

## CHAPTER XII.

### GENERAL SANITARY CONDITIONS: THE SEWER SYSTEM, GARBAGE DISPOSAL, SMOKE INSPECTION AND BOARD OF HEALTH.

With the crowding of population, came the important questions of sanitation. Cleveland has been singularly free from great scourges. The early settlers suffered greatly from malaria, the ague driving many families from the river north to the bluff near Doan's Corners and Newburg. In 1832, the Asiatic cholera, prevalent in many American cities, reached Cleveland, and again in 1849 and 1854. There have been brief epidemics of typhoid and diphtheria, smallpox, and lesser contagions.

Cleveland is, however, a healthy city. The cool breezes of Lake Erie temper the summer's heat and the winter's cold, compensating in some degree for the prevalence of catarrh which their moisture brings.

#### SEWER SYSTEM.

The topography of Cleveland makes the problem of drainage comparatively easy. Most of the city is built upon a plain bisected by the valley of the Cuyahoga, and traversed by many brooks or runs, some finding their way directly to the lake, others merging with the river valley. Into these runs, and into the lake, the early sewers emptied direct. The first sewers were scarcely more than drains, and were built only for local purposes. There was no comprehensive drainage system. The city was divided into sewer districts only for purposes of taxation. The sewers in the different districts were of various levels; there was no common interceptor, and all of them sought the most direct outlet to the lake or the river for the discharge of their sewage.

There was a great deal of opposition to building these drains, arising from a conflict between the abutting property owners and the city, as to the relative amount each should share in the expense. In 1856 a state law was passed providing for the assessing of cost to abutting owners, and some years later the law fixed the ratio of expense between the city and the adjacent owner.

The early drains were built of stone or brick, primarily for the carrying of surface water, and were near the surface. Culverts were built along the streets for the same purpose. As the city grew and more extended sewers were necessary, the old drains had to be discarded.

The first official suggestion for a sewer system was made by Engineer T. R. Scowden, in 1853, as an appendix to his report on water works to the special committee of the city council. He detailed no plan, but advised a careful survey of the contours, and suggested two interceptors, one along the lake and the other parallel with the river. He said that the water works and sewerage system should be built together under the same authority.

The mayor, in his annual message in 1858, said: "the adoption of a general system of sewerage must follow as a necessary consequence of the introduction of water from our water works, but it is not necessary that this general system should be carried into effect all at once. It may be done gradually, to enable one or more main sewers to be constructed, as they may be needed, without the necessity of a loan of money and without the whole expense being required to fall upon the land adjoining the sewer. A law has recently been passed by the legislature authorizing main sewers to be constructed by special assessment upon all the lands benefited by the sewer. The passage of this law was hastened in reference to the immediate necessity of a main sewer from some point on Euclid avenue, to the lake, to carry off the water conducted upon it by a drainage of an area of more than two hundred acres."<sup>1</sup>

Nearly forty years elapsed before such a comprehensive system of sewers, was adopted by the city. The sewer mentioned by Mayor Starkweather, for the draining of Euclid avenue, was cut through the ridge on Sterling and Case avenues at a cost of nine hundred and fifty-two dollars and forty-three cents.<sup>2</sup> It was called the Sterling sewer, and was nine hundred and fifteen feet long. It was apparently only a drain for surface water.

In 1859 there was considerable activity in the building of sewers. A brick sewer was built on Willson avenue from near Euclid to Curtis avenue, fifteen hundred and forty-nine feet, costing two thousand, forty-two dollars and seventy-five cents. A sewer was also built the next year on East River street, costing two thousand, one hundred and eighty-four dollars; and one on Depot street; while the old stone sewer on Front street, one of the oldest in the city, was "relaid." The entire amount spent by the city in sewer and culvert repair and construction for the year, five thousand, nine hundred and sixty-seven dollars was considered a large sum for that purpose.

In 1864, Dr. John Dickinson, the health officer, complained of the great need of sewers. He says the channels in the gutters of the paved streets are not deep enough to carry away the surface water after a heavy rain, nor of sufficient grade "to keep the water from stagnating on them," especially on River, Superior and Ontario streets.

In 1865 a new state law enabled the city to greatly extend its system of sewers. Previous to that year, the city had built twenty-three thousand, one hundred and sixteen feet of sewers. In 1865 John Whitelaw became city engi-

<sup>1</sup> See Annual Report, 1858.

<sup>2</sup> See Engineer's Report, 1858.

neer, and he built twelve thousand, eight hundred and six and three-fourths feet, at a cost of twenty-nine thousand, six hundred and seventy-four dollars and twenty-two cents. In 1865-6, the principal sewers built were three thousand, three hundred and sixty-five feet on St. Clair street; six hundred ninety-three and one-fourth feet on Pearl street; two thousand, eight hundred and thirteen feet on Erie street; one thousand feet on Spring street; and two thousand, three hundred and forty-one on Oneida alley and branches.

