

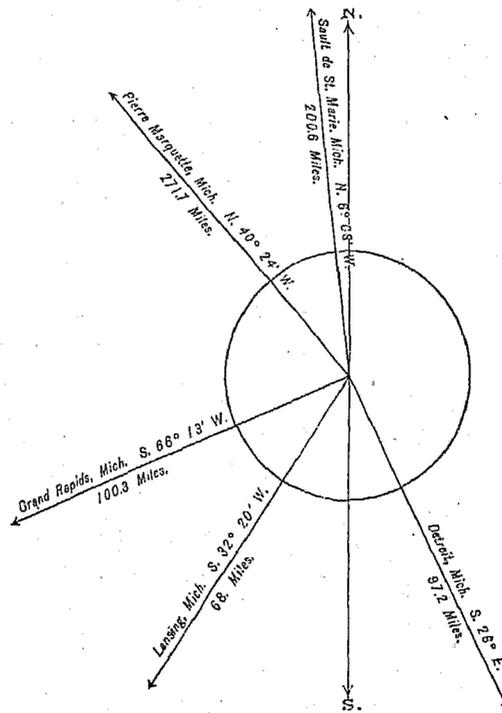
MICHIGAN.

BAY CITY, BAY COUNTY, MICHIGAN.

POPULATION

IN THE
AGGREGATE,
1860-1880.

	Inhab.
1790.....	
1800.....	
1810.....	
1820.....	
1830.....	
1840.....	
1850.....	
1860.....	1,583
1870.....	7,064
1880.....	20,693



Latitude: 43° 36' North; Longitude: 83° 53' (west from Greenwich).

POPULATION

BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male	11,318
Female.....	9,375
Native	11,389
Foreign-born	9,304
White.....	20,541
Colored	*152

* Including 1 Chinese.

FINANCIAL CONDITION:

Total Valuation: \$7,651,130; per capita: \$370 00. Net Indebtedness: \$438,470; per capita: \$21 19. Tax per \$100: \$1 86.

NOTE.—Bay City, the capital of Bay county, Michigan, is situated on the right (east) bank of the Saginaw river, 4 miles from its mouth and at the head of navigation. It was incorporated as a city in 1865. The principal trade of the city is in lumber and salt, immense quantities of which are produced. It is said to have excellent school facilities, a number of banks, two parks, the Holly water-works, and a street railway.

Three railroads run out of the city: The Detroit, Saginaw, and Bay City railroad to Detroit; a short branch connecting with the Flint and Père Marquette railroad, which has Toledo and Ludington as its terminals; and the Mackinaw division of the Michigan Central railroad, giving a line to Chicago. Several lines of steamers connect it with all lake points.

Bay county, of which Bay City is the capital, is drained by the Saginaw, Rifle, and Saganing rivers. The surface is nearly level, and is mostly covered with forests. The soil is fertile.

BAY CITY IN 1880.

The following is all the information that was furnished regarding the present condition of Bay City:

SANITARY AUTHORITY—BOARD OF HEALTH.

The board of aldermen of Bay City acts as a board of health. There are 14 aldermen, none of whom are physicians. The only annual expense of the board is for a health officer, whom it appoints, with a salary of \$400 a year. In the absence of epidemics the board has power to order nuisances abated; in their presence, to do any thing which in its judgment is necessary to stop the spread of disease. The chief executive officer of the board is the mayor, who has no salary. The health officer has power to make complaints to the police, who make the arrests; he makes all inspections, and in general looks after all such matters. Defective sewerage, street-cleaning, etc., are looked after principally by the street commissioner. Garbage is treated like any other nuisance when it becomes a nuisance. There is an ordinance against polluting streams and rivers, also one for the removal of excrement by an odorless machine.

INFECTIOUS DISEASES.

Small-pox patients are taken to the city pest-house, situated in an isolated spot near the city limits. There has been very little scarlet fever in Bay City, and the patients were not isolated or quarantined at home. In case of the breaking out of contagious diseases in a school it would be closed for a while. Vaccination is neither compulsory nor is it done at the public expense. Once a year the supervisors of each ward canvass their ward and report all births and deaths to the county clerk, receiving 10 cents for each birth or death so reported. The city is very healthy. Ague is not uncommon.

MUNICIPAL CLEANSING.

Street-cleaning.—The streets are cleaned by the city's force by hand once a week, and it is reported to be well done. The annual cost to the city is about \$500. The sweepings are deposited in the low places in the streets, or used for making docks, or for manure.

Removal of garbage and ashes.—Garbage is generally removed by householders, being placed in vessels and removed at intervals. While awaiting removal it must be covered up in barrels. Most of it is removed by those who wish it for swine, cows, or manure. Ashes are taken by soap or potash manufacturers.

Dead animals.—Dead animals found in the street are buried by order of the city marshal at the city's expense, provided the owner can not be found. The cost of this service is perhaps \$50 a year.

Liquid household wastes.—Chamber-slops, laundry waste, and kitchen-slops are either run into the sewers, or into privy-vaults, or are thrown on the gardens. Cesspools are porous and have no overflows. Street-gutters are flushed only by the rain. No contamination of drinking-water ever occurs, since almost all the water used in the city comes from Saginaw bay through the system of the Holly water-works. As the city grows older better sewerage is expected. There are several brick 4-foot sewers now under way.

Human excreta.—Almost all the houses of the city have privy-vaults, the business portion alone depending on water-closets. Very few privy-vaults are even nominally water-tight. The ordinance about them provides that they shall be walled up with 2-inch plank, or with brick or stone, and be sunk at least 4 feet below the level of the earth; if there be a public sewer within 100 feet the vault must be drained into it.

Manufacturing wastes.—There are no manufacturing establishments in Bay City which have any wastes to amount to any thing. The saw-mills burn all their sawdust and slabs.

MANUFACTURES.

The following is a summary of the statistics of the manufactures of Bay City for 1880, being taken from tables prepared for the Tenth Census:

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
All industries	80	\$1,235,500	2,096	21	151	\$802,488	\$3,851,553	\$5,533,621
Cooperage	6	10,200	39		4	19,220	30,100	60,450
Foundry and machine-shop products	9	278,000	322		5	126,583	176,200	340,695
Lumber, sawed	22	3,042,000	1,079		95	351,500	2,831,608	3,702,298
Salt	20	673,000	405		21	191,642	296,297	707,741
All other industries (a)	23	232,300	221	21	26	113,543	517,848	722,437

a Embracing blacksmithing; boots and shoes; carriages and wagons; clothing, men's; flouring- and grist-mill products; liquors, malt; lumber, planed; mineral and soda waters; molds and patterns; needles and pins; sash, doors, and blinds; slaughtering and meat-packing; tinware, copperware, and sheet-iron ware; tobacco, cigars and cigarettes; and wooden ware.

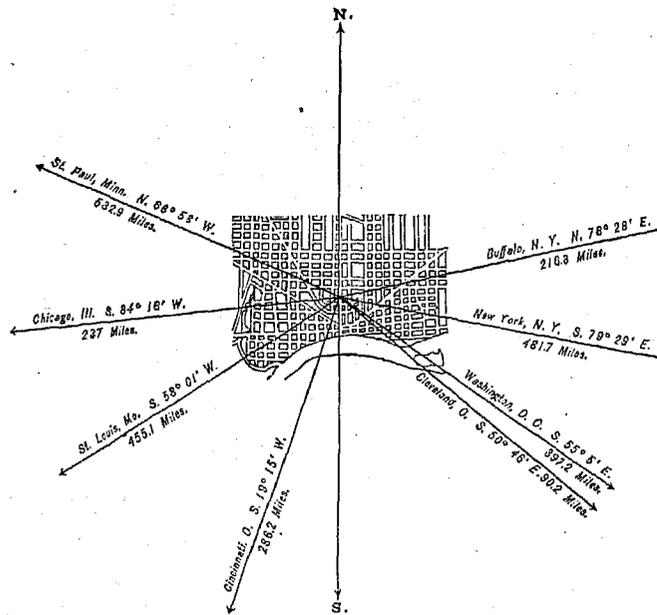
From the foregoing table it appears that the average capital of all establishments is \$52,943 75; that the average wages of all hands employed is \$358 90 per annum; and that the average outlay in wages, in materials, and in interest (at 6 per cent.) on capital employed is \$61,352 13.

DETROIT, WAYNE COUNTY, MICHIGAN.

POPULATION

IN THE
AGGREGATE,
1820-1880.

Year	Inhab.
1790.....	.....
1800.....	.....
1810.....	.....
1820.....	1,422
1830.....	2,222
1840.....	9,102
1850.....	21,019
1860.....	45,619
1870.....	79,577
1880.....	116,340



POPULATION

BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male	56,763
Female	59,577
Native	70,695
Foreign-born	45,645
White	113,475
Colored	*2,865

* Including 10 Chinese and 34 Indians.

Latitude: 42° 20' North; Longitude: 83° 3' (west from Greenwich); Altitude: 580 to 635 feet.

FINANCIAL CONDITION:

Total Valuation: \$83,198,040; per capita: \$715 00. Net Indebtedness: \$2,282,772; per capita: \$19 62. Tax per \$100: \$1 46.

HISTORICAL SKETCH. (a)

Near the outlet of lake Erie, on the northern shore, a trading post was established, to which was given the name "Fort Frontenac", in honor of the governor-general of New France.

In 1678 La Salle returned to France and obtained royal letters authorizing him to spend five years in exploring, with liberty to build forts where he should deem it necessary, and hold them with the same privileges as at Fort Frontenac. On his return from France he traversed the length of lake Ontario, ascending the Niagara river to the falls, where he made the portage, and in the winter of 1678-79 he began building a vessel of 60 tons burden a few miles above the falls. This vessel was called the "Griffin", and on the 7th of August, 1679, she set sail on the

a J. C. Holmes, esq., of Detroit, not only collected and forwarded nearly all the statistical information regarding the city, but also much of the information contained in the historical sketch with which this report is introduced.

first voyage which had ever been made by Europeans on lake Erie. La Salle was the commander, and the crew consisted of fur-traders belonging to Canadian colonies. The wind being favorable, she made a quick passage over lake Erie and anchored at the mouth of the Detroit river on the evening of the 10th of August. On the 11th of August, 1679, the Griffin weighed anchor and entered the river, and it is recorded that on ascending it the explorers found along its banks several Indian villages. A large village of the Hurons, called "Tenchsa Gromdie", stood on the present site of Detroit. The Griffin proceeded on her way, and soon after reached Mackinac in safety.

La Motte Cadillac was the founder of Detroit. In 1701 he planted the little military colony which time has transmuted into a thriving American city. At an earlier date some feeble efforts had been made to secure possession of this important pass, and when La Houtan visited the lakes, a small post, called fort Saint Joseph, was standing near the present site of fort Gratiot. At about this time the wandering Jesuits made frequent sojourns upon the borders of the Detroit river, and baptized the savage children whom they found there.

Fort Saint Joseph was abandoned in the year 1688. La Motte Cadillac's enterprise was destined to a better fate. In 1699 he first proposed to the French government to make a settlement for habitation at Detroit, but finding he was not likely to succeed in his scheme by correspondence, he went to France and laid his plans before Pontchartrain, the prime minister of Louis XIV. The result was that he was informed by the minister that he should have 200 men of different trades and 6 companies of soldiers.

On his return from France he reached Quebec on the 8th of March, 1701. He left for his new post on the 5th of June with 50 soldiers and 50 artisans and tradesmen. They reached the site of Detroit on the 24th of July and began to build a fort, which was called fort Pontchartrain, after the friendly minister who had favored it. This fort was about 200 feet square, encircled with cedar pickets, with wooden bastions at each angle. Within this inclosure Cadillac caused a few log huts to be erected, the roofs of which were thatched with grass.

Detroit soon rose to distinguished importance among the western outposts of Canada. In December, 1750, the late Governor De la Gallissonière prepared an elaborate memoir on the French colonies, in which he said:

Detroit demands now the greatest attention. Did it once contain a farming population of 1,000, it would feed and defend all the rest. Throughout the whole interior of Canada it is best adapted for a town where all the trade of the lakes would concentrate; were it provided with a good garrison and surrounded by a goodly number of settlements it would be enabled to overcome almost all the Indians of the continent. It is sufficient to see its position on the map to understand its utility.

In pursuance of these suggestions, in 1751 emigrants were sent out from France, and advances were made to them by the government until they were able to take care of themselves. At the close of the French war, as Major Rogers tells us, the place contained 2,500 inhabitants. The center of the settlement was the fortified town, currently called "the fort". Above and below, both sides of the stream were lined with small Canadian dwellings, extending at various intervals for nearly 8 miles. Each had its garden and its orchard, and each was inclosed by a fence of rounded pickets. The farms attached to them were long and narrow, fronting on the stream. The titles to these were generally derived from the governor-general, but permits to occupy were sometimes granted gratuitously by the French commandants. These grants and rights to occupancy were later confirmed by the British, and in the early part of this century by the United States government, through a commission.

The whole lake region, from its discovery until 1760, was under the dominion of France. On the 18th of September, 1759, Quebec passed from the hands of the French. On the 8th of September, 1760, Montreal and all its dependencies were surrendered to the British crown. This capitulation included Detroit, Mackinac, and all other portions of Canada yet in possession of the French.

On the 12th of September, 1760, Major Robert Rogers received orders from General Amherst to advance with sufficient force and take possession of Detroit, Mackinac, and indeed all the Northwest, and to administer the oath of allegiance to the inhabitants. No resistance was offered on the part either of French or of Indians, and on the 29th of November Detroit fell quietly into the hands of the English. The garrison were sent as prisoners down the lake, but the Canadian inhabitants were allowed to retain their farms and houses on condition of swearing allegiance to the British crown. The fort was at once garrisoned with British troops.

At this time, within the limits of the settlement were three Indian villages. On the western shore, a little below the fort, were the lodges of Pottawattamies; nearly opposite, on the eastern side, was the village of the Wyandots; and on the same side, 2 miles higher up, Pontiac's band had fixed their abode. The settlers had always maintained the best terms with their savage neighbors. In truth, there was much congeniality between the red man and the Canadian. Their harmony was seldom broken, and among the woods and wilds of the northern lakes roamed many a lawless half-breed, the mongrel offspring of intermarriage between the colonists of Detroit and the Indian squaws. "The king and lord of all this country," as Rogers called him, was Pontiac—brave, cunning, ambitious, treacherous—whose friendship the English could never win. Actuated by dreams of power, and goaded on by the scheming French, he plotted a most dangerous uprising against the British dominion. Of this bloody and cruel war Detroit was the center. It was besieged by the Indians under their sagacious leader on the 9th of May, 1763, and was not relieved till late in the fall of that year. Of all the small posts scattered at wide intervals through the wilderness to the westward of Niagara and fort Pitt, this one alone was able to maintain itself.

Throughout the winter of 1763-64 the settlement was left in comparative quiet, but with the opening of spring the Indians resumed their hostilities; not, however, with the same activity and vigor as during the preceding

summer. In August an expedition, which had been sent into this part of the country under General Bradstreet, relieved the long-imprisoned garrison. Early in September a peace was concluded, and thenceforth Detroit ceased to figure in the struggle which Pontiac kept up into the next year.

The official census made in 1768 showed but 572 souls at Detroit. In 1778 there were about 70 houses in the town, most of them one story, and the rest a story and a half high, there not being a two-story house in the place. They were all built of logs, some of which were hewed and some round. The population is said to have been 60 families, comprising about 200 males and 100 females, but probably this did not include the whole settlement, but only the part within the inclosure. About 500 troops were stationed here.

The old town of Detroit was in the form of an oblong square, covering about 3 acres. It was surrounded by a palisade of oak and cedar pickets, 25 feet high, in which there were four gates—east, west, north, and south. Over three of these gates were block-houses, containing four 6-pound guns each. Between the palisade and the houses of the time was a wide passage-way, known as the *Chemin de ronde*. Besides this, there were four streets running parallel to the river, intersected at right angles by two other streets and two alleys, all exceedingly narrow. The only public buildings were a council-house and a rude little church.

Under British rule there was a constant improvement in the appearance of this town, but more especially in the military appointments.

The success of the American arms at Vincennes in 1778, and the prospect that the victorious troops would continue their course onward to Detroit, induced Major Le Nault, the commanding officer, to erect a fort on the rising ground, or "second terrace," outside of the palisades and back of the town. This large and efficient fortification was called fort Le Nault until after the war of 1812, when it was named fort Shelby, in honor of the governor of Kentucky. It was located at the intersection of the present Fort and Shelby streets, and was removed in 1827.

In addition to this, new barracks for officers and soldiers were built, and a handsome esplanade and two or three military gardens were laid out between the fort and the town.

The people all lived like one family. Social forms were, however, carefully observed. Assemblies were held once a fortnight, sometimes once a week, and ladies went to them in their silks. Dining-parties were frequent, and they drank their wine freely.

In social life, the French characteristics predominated. During the summer the days were devoted to business, and the evenings were spent by the older portion of the inhabitants in social visiting, and in the younger in dancing, promenading, and moonlight sailing on the beautiful river. Barbecues were occasionally held in a grove near by. In the winter the denizens of the fort and the town gave themselves up to unrestrained pleasure-seeking, and the summer's earnings scarce sufficed for the winter's waste.

The citizens depended principally for eatables on the Indians, who supplied them plentifully with game. A milk-cow was worth \$100, and a pair of steers would sell for \$250. The circulating medium in the country consisted chiefly of paper money, issued by the merchants, in denominations ranging from 6 pence to 20 shillings; it purported to be payable to bearer. The troops brought considerable money into town. In those days the river Savoyard ran across the site of the future city, crossing what is now Woodward avenue somewhere near the line of Congress street. It was sufficiently large to float canoes, but was always an insignificant stream, and was in later years filled in. The line of Detroit did not then at all correspond to the present line of the river. The southern edge of the present city is all made ground, and in 1796 the river washed up as far as the present block between Atwater and Woodbridge streets, and Woodbridge street prolonged to the west would have ended in the water before Cass street was reached. The bulk of the business of the town was near the river, and between Griswold and Wayne streets as they exist now.

In the year 1787 the whole region claimed by the Americans, lying northwest of the Ohio river and reaching to the great lakes, though still partly occupied by the British, was organized by Congress into a Northwest territory, and General Arthur Saint Clair was appointed governor. By the stipulations of the treaty of Greenville, made by General Wayne with the Indian tribes, and signed August 3, 1795, it was conceded that as far as they were concerned Detroit and all the region of the Northwest should become the property of the United States. In July, 1796, under the provisions of Jay's treaty, Captain Porter, with a detachment of troops from General Wayne's army, took possession of Detroit, and flung out to the breeze the first American banner that ever floated over the Peninsular state. Thereupon the ordinance of 1787 was extended over the peninsula of Michigan, and it became part of the Northwest territory. On the 11th of August following, Winthrop Sargent, acting governor of the territory, set apart the new county of Wayne, and designated Detroit as the county-seat. The county included all of Michigan, northern Ohio, and Indiana, and a part of Illinois and Wisconsin. It elected delegates to the first territorial legislature, which met at Cincinnati September 16, 1799. By an act of Congress of April 30, 1802, the Northwestern territory ceased to exist, the state of Ohio was organized, and the territory of Indiana was formed, of which Michigan formed a part.

On January 11, 1805, Congress enacted "That from and after the 30th day of June next, all that part of Indiana territory which lies north of a line drawn east from the southerly bend or extreme of lake Michigan, until it shall intersect lake Erie, and east of a line drawn from the said southerly bend through the middle of said lake to its northern extremity, and thence due north to the northern boundary of the United States, shall, for the purpose of temporary government, constitute a separate territory, and be called Michigan."

William Hull was appointed governor, and Augustus Brevoort Woodward, Frederick Bates, and John Griffin, were created judges. Detroit was made the seat of government. Governor Hull reached here on the 1st of July, 1805, and on the next day he administered the oath of office to the other officers, and the territory of Michigan began its existence. Its boundaries remained as they were until 1818, when, at the time of the admission of Illinois as a state, all of what is now Wisconsin was added to Michigan. In 1839 Iowa and Minnesota were added for the purpose of temporary government.

During the British domination the large grants of land offered to actual settlers, with rations from the fort for a specified time after their arrival, had induced a few Scotch and English families to immigrate and settle along the banks of the Detroit and Saint Clair rivers. The French inhabitants, many of whom had intermarried with the Indians, had been permitted to retain and enjoy their farms above and below the town, and were now in a prosperous condition.

Soon after the stars and stripes began to wave above the fort, a number of emigrants from France, who had spent some years in the colonies, removed to Detroit, and about the same time a few Americans also ventured farther. From 1796 to 1805 there was a constant gradual accession to the number of inhabitants in the town and surrounding country.

Within the town all was bustle and business. Some of the French traders still remained, and they and the British merchants had full possession until 1799. All kinds of merchandise brought good prices and met with ready sales. Coffee sold for 38 cents a pound, tea for \$2, calico was 75 cents a yard, and all articles of wearing apparel were in like proportion.

Colonel Stephen Mack was the first American merchant in Detroit. He came in 1799, and at once built a shanty in the very center of the town, where he spread out his goods to the admiring gaze of thronging customers. At that time the narrow streets and alleys were constantly thronged with savages hastening to the trading-houses to exchange their peltries for goods, or reeling about under the influence of the baneful "fire-water". At the wharves vessels were busy discharging their freights of merchandise and receiving return cargoes of fur from the well-filled storehouses. The prevailing style of the dwellings was as yet that of one-story block-houses with dormer windows, a few of them being covered with clapboards.

Americans now began to come in, and soon outnumbered the French population. The town grew apace, and all was prosperous, until on the 11th of June, 1805, sudden and dire disaster befell it, and for a while at least put an end to progress. On that day, just five months after Governor Hull's appointment, a fire broke out at noon, and at nightfall it was a scene of smoldering ruins, and the population was homeless. Within the limits of the stockade one small French-built dwelling-house on Saint Anne street, and a large brick storehouse near the river, were all that remained of the thriving town. The next day the government and territorial officers arrived. A sad spectacle presented itself to their astonished gaze. Instead of a flourishing town or settlement, growing rich by a lucrative traffic with the Indians, they found only a widespread waste of still smoking ruins. The inhabitants, suddenly impoverished and greatly disheartened, were gathered on the common within range of the guns of the fort, with no other abiding place than cloth tents, or rude huts hastily erected. It was a hard blow, but the people felt that this, the seat of the government of the territory, was sure to be an important place, and again inspired with hope, went to work to build new homes. Numerous dwellings were soon completed, and the town began to assume a less desolate appearance. Yet there was much suffering among those of the inhabitants whose whole available property had been destroyed. In October an official statement of the destruction of the town and the consequent deplorable condition of the inhabitants was made to the Secretary of State of the United States by Governor Hull and his associates. At the next session of Congress it was accordingly enacted for the relief of the sufferers, and to encourage an increased immigration, that the governor and judges of the territory should be authorized to lay out a new town, including the whole of the old town of Detroit and 10,000 acres adjacent, and to any person who, "not owning or professing allegiance to any foreign power, and being above the age of 17 years", owned or inhabited a house in Detroit at the time it was burnt, they were authorized to grant a lot not exceeding 5,000 square feet, and they were ordered to sell what land should be left, and to apply the proceeds toward building a court-house and jail.

The plan of the new town of Detroit, said to be similar to that of Byzantium, was on a magnificent scale, and, if fully carried out, would have far surpassed the present city. Jefferson and Woodward avenues and some of the streets near the river were immediately surveyed, and the adjudication of claims went on as rapidly as possible. Early in 1807 the whole survey was completed. The triangle around the fort was the military reservation, and was not divided into lots until about 1826. The governor and judges who laid out the new town seemed to anticipate the future importance of the city, and to their foresight, good taste, and judgment is it indebted for the numerous parks and the wide avenues for which the city is famed.

In 1806 the celebrated chief Tecumseh and his brother devised a plan quite similar to the famous project of Pontiac, to effect the destruction of Detroit and the other American settlements in the territory. The disaffection soon manifested by the Wyandots and other Indians in the vicinity of Detroit caused the governor early in 1807 to order the inclosure of the inhabited part of the new town by a strong palisade. During the year 1807 a treaty was effected with some of the tribe, yet the threatening movements of the Shawanese, and the little reliance that could

be placed on Indian fidelity, had its influence in retarding the growth of Detroit. Still there was constant progress. Many of those who have since given character and influence to this city were young, enterprising immigrants to Detroit between 1807 and 1812.

In June, 1812, Congress declared war against Great Britain. The first shock fell upon Michigan. Mackinac was early obliged to surrender. On the 14th of August, General Brock arrived at fort Malden with a reinforcement; on the 15th he appeared at Sandwich and summoned General Hull to surrender. General Hull refused, and a cannonade upon Detroit was immediately begun, which was returned with effect. On the 16th General Brock crossed the river with his army 3 miles below the town, without opposition, and at once marched up to the fort without meeting resistance. A negotiation soon began between the two commanders, which ended with the surrender of the army and the territory of Michigan to the British general, to the mortification and bitter indignation of the American troops, who were impatiently waiting for orders to attack the enemy. General Brock's forces are said to have been only 1,400, while those of General Hull amounted to 1,800. This ignominious and cowardly capitulation met with universal reprobation throughout the Union. An army was at once raised to retrieve the disgrace, and started off for Michigan under General William H. Harrison in the ensuing winter. Not much was effected until after Perry's glorious victory of the 10th of September, on lake Erie. General Harrison was soon after joined by General Shelby, and with their forces united they sailed for fort Malden, which they occupied September 8, General Brock having evacuated it in anticipation of this movement. Detroit was vacated on the 29th.

