he was chosen captain of the company, serving in such capacity in the battles of Fort Donelson and Shiloh and the siege of Corinth. In the fall of 1862 he became major of the regiment, and accompanied Logan's Division to Vicksburg, where he was placed in charge of the skirmishers. At the battle of Milliken's Bend he received a painful wound in the leg, and obtained a month's leave of absence. Returning to his command, under orders from General Grant he raised a colored regiment of heavy artillery, whose subsequent record was of the best. He was afterward appointed inspector-general of the Department of the Mississippi, and was brevetted brigadier-general At the close of the War General Lieb went to Springfield, where he founded the "Illinois Post." Removing to Chicago in 1868, in partnership with Lorenz Brentano he started the "Abend Zeitung." Selling his interest in that paper in 1870, he went to Mississippi with the intention of making his home in the South. His German colonization scheme, however, proved premature, and failed. General Lieb came again to Chicago and founded the "German American." Subsequently he purchased the "Union," a German democratic paper, which, as the "Chicago Demokrat," is still published. In 1873, he was elected county clerk on the people's ticket, being succeeded in November, 1877, by E. F. C. Klokke. He assumed charge of the Water Department in August, 1879, and resigned therefrom, on account of political pressure, in 1885, leaving a most honorable record for rectitude throughout his public service. General Lieb was married to Miss Sarah Stevens, of Auburn, Maine, on December 2, 1869.

SEWERAGE SYSTEM.—The Sewer Department sustained a loss of $42,000 by the great fire, mainly con-