In 1866 an ordinance was passed for building a main sewer on Case avenue from the lake to Kinsman street, and plans were made for an intercepting sewer from the lake "along the C., C., & C. R. R. track, and through East River, Merwin, James, Champlain and Canal streets, to Eagle street," designed to intercept "all the sewers now discharging, or that may hereafter be built and discharged, into the river, between the lake and Eagle street."<sup>3</sup>

In 1868 other large additions were made to the system; five and one-third miles of main sewers were built, costing two hundred and twenty-nine thousand, six hundred and eighty-five dollars and eighty-one cents, and including Case, Eagle, Sterling and Perry streets, while four and two-thirds miles of branch sewers, costing fifty-eight thousand, three hundred and ten dollars and sixty-nine cents were built. Bonds were issued to cover the costs of these improvements. In 1869, the Erie and Main street sewers were begun.

The period from 1865 to 1882, may be considered the second period of the development of the system. There was little change in the building of sewers, and the amount spent by the city from year to year varied with the funds available.

In 1880 agitation began for better sewers. The city engineer says: "If the city becomes a large city, it will need an intercepting sewer along the lake to Willson avenue."<sup>4</sup> In 1881, the mayor in his message says, the Cuyahoga river is "an open sewer through the center of our city."<sup>5</sup> And the city engineer reports that there are fifteen sewer districts, that ten main sewers east of the Cuyahoga river, and one west emptied into the lake, six main and submain sewers west of the river discharged into the river and four into Walworth run, eleven main and submain sewers east of the river discharged into the river, and four into Kingsbury run, making twenty-five sewers that discharged into the river, while the increasing number of factories and oil refineries added to the vile condition of the river. In April, 1882, the city council appointed Mayor Herrick, John Whitelaw, engineer of the water works, and B. F. Morse, city engineer, as a special committee, to make plans for a comprehensive sewer system. The committee retained Rudolph Hernig, C. E., of New York. On June 26, 1882, he reported, recommending an intercepting sewer to discharge into the lake at Marquette street. The rapid growth of the city has left Marquette street in the down town sections and it is fortunate the plan was never executed. A new law was passed by the legislature providing for the sale of five hundred thousand dollar sewer bonds and a board of sewer commissioners, composed of five members, appointed by the mayor and the council, to serve five years without pay to have charge of the

<sup>3</sup> See Engineer's Report, 1866.

<sup>4</sup> "Reports," 1880.

<sup>5</sup> "Annual Reports," 1881.

construction, maintaining and cleaning of sewers, but the board of improvements were to devise the plans.\* Later, under the federal plan, the board of control had charge of the sewers, and when the present code was enacted, the director of public service had charge of them.

In 1884 the city engineer made plans to better the condition of the sanitation of the river, first, by an intercepting sewer, second, by providing an artificial current in the river. The last project though several times suggested, has not been acted upon, but the first project was taken up, and the city council directed its attention to the problem of cleaning the river of its pollution. In 1885, it authorized the opening of a street in Walworth run valley, from Scranton avenue to Clark avenue, and in this street a main sewer was built to divert sewage from the river.

Plans for a comprehensive sewer system lay dormant until 1895, when Mayor McKisson appointed an expert sanitary commission for the purpose of studying the threefold problem of water supply, intercepting sewer and river purification. The commission consisted of Rudolph Hernig, C. E., of New York, George H. Benzenberg, C. E., of Milwaukee, Desmond Fitzgerald, C. E., of Boston, M. E. Rawson, chief engineer of the department of public works, and M. W. Kingsley, superintendent of the water works. The commission reported that the water supply be taken from a point far out into the lake, to the westward of the current discharged by the river and that an intercepting sewer be built, to discharge into the lake, some eight or nine miles east of the Public Square. A project for flushing the river, by discharging a supply of water into it, pumped from the lake through a large tunnel, to a point six miles up the river, was suggested but not recommended by the commission. The legislature; in 1896, authorized the issuance of seven hundred and fifty thousand dollars bonds for beginning the intercepting sewer, and plans were at once made for this enormous project.<sup>9</sup>

It was decided to build the west side portion of the interceptor first, on account of the urgent needs of that portion of the city. Accordingly, work was commenced on the Alger street section, in 1897. The same year, work on the Walworth run branch was commenced; these portions of the work were pushed rapidly toward the river. It was not until April, 1902, that construction began east of the river. This was at a point near the outlet, in Collinwood, on land purchased by the city. The work has steadily progressed from that day, and in a few years the interceptor will be completed. It is one of the great engineering achievements of our city. It is built of reenforced concrete, portions of it lined with brick, and its largest diameter is thirteen feet six inches. Portions of it were laid more than forty feet under the surface, and its outlet is nearly four thousand feet from the shore where it discharges through a vast pipe laid on the bottom of the lake, in about forty feet of water.

In April, 1909, there were five hundred and five miles of sewer in the city.

In 1858, "Rules relating to plumbers" were adopted by the city. They have been revised from time to time until they now are embodied in a voluminous plumbing code.

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\* Ohio Laws, April 16, 1883.

<sup>9</sup> For detailed account of this sewer, see address by Walter C. Parmley, "Association of Engineering Societies," Vol. 33, No. 5.