On the 14th of October, 1813, General Harrison appointed General Lewis Cass provisional governor of Michigan territory; he was subsequently made permanent governor. He made Detroit his home for the remainder of his life, and was not only a most successful governor, but also a much respected and honored citizen.

Detroit quickly recovered from the losses incident to the disasters of war, and by 1815 was in such a prosperous condition that on the 24th of October, 1815, the governor and judges passed an act incorporating it as a city. Its government was vested in 5 trustees, and they chose one of their number as president.

At that time no road led out of Detroit, except the one up and down the river. The mail was brought around the lake, through Ohio, on horseback, and when the road was very bad a man carried it on his shoulders through the black swamps. The first line of wheel carriage between Detroit and Ohio was established in 1827. A "public" vessel, the brig Hunter, was the ordinary means of communication between Detroit and Buffalo. The road around the lake was not practicable for wheels one-third of the distance, and for four months of the year was scarcely passable for a horse.

The collection district of Detroit had been defined in 1799, and a collector of the port of Detroit was appointed in June of that year. Although the importations at that early day were comparatively large, no statistics have been found regarding them. As late as 1815, not a vessel that then navigated the lakes was owned in Detroit. In fact, there were but three or four on lake Erie, and they mostly belonged to the British. There was then but one wharf here. It was called the "public wharf", and consisted merely of a pier, formed by a crib of logs, filled in with stone or gravel, and about 150 feet from the shore, with which it was connected by a bridge or plank-way. The rest of the water-front of the place was nearly in a state of nature.

Shortly after this boats began to be built and owned at this port. Up to 1830 the vessels on the lake were almost all small sloops and schooners, rarely reaching 100 tons, and generally under 60. They were mostly built at Huron, Ohio, and at Buffalo.

The steamboat "Walk-in-the-Water" was the first to navigate lake Erie (see *History of Buffalo*). Her first arrival at Detroit was chronicled May 20, 1819.

The first steamer enrolled as belonging to the port of Detroit was the Argo, and she was called a steam-sloop. She was built here in 1830, was 42 feet long, and had a capacity of 9 tons. She was used as a ferry-boat, and occasionally ran up the river Rouge to Dearborn. Another boat was built here in 1832, and a number more in 1833 and 1834. From that time on steamboat-building became an important factor in Detroit industries.

In 1818 the amount of tonnage on lake Erie was estimated at about 1,000 tons. In 1836 it was 24,045 tons, of which it was said the Detroit district had 6,703 tons. In this district were enrolled, in 1836, 17 steamboats, 3 brigs, 43 schooners, and 37 sloops. In 1855 there were here enrolled 83 steamboats (of which 23 were propellers), with a tonnage of 34,285 tons; 5 barks, 9 brigs, 123 schooners, 15 scow schooners, 17 scows, 44 sloops—total 213 with a tonnage of 35,653 tons. Total number of vessels, 296; total amount of tonnage, 69,938.

As late as 1827 Detroit was little else than a military and fur-trading post. The buildings were mostly constructed of wood, one or two stories high, with steep roofs and dormer windows. The banks of the river within view of the city were studded with wind-grist-mills, and flour was brought to the city and sold only in sacks.

The earth of fort Shelby, which was removed in 1827-'28, was used in filling up the embankments then being constructed along the whole water-front of the city, which had been bad for a year or two previous. This was done as a sanitary measure, and the health of the city was very much improved.

Water-works were begun by individual enterprise in 1825, and in 1827 the citizens were first supplied with water from them. Two years later a company was organized, which continued to extend the works until 1836, when they were bought by the city. The city projected the present works, and the construction began in 1837.

The project of a railroad across the peninsula of Michigan was agitated as early as 1830. Two years later the Detroit and Saint Joseph Railroad Company was incorporated. This company did not begin the construction of its road till 1836, when it proceeded to grade about 10 miles in detached parts between Detroit and Ypsilanti. Michigan was admitted into the Union as a state on the 26th of January, 1837. Soon after, the legislature adopted a grand scheme of internal improvements, and effected a loan of \$5,000,000 for the purpose of constructing public works—railroads and canals. This had the effect of checking individual enterprise, and the Detroit and Saint Joseph Company transferred its interest to the state at once. The state completed and opened the road to Ypsilanti in 1838, to Ann Arbor in 1839, to Jackson in 1842, and to Kalamazoo in 1843. In 1846 it sold out the road to New York and New England capitalists for \$2,000,000, and they were incorporated as the Michigan Central Railroad Company.

To the railroad enterprise of the following years Detroit owed much of her growth.

It may here be mentioned that the city secured a new charter in 1824. In 1832 and in 1834 the cholera produced great mortality.

The first great fire—that of 1805—has been referred to. The second destructive fire broke out at about 10 o'clock a. m., May 1, 1837, on the east side of Woodward avenue, near the river, and burnt over a district extending from the river to Woodbridge street and from Woodward avenue to Baker street. Fifty-six buildings were burnt; the individual sufferers were 37, and the entire loss was estimated at \$130,000, of which but a small portion was covered by insurance.

On the night of January 1, 1842, a fire broke out in an old wooden hotel, situated on the west side of Woodward avenue, midway between Jefferson avenue and Woodbridge street, that destroyed every building in the square bounded on the north by Jefferson avenue, south by Woodbridge street, west by Griswold street, and east by Woodward avenue. The loss was estimated at \$200,000.

A very disastrous fire occurred at 10 o'clock on the morning of May 9, 1848. Sparks from the smoke-stack of a propeller lying at a wharf set fire to an old wooden warehouse, and in spite of the efforts of all the people the fire progressed with great rapidity. It destroyed the buildings south of Atwater street, crossed that street, consumed all the buildings east of the alley between Bates and Randolph streets eastward to Brush street, excepting a building on the southeast corner of Atwater and Brush streets. Crossing Woodbridge street it continued to Jefferson avenue; then turning eastwardly it extended nearly to Beaubien street, where its course was stayed at 4 o'clock in the afternoon. Nearly 250 buildings were consumed, 107 of which were dwellings, rendering 300 families houseless. Among other buildings that were burnt was the Wales hotel. This was a brick building erected by General William Hull in 1807 as his residence, and the first brick dwelling built in Detroit. It was his headquarters at the time of his surrender of Detroit to the British in August, 1812. About 10 acres of territory were burnt over, and the loss was over \$250,000.

After each of the large fires the ground burnt over was soon covered with better and more substantial buildings. Since the advent of steam fire-engines and paid firemen here no extensive fires have occurred.

Detroit was the capital of the state for 10 years after Michigan was admitted into the Union.

“Common schools were first established in 1842. Previous to that time but little interest had been manifested in the cause of general education. A report made to the common council in 1841 showed that there were 27 English schools, 1 French, and 1 German school in the city, and that the whole number of pupils in them was about 700, while there were upward of 2,000 children of the proper school age in the city. In 1842 an act was passed by the legislature incorporating the schools into one district under the style of the ‘board of education of the city of Detroit’. The board is composed of 2 school inspectors from each ward, one of whom is annually elected for a term of 2 years.

“The first house for public worship erected at Detroit was built by the Roman Catholics in the year 1723. The cathedral of Saint Ann was begun in 1817. The first Protestant society was organized by the Methodists in 1812. The first Episcopal society was organized in 1824, the first Presbyterian in 1825. In 1855 there were 28 church edifices in the city.

“In 1855 there were 7 plank roads leading from the city into the country, aggregating 300 miles in length.” (a)

From tables of population it appears that the period of the greatest increase have been the decades between 1844 and 1854, and between 1864 and 1874, about 29,000 inhabitants having been added in the former and 47,000 in the latter. The apparently disproportionate increase at certain times has been partly due to extensions in the city's limits. Occasional extensions have been made to the east and north into the township of Hamtrank, and on the west into the township of Springwells. Within a few years the car building and repair shops of the Michigan Central railroad, the Detroit car-works, and some other extensive manufacturing establishments, have been removed a short distance outside of the city limits into the adjoining townships, taking several hundred employes, who have erected dwellings for themselves in the vicinity of their work. Had these establishments remained in the city limits the increase of population from 1874 to 1880 would have shown quite differently.

At the present time the population of Detroit consists of Americans, French, Germans, Irish, English, and Africans, with a good sprinkling of people of almost all other nationalities.

DETROIT IN 1880. (a)

LOCATION.

"The river or strait of Detroit, which connects lakes Saint Clair and Erie, has a general course north or south, but at one point it turns northeasterly and southwesterly. At this point it is the boundary between Michigan and Ontario, and here, on the north shore, the city of Detroit stands, 18 miles northeast of lake Erie and 7 miles southwest of lake Saint Clair, in latitude $42^{\circ} 20'$ north and longitude $83^{\circ} 3'$ west." (b)

The river is 580 feet above the sea-level; the lowest point of the city is at the shore, from which it rises gradually to the northwest for about $2\frac{1}{4}$ miles, until Frederick street is reached, where it attains an altitude of 55 feet above the ordinary river-level.

The river opposite the city is half a mile wide, and nearly the whole width forms the channel, and is navigable. The harbor may be said to extend the whole width of the river and along the entire front of the city. The draught of water is not less than 30 feet. The velocity of the current is about $1\frac{1}{2}$ mile an hour. There is water communication open to lakes Superior, Michigan, Huron, Saint Clair, Erie, and Ontario, and through the river Saint Lawrence to the Atlantic ocean.

RAILROADS.

Detroit has the following lines of railroad:

The Michigan Central railroad extends from Detroit to Chicago. It connects at Chicago with roads running to all points of the compass, and at Detroit with the Great Western, which runs through Canada to Suspension Bridge. This line also connects with and operates the Grand River Valley railroad, running from Jackson to Grand Rapids; the Michigan Air Line railroad, from Jackson to South Bend; the Joliet and Northern Indiana railroad, from Lake Erie to Joliet; the Jackson, Lansing, and Saginaw railroad, from Jackson to Gaylord; and the Kalamazoo and South Haven railroad, between the two points named.

The Detroit and Grand Haven railroad, connecting Detroit with Grand Haven, where connection is made with steamers for Milwaukee.

The Detroit, Hillsdale, and Southwestern railroad runs from Detroit on the Michigan Central's track 30 miles to Ypsilanti; then on its own track, by way of Hillsdale, to Bankers, Michigan, distant from Detroit 94 miles, where it connects with the Fort Wayne, Jackson, and Saginaw railroad.

The Detroit, Lansing, and Northern railroad extends from Detroit through Lansing to Howard City.

The Lake Shore and Michigan Southern railroad runs from Detroit via Toledo to Chicago.

The Grand Trunk railroad runs from Detroit through Canada to Portland, Maine.

The Chicago and Canada Southern railroad runs westward to Fayette, Ohio, and eastward to Buffalo and Niagara.

The Detroit and Bay City railroad extends from Detroit to East Saginaw.

TRIBUTARY COUNTRY.

Nearly the whole state of Michigan is tributary to her chief city, either by railroad, wagon-road, or water communication. The state is divided by the straits of Mackinac into the upper and lower, or the northern and southern peninsulas. The latter, in which is Detroit, is celebrated for its agricultural products, particularly its winter wheat and other grains. The raising of superior breeds of horses, cattle, sheep, and swine is made a specialty by some of the farmers. One of the leading industries of the state is its horticultural products, such as apples, pears, peaches, plums, grapes, and other small fruits, some parts of the lower peninsula being particularly adapted to their growth.

In this section also a very important branch of business is the manufacture of lumber and staves, this part of the state being rich in pine and hard-wood timber. Salt is produced in large quantities from the salt wells in the Saginaw valley, while lime and gypsum are abundant in some parts of the state. Nearly all kinds of lumber being plentiful, the manufacture of cabinet-ware, vehicles of all kinds, pails and all other wooden-ware, is extensively carried on in Detroit and a number of the interior towns.

Iron and copper ores of superior quality are found in inexhaustible quantities in the upper peninsula, and the inhabitants of that part of the state are largely dependent upon the mining interest for their support, while the many extensive founderies and machine-shops of Detroit look there for their supply of the raw material.

TOPOGRAPHY, ETC.

"In the year 1829 a company was organized for the purpose of erecting water-works. In furtherance of this object the company bored a 4-inch hole to the depth of 260 feet, at a point 30 feet above the level of the river, and

a The detailed information concerning the present condition of Detroit was collected and forwarded by J. C. Holmes, esq., of that city.

b Detroit in 1855.

at the corner of Fort and Wayne streets. First, 10 feet of alluvial earth was passed through; next a stratum of tenacious marly clay, with veins of quicksand, for 115 feet; 2 feet of beach sand with pebble stones succeeded, and then rock was struck. This consisted of a stratum of geodiferous lime rock, 60 feet in depth. The auger then penetrated 65 feet into lias, in the course of which it fell into a cavity $2\frac{1}{2}$ inches in depth. A stratum of carbonate of lime impregnated with salt in a rather friable and yielding form succeeded, which was considered a subordinate bed in the lias, for the latter was again found below it. The boring was continued but 8 feet further, where, no water being obtained, the project was abandoned." (a)

The natural drainage of Detroit is not very good, and is by no means depended on for the drainage of the city. In the vicinity of Detroit the land rises gradually toward the west. At Birmingham, 18 miles northwest of the city, an altitude of 300 feet above the river is attained; but in a western line the ascent is much less. There are some extensive marshes in the vicinity of Detroit; but, the principal ones having been drained by open ditches leading to the river, they are now mostly (excepting on the border of the river) under cultivation.

Formerly a large part of the country within a radius of 5 miles from the city was heavily wooded, but cultivated farms, nurseries, gardens for the production of small fruits and culinary vegetables, and extensive brickyards, have taken the place of the forests. The character of the soil within this radius is variable, but principally clay, with strips of sand and gravel resting on a clay subsoil.

CLIMATE.

Records extending from 1835 to 1879, inclusive, show the highest temperature to have been 98° , and the highest summer temperature in average years to be about 94° ; the lowest temperature to be -18° , and the lowest winter temperature in average years to be about -10° .

The influence of the great lakes surrounding the state of Michigan appears, (1) in a modification of extremes, the mean of summer being several degrees lower and that of winter several degrees higher near the lake borders than farther inland; (2) in a prolongation of spring and autumn—in other words, a more gradual extension into summer and winter temperatures; (3) in a modification of *single* extremes, both of heat and cold. Within the last 40 years the thermometer has fallen to -34° and risen to 100° within 100 miles east and west of the lake borders.

While the wet lands of Michigan are cold and frosty, no observations appear to have been taken showing any peculiar influence of theirs upon the climate of the uplands. Lower Michigan has no mountains. The interior rises 500 feet, and at points in the westerly central parts to 800 feet, above lake Erie; and here again it is not known that any observations have been made to show the climatic influence of the highlands as distinct from that of the lakes. It may be noted that snow falls deeper and lasts longer on the elevated tracts.

The amount of rainfall varies but little throughout the peninsula, falling off slightly in amount toward the western extremity, and increasing 2 or 3 inches in the interior and west more than at Detroit. During about two-thirds of the year the winds are from the west, southwest and northwest winds prevail—seldom east. In spring, east and northeast; in summer, southwest and west; in autumn west—seldom north or east. These winds render the winters and springs variable, the summers warm and the autumns prolonged. Passing over such large water surfaces the westerly winds temper the extremes both of heat and of cold. The summer storms and the most severe and destructive gales are from the west, but the long rains and snow-storms come with easterly winds.

STREETS.

The total length of streets in Detroit is 236.50 miles, of which 150.75 miles are unpaved, and 85.75 miles are paved with the following materials: Wood, 68.68 miles; cobble-stones, 6.36 miles; Sandusky limestone blocks, 9.15 miles; Medina stone, 1.06 mile; asphalt, 0.50 mile.

There are also 10.495 miles of paved alleys laid with cobble-stones.

The cost per square yard of each, as nearly as it could be estimated in 1879, was: Wood, 60 cents; cobble-stones, 75 cents; Sandusky limestone blocks, \$1; Medina stone blocks, \$1 75; asphalt, \$1 50.

During 1880, 70,840 square yards of wood pavement were repaired, the whole cost of which was \$15,110 66, or an average of $21\frac{1}{4}$ cents per square yard, and 22,046 square yards of stone pavement were repaired, costing \$4,009 46, or an average of about $18\frac{1}{2}$ cents per square yard, making the total for repairs \$19,120 12, and an average cost of keeping the paved streets of the city in repair about \$223 per mile. There were "worked, graded, and repaired" during the same year 72,189 square rods of unpaved streets at a cost of \$17,009 02, an average of about 23.56 cents per square rod.

During 1880, 9 streets were repaved, measuring 4.301 miles in length, and 12 streets were graded and paved, measuring 4.251 miles, making 8.552 miles of streets paved, or 168,464.29 square yards, of which 149,327.14 square yards were cedar blocks (24,311.18 linear feet being wood entire, and 20,845.79 linear feet being wood centers with stone gutters) and 19,137.15 square yards were cobble-stone pavement. The whole cost of this pavement was \$188,595 13, or an average of about \$1 12 per square yard. The total length of streets in the city paved and repaved is 107.24 miles, costing \$3,422,053 38, or an average of about \$6 04 $\frac{1}{4}$ per linear foot.

For the same period (1880) 5 alleys were paved with cobble-stones, containing 3,778.77 square yards (1,847.02 linear feet), costing \$4,770 90, or an average of about \$1 26½ per square yard. The total length of paved alleys—10.498 miles—cost \$178,346 43, or an average of about \$3 31½ per linear foot.

The following table shows the length of streets and alleys paved each year from 1849 to 1880, inclusive, and the cost of the same:

Year.	STREETS.		Year.	ALLEYS.		Year.	STREETS.		Year.	ALLEYS.	
	Length in feet.	Cost.		Length in feet.	Cost.		Length in feet.	Cost.		Length in feet.	Cost.
1849.....	4,728.00	\$10,150 00	1849....	420	\$420 00	1867.....	14,269	\$186,511 50	1867.....	1,159	\$5,856 09
1850.....	3,192.41	14,597 55	1850....	652	1,229 89	1868.....	10,044	160,157 84	1868.....	744	3,851 05
1851.....	3,861	21,130 48	1851....	180	427 85	1869.....	12,853	139,361 10	1869.....	1,727	8,501 01
1852.....	1,902.98	15,287 03	1852....	412	913 86	1870.....	24,777	10,888 45	1870.....	1,756	6,528 06
1853.....	10,323	57,579 99	1853....	3,130	-----	1871.....	77,547	62,095 91	1871.....	5,411	23,575 18
1854.....	13,026	62,971 65	1854....	3,716	8,565 10	1872.....	10,170	71,569 89	1872.....	2,437	8,114 26
1855.....	9,392	60,460 14	1855....	1,754	9,357 79	1873.....	37,407	235,114 04	1873.....	4,739	18,595 81
1856.....	12,905.42	75,679 90	1856....	1,754	4,674 14	1874.....	28,765.70	197,050 88	1874.....	5,475	20,057 89
1857.....	8,143	47,275 35	1857....	200	369 75	1875.....	43,683.18	267,172 25	1875.....	993	3,469 45
1858.....	-----	-----	1858....	360	908 71	1876.....	42,055.58	160,170 65	1876.....	2,902	9,333 82
1859.....	8,771	49,508 11	1859....	-----	-----	1877.....	33,223.71	162,086 87	1877.....	936.09	1,305 97
1860.....	9,922	38,563 60	1860....	479	974 12	1878.....	47,140.23	177,272 14	1878.....	8,568.53	18,633 78
1861.....	1,955	8,746 04	1861....	-----	-----	1879.....	38,327.46	130,229 81	1879.....	3,269.71	6,829 20
1862.....	1,166	2,259 50	1862....	359	1,237 46	1880.....	45,156.97	188,595 13	1880.....	1,847.92	4,770 90
1863.....	343	4,240 50	1863....	1,083	6,714 84	Total..	566,233.30	2,685,054 88		57,262.35	178,346 43
1864.....	2,944	37,922 67	1864....	528	3,087 83						
1865.....	7,698	80,443 13	1865....	280	1,482 52						

In his report for 1880 to the board of public works the city engineer says:

Considerable complaint is made because of the necessity for repaving and renewing so frequently the street pavements of the city. There is no question but what this necessity is due in a large extent to the wearing and cutting of the pavements by the use thereon of narrow tires on the many vehicles in daily use for the purpose of heavy trucking.

I believe the cause of complaint can be substantially removed and the life of our pavements lengthened by the passage and enforcement of a stringent ordinance regulating and prescribing the width of tires to be used on vehicles for hauling freight and all bulky articles. This matter is very important, and I submit it for your serious consideration.

Sidewalks are paved with flagging, plank, or asphalt. Gutters are ordinarily of wood, though in many cases of wood-paved streets the gutters are laid with stone.

Shade trees are numerous, and are planted, according to the pleasure of lot owners, on the side of the streets between the curb and the sidewalk.

Street-work experience in Detroit indicates a preference for day work as far as labor is concerned, but the charter of the city requires that the materials shall be furnished by contract.

HORSE-RAILROADS.

There are 8 lines of horse-railroads in Detroit, viz:

The Woodward Avenue road, 3½ miles long, having 13 cars, 85 horses, and employing 46 men.

The Jefferson Avenue line, 2¾ miles long, having 12 cars, 80 horses, and employing 45 men.

The Michigan Avenue line, 3¼ miles long, having 12 cars, 63 horses, and employing 45 men.

The Gratiot Street line, 2 miles long, having 5 cars, 30 horses, and employing 9 men.

The Cass Avenue line, 3½ miles long, having 9 cars, 54 horses, and employing 25 men.

The Congress and Baker streets line, 2¾ miles long, having 6 cars, 60 horses, and employing 20 men.

These 6 lines are operated by one company. The regular fare is 5 cents over either of these lines; tickets, 50 cents per dozen; tickets for school children, 8 dozen for \$3.

The Fort Wayne and Elmwood railway, which extends from Fort Wayne, in Springwells township, to Elmwood Cemetery, in the eastern part of Detroit, is 5½ miles long, has 21 cars, 132 horses, and employs 65 men. The fare within the city limits is 5 cents; outside of them it is 8 cents.

The Grand River Avenue line is 2¾ miles long, and has 5 cars, 50 horses, and employs 18 men; the rate of fare is 5 cents.

It will be seen by the above statements that the total length of the horse-railroads in Detroit is 25¾ miles; the total number of cars run on these roads is 84; the total number of horses is 554; and the total number of men employed is 273.

OMNIBUS LINES.

There are no regular omnibus lines in Detroit; but 6 omnibuses and 4 wagons carry passengers and baggage from the railroad stations, etc., to all parts of the city. These employ 15 men and 19 horses. Without baggage, passengers are charged 25 cents.

WATER WORKS.

Water was first introduced in 1827, by a private individual; the works were purchased by the city in 1836 and abandoned, and a new site was selected. Works were then built by the city, taking water from the Detroit river nearly opposite the heart of the city. Two pumping-engines of 18,000,000 gallons capacity were built.

In 1877, owing to the contamination of the water, new works were built, taking their supply from the river 4 miles above the city. The inlet is a cast-iron pipe 60 inches in diameter, 1,100 feet long, supported at the river end on a crib of timber filled with stone, and taking water 22 feet below the surface. The shore end connects with a settling basin 200 feet from the river, 17 feet deep, and trapezoidal in shape, the sides being 800 and 750 feet, and the ends 365 and 370 feet in dimensions. Water is pumped by two compound condensing beam engines of 12,000,000 gallons capacity each. One was built in 1877, the other in 1880. A 42-inch force-main extends from the works 15,240 feet to the reservoir, 77 feet above the river. A 30-inch branch from the force-main connects with a stand-pipe near the works, 132 feet high, 60 inches in diameter at the bottom, and 30 inches at the top, made of wrought iron and inclosed in a brick tower 17½ feet in diameter at the bottom and 12 feet at the top.

The reservoir is 15,240 feet from the new pumping-works and 4,500 feet from the old; it is 77 feet above the river, and is in two compartments, each 200 feet square and 26 feet deep. Its capacity is 7,592,000 gallons. It was built in 1858.

There are 210 miles of distributing pipes from 30 to 3 inches in diameter, of which 86 miles are wooden bored logs and the remainder cast iron. The life of wooden pipes is found to be about 16 or 20 years, and they cost only one-fourth as much as cast iron. Some have been laid in sparsely settled portions of the city as late as 1880. It was found that by the time they are worn out they have paid for themselves, and pipes of larger size are required. There are 25,000 water-takers.

Most of the pumping is done from the new works, but the old ones are still more or less used. But 15 meters are in use.

The cost of the works thus far (June 1, 1880) is \$2,560,000; when completed according to the plan proposed they will have cost \$2,915,000.

The average quantity of water pumped daily in 1879 was 14,053,696 gallons; the greatest quantity pumped per day was 17,892,060 gallons, and the least 9,599,460 gallons. The cost of pumping 1,000,000 gallons 1 foot high is 5 cents, and the yearly cost of maintenance, aside from cost of pumping, is \$20,292 82 (exclusive of interest on the bonded debt, which is \$1,451,000).

The income from water rates (1879) was \$218,110 13, and the total cost of operating was \$40,809 63.

The following table shows the number of gallons of water distributed in the several years from 1852 to 1879, inclusive, and its cost:

Year.	Gallons of water pumped.	Cost of fuel consumed.	Average daily delivered.	Gallons of water for one cent cost of fuel.
1852.....	235,840,271		646,411	
1853.....	303,531,743	\$2,120 37	831,594	1,425.45
1854.....	376,265,126	2,271 34	1,030,806	1,656.57
1855.....	542,807,364	3,325 81	1,487,143	1,932.10
1856.....	692,124,305	4,017 44	1,890,231	1,722.70
1857.....	607,100,523	3,093 20	1,900,837	1,745.04
1858.....	718,001,207	3,655 20	1,967,373	1,964.57
1859.....	782,112,587	3,104 15	2,142,774	2,448.57
1860.....	870,030,451	4,100 21	2,383,580	2,070.00
1861.....	895,120,423	4,414 07	2,452,400	2,027.00
1862.....	994,945,320	3,150 95	2,725,878	3,157.00
1863.....	1,035,708,043	4,070 80	2,837,803	2,217.57
1864.....	1,018,390,256	7,047 02	2,839,078	1,331.64
1865.....	1,040,514,887	7,372 89	2,875,383	1,423.47
1866.....	1,190,317,022	9,340 16	3,277,583	1,279.59
1867.....	1,425,535,230	10,121 82	3,905,570	1,408.37
1868.....	1,060,545,125	11,370 23	4,507,248	1,404.55
1869.....	1,646,810,325	11,247 92	4,511,809	1,464.10
1870.....	1,866,060,068	12,713 78	5,112,403	1,467.74
1871.....	2,800,150,605	14,081 05	6,301,782	1,587.42
1872.....	2,782,292,578	17,730 80	7,601,892	1,453.04
1873.....	3,198,393,948	20,233 30	8,762,723	1,580.78
1874.....	3,289,872,035	20,431 71	9,013,350	1,010.18
1875.....	4,207,454,200	21,893 08	11,527,272	1,966.73
1876.....	4,065,334,470	19,832 89	11,107,490	2,049.79
1877.....	4,213,239,790	17,433 72	11,543,123	2,416.72
1878.....	4,345,743,330	10,043 82	11,906,146	3,970.95
1879.....	5,129,599,110	11,219 51	14,053,696	4,572.03

In obedience to the instructions of the board of water commissioners a thorough and careful analysis of the water at the source of supply was made in August and September, 1879, by Mr. Frederick Stearns, chemist, of this city. A summary of his report gives these conclusions:

The water in the settling-basin is as pure as that in the American mid-channel; the water in the American channel is as pure as that in the Canada channel; the water in the settling-basin gives no evidence of infiltration of poisonous marsh-water; the river below the city is distinctly less pure than that above the city; the water in Detroit river is as healthful as the best of that supplied in Boston.

GAS.

The city owns no gas-works. There are here 1 naphtha and 2 gas companies. The Detroit Gaslight Company supplies gas to the western district (the line dividing the city into two districts running through the center of Woodward avenue). Its daily average production for 1879 was 218,000 cubic feet. It charges \$2 25 per 1,000 feet. This company furnishes gas to 909 street lamps, the city paying \$1 50 per 1,000 feet, with no charge for meters.

The Mutual Gas Company's works are situated in the eastern district of the city, which it furnishes with gas at the same rate. Its daily average production for the same year was 205,000 cubic feet. Its charge is the same to private consumers and to the city lamps as the other company, and it supplies gas to 893 street lamps in its district.

Consumers using less than 500 feet of gas per month pay 25 cents per month meter rent; to those using more than this no rent is charged.

The Naphtha Company furnishes naphtha to lamps in the newer parts of the city where gas-pipes are not yet laid. There are 940 naphtha street-lamps. For the naphtha consumed by these the city pays for each lamp per year \$13 95, the city attending to their lighting and care.

The 1,802 gas street-lamps burn an average of 4 feet each per hour.

PUBLIC BUILDINGS.

The city owns and occupies the following buildings: City hall, cost \$600,000; Central market (part in course of erection), \$60,000; Cass market, \$1,000 (cost of both markets exclusive of land).

The city also owns a house of correction, 31 public-school buildings, a public library, the buildings for which cost \$125,000; also, appropriate buildings for the accommodation of the water, fire, and police departments,

PUBLIC PARKS AND PLEASURE-GROUNDS.

The total area of the public parks owned by the city is 714.05 acres. These are 12 in number, of which 9 are very small, hardly attaining the dignity of the name "park". Their locations and areas are:

Adelaide Campan Park, between Clinton and Millet streets, at the intersection of Campan avenue, area 0.61 acre; *Clinton Park*, between Paton, Antoine, and Clinton streets, and Gratiot avenue, area 1.48 acre; *Crawford Park*, at the intersection of Fifth and High streets, area 0.60 acre; *Center Park*, between Center, Grand River, and Randolph streets, area, 0.22 acre; *East Park*, between Turner, Bates, and Randolph streets, area 0.27 acre; *Elton Park*, at the intersection of Fifth and Orchard streets, area 0.60 acre; *Macomb Park*, between Seventeenth and Eighteenth streets, at the intersection of Rose street, area 0.53 acre; *Stanton Park*, between Seventeenth and Eighteenth streets, at the intersection of Marquette street, area 0.61 acre; *West Park*, between State and Grand River streets, and Park place and West Park place, area 0.52 acre; *Cass Park*, between Ledyard and Bagg streets, at the intersection of Second street, area 3.99 acres; *Grand Circus Park, East*, between Woodward, Williams, and Adams avenues, area 2.31 acres; and *Grand Circus Park, West*, between Woodward, Park, and Adams avenues, area also 2.31 acres—total 4.62 acres.

Detroit's one large park is *Belle Isle*, situated in the Detroit river, about 3 miles above the center of the city, and containing 700 acres.

Four or five of the parks enumerated above, including the East and West Grand Circus parks, were reserved as such by the governor and judges when they laid out the town in 1806. The other small parks were donated to the city by the owners of the land when their farms were laid out into city lots.

With the exception of Belle Isle, all of these parks have been ornamented with shade-trees; in some of them fountains have been erected, walks laid out, and seats placed in them.

The only cost of maintaining these small parks is the planting of trees, keeping the walks and fountains in order, and cutting the grass. Cass park is the only one of them surrounded by a fence.

Belle Isle park is a beautiful island of 700 acres, situated in the Detroit river, about 3 miles above the foot of Woodward avenue and at the entrance to lake Saint Clair. It was bought by the city from the heirs of the late Barnabas Campan, in September, 1879, for \$200,000. Portions of the island have been under cultivation for several years, and the remainder is well covered with a great variety of forest trees in their natural state.

In the early part of the season of 1880 the board of public works, under the direction of the common council, expended \$1,297 05 in cutting and removing underbrush and such dead timber as was found to have fallen to the ground, also in repairing the docks.

During the summer months steamboats run regularly from the foot of Woodward avenue to the island, frequently carrying at each trip several hundred passengers. Here picnics and parties are held and games and other amusements are enjoyed. The fare by steamboat to Belle Isle for the round trip is but 10 cents, and its value to the city as a playground is almost incalculable.

PLACES OF AMUSEMENT.

Detroit's theaters are: Detroit opera-house, seating capacity 1,700; Whitney's opera-house, seating 1,500; the Coliseum, seating capacity 1,200; the Theater Comique, a small place, lately closed; and Long's place of amusement, also small.

The two first named pay an annual license fee each of \$200; the others pay a license of \$50 each.

In addition to the foregoing, the following are occupied at times as lecture and concert rooms, etc.: Harmonic hall, Merrill hall, Saint Andrew's hall, Abstract hall, Reform hall, Arbeiter hall, Weber hall, Young Men's Society hall, Kanter's hall, Phoenix hall, and Lafayette hall. A company lately organized is erecting a music hall, which will have a seating capacity of 5,000.

A few years since there were three or four beer-gardens in Detroit, but, in consequence of a state law passed in 1879 prohibiting the sale of beer or intoxicating drinks on Sunday, the gardens were closed and abandoned.

DRAINAGE.

The surface of the ground rises gradually to a height of 35 feet in the northwest and 50 feet at the northeast corner, except at Jefferson avenue, where the rise is a little more abrupt, to a height of about 20 feet. The soil and subsoil are generally an impervious clay, interspersed with pockets of quicksand.

The area of the city is 13 square miles, of which about 6 square miles are drained quite completely by means of public and private sewers.

There are 75½ miles of public sewers, ranging from 12 inches to 8 feet in diameter, usually of oval cross-section and built of brick. Their depth below the ground is from 6 to 42 feet, and their rates of fall are from 1 inch to 36 inches per hundred feet. There are 93.8 miles of lateral sewers, averaging 9 feet deep, with grades generally 1 in 200. They are built of brick, are oval in cross-section, and are usually 20 inches high by 15 inches wide. The total length of sewers at the close of the year 1880 was 169,339 miles. Some sewers built as long ago as 1836 are still in use. A report with a plan of sewerage was made in 1861 proposing main sewers in ten of the principal streets, discharging into an intercepting sewer to carry the ordinary flow, each main to be extended to the river for a storm overflow. The main feature of this proposal does not seem to have been applied. In 1871 another system was recommended by the sewer commissioners, proposing 2 principal main sewers to be built in Eighteenth street and McDougal avenue to a line about 2 miles from the river, and then approach each other along Fremont street. This cuts out a square about 2 by 3 miles in the heart of the city, and intercepts all drainage coming from beyond. The intercepting sewer was begun in 1873 and completed in 1877, having a total length of 6 miles.

The rectangular space within these lines is drained by numerous main sewers extending directly to the river. At the time when the older sewers were built in the lower district no general or comprehensive plan was adopted in their construction. Each sewer was built to drain some particular locality, without regard to the probable increase of growth of the city. The consequence is that some sewers are deficient in capacity, in others the grades are defective, while a few were so shallow that cellars of ordinary depth could not drain into them. Many of these had to be rebuilt, and many others are in bad condition and much out of shape. Sewers are built or extended as the present demand requires.

The final disposal of the outflow of sewers is to the Detroit river. Mouths of sewers are either fully or partially submerged; for instance, outlets 6 or 8 feet in diameter have from 1 to 2 feet of their section above water. This allows the sewage to set back from 200 to 3,000 feet, according to the rates of fall, and causes deposits of silt to be formed in the slack-water to a sufficient extent to become a serious obstruction to the outflow of storm-water. The city engineer, in his report of 1877, states that the efficiency of sewers along the water-front would have been greatly increased had the grades of streets near the river been established from 2 to 4 feet higher, thus affording an opportunity for building an intercepting sewer along the river. No inconsiderable amount is expended from year to year in repairing and rebuilding the wooden outlets through which the sewers in the lower districts discharge into the river.

It is stated by the harbor-master that "some of the outlets extend far enough out for the current to take the flow from the sewers". He then gives a list of streets where the outfall is "from 90 to several hundred feet from the current". Soundings made opposite the mouths of sewers in 1878, 1879, and 1880, indicate a rapid shoaling of the water in the slips and docks, plainly indicating that the sewers ought to be extended to the pier-heads and discharged into deep water.

Lateral sewers are made of uniform size and shape. They have no manholes, lamp-holes, or provision for inspection or ventilation. They connect with main sewers, usually at right angles and at convenient places, sometimes level with the bottom, at other times through the top, and in a number of instances through a well-hole or manhole by a perpendicular drop of from 3 to 25 feet or more. The supply of water in most laterals is too small to keep them clean. Storm-water is admitted through open gratings, and brings a large amount of rubbish and silt.

Catch-basins were formerly built with open connections, but in later years, owing to complaints of offensive odors coming from the sewers, most of the basins in the business part of the city have been trapped. The number of basins in 1880 is not stated, but in 1877 there were 2,307 storm-basins with water-traps, 781 untrapped receivers, 21 receivers provided with patent traps. In streets not paved, the receivers for storm-water are made by simply carrying the pipe from the sewer to the surface of the ground and covering it with an iron grate, no trap being used except in the thickly settled localities. Receiving-basins are cleaned once in winter, but, because of nuisance created by disturbing them in hot weather, they are not cleaned in the summer.

There is no provision for ventilation of sewers. No flushing is done except in a few instances. Three men are employed to make house-drain connections, and it is their duty to dig down and open lateral sewers when clogged or obstructed. No other supervision is employed.

The cost of public main sewers and of all manholes and catch-basins is paid by the city. Laterals usually built in the alleys and back streets are paid for by the abutting property. Assessments are laid on the basis of the area of abutting lots.

Sewers constructed in 1880 cost as follows: A brick sewer, 36 by 48 inches, 20 feet deep, cost \$2 85 per foot; one, 39 by 52 inches, 21 feet deep, cost \$2 95 per foot; one, 48 by 72 inches, 20 feet deep, cost \$4 05 per foot; another sewer, to be 78 inches in diameter, was contracted for at \$7 40 per foot. Laterals averaging from 9 to 10 feet deep, consisting of a single ring of brick laid in oval sections, 15 by 20 inches, cost in 1880 from \$0 53 to \$1 08 per foot; 17,763 feet cost \$12,315, an average of about 70 cents per foot; 21,886 feet built in 1877 cost \$11,856, an average of 54 cents per foot. Manholes average \$50 each; catch-basins, \$45. Brick-work is laid in mortar, composed of sand and water-lime; 4,346 barrels of water-lime in 1880 cost 85 cents per barrel.

CEMETERIES.

There are at present in use in Detroit 7 cemeteries, viz: 2 Protestant, *Elmwood* and *Woodmere*; 1 Catholic, *Mount Elliott*; 1 Lutheran, and 3 Jewish.

Elmwood cemetery, with an area of about 80 acres, is located on Elmwood avenue, in the eastern part of the city. Woodmere cemetery, with an area of 202 acres, is located at Springwells, $4\frac{3}{4}$ miles west of the center of the city.

Mount Elliott cemetery, with an area of about 60 acres, is located on Mount Elliott avenue, and adjoins Elmwood cemetery on the east. The Lutheran (German) cemetery, containing 10 acres, is situated on Mount Elliott avenue, about 3 miles north of the city hall. The Beth El (Jewish) congregation has a cemetery containing 1 acre on Elmwood avenue, south of and adjoining Elmwood cemetery; it has also about 3 acres in the north part of Woodmere cemetery. The association of the "Sons of Israel" (Jewish) has a cemetery containing $1\frac{1}{4}$ acre, situated at the corner of Mount Elliott avenue and Mack road. The Jewish cemetery, Shaary Zedeck, is situated about $3\frac{1}{2}$ miles northwest of the center of the city.

The city of Detroit does not own a cemetery, but has privileges in the three principal ones named above—Elmwood, Woodmere, and Mount Elliott.

A number of the earlier burial-grounds have been abandoned as such, but in every case the remains have been removed therefrom, and in some instances the former grounds are now covered with buildings.

There are but few interments in any of the Jewish cemeteries, except in the 3 acres in Woodmere belonging to the Beth El congregation, where the interments average 4 or 5 in number per year. In the statistics given herein of the interments in Woodmere the Jewish burials are included.

The following table gives the yearly number of interments in the 4 principal cemeteries. The early records of Elmwood cemetery from October, 1846, to November, 1852, were stolen, and the number of interments for this period is estimated from other data at 1,000, while the interments during the rest of 1852 were 18:

Year.	Total.	Year.	Total.
Previous to 1853	1,018	1867	1,207
1853	201	1868	1,340
1854	476	1869	1,713
1855	361	1870	2,080
1856	329	1871	1,845
1857	328	1872	2,421
1858	306	1873	2,501
1859	352	1874	2,266
1860	304	1875	2,245
1861	336	1876	2,236
1862	442	1877	2,144
1863	462	1878	2,028
1864	646	1879	2,215
1865	1,115	1880	1,871
1866	1,261		

The city ordinance, as revised in 1871, declared 3 principal cemeteries to be public burial-ground, "and no person or persons, societies or congregations, shall establish or locate any other burying-ground within the limits of the city of Detroit."

The grave for an adult is required to be at least 6 feet deep, and for a child at least 5 feet deep. The common council designates suitable lots in the city cemetery for the interment of deceased strangers and poor persons. The following is the ordinance relative to the interments within the public cemeteries:

It shall be the duty of every undertaker, or other person acting as such, having in charge the interment of any deceased person, to deposit with the city sexton, or sextons, or superintendent of the cemetery wherein said interment is to take place, a certificate from the attending physician of the deceased; or, in case no physician was in attendance, from one of the city physicians called by said undertaker to make examination into the case, stating all the particulars as to the name, age, sex, nativity, social condition, manner of death, character of disease of the deceased person, which said certificate in blank shall be furnished to any undertaker or other person applying therefor to the city clerk; and it shall be the duty of the city sexton or sextons and superintendents of cemeteries, in the city of Detroit to keep a register, to be provided by said city, of all persons buried in each of said cemeteries, giving in alphabetical order the name of the deceased, the number of the lot in which the body was buried, together with a transcript of the certificate furnished in the case, which said register shall be kept in the office of the city clerk.

It shall further be the duty of the sextons or superintendents aforesaid, at least once in each month, to record in the register herein provided for, and in the manner herein set forth, the burials which have been made since their last report, and also to file in the office of the city clerk all certificates in their possession: *Provided*, That in all cases of persons dying in the city of Detroit, where interments are to be made in cemeteries beyond the limits of the said city, the certificate hereinbefore mentioned shall be served by the undertaker in charge on the city sexton, and shall be by him recorded and filed as in other cases provided.

The following extracts are taken from the ninth report to the lot-owners of the trustees of Elmwood cemetery, embracing the period from January 1, 1878, to January 1, 1880:

In 1846 a few gentlemen purchased 42 acres of ground on Bloody run, laid the same out for a cemetery, and caused it to be conveyed to trustees, with power to fill vacancies in their body, and with a stipulation that all revenues for the sale of lots should constitute a fund for the care and improvement of the grounds. Several purchases were afterwards made, so as to increase the quantity within the inclosure to 78 acres. There are also 3.37 acres which were thrown out by the opening of German street. The service of the trustees have been entirely gratuitous for the whole period.

Every lot-owner is a member of the corporation, and is in duty bound to co-operate with the trustees in beautifying and protecting the grounds, because it is simply impossible for the trustees with their limited force to do so without the help of those for whose interests they are devoting valuable time. This point is again urgently pressed upon lot-owners. Elmwood is far behind many other rural cemeteries in respect to embellishment, for want of this co-operation of lot-owners.

The number of lots sold is 2,944, and of lots unsold 379.

The total amount received for lots sold and from all other sources, except interest on investments, from October, 1846, to January, 1880, 33 years and 3 months, is \$262,895 83; for interest on loans and investments, \$31,102 39; total, \$293,998 22.

The total amount expended for purchase of land is \$19,500; all other expenses, \$216,899 50; total, \$236,399 50; securities and money in treasury, \$57,598 72—making a grand total of \$293,998 22.

The efforts of the trustees to create a fund, from whose income the cemetery may be kept in order after all the lots are sold, have been partially successful, so that by the end of this year [1880] there will be about \$60,000; but the income of this will be quite inadequate to the necessary expenses. It will be prudent to avoid any disbursement for mere ornamentation at present, and carefully to add to the principal as opportunity offers. Much of the expenditure of past years has been for grading and filling and making available lots, and the future expenses will grow less as the grounds approach completion; but the trustees do not lose sight of the fact that our revenues from lots sold will soon cease, and then our dependence must be chiefly upon the interest of the accumulated fund.

In the early summer of 1867 several gentlemen organized an association for a new rural cemetery, now known under the name of Woodmere cemetery.

On the 30th of July a code of by-laws was adopted, providing, among other things, for an organization as a corporation by the same name whenever the holders of two-thirds of the scrip should so vote. The trustees at the same time reported that they had already completed the purchase of 195.68 acres of land.

Another purchase was afterward made increasing the amount to over 200 acres.

During the fall of 1867 and the winter of 1867-'68, a very careful, minute, and accurate topographical survey of the grounds was prepared, and, in the course of the summer and fall of 1868 considerable progress was made in the preparation of the grounds.

The formal opening of the cemetery took place on Wednesday, the 14th day of July, 1869.

MARKETS.

Detroit has 3 public markets, viz: the Central meat market, which cost \$50,000, has a ground area of 8,000 square feet and 16 stalls; a building with two departments, called the vegetable and fish markets, which cost \$20,000, has a ground area of 12,000 square feet and but 1 stall.

Wagons of hucksters and farmers are allowed to stand in the space between the meat and vegetable markets—about 8,000 square feet—in the adjacent streets, and in the hay and wood markets.

The rates of rental for a stall in the different markets are as follows: the Central meat market, \$420 to \$540 per year; the vegetable market, \$47 to \$112 50 per year; the fish market, \$47 to \$63 50 per year; Cass market, \$75 per year.

The total yearly rental of each market is: the Central meat market, \$7,476 per year; the vegetable and fish markets, \$6,650 per year; Cass market, \$75 per year—total \$14,201.

The Central market is open from 4 a. m. to 12 m. daily, and on Saturdays also from 3 p. m. to 10 p. m.; the vegetable market is open from 4 a. m. to 3 p. m., daily, and on Saturdays it is kept open until 10 p. m.; and the fish market is opened from 4 a. m. to 12 m.

The following is from the market ordinance, and prescribes the method for the collection of wagon fees:

In addition to the duties already prescribed, the market clerk, pound-masters, and every other officer in charge of any market, shall collect a fee of 10 cents from every owner, driver, or other person in charge of any team or vehicle standing upon or occupying, for market purposes, the public market grounds of the city, which fee shall be additional to any license fee paid by any person occupying such grounds, streets, or spaces. For every fee so collected the said clerk, or pound-master, or other officer, shall deliver to the person from whom he collected the same a ticket receipt, furnished such clerks and pound-masters, or other officer, by the city controller, as hereinafter mentioned.

The controller shall cause to be prepared a sufficient number of suitable ticket-receipts for the purpose of the preceding section, with the name of the market clerk and date stamped thereon, which said ticket-receipts shall be delivered daily to said clerk, pound-masters, or other officers, by the controller, in such quantities as shall be deemed necessary for use during the day, which said ticket-receipts when so delivered shall be charged to said clerk, pound-master, or other officer, in a suitable book, prepared for such purpose.

The controller shall likewise deliver daily to an officer of the metropolitan police force, to be designated by the superintendent of police, a like number of ticket-receipts, to be of the same form as those delivered to the market clerk, but of different color, having the word "Police" stamped thereon; and it shall be the duty of said police officer to demand of each owner, driver, or other person in charge of any team or vehicle standing upon or occupying for market purposes the public market-grounds of the city, the ticket-receipts previously given to the owner, driver, or other person in charge of such team or vehicle, as aforesaid, by the clerk of the market, giving in exchange for such ticket-receipts the ticket-receipts of different color with the word "Police" stamped thereon, as aforesaid. The said police officer shall report daily at or before the hour of 4 o'clock in the afternoon, to the controller, surrendering the ticket-receipts of the market clerk collected by him as aforesaid, which ticket-receipts, together with the unused ticket-receipts issued to him, shall equal the number of the same issued to said officer.

The following are extracts from the same ordinance:

No person shall slaughter, sell, offer, or expose for sale, or barter, or trade, the meat of any calf less than four weeks old.

No person shall burn, sear, or cut the inner part of, or confine the mouth of any calf by rope, twine, or any kind of muzzle. And no person shall in any manner tie or confine by rope, twine, or otherwise, the feet of any calf, sheep, lamb, or swine, or poultry, which may be brought to or exposed in the city for sale.

There are also for the sale of hay, etc., two spaces called the Eastern hay market and the Western hay market.

SANITARY AUTHORITY.

The city charter provides for the appointment of a city board of health, but the city authorities have discontinued such appointments, and there is no special health organization except as provided in the general laws of the state, which makes the mayor and aldermen of each incorporated city a board of health, and requires them to "perform all the duties of a board of health" in cities where, as in this case, no board is actually organized under the city charter. The common council has full authority to pass laws, with severe penalties for their infraction, providing for the cleanliness and general sanitation of the city. The laws are enforced by the police department through a municipal tribunal known as the recorder's court.

The executive officers of the board are 1 sergeant of police and 8 patrolmen, one of whom is designated as "inspector of meats and provisions". There is no health officer. The sanitary policemen (the 9 referred to above) make regular inspection in all parts of the city, and also whenever and wherever nuisances are reported. In cases of an ascertained nuisance the responsible party is notified to abate the same forthwith; if the order is not obeyed the offender is prosecuted in the recorder's court.

The city ordinance provides for the proper draining and care of houses, privies, cesspools, etc. The matters of sewerage and street-cleaning are in charge of the board of public works.

Each householder is required by ordinance to provide a suitable and tight vessel for the reception of garbage, and to cause the contents of the same to be removed twice in each week from the 1st of May to the 1st of November, and once in each week during the remainder of the year, to some place without the limits of the city.

One person in each ward, called a ward officer, is appointed by the common council to see that this law is enforced. He may enter and inspect any premises between the hours of 8 a. m. and 4 p. m., and if he finds garbage unlawfully remaining may remove the same, being in such case entitled to receive of the householder for every such entry and removal the sum of 3 cents.

Sextons are required to report all burials to the city clerk, but the board requires neither burial nor removal permits.

The pollution of the water of the river is prohibited under heavy penalties. Excrement is required to be removed from vaults by an odorless apparatus.

Small-pox patients are either removed to the pest-house or are isolated at their residences, upon the front of which is placed a card with the words "small-pox" thereon in large letters. Scarlet-fever patients are not the subject of municipal regulations. Under the following provision of a state law passed in 1879 vaccination may be made compulsory and at the public expense:

The people of the state of Michigan enact that the board of health in each city, village, and township, may at any time direct its health officer or health physician to offer vaccination with bovine vaccine virus to every child not previously vaccinated, and to all other persons who have not been vaccinated within the preceding five years, without cost to the persons [person] vaccinated, but at the expense of each city, village, or township, as the case may be.

Concerning the registration of diseases and health matters generally in Detroit the secretary of the state board of health thus writes:

There is no city registration of diseases. Though the state laws require the report and record of every case of disease dangerous to the public health, these laws are disregarded in Detroit. Births and deaths are not registered as they occur, but such facts required by the state law, as can be ascertained after so long delay, are collected by persons appointed by the city council in the spring following the year in which the births and deaths occur. The statistics relative to births and deaths are thus reported to the county clerk, who makes a report for the county to the secretary of state.

The state law requires reports (by the board of health) to be made to the state board of health. No report is made.

The medical profession in Detroit stands high in the respect of the people of the city and of the state. It seems to be well supported, but it has no relation to a public-health service of the city, for the reason that no systematic public-health service exists.

Detroit appears to the casual observer, and is claimed by its citizens, to be an exceptionally healthful city. There seems to be no attempt by the city authorities to ascertain the truth of such an assumption, by means of reports of communicable diseases and by reliable vital statistics. The city is not now officially represented in the annual reports of the state board of health, or in the weekly bulletin of the national board of health, among the cities which secure reliable mortality statistics.

As a kind of branch health organization, a city ordinance provides for the appointment by the common council annually of 6 physicians, to be called "city physicians". To each of these is assigned one of the 6 "city physician districts" into which the city is divided. When required by the common council or board of health they examine in their several districts into all sources of danger to the public health, and, from time to time, make such recommendation to the common council concerning the sanitary condition of the city as seems necessary. They also, when directed by the mayor and aldermen, or director of the poor, attend any sick, disabled, or infirm person who may be a charge upon the city, and render such medical assistance as may be necessary; also, when any person is taken to the pest-house, the physician from the district from which the patient is taken attends on such person. In their several districts they also vaccinate without charge any inhabitant of the city of Detroit not previously vaccinated, who may apply to them for that purpose, giving certificate of vaccination to such children as may have been vaccinated by them.

They furnish at their own expense all medicines which may be necessary in the proper treatment of such sick or disabled persons as may be a charge upon the city, and also such vaccine matter as may be required in their vaccinating as above. Each city physician is entitled, at the end of each quarter during his term of office, upon his affidavit that he has vaccinated, free of charge, all inhabitants of the city of Detroit who have called upon him for that purpose, to receive from the city treasury the sum of \$12 50, in addition to the salary of his office.

MUNICIPAL CLEANSING.

Street-cleaning.—In 1880, as theretofore, paved streets were cleaned by the city's own force by hand and by day labor. They were cleaned from five to twelve times each during the season; and, approximating the distance from the number of times cleaned, the measurement is ascertained to be 382.49 miles, or 5,609,875 square yards, and the cost \$17,485 28, or an average of about \$45 71 per mile. The service is performed chiefly by old and indigent men, who would otherwise have difficulty in obtaining employment, and is well done. The sweepings are deposited principally in low grounds.

Removal of garbage and ashes.—Garbage and ashes are removed exclusively by householders, except in case of failure to remove promptly, when it may be done (in the case of garbage) by the ward officer at an expense to the householder of 3 cents for each removal. Ashes and garbage may be kept in the same vessel. Wood ashes are usually disposed of to soap-makers, while coal ashes are used for filling. While the system of removal is somewhat imperfect, it is not thought to work any special injury to the public health.

Dead animals.—The carcasses of animals dying in the city are removed by contract, being carried at least 3 miles beyond the city limits and buried. The cost of the service is about \$500 per annum, about 2,500 animals of all kinds being removed.

Liquid household wastes.—Where sewers exist they receive all the liquid waste of the house; where they do not exist the said waste is run into privy-vaults, which, where practicable, drain into sewers. They are unprovided with overflows, and are cleaned out at least twice in each year, and oftener if it is needful.

Human excreta.—About two-thirds of the houses of the city have water-closets and connection with sewers, and one-third depend on privy-vaults. About two-thirds of the number of the latter are nominally water-tight. They are emptied by an odorless excavating apparatus, and are ordinarily constructed about 5 feet deep, 3 feet long, and 3 feet wide. The dry-earth system is not at all in use. Night-soil is removed out of the city, and to some extent utilized in manufacturing fertilizer. It is not allowed to be used in manuring land within the gathering-ground of the public water-supply.

Manufacturing wastes.—Manufacturing wastes are discharged into the sewers. No inconvenience has as yet arisen from this practice. The discharge of sewers in the Detroit river is several miles below the water-works, and as the current here is 2 miles per hour, no contamination of the water-supply is apparently to be apprehended.

POLICE.

The police force of Detroit is appointed by 4 police commissioners, who are appointed by the governor of the state and confirmed by the senate. The chief executive officer of the force is the superintendent. He has full charge of the department, subject to the orders of the police commission, and his salary is \$2,000 per year.

The rest of the force consists of 3 captains at a salary of \$1,100 each, 8 sergeants at \$900 each, 9 roundsmen at \$800 each, and 106 patrolmen on actual patrol duty and 18 detailed on special duty. They are divided into two classes, the members of one receiving \$600 each and those of the other \$700 each.

The men furnish their own uniforms, which cost, including the dress and overcoats, about \$80 each.

The patrolmen are armed with batons, revolvers, and handcuffs. Their hours of service are 8 hours for night and 9 hours for day duty. The area patrolled by the force comprises 13 square miles.

The number of arrests made in 1880 was 4,284. During this year property was stolen and reported to the police to the amount of \$63,928 34, of which \$43,959 21 was recovered and returned to the owners. The station-house lodgers numbered 8,810, as against 8,774 in 1879. No free meals are given to these lodgers, except in case of sickness.

At the request of individuals or corporations, and at their expense, special police are appointed by the police commissioners.

The cost of the force for 1880 was \$135,000.

FIRE DEPARTMENT.

The following is taken from the mayor's annual message relating to the year 1878:

The fire department needs no commendation at my hands, or, in fact, from any quarter. The department speaks for itself. Its economy, discipline, and equipments, with its complete system of electric fire-alarm telegraph, are unsurpassed by any department of its size in the country. The valuation of the department property is \$865,190 50, with no debt of any kind.

The department consists of 117 officers and men, uniformed, drilled, and disciplined. The territory of this department comprises 13.44 square miles, to protect which it has 8 engines, 2 chemical engines, 2 hook-and-ladder companies, besides 2 extra engines, with hose carts, equipped as a reserve. The commission commend very highly the office of fire marshal, lately created, and say at no time in the history of the city have the ordinances governing fire prevention been so well enforced, and regard it as an indispensable economy.

SCHOOLS.

The following statistics for the school year ending August 31, 1879, are obtained from the report of the board of education for that year. The whole number of school-houses, not including two new ones (the Norvell and the John Owen schools), not quite completed, is 28:

Number of persons between 5 and 20 years, shown by school census.....	37,684
Cost of superintendence and instruction.....	\$143,221 87
Cost of incidentals, including repairs and all current expenses.....	\$38,295 86
Number enrolled in the schools from each 100 persons counted in school census.....	39.4
Average number of weeks of attendance of each person enrolled.....	28.75
Whole number of different names enrolled in all the schools.....	14,837
Average daily attendance for the whole year.....	10,665
Number of men teachers at the close of school year, including one special teacher of music and the superintendent.....	10
Number of women teachers at the close of school year.....	234
Average number of pupils to each teacher (excluding special), based on average membership.....	47.1
Total cost of education per capita, including all expenses except interest on money invested in school property.....	\$16 04

The percentage of attendance of membership of the schools is as follows: For the primary department, 93.9; for the grammar department, 94.7; for the high-school department, 97.1; for all departments, 94.4.

Number of pupils in membership, December 31, 1879, in each department of the schools: Number belonging in high school, 583; number belonging in grammar schools, 3,039; number belonging in primary schools, 6,722; total, 10,344.

The course of study is divided into 12 parts, corresponding to grades or years. The primary department comprises the first four grades; the 5th, 6th, 7th, and 8th grades constitute the grammar department; and the 9th, 10th, 11th, and 12th, the high-school department.

The free public library, in connection with and under the control of the board of education of this city, now containing over 40,000 volumes, is an institution highly appreciated and valued by the citizens, and adds greatly to the many attractive features of the city. The average number of books daily drawn from the library is over 600, and numbers of citizens daily visit it to consult books of reference that are not for circulation. About 10,000 names of citizens entitled to draw books are now on the register.

COMMERCE AND NAVIGATION.

[From the reports of the Bureau of Statistics for the fiscal years ending June 30.]

Customs district of Detroit, Michigan.	1879.	1880.
Total value of imports	\$1,342,600	\$1,703,038
Total value of exports:		
Domestic.....	\$2,475,388	\$2,326,031
Foreign.....	\$62,346	\$77,572
Total number of immigrants.....	1,913	4,021

Customs district of Detroit, Michigan.	1879.		1880.	
	Number.	Tons.	Number.	Tons.
Vessels in foreign trade:				
Entered.....	2,940	236,339	3,595	294,782
Cleared.....	2,852	231,739	3,657	307,298
Vessels in coast trade and fisheries:				
Entered.....	2,440	773,400	2,760	938,575
Cleared.....	2,539	788,249	2,948	968,609
Vessels registered, enrolled, and licensed in district..	308	64,402	313	70,815
Vessels built during the year.....	11	2,491	21	7,502

MANUFACTURES.

The following is a summary of the statistics of the manufactures of Detroit for 1880, being taken from tables prepared for the Tenth Census by James E. Tryon, chief special agent:

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
All industries.....	919	\$15,594,479	12,477	2,430	1,203	\$6,306,460	\$18,150,995	\$30,181,410
Baking and yeast powders	0	38,000	33	10	3	17,596	84,800	141,000
Baskets, rattan and willow ware.....	0	11,100	18	9	7	12,570	9,325	29,900
Blacksmithing (see also Wheelwrighting).....	30	43,875	80	.....	3	37,064	33,300	109,350
Boot and shoe uppers	3	7,300	22	12	2	12,150	20,500	42,200
Boots and shoes, including custom work and repairing	00	331,700	520	54	20	317,100	605,450	1,666,025
Boxes, cigar	4	41,000	30	25	20	23,450	58,000	103,000
Boxes, fancy and paper	3	5,900	6	30	1	10,160	34,500	58,000
Boxes, wooden packing.....	0	32,000	140	.....	17	54,600	145,500	220,800
Bread and other bakery products.....	47	225,400	220	12	35	146,880	636,380	930,157
Brooms and brushes	10	30,400	55	19	44	32,400	72,000	127,538
Carpentering	30	272,000	600	.....	3	254,236	580,495	955,195
Carriages and wagons (see also Wheelwrighting).....	23	200,000	285	2	8	127,945	174,000	400,220
Clothing, men's.....	31	963,500	273	767	.....	389,926	1,364,016	2,056,182
Clothing, women's.....	3	12,800	.....	44	.....	9,280	8,300	24,100
Coffee and spices, roasted and ground.....	3	55,000	27	6	1	16,950	100,000	145,000
Confectionery	8	207,200	93	72	5	69,860	467,400	584,200
Cooperage	20	118,300	183	.....	13	69,500	146,650	266,400
Corsets	4	46,800	20	115	10	41,450	111,100	203,500
Cutlery and edge tools (see also Hardware).....	4	9,000	14	.....	2	7,920	5,270	20,500
Dentistry, mechanical	5	9,000	7	2	1	4,760	11,000	27,500
Dyeing and cleaning	0	16,200	10	14	.....	9,228	5,700	22,100
Flouring- and grist-mill products	14	497,000	123	.....	.....	62,795	1,438,752	1,640,627
Foundry and machine-shop products	24	1,202,050	900	.....	64	431,065	915,955	1,808,355
Furniture (see also Upholstering)	32	248,800	264	18	78	119,620	229,002	438,801
Hairwork.....	4	6,200	.....	10	.....	5,120	5,000	15,800
Hardware (see also Cutlery and edge tools).....	3	27,000	55	.....	7	18,142	20,300	49,000
Hats and caps, not including wool hats.....	0	298,000	100	133	1	73,069	129,400	203,500
Instruments, professional and scientific	8	12,500	10	.....	.....	4,880	4,470	14,540
Iron and steel	7	1,547,386	1,088	.....	7	430,986	1,872,407	2,498,034
Jewelry	9	89,302	56	.....	4	40,490	58,251	135,000

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
Leather, curried	7	\$104,336	34	.....	.....	\$16,088	\$233,975	\$284,118
Leather, tanned	10	498,664	139	2	.....	56,403	465,526	629,600
Lime	4	95,500	30	.....	.....	10,440	18,733	37,555
Liquors, malt	28	1,205,120	209	4	1	140,677	640,768	1,143,001
Lock- and gun-smithing	6	4,500	10	.....	.....	4,200	1,850	13,300
Looking-glass and picture frames	13	252,050	266	74	60	126,472	217,797	462,642
Marble and stone work	16	110,100	173	.....	0	100,446	160,300	348,200
Models and patterns	3	3,800	4	.....	1	2,130	1,475	6,400
Painting and paperhanging	23	88,900	315	.....	10	130,235	194,220	384,930
Patent medicines and compounds	5	48,000	23	86	6	16,920	25,000	87,000
Perfumery and cosmetics	4	25,500	20	9	5	12,900	42,000	94,000
Photographing	16	40,550	35	11	3	19,892	24,860	74,600
Plumbing and gasfitting	16	136,260	183	.....	3	93,861	173,897	350,054
Printing and publishing	30	866,050	677	78	57	373,262	301,359	983,068
Roofing and roofing materials	5	30,000	65	.....	4	25,700	60,500	108,200
Saddlery and harness	26	39,100	70	1	6	33,415	51,100	120,700
Sash, doors, and blinds (see also Wood, turned and carved)	15	261,000	338	.....	68	148,525	278,850	553,000
Shipbuilding	10	157,200	756	.....	.....	310,005	364,202	738,075
Shirts	5	4,700	18	30	1	12,806	15,800	36,420
Slaughtering and meat-packing, not including retail butchering	7	485,000	137	.....	10	79,067	1,413,420	1,721,231
Spectacles and eyeglasses	3	45,000	53	5	19	23,400	24,500	71,000
Stencils and brands	6	9,200	18	.....	.....	10,750	10,500	34,100
Tinware, copperware, and sheet-iron ware	47	108,650	142	.....	24	68,781	100,725	232,700
Tobacco, chewing, smoking, and snuff (see also Tobacco, cigars and cigarettes)	5	495,000	138	125	80	100,725	719,554	1,212,148
Tobacco, cigars and cigarettes (see also Tobacco, chewing, smoking, and snuff)	58	453,700	723	102	74	310,828	572,080	1,196,870
Trunks and valises	3	35,500	78	.....	12	44,142	82,758	145,000
Upholstering (see also Furniture)	5	52,200	67	5	0	28,115	112,400	172,400
Wheelwrighting (see also Blacksmithing; Carriages and wagons) ..	15	12,300	32	.....	3	13,670	10,150	36,300
Wirework	4	87,000	135	10	22	69,000	97,500	192,500
Wood, turned and carved (see also Sash, doors, and blinds)	11	15,550	31	.....	3	14,306	13,850	40,840
Wooden ware	5	273,000	243	25	6	67,689	131,500	226,050
All other industries (a)	50	2,842,496	1,837	550	327	971,185	2,222,470	3,971,730

a Embracing artificial limbs; billiard tables and materials; boot and shoe findings; brass castings; brick and tile; bridges; carpets, rag; carriages and sleds, children's; cars, railroad, street and repairs; combs; drugs and chemicals; files; fruits and vegetables, canned and preserved; furniture, chairs; furs, dressed; gas machines and meters; gloves and mittens; hosiery and knit goods; ink; lasts; lumber, sawed; masonry, brick and stone; matches; musical instruments, organs and materials; musical instruments, pianos and materials; needles and pins; oil, lubricating; pens, gold; pickles, preserves, and sauces; pipes, tobacco; refrigerators; regalia and society banners and emblems; safes, doors, and vaults, fire-proof; saws; scales and balances; show-cases; stone- and earthen-ware; telegraph and telephone apparatus; umbrellas and canes; varnish; whips; and window blinds and shades.

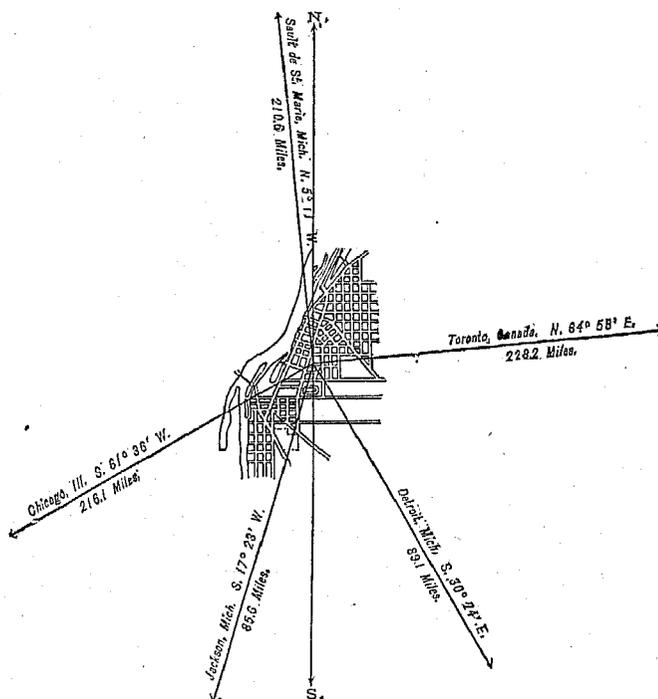
From the foregoing table it appears that the average capital of all establishments is \$16,968 96; that the average wages of all hands employed is \$391 46 per annum; and that the average outlay in wages, in materials, and in interest (at 6 per cent.) on capital employed is \$27,631 25.

EAST SAGINAW, SAGINAW COUNTY, MICHIGAN.

POPULATION

IN THE
AGGREGATE,
1860-1880.

Year	Inhab.
1790	.....
1800	.....
1810	.....
1820	.....
1830	.....
1840	.....
1850	.....
1860	3,001
1870	11,350
1880	19,016



POPULATION

BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male	10,246
Female	8,770
Native	11,660
Foreign-born	7,356
White	18,831
Colored	*185
* Including 2 Chinese and 3 Indians.	

Latitude: 43° 27' North; Longitude: 83° 56' (west from Greenwich); Altitude: 596.6 to 615 feet.

FINANCIAL CONDITION:

Total Valuation: \$7,539,090; per capita: \$396 00. Total Indebtedness: \$610,475; per capita: \$32 10. Tax per \$100: \$2 58.

HISTORICAL SKETCH. (a)

The land upon which a good portion of the city of East Saginaw now stands was originally entered by Dr. Charles Little in 1836, and in 1849 it was purchased by Hoyt and Company, of New York. In 1847 there were not more than half a dozen people in the place; but in 1850 the village of East Saginaw was plotted, and the first township election was held in that year. The commercial and manufacturing advantages were early recognized, and a steady stream of immigration followed. The city was incorporated in 1859. The first railroad reached this point in the same year, and since that time the growth of the city has been rapid and of a substantial and enduring character.

The city has been singularly free from great fires. In common with towns in a wooded country, where inflammable materials enter largely into its construction, more or less destruction from fire occurs, but there have

^a Ferd. A. Ashley, esq., city clerk of East Saginaw, secured and forwarded the detailed information, in response to schedules of interrogatories from this office, and furnished the data for the historical sketch with which this report is introduced.

been no sweeping conflagrations that have caused marked changes. The business portion of the city is compactly built of brick and stone, many of the public buildings equaling in solidity of construction and architectural beauty those of larger cities. Brick is now entering largely into the construction of private residences, although the greater number at present are of wood. The materials used in rebuilding, in nearly all cases, are of brick and stone. The city has experienced no exceptional depression in its history, beyond that induced by the panic of 1873. Its growth and business have steadily increased from year to year, and the disasters incident to the panic were few and of limited character compared with those of most manufacturing and commercial cities.

East Saginaw has undergone little or no change as regards the various sources of population. From the first settlement they have been principally from Germany, Canada, and the eastern states of the Union. The Canadian population is, in some respects, to quite an extent transient, the element locating here being chiefly the laboring class, who came in pursuit of employment at better wages than can be found in their own country, and many return after a few months. The various elements are pretty evenly distributed through the various occupations incidental to a city where the chief pursuits are connected with lumber and salt, and no one element has supplanted any other to any marked extent, the prosperity that attends one being equally the boon of all. During the last ten years agriculture has attracted more attention than it did in the early history of the city, and the German element is chiefly prominent in this pursuit.

The manufactures of East Saginaw consist of lumber, salt, shingles, furniture, mill and salt block machinery, sash, doors, blinds, etc. There are also numerous small manufactures, in the aggregate employing many operatives and doing a large business. The manufactures of lumber form one of the chief industries, and were first begun in 1837, but it was not until ten years later that the product had assumed proportions sufficient to enable the shipment of the first cargo. The second mill was erected in 1850, and in 1855 the flow of capital and the importance of the industry began to be recognized; since which time rapid progress has been made. In 1873 there were within the corporate limits of East Saginaw 18 lumber manufactories, with an invested capital of \$750,000. This has been increased to over \$1,000,000 at the present time. The making of sash, doors, blinds, and kindred articles furnishes employment to a large number of men throughout the entire year. The manufacture of rough lumber affords employment to operatives during only about 8½ months of the year. The manufacture of salt in Michigan was first begun in East Saginaw in 1859, and in 1860 the product was 4,000 barrels. In 1862 the product had reached 243,000 barrels, and the increase has been rapid from that date. The product of the state last year (1879) was 2,000,000 barrels, of which East Saginaw contributed nearly one-half. The blocks are operated in connection with saw-mills, the refuse from the logs being used as fuel and in the making of laths. The brine is pumped from wells, sunk to an average depth of 900 feet, and the supply seems to be unlimited. The manufacture of dairy salt was first begun here in 1878, and the product now amounts to 25,000 barrels annually.

These are the principal industries of East Saginaw, though the making of agricultural implements is rapidly advancing.

EAST SAGINAW IN 1880.

LOCATION, ETC.

East Saginaw lies in latitude 43° 27' north, longitude 83° 56' west from Greenwich, in the northwestern part of Saginaw county, on the east bank of the Saginaw river, 16 miles from its outlet into Saginaw bay and 2 miles below Saginaw city, which is located on the opposite bank. The city extends along the river from north to south a distance of 4 miles, and has an average depth of one mile, covering an area of 3,904.82 acres, according to the government survey. The altitudes above sea-level are: Lowest point, 596.6, and the highest point 615 feet. The Saginaw river, which, with its tributaries, is the second largest river in the state, has an average width here of 400 feet, and is navigable for vessels drawing 10 feet of water at average low stage. There is very little current here during ordinary stage of water. The banks from the city to the mouth of the river are very low, and are bordered on either side by low prairie land and marshes for an average width of 1 mile, after which the land rises gradually and is well adapted for gardening purposes. The city has water communication with the entire lake system, and regular lines of steamers ply during the season of navigation between this point and the principal lake ports.

RAILROAD COMMUNICATIONS.

The city is touched by the following railroad lines:

The Flint and Pere Marquette railroad, from Toledo to Ludington, Michigan, with a branch line to Bay City, connecting at various points with the Chicago and Grand Trunk railroad.

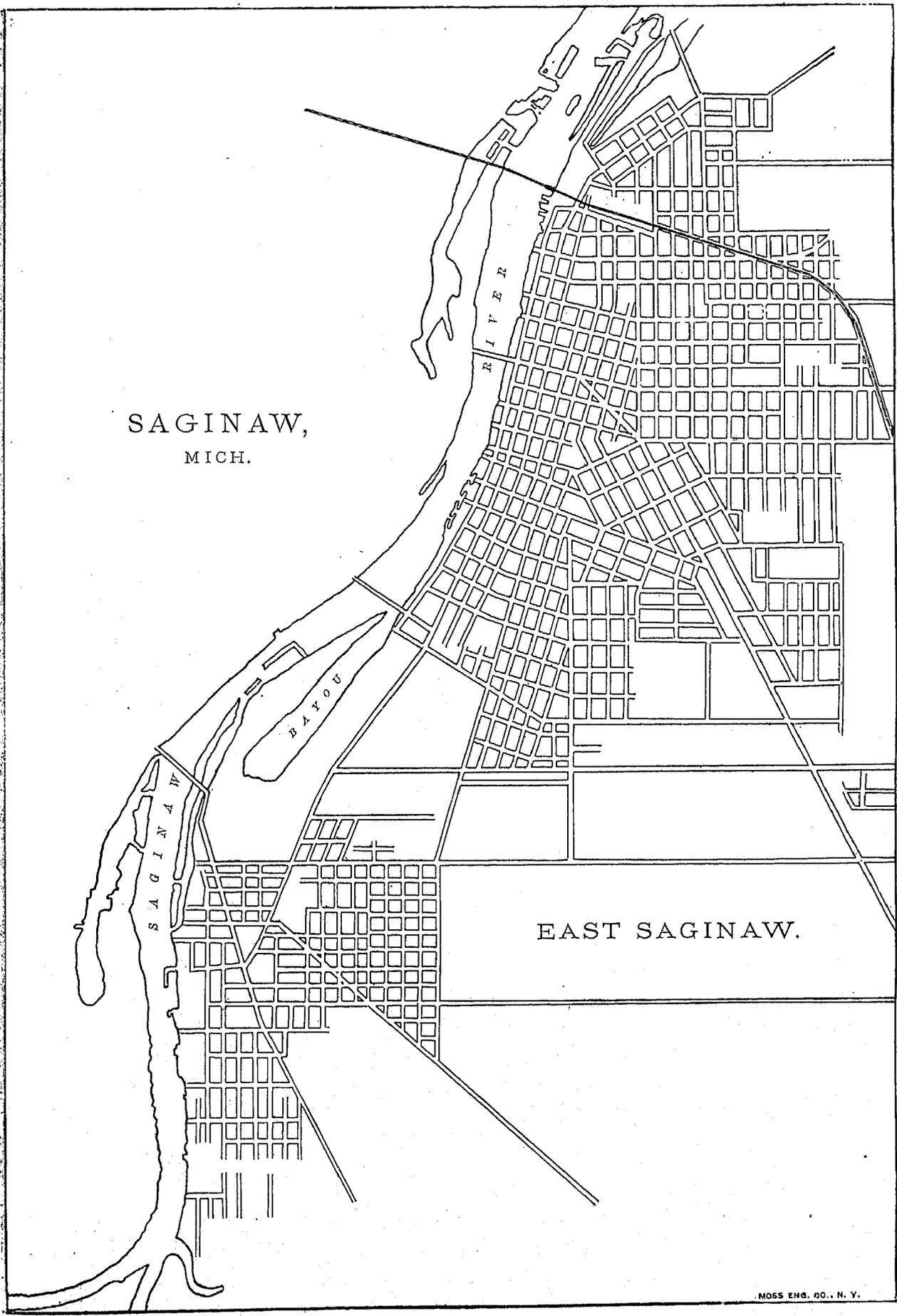
The Detroit, Grand Haven, and Milwaukee railroad.

The Detroit, Lansing, and Northern railroad.

The Lake Shore and Michigan Southern railroad.

The Detroit and Bay City division of the Michigan Central railroad, to Detroit.

SAGINAW,
MICH.



TRIBUTARY COUNTRY.

The country immediately surrounding East Saginaw is one of the richest farming sections in the state, being well adapted to the raising of winter wheat, while all cereals do well. The lowlands afford a rich pasturage and an abundance of hay. In addition to the manufacturing interests the city is the base of supplies for the lumbering region of northeastern Michigan, furnishing the necessaries to an army of from 6,000 to 10,000 men during the winter months. The five streams that unite near the southern limits of the city to form the Saginaw give a combined length of river navigation of over 1,500 miles, and the vast amount of lumber floated down them materially swells the volume of the city's trade.

TOPOGRAPHY, ETC.

The immediate surface is generally a black loam or clay, resting on a stiff blue clay, which is underlaid with a thin stratum of bowlders and gravel intermixed with quicksand; this immediately overlies the rock, and affords an abundant supply of good water. The first rocks are sandstone, about 90 feet thick, while the depth from the surface soil to rock averages 100 feet. There is good natural drainage north and south, but east and west there is little or no fall. The elevation of the surrounding country is from 28 to 34 feet above the level of the river.

CLIMATE.

Highest recorded summer temperature, 98°; summer temperature in average years, 71°. Lowest recorded winter temperature, -22°. The highest summer and the lowest winter temperature in average years was not given.

STREETS.

Total length, 100 miles, of which 7.5 miles are laid with plank, 1.2 mile with wood blocks, and 2 miles with gravel. The cost per square yard of each, as nearly as may be estimated, is, for plank, 35 cents; wood blocks, \$1 75; and gravel, \$1. The cost of keeping each in good repair is, wood blocks, 17 cents; plank, 5 cents, and gravel, 10 cents, per square yard per annum. The wood blocks cost 35 cents, and the plank 20 cents, per linear foot a year to keep clean. Mr. Ashley says:

The cedar block pavements have been laid but a short time, but are evidently the best pavements we have for durability and healthfulness. The planked streets are costly, having to be removed every two or three years. The gravel streets are comparatively an experiment with us, but we like them very much, and deem them successful when properly constructed.

The sidewalks are of 2-inch pine plank, laid lengthwise of streets, supported by 4 by 4 and 4 by 6 stringers, laid 4 feet apart, and spiked with 40-penny spikes, two in each bearing. The gutters, except on the paved and gravel streets, are open ditches, ranging from 2½ to 3 feet wide at bottom, with side slopes of ½ to 1 foot. They are constructed with great care, all grades being set by the city surveyor. All tree-planting is done by the property-owners, at the sides of the streets. The city has an ordinance in force, passed last year (1879), that makes an allowance of 50 cents for each tree planted by the abutters in front of their premises, provided the same is in a thrifty condition one year after being set out, and this sum is deducted from the amount of the highway tax levied on the parties interested.

Trees must be set in regular rows, not less than 12 nor more than 20 feet apart; and on streets 99 feet in width 15 feet from the line of lots, and on streets 66 feet in width 11 feet from the line of lots. The trees must be properly set out and protected by a stake or guard, and must be not less than 1½ inch in diameter 1 foot above the ground, the lower limbs to be not less than 8 feet above the ground. The advantages offered by the ordinance have been very generally sought, and it is estimated that some 1,500 trees have been set out since its adoption, although many property-owners do not ask for the credit. After the trees have been set out, accepted by the city, and the allowance for their planting made, they can not be disturbed unless with the permission of the street commissioner.

The construction and repairs of streets are done by contract, the system having been in practice here for years, and being deemed the most satisfactory. During the past 5 years there has been expended on streets \$79,260 97, or an average annual expenditure of \$15,852 19.

The street railroad of East Saginaw, to Saginaw, has a total length of 2½ miles, and its equipment consists of 8 cars and 30 horses. Twelve men are constantly employed, and sometimes more. The average number of passengers carried daily is about 800.

WATER-WORKS.

The works for the public water-supply are owned by the City. They were constructed in 1873 at a total cost of \$350,000. The Holly system, or direct pumping, is used, the power being furnished by two pairs of double-cylinder condensing steam-engines and 1 Holly rotary steam-engine. The ordinary pressure in the mains is 40 pounds to the square inch, and the fire pressure 85 pounds. The average amount of water pumped per diem is 1,245,895 gallons, the least being 915,840 and the greatest 1,708,000 gallons. The average cost of raising 1,000,000 gallons one foot high is 18.37 cents. The yearly cost of maintenance, aside from the cost of pumping, is \$3,000, and the

yearly income from water rates is \$19,218 50. A few water-meters are used. The total length of pipes of all kinds is nearly 22 miles. There are 157 hydrants, 136 stops and flushing valves, and 736 consumers. The daily pumping capacity of the works is 3,000,000 gallons.

GAS.

The gas-works are owned by a corporation, the capital stock being \$150,000. There are 10½ miles of pipes; a brick building, 30 by 120 feet, containing 8 benches, with 5 retorts on a bench; and a coal-shed, with a capacity of 5,000 tons. The total cost of the works, including pipeage, was \$160,000. There are 485 consumers. The daily average production is 200,000 cubic feet. The charge per 1,000 feet is \$3. The city pays annually \$24 for each street-lamp, 110 in number.

PUBLIC BUILDINGS.

The city owns and occupies for municipal purposes, wholly or in part, a hospital for contagious diseases, costing \$4,000; city prison, \$1,000; 2 engine-houses, brick, \$4,200; 4 frame hose-houses, \$300; city pound buildings, \$300; and the school buildings, \$175,388 60—making a total cost for the municipal buildings belonging to the city of \$185,188. The buildings used for city hall, city offices, recorder's court, etc., are rented, and are not owned by the city.

PUBLIC PARKS AND PLEASURE-GROUNDS.

There are no public parks or pleasure-grounds in East Saginaw.

PLACES OF AMUSEMENT.

There is one theater in the city, seating capacity 1,000, used for theatrical exhibitions; also one variety theater, seating 500. Theaters pay no license to the city. There are in addition to these 4 public halls, each with a seating capacity varying from 400 to 500, used for concerts, lectures, etc. The Germania institute, with a seating capacity of 1,000, has a beer-garden connected with it, and is well patronized. There are also several small beer-gardens, open a portion of the time.

DRAINAGE.

Sewerage works were begun here in 1866. The city was divided into districts, and sewerage plans were made and adopted for each district. All work done since 1867 has been done in accordance with these plans, under the direction of the board of sewer commissioners. The natural drainage of the city is very defective, and was made much worse by the raising of the grade at the streets, which increased the number of stagnant pools and wet places in various parts of the city. The engineer of the board of sewer commissioners states that there are still many ponded places in grades of streets, rendering it difficult to get rid of surface-water. These low spots are being drained as fast as the required sewers can be built.

The sewers discharge into the Saginaw river at the level of one foot below ordinary low water. This leaves the mouths of the outfalls exposed except for about one month during spring freshets. The first outlet sewer built was of brick and 60 inches in diameter. For a number of years the supply of water was not sufficient to keep it clean, and it was further obstructed by logs and rubbish floated in from the river at high water, until the outlet was protected by an iron grating. After the supply of sewage was increased by extending the number of lateral sewers there was no further difficulty from deposits. Since the introduction of a public water-supply, sewers have been flushed from the street hydrants for the purpose of cleansing, although deposits are not formed in sufficient amount to obstruct the flow. No repairs of consequence have been required since the beginning of the work in 1866. Regular inspections are made during the winter season, and the interior condition is found to be sound and good. No special provision is made for the ventilation, but in a few cases private drains have been connected with open rain-water leaders. It is only within the past few years that pressure of sewer air has ever been great enough to overcome the ordinary water-traps.

Sewers of 12, 15, and 18 inches diameter are of vitrified pipe; larger sizes are built with two rings of brick laid in cement. All materials are purchased by the city and kept in store. The work of trenching and laying is done by contract. Much difficulty was at first experienced in getting brick of suitable quality for sewers. A large quantity had to be purchased and stored, and even then but a poor selection could be secured. In later years better bricks have been made. One of the principal faults has been the presence in the clay of lumps of lime which slack and burst the brick on exposure to water.

The cost of sewers is assessed upon the abutting property to an amount equal to the cost of an ordinary lateral sewer with the usual number of basins and manholes. The additional cost above such an average rate is paid by the city. The average price of a 12-inch pipe sewer of ordinary depth is from \$1 50 to \$2 10 per foot, including basins and manholes. The cost of catch-basins is \$75 to \$80 each, and of manholes for brick sewers \$33 to \$90. Manholes for pipe sewers, \$12 to \$20 each, according to depth. The cost of cast-iron manhole covers is \$18 each in addition to the above.

Statistics of sewers in East Saginaw, Michigan, for 1880.

Brick sewers—	
60-inch brick, including 30 feet wood trunk	feet.. 770
54-inch brick, including 40 feet wood trunk	feet.. 2,866
48-inch brick, including 113 feet wood trunk	feet.. 897
42-inch brick, including 88 feet wood trunk	feet.. 5,426
36-inch brick, including 69 feet wood trunk	feet.. 2,930
30-inch brick	feet.. 430
24-inch brick	feet.. 6,067
Pipe sewers—	
18-inch stone ware and cement	feet.. 5,485
15-inch stone-ware and cement	feet.. 4,187
12-inch stone-ware and cement	feet.. 12,544
Total feet	feet.. 41,602
Total miles	7.83
Total number of inlet basins	208
Total number of manholes	323
Percentage of pipe sewers	0.53
Percentage of sewers 24 inches or less	0.68
Total cost	\$183,657
Total cost per mile	\$23,941
Total cost per foot	\$4.53

CEMETERIES.

There are 3 cemeteries in East Saginaw, as follows: *Brady Hill Cemetery*, area 20 acres, is on Brewster, between Salina and Jefferson streets, in the 5th ward, and is owned by the city; new cemetery (not yet named), on Maple street, adjoining the southern corporation line, has an area of 97½ acres, and is also owned by the city; and *Roman Catholic Cemetery*, area 5½ acres, is situated a little south of Brady Hill cemetery, and belongs to the Roman Catholic church.

The total number of interments made in Brady Hill cemetery from the time it was first used until the close of the present year is 4,010; but a portion of these are from the adjoining townships, and a large number are from Saginaw city, so that it is impossible to give the number of the city dead buried here.

No interments have so far been made in the new cemetery, but as Brady Hill cemetery is now nearly full, burials will soon have to be made here.

The number of interments in the Catholic cemetery is not reported.

There is no limit of time as to burial; except that it shall be within a reasonable time after death. In all interments in the city cemeteries a certificate from the attending physician is required, showing name of deceased, date and cause of death, place of birth, age, sex, and occupation, with name of attending physician.

MARKETS.

There are no public or corporation markets in the city.

SANITARY AUTHORITY—BOARD OF HEALTH.

The chief sanitary organization of the city is vested in the board of health, which is composed of the mayor and aldermen, with one health officer, who is always a practicing physician. The annual expenses of the board in ordinary times are about \$600, for salaries, and in case of an epidemic this can be increased to any amount deemed necessary. In absence of epidemics the board has a general control over the health and cleanliness of the city, with power to abate nuisances, etc.; while during an epidemic it can take all measures necessary to check and control the disease. The health officer—salary \$400 per annum—is not only the executive officer of the board, but has full power to act in nearly all cases, the board convening only when something of extra importance comes up. The mayor and alderman receive \$1 each for every meeting of the board. The meetings average one or two per month.

The police force is required to assist the health officer when called upon, and its members are required to report nuisances when they find them. Inspections are made as often as deemed necessary, and also as nuisances are reported. When nuisances are found to exist, the persons responsible are notified to abate the same, and if they fail to comply they are prosecuted. When defective house-drainage, privy-vaults, cesspools, or sources of drinking-water are found they are ordered to be corrected.

The board exercises full control over the conservation and removal of such garbage as is removed by the scavenger. The board requires that all burials, in cases of death from any contagious disease, shall be private. No one is allowed to pollute the river, and the removal of excrement is by the odorless excavator process.

INFECTIOUS DISEASES.

Small-pox patients are removed to the public pest-house, just outside of the city limits. Scarlet-fever patients are isolated at home as much as possible, no visitors being allowed. In case of the breaking out of contagious diseases either in public or in private schools, such as scarlatina, measles, diphtheria, small-pox, cholera, whooping-cough, and typhoid fever, the board closes the schools. Referring to this subject, the health officer says: "Last winter [1879-'80] we had an epidemic of diphtheria; then the board closed the schools for six weeks, but can not say that there was much benefit derived from the same." Vaccination is not compulsory and is not done at the public expense.

All births, diseases, and deaths are registered. Sextons report all burials quarterly to the common council and weekly to the health officer.

MUNICIPAL CLEANSING.

Street-cleaning.—The streets are cleaned both by the city and by private abutters, the city carting off the dirt at its own expense. The work is done wholly by hand, no sweeping-machines being used. The principal streets are cleaned every Saturday morning, and the work is reported as well done. The sweepings are deposited in low places. The cost of the service was not stated.

Removal of garbage and ashes.—Garbage is removed both by the city and by the householders, but the greater part is taken by persons who use it as feed for hogs. Garbage and ashes are not allowed to be kept in the same vessel. The wood ashes are used to make potash. It is possible that some nuisances detrimental to health may arise from the improper keeping of garbage on premises, from infrequent removal, from improper handling, or from improper final disposal, although the whole matter is closely watched by the health officer and the police.

Dead animals.—The carcass of any animal dying within the city is generally removed by the bone-man, at his own expense, outside of the city limits. No record is kept of the number of animals removed annually.

Liquid household wastes; human excreta.—Most of the liquid household wastes in the central part of the city go into the public sewers, while in other parts of the city they are thrown into vaults, none being allowed to run into the street-gutters or ditches. About 25 per cent. of the houses in the city have water-closets, all of which deliver into the sewers, while the remainder depend on privy-vaults. The vaults are mostly lined with brick or wood, and probably one-third of them are nominally water-tight. They are emptied by the odorless excavator process, and the night-soil is deposited on farms outside of the city. It is allowed to be used for manuring land within the gathering-ground of the public water-supply—Saginaw river.

Manufacturing wastes are run either into the sewers or directly into the river.

POLICE.

The police force of East Saginaw is appointed and governed by a board of police commissioners, consisting of the mayor, and two citizens appointed by the common council. The chief of police, salary \$1,000 per annum, is the chief executive officer, and has direct control of the department. The remainder of the force consists of 1 captain at \$900 a year, 1 sergeant at \$725 a year, and 11 patrolmen at \$675 a year each, with 1 special, who is paid only for actual duty performed. The men wear the "ordinary police uniform, sack overcoats", and each one furnishes his own. The patrolmen are equipped with clubs, handcuffs, and whistles, the night men usually carrying revolvers. The patrolmen are on duty 12 hours at a time, but the number of miles patrolled by the force was not stated.

During the past year 701 arrests were made, the principal causes being—assault and battery, 50; disorderly conduct, 88; intoxication, 336; murder, 4; larceny, 39; and vagrancy, 64. Of these cases, 48 were discharged, 41 discontinued on payment of costs, and the remainder were convicted. During the same time property to the value of \$1,600 was reported to the police as either lost or stolen, and of this, \$1,000 was recovered and returned to the owners.

During 1880 there were 316 station-house lodgers, as against 402 in 1879. Free meals to the number of 481, at 16 cents each, were furnished to the lodgers during the year.

The force is required to co-operate with the fire department in preserving order and protecting property at fires, and with the health department in reporting nuisances, etc. Special policemen are appointed by the board of police commissioners when their services are required. The yearly cost of the police force (1880) is \$9,605 88.

FIRE DEPARTMENT.

Mr. Ashley writes as follows in regard to the fire department of East Saginaw:

The city being provided with the Holly system of water-works, through which an ordinary pressure is kept up of 40 pounds, and which can be increased upon the sounding of an alarm to 80 or 100 pounds, no engines are required, the hose being attached directly to the fire-hydrants, from which streams can be thrown over the highest buildings when under fire pressure. Of these fire-hydrants there are now in use in the city 157. For outlying property, however, the city has one Silsby fire-engine, always ready for work. The hose carriages are as follows: One two-horse four-wheeled cart, 2 one-horse two-wheeled carts, and 5 two-wheeled hand hose-carts. The department consists of 1 chief and 8 men at the Central hose-house, and 5 firemen and 32 men at the five outside houses.

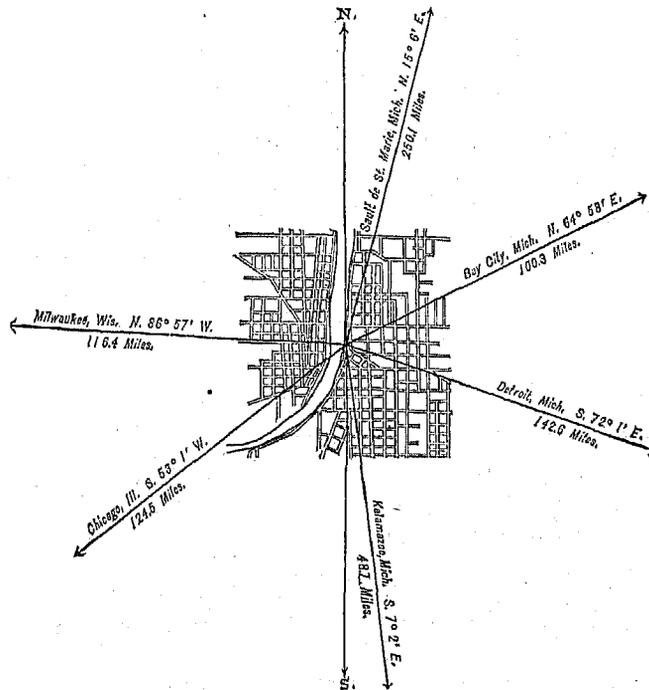
GRAND RAPIDS,

KENT COUNTY, MICHIGAN.

POPULATION

IN THE
AGGREGATE,
1850-1880.

	Inhab.
1790.....	
1800.....	
1810.....	
1820.....	
1830.....	
1840.....	
1850.....	2,686
1860.....	8,085
1870.....	16,507
1880.....	32,016



POPULATION

BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male.....	16,183
Female.....	15,833
—	
Native.....	22,016
Foreign-born.....	10,000
—	
White.....	31,584
Colored.....	*432
*Including 2 Chinese and 1 Indian.	

Latitude: 43° North; Longitude: 84° 42' (west from Greenwich); Altitude: 780 feet.

FINANCIAL CONDITION:

Total Valuation: \$8,692,571; per capita: \$272 00. Net Indebtedness: \$471,000; per capita: \$14 71. Tax per \$100: \$4 58.

HISTORICAL SKETCH.

In March, 1831, the legislative council of the territory of Michigan set off certain townships in the western part of the territory with a separate county, named Kent county, after Chancellor Kent, the celebrated jurist. The county was settled slowly until after the lands granted by Congress for internal improvements were put into the market by the state in the summer of 1843. The nominal price was the same as the government lands, \$1 25 per acre; but the obligations called warrants, taken in payment for these lands, could be purchased for 40 cents on the dollar, which made the cost of lands only 50 cents per acre. This low cost attracted the attention of immigrants then passing through Michigan to what were thought better lands farther west, who, on looking at these lands, were so well satisfied that they concluded to go no farther. Grand Rapids was made the county-seat, and as the country

around became more thickly settled it grew proportionally in size and wealth. On April 2, 1850, it was incorporated as a city. Its progress since then has been steady and rapid. It has an immense water-power, the finest in the state, and one of the finest in the country. This is brought into use by means of two canals, one on each side of the river. The east canal is half a mile long, 140 feet wide at the guard-gates, and 30 at the lower end; best head of water, 12 feet; height of dam, $6\frac{1}{2}$ feet. It is completely lined with factories from one end to the other. The west-side canal, completed by W. T. Powers in 1869, is 3,300 feet long, 100 feet wide at the upper end and 50 at the lower; amount of fall, 15 feet; height of dam, $6\frac{1}{2}$ feet. The chief industry in the city is the manufacture of furniture and wooden-ware in general. Immediately in or near the city are fine plaster or gypsum quarries, which furnish an almost inexhaustible supply of the finest land and calcined plaster. Large quantities of choice brick clay are also found here, and from 15,000,000 to 20,000,000 of brick for home and foreign use are annually manufactured. A good quality of lime is also made from stone taken from the bed of the river.

GRAND RAPIDS IN 1880.

The attempts of the Census Office to secure information concerning the present condition of the city were only partially successful, and the following statistical accounts are consequently not as complete as could have been wished:

LOCATION.

Grand Rapids lies in latitude 43° north, and longitude $84^{\circ} 42'$ west from Greenwich, on the rapids of the Grand river, 40 miles from its mouth, and 60 miles west-northwest of Lansing. The Grand river gives it water communication with lake Michigan most of the year for boats of from 100 to 150 tons burden, and small boats ascend about 50 miles above the rapids. These rapids are caused by a stratum of limestone rock, which extends about 2 miles along the channel with a descent of 17 feet, affording extensive water-power. The river here is some 800 feet wide, and the bluffs are from 2 to 3 miles apart. The city is built on both banks of the river and on the bluffs, which at their highest point rise from 150 to 200 feet above the river. The corporation limits are $3\frac{1}{2}$ miles long by 3 miles wide, with a small addition, irregular in form, extending down the east bank of the river, making its total area about 11 square miles.

RAILROAD COMMUNICATIONS.

Grand Rapids has the following railroads:

The Grand Rapids and Indiana railroad, the terminals being Petoskey, Michigan, and Richmond, Indiana.

The Detroit, Grand Haven, and Milwaukee railroad, passing through the city from Detroit to Grand Haven, where it connects by regular lines of steamers with Milwaukee and Chicago.

The Chicago and West Michigan railroad, connecting the city with Chicago, Muskegon, and Pentwater.

The Grand River Valley division of the Michigan Central railroad, connecting with the main line at Jackson.

The Kalamazoo division of the Lake Shore and Michigan Southern railway, connecting with the main line at White Pigeon.

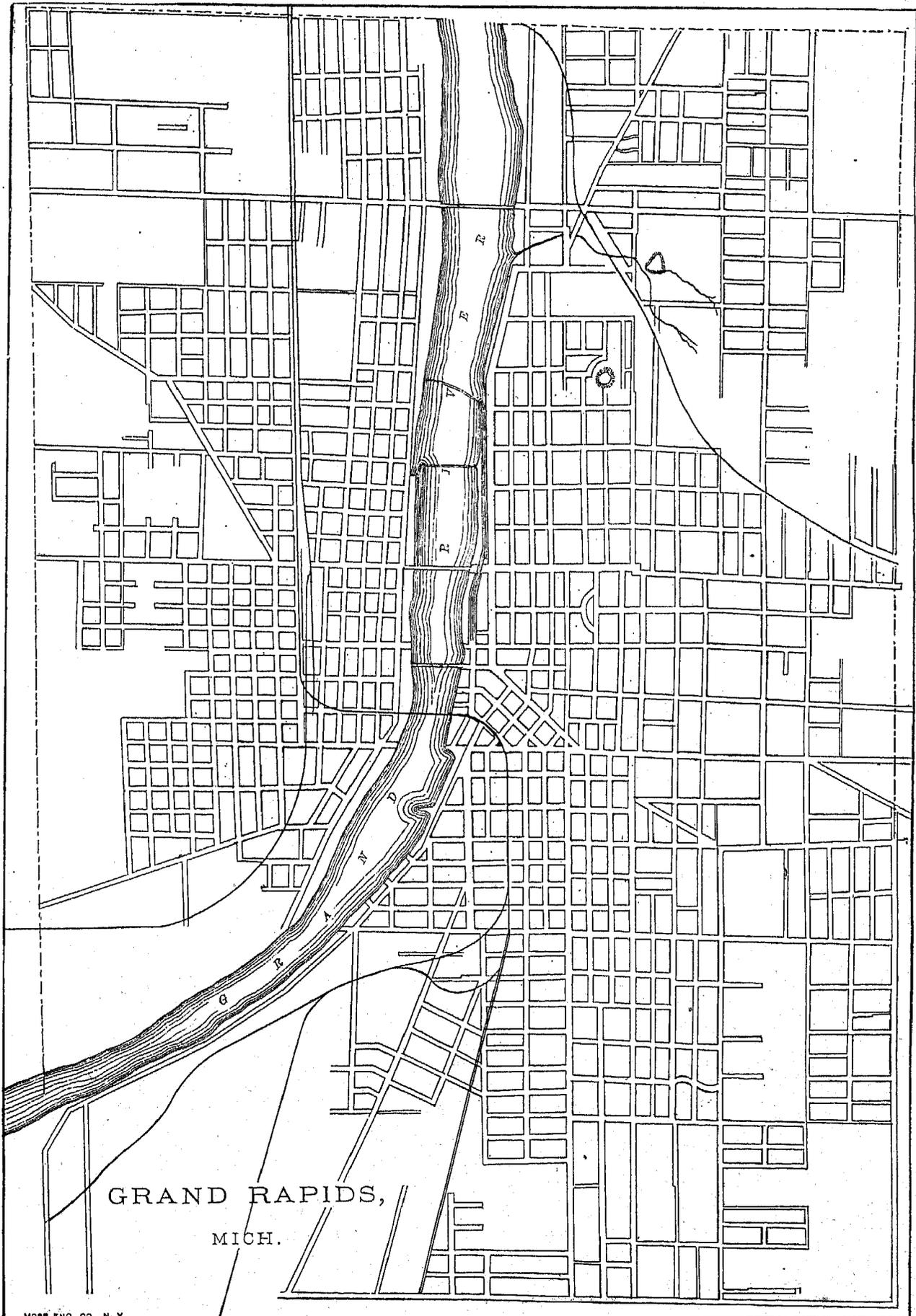
The Grand Rapids, Newaygo, and Lake Shore railroad, extending from Grand Rapids to Morgan.

TRIBUTARY COUNTRY.

The city is in the midst of an excellent agricultural and fruit-growing region, of which it is the business center. Kent county has a great diversity of soil and surface. It lies at an elevation of from 10 to 400 feet above lake Michigan. At the usual stage of the water in the lake the foot of the rapids at Grand Rapids is not more than 10 feet above lake Michigan. The country is rolling and well timbered. Scattered through it are swamps, ponds, and lakes.

TOPOGRAPHY, ETC.

Grand Rapids is for the most part much elevated above the river. The townships immediately around the city are made up of hills, plains, swamps, and lakes; the soil is fair, though in the northeast quarter are some poor, sandy hills. About 2 miles east of the city lies Reed's lake—a body of water about 2 miles long—a delightful summer resort. About a mile from the river on the west rise abrupt bluffs, beyond which is a rolling open country, and in the northern part some timbered land—all a good soil. Below the city are some extended bottom-lands along the river, and also below and near the river are plaster quarries and mills. Plaster rock was struck under the lime rock at all the borings for salt at and above the city. Salt was manufactured, but the brine did not prove of sufficient strength to warrant its continuance. The surface of the bluffs is sandy and gravelly, as has been mentioned. Brick clay has been found in considerable quantities.



GRAND RAPIDS,
MICH.

CLIMATE.

From the publications of the Smithsonian Institution it is learned that the mean annual temperature of Grand Rapids is 46.90°, the mean winter temperature 24.62°, the mean summer temperature 69.75. The average annual rainfall is 35.55 inches.

STREETS.

The total length of streets is 132.16 miles, of which 1.55 mile is paved with cobble-stones, 0.07 mile with wood, 3.97 miles with wood and stone together (*i. e.*, the side wings or gutters of cobble-stones and the central part of wood), and 53.53 miles with gravel. Cobble-stone pavement costs from 30 to 50 cents per square yard, wood from 50 to 75 cents, gravel from 15 to 25 cents. The sidewalks throughout the city, with the exception of a few hundred feet in the business portion, are nearly all of pine planks, and are from 6 to 12 feet wide. There are a few asphalt and tar concrete sidewalks. About 28.4 miles of streets have their gutters paved with cobble-stones. The sidewalks are usually graded from 14 to 16 feet wide, and the plank-walks 6 or 8 feet in width laid next to the property line; the rest of the walk is sodded for a lawn and planted with trees, the hard or sugar maple being generally used. The construction of streets is done by contract under a board of public works. Repairs are done by labor under the supervision of a highway commissioner, directed by the common council.

HORSE-RAILROADS.

The total length of horse-railroad track in the city is 8 $\frac{1}{2}$ miles; total number of cars, 19; of horses, 60; of men employed, 29. During the year 664,000 passengers were carried. The rate of fare is 5 cents, commutation tickets a little less.

WATER-WORKS.

The total cost of the works for the water-supply was \$401,589 50. The water is pumped into a distributing reservoir about 150 feet above the lower portion of the city. In the year ending May 1, 1879, the pumps were worked for 342 days an average of 8.13 hours per day, and an average of 117,740 gallons per hour was pumped. The average cost of raising 1,000,000 gallons 1 foot high was 8.96 cents. The yearly cost of maintenance, aside from cost of pumping, was \$2,223 81; the yearly income from water-rates, \$13,016 74. Ninety-four water-meters are used.

GAS.

The gas-works are not owned by the city. The daily average production is about 100,000 cubic feet. The charge per 1,000 feet is \$2 for the city; from \$2 25 to \$2 40 for private persons. The city pays \$11 25 each for gas street-lamps, 176 lamps in number.

PUBLIC BUILDINGS.

The city owns 6 engine-houses, which cost about \$48,000. There is no city hall, the municipal offices being located in rented apartments. The city owns school-houses valued at \$352,000.

PUBLIC PARKS AND PLEASURE GROUNDS.

There are 3 public parks, with a total area of 19 acres, as follows: *Lincoln Park*, 12.5 acres, unimproved; *Highland Park*, 5 acres, unimproved; *Fulton Park*, 1.5 acre, which has some gravel walks, band-stand, and trees, and is kept in decent order. The total cost of these was \$12,200, Lincoln park alone costing \$11,000. The parks are controlled directly by the common council.

PLACES OF AMUSEMENT.

The city has 3 theaters, viz: Power's opera-house, seating about 1,200; Pruith's opera-house, seating about 500; and Luce's hall, seating about 500. Theaters pay an annual license of \$300. Besides these large halls there are the Young Men's Christian Association hall, used for lectures, etc.; the Harmonia Singing Society's hall, for concerts and as a beer-garden, and the Herman hall, for amusements. There are 4 concert- and beer-gardens.

DRAINAGE; CEMETERIES.

No information on these subjects was furnished by the city authorities.

MARKETS.

The city has no public market. Private meat-markets pay a city license of \$1 per annum; meat-peddlers pay a city license of \$20 per annum.

SANITARY AUTHORITY—BOARD OF HEALTH.

The chief health organization is the board of health, consisting of 3 members, nominated by the mayor and confirmed by the city council, and the city physician *ex officio*. When there is no declared epidemic its annual expenses are about \$2,000, incurred for salaries of members, cost of abating nuisances, etc. In case of an epidemic the board may increase its expenses to any extent which the judgment of the majority of the members may deem necessary. Its authority is unlimited so far as pertains to the abatement of any nuisance, or any thing detrimental to the public health. During epidemics its authority is almost unlimited; it can close up or put under quarantine any building, public or private; forbid any railroad train, steamboat, stage-coach, or other public conveyance from entering the city, if it is suspected that a case of contagious disease is on board, etc. This board after its appointment is entirely let alone by the city government. It holds regular meetings every two weeks. Each member devotes one day in every week to inspections. When nuisances are reported from any neighborhood a visit is paid and the whole neighborhood inspected; in case the nuisance exists, a notice to abate within a specified time is served on the owner or occupant. In cases of defective house-drainage, privy-vaults, or cesspools, the board orders the defects remedied, and if they are not, then the officer has the repairs done, and the owner is assessed for the amount spent. Drinking-water is analyzed by a chemist, and if found impure the wells are filled up. The board has no control over city sewers or streets. It can and does order the removal of garbage; it furnishes a ground for burning it, and keeps a man there at times to do this. It exercises no control as to the burial of the dead, except that in the case of death from a contagious disease it can order a private funeral. The depositing of filth or garbage in the streams is forbidden.

INFECTIOUS DISEASES.

Small-pox patients are isolated at home, since there is no pest-house, but the board is urging the council to build one. Scarlet-fever patients are quarantined at home by a notice posted on the house. Under the ordinances, in case of the breaking out of contagious diseases in the public schools, the board would have full control, but the emergency has not yet arisen. Vaccination is not compulsory, nor is it done at the public expense.

REPORTS.

There is no registration of births or deaths, or of diseases, except contagious ones, which are reported to the city clerk. The board reports to the common council at the end of the year, but this action is not compulsory.

MUNICIPAL CLEANSING.

Street-cleaning.—Streets are cleaned both by the city and by private abutters. That which the city does is done by its own force and wholly by hand. The main street is cleaned about once a week, sometimes only once in two weeks, and other streets as often as they may need. The special defect of the system is that the city has provided no special place where the sweepings may be deposited, as should be done.

Removal of garbage and ashes.—Garbage is removed by householders, except in cases where the owner can not be found, and then the city removes it. While awaiting removal it must be kept in a tight box or vessel, and must be removed twice a week between the first day of May and the first day of November, and once a week during the rest of the year. If this is neglected it is the duty of the city scavenger to see that it is done. Garbage must either be buried to such a depth that it is not a nuisance, or else must be taken outside the city limits. As to ashes, the householders in a certain specified district of the city must put them three times each week in a metallic vessel on the outer edge of the sidewalk, whence they are removed by the city scavenger, that officer receiving 25 cents per month from the householders for each vessel so emptied by him. The city should own a few acres of land outside the city limits where garbage and ashes should be deposited.

The ordinances are very explicit as to scavengers, and deserve notice. Scavengers must be licensed and file bonds. Under the direction of the mayor, marshal, or a member of the board of health, they have the power to enter any premises in the daytime and examine any vault, sink, privy, or private drain. In case of a householder's failure to clean, alter, relay, or repair any of these on notice given by any of the authorized city officials, it is the scavenger's duty to do it. It is also his duty to clean or empty any vault, drain, or privy, and remove any and all nuisances when requested, and he may demand and receive his fees in advance.

Dead animals.—Dead animals are removed by the marshal or scavenger, as the case may be, and are disposed of by burial. As in the case of ashes and garbage, there should be one place set apart by the city for burial.

Liquid household wastes.—Nearly all of the liquid household waste of the city is delivered into the public sewers; none of it is allowed to run into the street gutters. What few cesspools are used are porous. Sometimes they or "dry wells" are found to be used to receive the waste of water-closets, but such cases are prosecuted. Cesspools are cleaned out by the city scavenger.

Human excreta.—A very large proportion of the houses depend on privy-vaults. Most water-closets deliver into the public sewers. The contents of privy-vaults are removed between the hours of 12 and 2 at night by the

scavenger, who receives from the person requiring his services 20 cents for each cubic foot so removed. Between the first day of May and the first day of November no privy shall be cleaned except upon written order or permission of the board of health in such special cases as in the opinion of said board the health and safety of the public may require. The contents of privy-vaults must in no case be used to manure ground within the city limits, and they must be carried outside those limits by the scavenger.

Manufacturing wastes.—No information could be secured under this head. The city ordinances are silent concerning the subject.

MANUFACTURES.

The following is a summary of the statistics of the manufactures of Grand Rapids for 1880, being taken from tables prepared for the Tenth Census by George W. Gage, special agent:

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
All industries.....	355	\$4,864,298	4,509	295	368	\$1,895,072	\$3,956,663	\$7,405,007
Agricultural implements.....	7	250,525	107	8	15	72,978	103,106	303,029
Blacksmithing (see also Wheelwrighting).....	18	9,425	19	.....	.....	10,200	11,520	32,974
Boots and shoes, including custom work and repairing.....	18	23,310	45	3	.....	27,270	53,130	101,292
Bread and other bakery products.....	14	80,750	57	4	8	31,420	195,050	253,500
Carpentering.....	14	21,100	98	5	.....	46,885	89,863	162,492
Carriages and wagons (see also Wheelwrighting).....	0	68,500	92	.....	1	41,700	75,930	138,822
Clothing, men's.....	0	118,920	106	89	.....	62,150	165,320	328,742
Coffins, burial cases, and undertakers' goods.....	3	71,300	86	.....	1	37,048	33,929	119,808
Confectionery.....	4	53,075	72	18	5	28,774	124,050	105,000
Cooperage.....	0	27,050	49	.....	.....	17,563	48,451	75,058
Drugs and chemicals (see also Patent medicines and compounds)....	3	65,500	35	1	1	11,500	34,539	78,427
Files.....	3	3,200	18	.....	.....	8,900	10,700	22,000
Flouring- and grist-mill products.....	5	129,500	33	.....	.....	17,550	356,775	398,988
Foundry and machine-shop products.....	13	267,971	276	.....	.....	133,499	188,451	384,611
Furniture.....	11	1,312,156	1,702	6	99	647,537	823,086	1,831,172
Liquors, malt.....	7	278,000	65	.....	.....	29,833	123,553	220,526
Looking-glass and picture frames.....	4	10,800	9	5	.....	5,950	14,650	30,518
Lumber, sawed.....	8	1,014,085	252	.....	.....	79,009	457,259	755,476
Marble and stone work.....	4	8,500	11	.....	.....	4,044	9,800	20,800
Masonry, brick and stone.....	8	17,800	89	.....	.....	26,538	49,055	88,320
Painting and paperhanging.....	11	8,500	41	.....	.....	18,270	24,940	54,475
Patent medicines and compounds (see also Drugs and chemicals)....	4	3,100	3	.....	.....	1,400	3,600	9,132
Photographing.....	10	13,850	11	6	.....	7,074	6,130	26,423
Plumbing and gasfitting.....	4	16,350	16	.....	.....	9,194	27,322	46,680
Printing and publishing.....	20	93,450	151	3	57	70,250	46,602	168,824
Saddlery and harness.....	10	15,150	40	.....	1	10,028	36,100	62,156
Sash, doors, and blinds.....	6	66,500	96	.....	1	33,489	93,396	160,043
Tinware, copperware, and sheet-iron ware.....	10	26,600	53	.....	.....	28,274	48,775	93,740
Tobacco, cigars and cigarettes.....	18	39,300	63	5	8	26,445	74,655	124,463
Upholstering materials.....	3	13,500	7	.....	4	4,200	7,506	18,425
Watch and clock repairing.....	12	4,050	15	.....	.....	9,776	5,375	23,972
Wirework.....	3	1,100	1	.....	.....	700	1,900	4,124
Wheelwrighting (see also Blacksmithing; Carriages and wagons)....	13	8,400	26	.....	4	11,700	13,250	35,448
All other industries (a).....	60	638,381	675	147	163	301,974	533,319	1,067,597

a Embracing awnings and tents; baking and yeast powders; baskets, rattan and willow ware; bolting and hose, leather; bookbinding and blank-book making; boxes, cigar; boxes, wooden packing; brick and tile; brooms and brushes; carriages and sleds, children's; carriage and wagon materials; corsets; outlery and edge tools; electroplating; engraving and die-sinking; fertilizers; flavoring extracts; furs, dressed; gloves and mittens; hats and caps; housefurnishing goods; instruments, professional and scientific; iron work, architectural and ornamental; lime; lock- and gun-smithing; lumber, planed; mattresses and spring beds; mineral and soda waters; musical instruments, organs and materials; pumps; roofing and roofing materials; saws; sewing machines and attachments; shirts; soap and candles; sporting goods; steam fittings and heating apparatus; stencils and brands; stone- and earthen-ware; surgical appliances; toys and games; upholstering; wood, turned and carved; wooden ware; and woolen goods.

From the foregoing table it appears that the average capital of all establishments is \$13,702 24; that the average wages of all hands employed is \$366 41 per annum; and that the average outlay in wages, in materials, and in interest (at 6 per cent.) on capital employed is \$17,305 89.

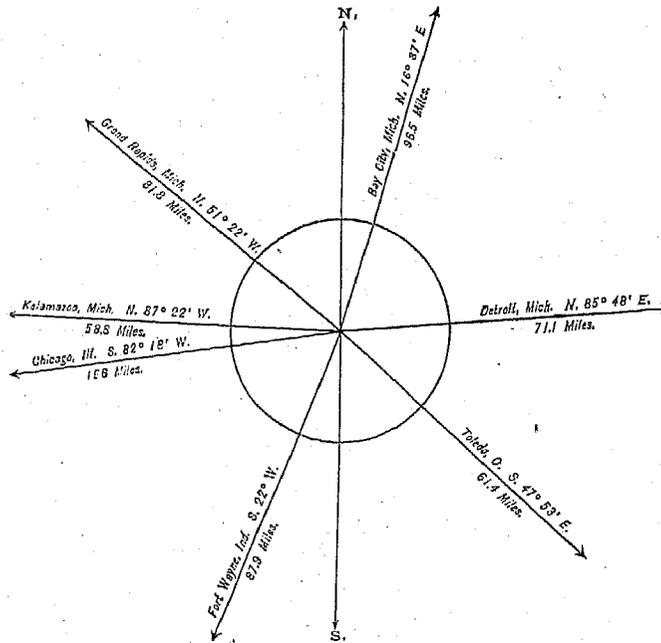
JACKSON,

JACKSON COUNTY, MICHIGAN.

POPULATION

IN THE
AGGREGATE,
1850-1880.

	Inhab.
1790.....	
1800.....	
1810.....	
1820.....	
1830.....	
1840.....	
1850.....	2,363
1860.....	4,799
1870.....	11,447
1880.....	16,105



POPULATION

BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male.....	8,327
Female.....	7,778
—	
Native.....	12,977
Foreign-born.....	3,128
—	
White.....	15,669
Colored.....	*430
* Including 3 Chinese and 3 Indians.	

Latitude: 42° 16' North; Longitude: 84° 26' (west from Greenwich); Altitude: 931 feet.

FINANCIAL CONDITION:

Total Valuation: \$2,142,350; per capita: \$133 00. Net Indebtedness; \$184,000; per capita: \$11 43. Tax per \$100: \$5 14.

HISTORICAL SKETCH.

The first settlement by white people on the site of what is now the city of Jackson was made in 1829. A portion of the ground had long previously been occupied and cultivated by the Indians, for whom this had been a favorite camping-ground, and a central point for their trails leading to all parts of the Indian territory. Some nine or more of these trails diverged from this place, among them the great Washtenaw, the Saint Joseph, and the Chicago trails, the marks of some of which are yet visible, and which a few years since could be distinctly traced for some distance east and west of the city. It was a forbidding site for a village or city. The low ground was a swamp, the high land a succession of sand knolls or hills of a very uneven character, interspersed with springs and bog-holes. The river bottom was heavily timbered, very low and wet, and so difficult to improve that it was thirty years after the town was started before there was a good, well-established street passing through it. In making improvements to-day, such as laying water-pipes or building sewers, the old log causeways several feet below the surface of the ground are often found.

JACKSON.
MICH.

SCALE OF FEET
0 500 1000 1500



In 1829, Mr. Horace Blackman, a young man from Tioga county, New York, went through this country on a tour of inspection, and finally "located" a piece of land where now is the heart of the city of Jackson; and in the fall of this year, with the assistance of his brother, he erected a log cabin on his land, preparatory to his occupation of it in the spring. In October of this year the legislative council of the territory of Michigan created the region round about here into Jackson county. In 1830, the commissioners who were locating the territorial road, together with a party of Ann Arbor citizens, stayed a couple of days and nights in Blackman's empty cabin, and after much festivity christened the place Jacksonburg. The first actual settlement was made in the spring of 1830 by a number of Ann Arbor people, some of whom proceeded at once to build a dam, race, and saw-mill, and soon afterward the village was laid out and platted. In the fall of the same year a post-office was established, called Jacksonopolis.

Settlers now began to come in rapidly, and the village grew in proportion. In 1837 a court-house and county clerk's office was built. On December 29, 1841, the Michigan Central railroad was completed to Jackson; and as it was nearly three years before it was completed to Albion—an interval of time in which Jackson was the terminus of the road and commanded the business of the country north and west—undoubtedly laid the foundation not only of the future prosperity of the city, but also that of most of its successful business men. In 1838 the state penitentiary was located at Jackson, and has been in progress of erection ever since, or rather additions have always been in progress. The system of letting the labor of the convicts to work for contractors has been the policy pursued by the state, and the manufactures thus carried on have grown.

The city of Jackson was incorporated in 1857. The general progress of the city has been quite regular, with no great depressions at any time. It held its own very well during the late hard times. It has had no extensive fires.

JACKSON IN 1880.

The following statistical accounts, mainly collected by the Census Office, indicate the present condition of Jackson:

LOCATION.

Jackson, the capital of Jackson county, Michigan, is situated on the Grand river near its source, 76 miles west of Detroit and 38 miles south by east of Lansing, at an altitude of about 930 feet above the level of the sea. The highest elevation of the city is reported to be about 100 feet above its lowest point. It is not situated on navigable water.

RAILROAD COMMUNICATIONS.

Its railroads with their terminal connections are as follows:

The Michigan Central railroad, from Detroit to Chicago, passes through the city, the air-line division of which leaves the main road here, joining it again at Niles.

The Fort Wayne and Jackson railroad connects Jackson with Fort Wayne, Indiana, and with the many roads diverging from there.

The Jackson branch of the Lake Shore and Michigan Southern railroad (running from Chicago to Buffalo) connects with other divisions at Adrian, and so with the main line at Toledo.

The Saginaw division of the Michigan Central railroad runs to Bay City.

The Grand Rapids division of the same road runs to Grand Rapids.

TRIBUTARY COUNTRY.

The surrounding country is principally a farming country, with wheat, wool, and live stock as its most important products. There are a number of flour-mills scattered over it. There are quite important coal mines in the immediate vicinity, and even within the city limits. A considerable trade, both wholesale and retail, comes from along the railroads running into the heavily timbered lands from 20 to 25 miles north, south, and southwest.

TOPOGRAPHY.

The country in the immediate vicinity is generally level, but originally it was mostly oak openings with much marshy land, which is now nearly all improved in farms.

CLIMATE.

The highest recorded temperature is 104°; highest in average years, between 98° and 100°. Lowest winter temperature in average years, about 20°. It is reported that spring and fall are of short duration—that, in other words, the changes from summer to winter and from winter to summer are quite abrupt. The influence of adjacent waters, marshes, and elevated lands is insignificant. The prevailing winds are southerly and southwesterly.

STREETS.

About 0.5 mile of streets is paved with cobble-stone, 0.5 mile with wood, and about 10 miles with gravel; the cobble-stone pavement cost about 60 cents per square yard, the wood 50 cents. The sidewalks are mostly made of planks, except a small portion of the business quarter, where they are of stone; recently the tendency has been toward brick and concrete, and perhaps a mile of them has been laid during the past year in place of plank. Gutters are generally paved like the street. Nearly all the streets have one row of trees on the outer edge of the sidewalk, and many have a second row some 10 or 12 feet out into the street, with a grass-plot between. The work of construction and repair of streets is done by the day, the cost being from \$10,000 to \$15,000 a year. So far as economy is concerned, the preference is for contract work. But little street work, however, has been done by contract. The city covers 9 square miles, and ordinary grading and repairs are so scattered that the authorities say it can not well be done by contract, and they say, besides, that if done by the day it would give more employment to a class of poor laborers that might otherwise be obliged to call on the city poor-fund for help.

WATER-WORKS.

In 1870 the city constructed water-works on the Holly plan. The average amount pumped per day is 1,000,000 gallons; the greatest amount, 1,300,000; the least, 800,000. The yearly income from water rates is \$8,500.

GAS.

The gas-works are not owned by the city. The charge per 1,000 cubic feet is, to individuals, \$3; to the city, \$2 50. There are 121 street lamps.

PUBLIC BUILDINGS.

The city owns no municipal buildings.

PUBLIC PARKS AND PLEASURE-GROUNDS.

There are 2 small parks in the city of a total area of 2 acres. The County Agricultural Society owns 28 acres within the city limits, which it uses for fairs, races, etc.; by agreement this is kept for public uses.

PLACES OF AMUSEMENT.

There are no regular theaters in the city, but there are two theater buildings for the use of traveling companies, which seat from 2,600 to 2,800 persons, and pay an annual license of \$75 each. The Young Men's Library Association has a hall seating 800; the German Harmonic Society, one seating 500; the Young Men's Christian Association, one seating 700; and the Reform Club, one seating 500. There are no public concert- and beer-gardens.

DRAINAGE.

There are in Jackson about 2 miles of brick sewers from 20 to 30 inches in diameter—usually 24 inches—and 1 mile of pipe sewers from 9 to 16 inches in diameter. They are laid within the lines of streets, and do not follow the natural water-courses, though some small streams have been taken into the sewers. There is no regular system for the whole city. Each sewer is regulated according to the supposed requirements of the case as it comes up. The outflow of sewers is discharged into Grand river. The mouths of outfalls are on a level with the ordinary stages of the river, and are submerged only in times of high water. No provision is made for ventilation, and there has been no artificial flushing or cleansing by hand. It is reported that the waste water from houses and the surface-water from storms keep the sewers clean. The city pays two-thirds of the cost of building sewers, and the other third is assessed upon property benefited, whether abutting or not. Assessments are laid on the basis of benefits, and are apportioned by a board of 3 assessors, subject to the approval of the common council. Brick sewers 24 inches in diameter are reported to cost on the average \$1 10 per linear foot. Differences in cost depend more on the cost of trenching under different circumstances than on the size of the sewers.

CEMETERIES.

The city has 5 cemeteries, including one which has been laid out but in which there are as yet only a few interments. The information furnished on this head, as on all the rest, was very meager.

MARKETS.

There are no public markets. There is very little wholesale business done in the city, the retailers getting meat and produce directly from the farmers.

SANITARY AUTHORITY—BOARD OF HEALTH.

The chief health organization is the board of health, an independent board with three members, one of whom is a physician. None of them have police powers. It makes reports to the chief of police and to the city council. It is appointed by the mayor, and its action is subject to the control of the city government. Inspections are made in the spring and fall, and when nuisances are reported; in the latter case the matter is looked up, and if after three days the nuisance has not been abated a warrant is issued. Scarlet-fever patients are quarantined at home and the house is placarded. The city owns a pest-house situated out in the country. The reports of the board are published only in the city papers.

MUNICIPAL CLEANSING.

Street-cleaning.—Streets are cleaned by the city's own force and by hand, except in the spring and fall, when a machine is used. The business streets are cleaned each week; alleys adjacent thereto each month; other streets and alleys once a year. It is reported to be done thoroughly. The sweepings are either deposited on the river bank or used in filling up low streets. The system seems satisfactory, except in respect to the place of deposit.

Removal of garbage and ashes.—Garbage is removed both by householders and by the city. Part of it is used to feed swine outside the city, and a very large portion of the rest is thrown into the river. Ashes are either used for filling in streets or dumped into the river. The cost to the city is included in the cleaning of alleys. Nuisances and injury to health are not uncommon.

Dead animals.—The removal of dead animals is under the charge of the chief of police. They are said to be promptly cared for by the proper authorities. The smaller ones and part of the larger ones are buried in the southwestern portion of the city, half a mile distant from the inhabited portion; the rest are used in the manufacture of soap. Small animals are occasionally thrown into the river. The annual cost of this service is \$50. The only defect in the system reported is the place of burial. It is reported that it would be better if this were changed to the northern or eastern portion of the city.

Liquid household wastes.—Waste water from sleeping-rooms is disposed of in the same way as laundry waste and kitchen slops. It is delivered into the public sewers where they exist. Very little if any runs into either gutters, cesspools, or dry wells. What cesspools and dry wells exist are porous and are not provided with overflows. When these are used they do not receive the waste of water-closets. There are no regulations as to the cleaning out of cesspools, except when they become nuisances, and then the board of health sees to it.

Human excreta.—Three-fourths of the business portion of the city has water-closets, and perhaps also 5 per cent. of the dwellings have them; the rest depend on privy-vaults. The small percentage of dwellings having water-closets is mainly due to the recent construction of sewers. Nearly all the water-closets deliver into the public sewers, and only a small portion into cesspools. Privy-vaults must not be located within 20 feet of the street. The board of health has the general supervision of their emptying, which is carefully looked after. The dry-earth system is not used to any extent. Night-soil is ultimately removed outside the city, and it is not allowed to be used for manuring land within the gathering-ground of the public water-supply.

Manufacturing waste.—Manufacturing waste is deposited near or in the river below the city.

POLICE.

The police force is appointed by the mayor and confirmed by the common council; it is governed by the chief of police, who receives a salary of \$1,000 per year. There are 7 patrolmen, with salaries of \$700 per year each. Their uniforms are blue, with brass buttons, each man furnishing his own and the city furnishing the buttons. The city also furnishes belts, batons, and handcuffs; the men buy their own revolvers if they wish to carry them. They serve 12 hours each day, being changed at noon and at midnight. Last year there were 496 arrests, the principal cause being drunkenness. During 1880 there were about 700 station-house lodgers; in 1879, 856. The department furnished them no free meals. The police are required to co-operate with the fire department merely to the extent of guarding property and keeping order at fires. Special policemen are appointed like the regular force. The yearly cost of the police force (1880) is \$7,900.

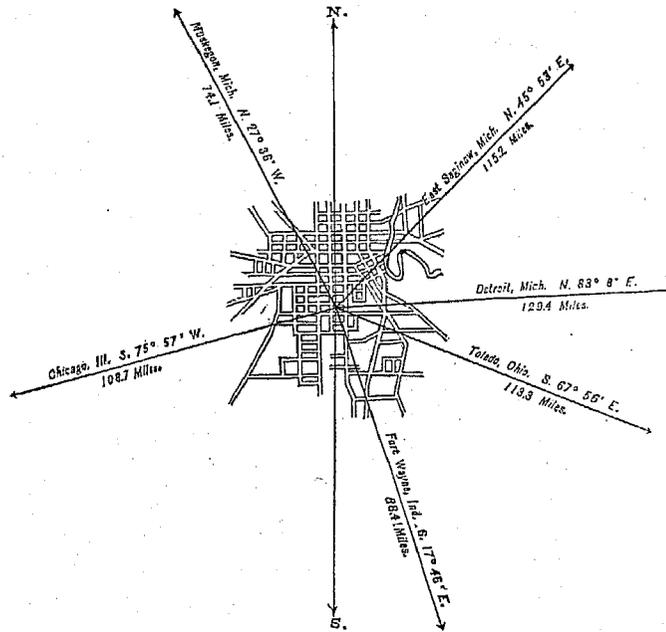
KALAMAZOO,

KALAMAZOO COUNTY, MICHIGAN.

POPULATION

IN THE
AGGREGATE,
1850-1880.

	Inhab.
1790.....	
1800.....	
1810.....	
1820.....	
1830.....	
1840.....	
1850.....	2,507
1860.....	6,070
1870.....	9,181
1880.....	11,937



POPULATION

BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male.....	5,670
Female.....	6,267
—	
Native.....	9,203
Foreign-born.....	2,734
—	
White.....	11,475
Colored.....	462

Latitude: 42° 18' North; Longitude: 85° 35' (west from Greenwich); Altitude: 663 to 901 feet.

FINANCIAL CONDITION:

Total Valuation: \$5,478,360; per capita: \$404 00. Net Indebtedness: \$25,000; per capita: \$1 84. Tax per \$100: \$1 48.

HISTORICAL SKETCH.(a)

The site of the village of Kalamazoo was formerly occupied by Indian trading-posts that were established here in 1823; but the first regular settlement was not made until 1829-'30. The county of Kalamazoo was organized in 1830, and the county-seat was located here in the January following. The village organization was made in 1843, and that form of municipal government is still retained. A fine water-power is afforded by the river at this point. There have been no serious ravages by fire. Commercial and financial depression first occurred in 1837, and subsequently at dates corresponding with those affecting the "Northwest" or the entire country. The population came originally and mainly from New England and western New York, and this element with its descendants still predominates. The foreign-born population comprises Hollanders, Irish, and German, the former class being the most numerous.

^a Dr. Foster Pratt, of Kalamazoo, collected and forwarded to this office the information on which this report is based.

KALAMAZOO IN 1880.

LOCATION.

Kalamazoo lies in latitude $42^{\circ} 18'$ north, and longitude $85^{\circ} 35'$ west from Greenwich, on the left bank of the Kalamazoo river, about 65 miles above the point where it enters lake Michigan, and in the southwestern part of the state. The average elevation of the village above mean sea-level is 693 feet, or 120 feet above the surface of lake Michigan, the lowest point being 663 feet and the highest 901 feet above sea-level. The river on which the village is situated is navigable for vessels of 50 tons from its mouth to Allegan, Michigan, 25 miles below Kalamazoo.

RAILROAD COMMUNICATIONS.

The village is touched by the following railroads:

The Michigan Central railroad, from Detroit to Chicago.

The Kalamazoo and South Haven railroad (now operated by the Michigan Central), to South Haven, on lake Michigan.

The Grand Rapids and Indiana railroad, between Richmond, Indiana, and Mackinac, Michigan.

The Kalamazoo division of the Lake Shore and Michigan Southern railway, between White Pigeon and Grand Rapids, Michigan.

TRIBUTARY COUNTRY.

The country immediately tributary to Kalamazoo is principally agricultural, the main products being those of a "mixed agriculture"—that is, wheat, corn, oats, barley, potatoes, hogs, cattle, milk, butter, hay, apples, peaches, pears, quinces, grapes, berries, etc. Also timber products, consisting of pine, and various kinds of hard wood suitable for manufacturing purposes.

TOPOGRAPHY, ETC.

The site of the village is supposed to lie over the "Waverly group", but no stratified rock has been found in the county, one boring having been made to the depth of 150 feet. The surface is rolling, the average variations of level being about 200 feet. The entire valley is drained by the Kalamazoo river and its tributaries. The soil is a sandy and gravelly loam, the gravel consisting largely of carbonate of lime. There is a large amount of "lake surface" in the county, of which 200 acres are close to the village. Some marshy formations on the borders of streams are now nearly all drained and cultivated. The surrounding country, originally wooded, is now open, and the character of the soil is as stated above. The entire surface is gently rolling.

CLIMATE.

Highest recorded summer temperature, 99° ; highest summer temperature in average years, 92° . Lowest recorded winter temperature, -32° ; lowest winter temperature in average years, -15° . The prevailing winds are from the west, blowing over lake Michigan, and tend to delay spring, to mitigate the summer heat, and to prolong the autumn weather. Vegetation is delayed here from ten days to two weeks, as compared with points in the same latitude 100 miles east.

STREETS.

Total length of streets in the village, about 80 miles; of these, 1.06 mile is paved with wood (Nicholson), and 12 miles with gravel. The cost per square yard for the Nicholson pavement varies from \$1 50 to \$2 25; the cost of the gravel pavement can not be accurately given, as gravel-beds are found in the hills near the village, while the excavating, hauling, and spreading are done partly by day's work and partly by private subscription. It is said that the natural soil, except in the fall and spring, makes good roads. The quality and the permanent economy of each class of pavement can not be stated, as the wood is laid on the business streets and the gravel on residence streets, the wear and tear therefore greatly differing. The sidewalks are of plank or Portland cement, varying in width from 4 to 14 feet; and of all kinds there are 150 miles in length. Gutters, when paved at all, are laid in cobble-stones. The soil is very porous, and on gravel streets gutters are but partially paved. But little tree-planting is done by the municipality. The village is situated on what was originally a burr-oak plain, or "opening", the natural growth having been carefully preserved, and allowed to be cut only when necessary to accommodate dwellings, to open streets, etc. Dr. Pratt says: "Maple and elms have been put into spaces by private enterprise. Ours is the 'burr-oak village', and has so much *rus in urbe* that little needs to be done in this direction. Indeed, in some localities, shade has become so dense as to require cutting out." On nearly all the streets grass-plots border the driveways. Nearly all street work is done by the day. For a large amount of definite work or material for construction, contracts are preferred. The annual cost of street work was not stated.

There are no horse-railroads or regular omnibus lines in the village. There are, however, 21 licensed hacks and omnibuses, with 60 horses and employing 97 men, which carry passengers to all parts of the village at rates of fare of from 25 to 50 cents, according to distance.

WATER-WORKS.

The works for the public water-supply are owned by the village, and their first cost was \$158,000. The Holly system, or direct pumping, is used, the pressure in the mains varying from 40 pounds for domestic to 150 pounds for fire purposes to the square inch. The average amount of water pumped per diem during the year was 776,635 gallons. Yearly cost of maintenance, aside from the cost of pumping, \$3,233 72, and yearly income from water-rates, \$5,131 69. A few water-meters are used, only for the purpose of testing the average amount used by large consumers. In reply to the question concerning the cost of raising 1,000,000 gallons one foot high, Dr. Pratt says:

An answer to this can be based only on uncertain data. We use pine slabs largely for fuel, with some hard wood and some coal. Annual cost of pumping, \$2,450 37, delivering 776,000 gallons to consumers daily, under 45 pounds average pressure. During the fiscal year ending March 31, 1880, 287,535,600 gallons of water were delivered, under a pressure of 45 pounds, to about 500 consumers; and for fire purposes, cost of pumping was \$2,450 37; other cost, \$3,233 72; total cost, \$5,684 09. Total revenue, \$5,131 69; deficit, \$552 40 (charged to fire department); add \$5,817 64, other cost of fire department, makes total cost of the department \$6,370 04. The water-works take the place of fire-engines in our fire department, and a financial exhibit of their expenses and revenues should recognize their twofold purpose.

GAS.

The gas-works are not owned by the village. The daily average production was not given. The charge per 1,000 feet is from \$2 20 to \$2 25. The village pays \$15 annually for each gas street lamp, 120 in number. There are also 50 oil street-lamps, making a total of 170. The meter rent is 25 cents per quarter.

PUBLIC BUILDINGS

The village owns and occupies for municipal purposes, wholly or in part, a corporation hall, used for village offices, library, school-board, and central fire station; and 2 hose-houses. The village has no joint ownership or occupancy with the county in any building. The corporation hall and the hose-houses cost to build \$20,000; the land on which they stand, which is now very valuable, cost originally but little.

PUBLIC PARKS AND PLEASURE-GROUNDS.

Total area, 6½ acres. *Bronson Park*, the donation of the first settlers and land-owners, has an area of 5 acres, which with contiguous open grounds makes an area of 6½ acres. It is situated in the center of the village. The ground cost the municipality nothing, and so far \$3,000 has been expended for improvements—grading, turfing, trees, fountain, cement walks, etc. The park was designed by Adam Oliver, esq., and is controlled by the village board.

PLACES OF AMUSEMENT.

One hall, with a seating capacity of about 1,000, is used for theatrical purposes. There are 2 other halls, with a seating capacity of 300 each, that are not, properly speaking, theaters. Each performance pays a license tax, which amounts in the aggregate to \$150 annually. The hall first mentioned is in the second story, over five stores, and has a front and a rear entrance. The other halls are in the third stories, one of them having reception rooms, parlors, kitchen, dining-room, etc., used for balls, parties, etc. There are no concert- and beer-gardens in the city.

CEMETERIES.

There are 2 cemeteries now used by the village. *Mountain Home Cemetery*, lying on the western limits of the village and north of Main street, fronting thereon, has an area of 20 acres; and *Riverside Cemetery*, outside the corporate limits, just north of the northeastern line, extends down nearly to Kalamazoo river, and contains 30 acres of land. There is also an old burial ground, between Park and West streets and north of Axtele creek, containing 2 acres of land, in which no interments have been made since 1857. Prior to 1873 no proper records were kept in the several cemeteries; since that time there have been 1,213 interments in Riverside and Mountain Home cemeteries, or an average of about 151 interments each year. This number, however, includes a few from outside the village; just how many can not be accurately stated. There are no municipal regulations concerning interments.

Mountain Home Cemetery association deeds lots at stipulated prices, but subject to restrictions in certain matters by the general regulations of the association. The ground is naturally rolling, soil sand and gravel, landscape-gardening well designed and executed, and the roads are graded, graveled, well laid out, and well kept. The minimum charges of the sexton are, for digging graves, \$5, and for care of lots, \$3. The accumulated fund amounts to \$17,000; last year's income from the fund was \$1,800, all expended in improvements. Riverside cemetery, excepting the fund, is equally applicable to it.

Dr. Pratt closes his report on cemeteries as follows:

In a sanitary sense Mountain Home cemetery, lying on the hills west of the village, may seem to be badly located; but the soil beneath us for more than 100 feet (how much more we do not know) is sand and gravel, which admits of the percolation, directly downward, of all dangerous liquids. Riverside cemetery, northwest of the village, is on the river, sloping rapidly down to it, and on the opposite side from the village, and below it, as the water runs. The "old burying-ground", of 2 acres, in the southwest part of the village, abandoned in 1857 as a burial place, is now nearly empty, most of the bodies buried there having been removed by their friends to other grounds; but the ground is well kept and cared for. This, like Riverside, is the property of the township. Our statistics do not admit of showing progressive changes and existing conditions, except in the general way herein indicated.

MARKETS.

There are no public markets in the village. The meat-markets are wholly owned and controlled by private individuals. There are 5 slaughter-houses, three inside and two outside the village, from which dealers draw their supplies. Fresh fish is brought daily from lake Michigan by rail and distributed to private dealers. Poultry is bought from farmers and sold at meat and grocery stores. Vegetable gardens are abundant, so too are all kinds of large and small fruit gardens and orchards, the products being sold at groceries or peddled from door to door by hucksters.

SANITARY AUTHORITY—BOARD OF HEALTH.

The municipal board of Kalamazoo, composed of the president and trustees, acts as a board of health. The annual expenses of the board are not large, being, in the absence of any declared epidemic, \$50 as salary of health officer. In time of an epidemic no limit by law is placed on the amount to which the expenses can be increased. By charter the board has authority to visit and inspect all premises, and, if nuisances exist, to direct or cause their removal. By general statutes it has the same powers as are conferred on townships. No extraordinary powers are granted the board in view of possible epidemics, the powers conferred by the statutes being deemed sufficient. The chief executive officer is the health officer, salary \$50 per annum. His powers are such as the village board may from time to time confer, while his duties are mainly discretionary, all action or suggestion by him requiring the approval of the board. The board holds regular meetings monthly, or oftener if necessary. Petitions or complaints concerning nuisances or questions of health are presented to the president or trustees, and by the board referred to its committee on health, or, if necessary, to the health officer. The committee or health officer then makes an inspection and reports, and the board takes such action as it deems best. Inspections are, as a rule, made only when nuisances are reported; but, should an epidemic occur, inspections may be ordered. Nothing is done concerning defective house-drainage, privy-vaults, cesspools, and sources of drinking-water, and during the prevalence of epidemics the matter would be governed wholly by circumstances. The board exercises no control over the conservation and removal of garbage, except to forbid its being deposited within the village limits. The board has no regulations for the burial of the dead, other than that all interments must be made in a legally established cemetery. The board has chartered powers to prevent the pollution of streams. Excrement is removed at night.

INFECTIOUS DISEASES.

Small-pox patients, if poor, or strangers without means, are removed to an isolated house. If residents, or with means to provide for their wants, the case is left where the disease originated, and a complete quarantine is established on the house and its inmates. Scarlet-fever patients are treated in the same manner. The board takes cognizance of the breaking out of contagious diseases in either public or private schools, by closing the schools and isolating the sick. Vaccination is compulsory only on school-children, and at times and in part is done at the public expense.

REPORTS.

There is no system of registration of births, diseases, and deaths, except under state laws. There are no reports made, except a brief *résumé*, made by the health officer at the close of the municipal year. Dr. Pratt adds:

Being a village, under our state constitution, we are a part of a township and governed in the main, as are all townships, by the general laws of the state in all matters of health. But our township health authorities never interfere with village action. The health officer is always a physician.

MUNICIPAL CLEANSING.

Street-cleaning.—The streets are cleaned both by the village and by private abutters, the latter collecting the dirt into piles and the former taking it away. The work is done wholly by hand, no sweeping-machines being used, and the village does its share with its own force. The paved streets are cleaned once a week, and the others when required. It is said that the work when done is well done. The cost of the service is not given. The sweepings are deposited in such places as may be designated by the village board or the committee on streets. The system is reported to be sufficient for the wants of the village, and deposits are seldom complained of.

Removal of garbage and ashes.—All garbage is removed by the householders, and, with the exception that it must be carried out of the village, no regulations whatever govern the matter. Some of it is fed to hogs, while some is buried on the premises. The removal of ashes is not regulated. The improper keeping and infrequent removal of garbage is undoubtedly injurious to health. Dr. Pratt says: "Practically no system; but our people, as a rule, are careful and intelligent in handling such matters, and there is little to criticise in these respects."

Dead animals.—When dead animals are reported, the village marshal removes or otherwise properly disposes of the carcass. Neither the number of dead animals removed nor the cost of the service was given. "Whatever is needed in this respect is well done, but without system."

Liquid household wastes; human excreta.—The liquid household wastes are thrown either into cesspools or into privy-vaults, none being allowed to pass into the street gutters. The cesspools are porous, are not provided with overflows, sometimes receive the wastes from water-closets, and when full are cleaned out or new wells dug. In case of epidemics an order to clean may follow inspection. "The well-water of the village, formerly excellent, is now so contaminated by the percolation from privies and cesspools that it is unfit for use and generally abandoned." There are but few water-closets, and, with the exception of those in the hotels that deliver into a running stream, all waste runs into cesspools. Privy-vaults are the rule, and but very few of them are even nominally water-tight. There are no regulations as to their construction, and they are emptied at night by the old plan, or by day with the odorless excavator. The night-soil is carried outside the village, and either used as manure by gardeners or else buried. The night-soil is not used as manure on land within the gathering-ground of the public water supply.

The disposal of *manufacturing wastes* is not governed by any regulations.

POLICE.

The marshal, who by the village charter is chief of police, is appointed by the president and trustees; and all members of the force, paid or unpaid, are nominated by the chief and confirmed by the village board, the whole force being governed by the chief or marshal, subject to the orders of the board. The marshal or chief of police receives a salary of \$1,000 per annum; 2 regular policemen are paid \$600 a year each, and this constitutes the regular uniformed force. In addition there are 3 special policemen, paid by private parties to do police duty, and 40 unpaid policemen, at hotels, stations, theaters, etc., who have power to make arrests. These also are under the orders of the marshal. The uniform is navy-blue frock coat, pantaloons, and vest, with police buttons, and each man provides his own. The regular policemen carry a club or cane, are on duty from dark to daylight, and patrol 2 miles of streets. During the past year 230 arrests were made, the principal causes being, for disorderly conduct 143, prostitution 35, assault and battery 9, vagrancy 6, etc. Of these, 125 were committed and 99 fined. The department is required to be present at all fires, to preserve order, and to assist the board of health by serving notices, executing orders, etc. During the year one policeman was stabbed, but has since recovered. The yearly cost of the police force (1880) is \$2,701 29. Crimes and misdemeanors come under the cognizance of the township and county officers. Village officials make no arrests except for disorderly conduct, etc., under village ordinances.

FIRE DEPARTMENT.

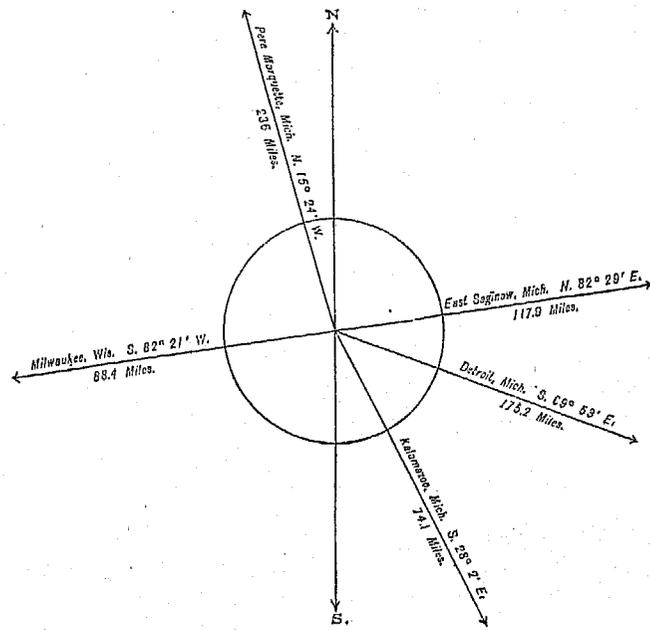
The manual force of the Kalamazoo fire department consists of 1 chief engineer, 1 assistant chief, and 50 men. The apparatus consists of 2 hose-carts drawn by horses and 4 drawn by hand, 1 hook-and-ladder truck, and 1 hand engine. The total number of feet of hose in use is 3,150. During the year there were 27 alarms of fire. The total amount of loss was \$10,336 47; total insurance paid, \$6,176 47; total net loss, \$4,160. There is a fire-alarm telegraph, with 6 miles of wire and 12 street signal-boxes. The cost of the department for the year was previously stated under the head of "water-works".

MUSKEGON,

MUSKEGON COUNTY, MICHIGAN.

POPULATION
IN THE
AGGREGATE,
1850-1880.

	Inhab.
1790	
1800	
1810	
1820	
1830	
1840	
1850	484
1860	1,450
1870	6,002
1880	11,262



POPULATION
BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male	6,085
Female	5,177
—	
Native	6,722
Foreign-born	4,540
—	
White	11,204
Colored	*58

* Including 1 Chinese.

Latitude: 43° 15' North; Longitude: 86° 16' (west from Greenwich).

FINANCIAL CONDITION:

Total Valuation: \$1,332,323; per capita: \$118 00. Net Indebtedness: \$180,000; per capita: \$15 98. Tax per \$100: \$4 85.

HISTORICAL SKETCH.

The history of Muskegon has its origin in 1812, when John Baptiste Recollect began to occupy a trading-post at the mouth of Bear lake, within the present city limits. Other trading-posts were built in the vicinity from time to time, and in 1837, at the first session of the legislature after the state was admitted into the Union, the country round about was organized into the township of *Muskego*. The next year it was reorganized under the name of *Muskegon*, and in 1848 a post-office of that name was established. The land in this part of the state was only brought into the market in 1839, and none of it on the site of the present city was platted till 1849. Nothing of any account was done for several years toward opening the streets, and the hill was so steep where Western avenue and Pine street now are that a man could not ride up on horseback. The first road into the surrounding country was not cut until 1846. From time to time saw-mills had been built, and in 1850 six were on the lake; in the next ten years 10 more were built, and in 1876 there were 26 of them. The first school-house was built in 1849, the first church in 1857, and the first newspaper was established the same year.

The harbor at the mouth of Muskegon river and lake remained in its natural condition until 1863, when the work of improving it was begun. Up to this time, at the best stage of water, there was scarcely ever more than 6 feet on the bar—oftener not more than 4 or 5 feet, and at times the sand would be drifted in so that men could wade across. In 1863 the Muskegon Harbor Company was organized, and built a slab pier on each side of the channel, the south pier being 1,500 feet long, and the north pier 500 feet. To make a channel, the somewhat novel expedient was resorted to of having a propeller force her way backward from lake Michigan into Muskegon lake. The revolutions of the wheel cleared away the sand, and the attempt was successful. Congress soon after made appropriations for the same purpose; the result of all which is that this harbor is now one of the best on lake Michigan, there being about 14 feet of water on the bar. The current is so strong that the channel never freezes over.

Muskegon is the capital of Muskegon county, which was organized in the winter of 1859. The village of Muskegon was incorporated in 1861 and the city in 1869. It has grown more in the last three years than in any other three of its existence. There was a very large fire here in 1874, which destroyed a number of acres of buildings. The burnt area has been mostly rebuilt with a better class of structures. American nationality prevails, although there is a large percentage of foreigners, particularly Hollanders, Germans, Swedes, and Norwegians.

MUSKEGON IN 1880.

The following statistical accounts, mainly furnished by Henry H. Holt, esq., in part indicate the present condition of Muskegon:

LOCATION.

Muskegon lies on the south shore of Muskegon lake (which is an expansion of the river of the same name), 5 miles north of lake Michigan, 15 miles north of Grand Haven, and 112 miles by water northeast of Chicago, in latitude 43° 15' north, and longitude 86° 16' west from Greenwich. As has been stated, it has a good harbor, with 14 feet draft of water in the main channel. It thus has direct water communication with Chicago, Milwaukee, and all other points on the great lakes.

RAILROAD COMMUNICATIONS.

Muskegon railroad facilities are as follows:

The Chicago and West Michigan railroad runs from Pentwater down the shore of the lake, through Muskegon, to New Buffalo, where it connects with the Michigan Central, thus giving communication with Chicago and Detroit at Muskegon.

The Big Rapids branch of the same road.

The Grand Haven railroad runs from Muskegon to Allegan, where it connects with the Kalamazoo division of the Lake Shore and Michigan Southern railroad, the terminals of which are Buffalo and Chicago.

TRIBUTARY COUNTRY.

The surrounding country is tolerably well adapted to grain-growing, but is more suited to fruit-raising, and particularly to the growth of peaches, plums, and grapes, the latter succeeding very finely here. The principal trade of the city is lumber, amounting to 400,000,000 feet and over per year. This lumber is sent mostly to Chicago in vessels. Muskegon is one of the largest lumber-manufacturing cities in the country.

TOPOGRAPHY.

The soil in the immediate vicinity is mostly sandy. The country is open. The land is high above Muskegon lake, giving natural drainage to it.

CLIMATE.

Highest recorded summer temperature, 92°; highest summer temperature in average years, 90°. Lowest winter temperature in average years, -10°. Lake Michigan has a very marked influence on the climate, as shown by the success met with in fruit-raising. What marshes there are have no particular effect. The prevailing winds, being from the west, and off Lake Michigan, tend to moderate the temperature.

STREETS.

The total length of streets is not stated. Two miles are paved with wood, pine planks being used. The planks are laid like the roadway of a bridge, covering the entire surface of the street between the sidewalks; they are 3 inches thick, and cost about 25 cents per square yard. This class of pavement lasts about 5 years. Meantime it

costs but little to keep in repair, since if laid with good plank it gives out nearly all at the same time, and when worn out it can not be repaired to much advantage. All the business streets are so paved. Sidewalks are of pine planks, laid 8 feet wide. There are no gutters, with the exception of a slight depression at the edge of the sidewalks. Maple and elm trees have been very generally planted along the streets, and on many of the best streets grass-plots are kept at the edge of the sidewalks. It is reported that the experience of the city authorities shows that work done under carefully made contracts is more satisfactory than day work.

There are no horse-railroads in the city. An omnibus line, with 4 vehicles and 10 horses, and employing 4 men, carries annually 20,000 passengers, at a regular rate of fare of 25 cents each.

WATER-WORKS.

The water-works are owned by the city, and their first cost was \$160,000. Water is taken from springs and pumped directly into the mains, the pressure varying from 40 pounds for domestic to 80 pounds for fire purposes. The least amount of water pumped per diem is 350,000 gallons, and the greatest 1,500,000 gallons. The yearly cost of maintenance and repair is \$4,900, and the annual income from water rents is \$5,200. Water meters are used, but to how great an extent is not stated. There are 15 miles of pipes and 184 hydrants.

GAS.

The gas-works are owned by a private company. The daily average production is 12,000 cubic feet. The charge per 1,000 feet is \$3. The city pays \$25 per annum for each street-lamp, 44 in number. The yearly income from meter rates is reported as \$9,500.

PUBLIC BUILDINGS.

The city owns no public buildings for municipal purposes, but hires a hall and offices for the city government at an annual cost of \$200.

PUBLIC PARKS AND PLEASURE-GROUNDS.

The city has no public parks or pleasure-grounds.

PLACES OF AMUSEMENT.

There is an opera-house, capable of seating 1,500 persons, and paying a license of \$50 per annum. In addition there are Masons' hall, with a seating capacity of 300, and Banks' hall, Gustins' hall, Rippenberg's hall, and Workingmen's hall, which will seat about 200 each. There are no concert- and beer-gardens in the city.

DRAINAGE; CEMETERIES; MARKETS.

No information on the above subjects was furnished.

SANITARY AUTHORITY—BOARD OF HEALTH.

The mayor and aldermen, together with the city physician, the latter being nominated by the mayor and confirmed by the city council, act as a board of health, and the only expense incurred is the salary of the city physician, which is \$500 a year. There is no limit to its authority in the matter of expense or in any other respect, either in the absence of or during epidemics. An ordinance passed in December, 1879, designates, among other of its powers, that of taking "immediate possession of any dwelling-house, hotel, factory, or other building, premises, or grounds, any steamboat, vessel, or other craft, or any railroad cars, in or upon which" there exists, in the judgment of the board, any nuisance prejudicial to the public health; and provides that if the owner or occupant refuses to abate it the board shall proceed to do so. And the ordinance further provides that "it shall be the duty of the board of health, the marshal, and all police constables of the city to use all the force necessary to enforce the provisions of this ordinance and to prevent a violation of the same". There is no specific rule about making inspections, these being made when the board deems it necessary.

INFECTIOUS DISEASES.

In case of death from any of the dangerous infectious diseases, the funeral shall not be public, and the body must be at once placed in a hermetical coffin or burial case, which shall be immediately sealed and not opened again. No person is allowed to be present at the burial service whose presence, in the opinion of the board, is liable to endanger the health of others, and all persons who take part in the funeral must use disinfectants before communicating with others. These and other very stringent rules in connection with the subject of infectious diseases were passed because of the prevalence of diphtheria, 320 cases of which have been reported since the disease first made its appearance in July, 1879; and at present, early in 1880, 2 cases a day are reported. Small-pox patients are isolated in the pest-house, a small building in the suburbs of the city, while scarlet-fever cases are kept at home as much as possible. Vaccination is not compulsory, nor is it done at the public expense.

REPORTS.

There is no system for the registration of births, diseases, or deaths, except as provided by the general laws of the state. The board reports to the city council, but not regularly.

MUNICIPAL CLEANSING.

Street-cleaning.—The streets are swept by the abutting property-owners, and the rubbish is removed by the city's force. The sweeping is all done by hand, once a week. It is reported, as being done efficiently, the cost to the city being very slight and to private persons "none to speak of".

Removal of garbage and ashes.—The garbage is removed mostly by the householders. Such part of this work as the city does is done by its own force. No further information on the subject was given.

Dead animals.—The carcasses of animals dying within the city limits are removed by the city authorities, and it is reported that not more than 10 are removed annually.

Liquid household wastes; human excreta.—There being no sewers in Muskegon, the house wastes are run into cesspools or vaults. The cesspools are nominally water-tight, are not provided with overflows, and are not governed by regulations as to their cleansing, etc. It is said that nothing has been heard of the contamination of wells by the escape of the contents either of vaults or of cesspools. Very few of the houses—not 1 in 100—are provided with water-closets, nearly all depending on privy-vaults. Usually when a vault is full it is covered with earth, a new hole is dug, and the privy-house is moved over it. In some cases the vault is cleaned out and the night-soil is removed.

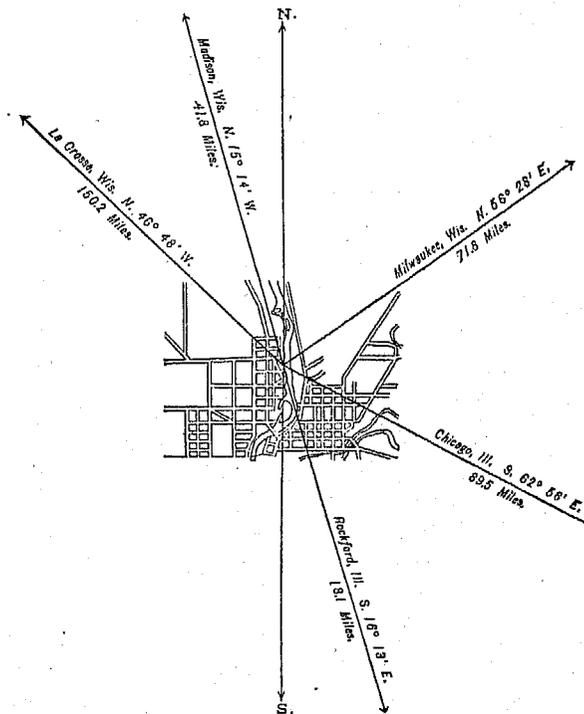
Manufacturing wastes.—There are none here of any account.

WISCONSIN.

BELOIT, ROCK COUNTY, WISCONSIN.

POPULATION IN THE AGGREGATE, 1850-1880.

Year	Inhab.
1790.....	.....
1800.....	.....
1810.....	.....
1820.....	.....
1830.....	.....
1840.....	.....
1850.....	2,732
1860.....	4,008
1870.....	4,396
1880.....	4,790



POPULATION BY SEX, NATIVITY, AND RACE, AT CENSUS OF 1880.

Male.....	2,326
Female.....	2,464
Native.....	3,998
Foreign-born.....	792
White.....	4,693
Colored.....	97

* Including 1 Indian.

Latitude: 42° 30' North; Longitude: 89° 11' (west from Greenwich); Altitude: 730 to 800 feet.

HISTORICAL SKETCH.

In 1823 or 1824 a settlement was made in or near the present site of Beloit, but it was not permanent. The first permanent settlement was made in 1835, and for some years after that time its growth was quite rapid. In 1845 there were 3 churches, 3 schools, and a male and female seminary in the place. In that year a convention of ministers and laymen of the Congregational and Presbyterian churches in Wisconsin and northern Illinois decided to establish a college for young men at Beloit. The next year a charter was secured, and in June, 1847, the cornerstone of the first building was laid. Since then over 2,000 young men have received instruction at the institution, about one-eighth of that number having completed the full course. The city of Beloit was incorporated in 1856. There have been two important fires in the city, both in February, 1871, only four days apart. The buildings then destroyed were quickly replaced. The early settlers were largely from New York, many also coming from New England. There are a number of Norwegians in the city and a considerable percentage of colored people.

BELOIT IN 1880.

The following statistical information, collected by the Census Office, indicates the present condition of Beloit:

LOCATION.

Beloit is situated in Rock county, Wisconsin, on Rock river, at the mouth of Turtle creek, on the southern state line, 47 miles south-southeast from Madison, and 91 miles northwest from Chicago. The altitude of the lowest point of the city is 730 feet above the level of the sea; of the lower plain, 745 feet; of the upper plain, 780 feet; and of the highest point, 800 feet. Rock river is nominally navigable below Beloit, but practically not so, being interrupted by dams at frequent intervals.

RAILROAD COMMUNICATIONS.

Beloit is situated on the Madison division of the Chicago and Northwestern railway, which gives direct communication with Chicago, Minneapolis, and all other points on this great road; and also on the Racine and Southwestern division of the Chicago, Milwaukee, and Saint Paul railway, which division runs from Racine to Rock Island.

TRIBUTARY COUNTRY.

The soil of the adjacent region is in part a marly clay and in part a slightly sandy loam. Both kinds are excellently adapted to agriculture. The growing of grain which formerly prevailed has recently given place on the best farms to stock-raising; cattle, horses, hogs, sheep, and poultry being raised with excellent returns. Rock county, in which Beloit is situated, is traversed from north to south by Rock river, into which flow several large streams. The surface is undulating. Rock prairie, the largest in the state, occupies nearly half of the county, extending from the river eastward. The most abundant rock of the county is the blue limestone. Rock river is a fine stream, flowing through a valley remarkable for beauty and fertility, and affording extensive water-power.

TOPOGRAPHY.

The Trenton limestone, immediately underlaid by the Saint Peter's sandstone, forms a rocky substratum, overlaid by a deep deposit of glacial gravel, the upper portion of which has disintegrated into a loamy, occasionally clayey, soil of moderate depth. The city rests in part upon the flood plain of Rock river (10 to 75 feet above it), and upon an elevated plateau, both kept dry by the porous subsoil. Drainage is excellent. Marshes are very rare. The country is mainly open, and immediately surrounding the city is moderately elevated, dry, and undulatory.

CLIMATE.

The highest recorded summer temperature is 100.5°; the highest summer temperature in average years, 94°. Lowest recorded winter temperature, -36°; lowest in average years, -20°. Occasional winds from lake Michigan are felt, but with this exception the climate is free from the influence of adjacent waters. The influence of marshes and elevated lands is very slight. There are no local peculiarities so far as the winds are concerned, except the occasional lake-winds mentioned, and chilly northeast winds in the spring, when there are large deposits of snow in the northern forests.

STREETS.

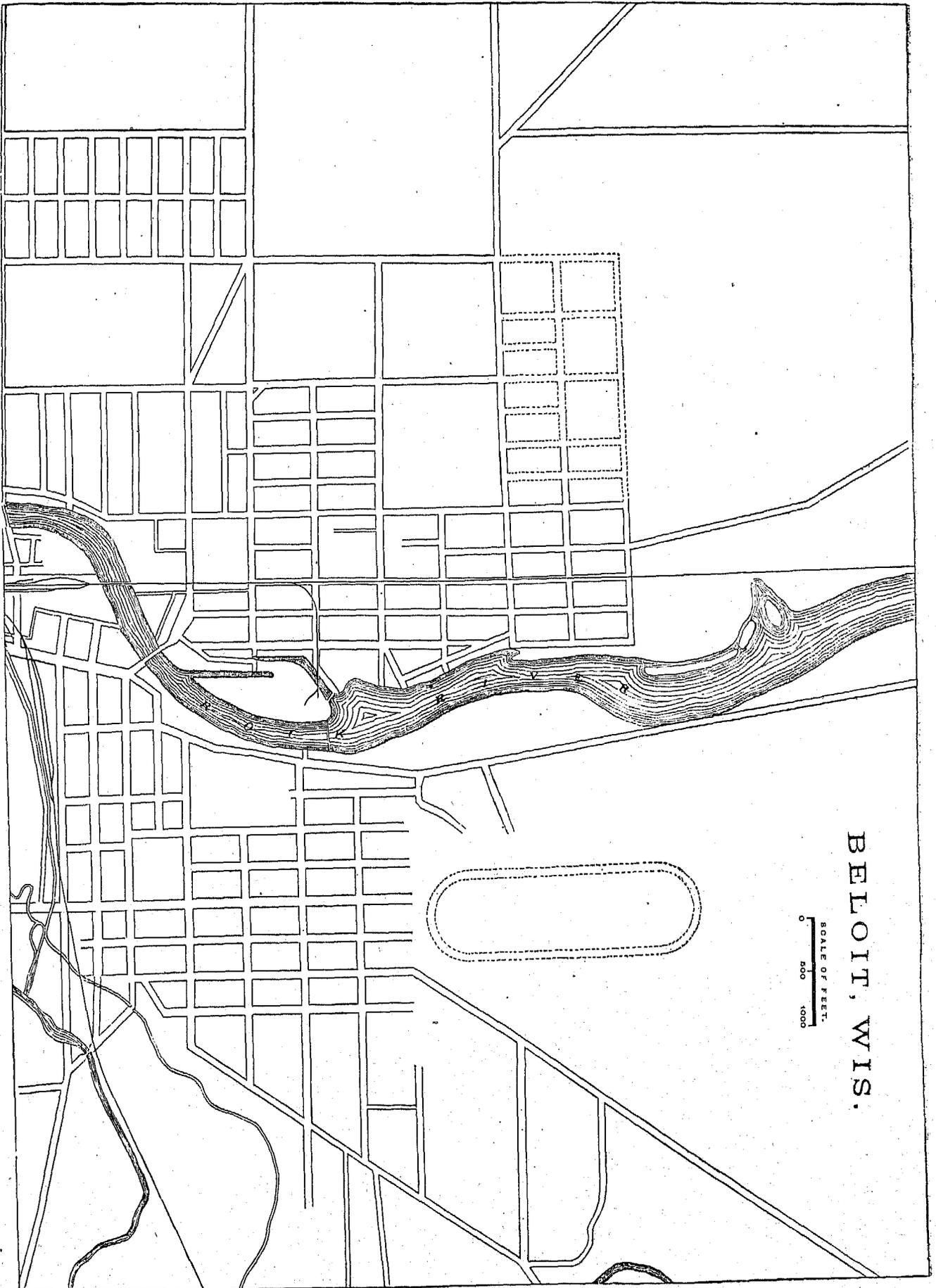
Total length of streets, about 30 miles, all of which are of gravel rounded up. Sidewalks are usually made of plank. At present the city is experimenting with a composition of Portland and Louisville cements, and it is thought to be a success; 500 square yards of it have lately been laid at a cost of 80 cents per yard. Gutters are unpaved except in the business portion of the city, where the ordinary limestone is used for paving them. In the residence portion of the city the streets are well lined with trees—elm, hard and soft maple, and locust, being the predominating varieties. In some of the main streets the earth is filled in between the sidewalks and gutters, and is grassed over to a width varying from 4 to 8 feet. The city gives permission to the property-owners to do this, and each one has it done as he chooses.

WATER-WORKS.

The city has no water-works.

GAS.

The gas-works are owned by a private company.



BELOIT, WIS.

SCALE OF FEET.
0 500 1000

PUBLIC BUILDINGS.

There are no buildings owned by the city of Beloit for municipal uses.

PUBLIC PARKS AND PLEASURE-GROUNDS.

There is one park with an area of 9.53 acres, centrally located. It was donated to the city, and its yearly cost of maintenance is \$50. It is controlled by the city council.

PLACES OF AMUSEMENT.

There is an opera-house in the city, but no details were received concerning it, other than the fact that it pays an annual license amounting to \$25 in money, besides free tickets.

DRAINAGE.

It was reported that no accurate or approximately accurate information could be furnished on this subject, as the city is without any system of sewerage, and depends almost wholly on surface drainage.

CEMETERIES.

There are 2 cemeteries, both within the city limits—a Protestant cemetery, containing 15 acres, in which there have been about 3,000 interments, situated 1 mile north of the center of the city; and a Roman Catholic cemetery, containing 6 acres, situated 1.25 mile from the center of the city. The graves in them must be 5 feet in depth. The title to the lots is absolute in the owners, and the city sexton has the general care of them. There is no attempt at landscape-gardening. The large number of interments is due to the fact that the dead from the entire vicinity are brought here. There is no separate record kept of the inhabitants of Beloit buried in these cemeteries.

MARKETS.

There are no public or corporation markets. The city council usually designates a place in the city where hay and wood may be sold, and their ordinance is to a greater or less extent observed.

SANITARY AUTHORITY—HEALTH COMMITTEE.

The chief health organization of Beloit is the committee on health, a regular standing committee of the common council, appointed annually by the mayor. It usually consists of 3 aldermen, none of whom are at present physicians. During epidemics this committee would be authorized to incur any proper expense for the sanitary regulation of the city. At any time the city marshal, under the direction of the committee, may abate any nuisance which jeopardizes the public health. The members of the committee themselves have no police powers. Inspections are made only as occasion requires. When nuisances are reported, the ordinances provide that the marshal shall investigate, and if in his opinion they exist, he shall order their abatement, and the penalty for neglect or refusal to abate shall be \$5 for every 24 hours the party concerned shall so neglect or refuse. This committee is subject to the control of the city government. The city council has power to provide hospitals for those infected with small-pox and other contagious diseases, and to order and regulate their removal from the city whenever it is deemed necessary. There is no public pest-house, and vaccination is not compulsory, nor is it done at the public expense. The reports of the committee are published in the official paper of the city as a part of the minutes of the city council.

MUNICIPAL CLEANSING.

Street-cleaning.—The streets are cleaned by the city's own force, wholly by hand. The city gathers up the dirt, and it is usually spread upon the higher and less fertile parts of the public grounds. The main streets are cleaned as often as seems necessary. The annual cost of this work is about \$600.

Removal of garbage and ashes.—Garbage and ashes are removed by householders. There are no regulations on this head except the general regulations regarding nuisances.

Dead animals.—The removal of dead animals is in charge of the marshal. There are no regulations on this head.

Liquid household wastes.—Waste water from sleeping-rooms, laundry waste, and kitchen slops are all disposed of in the same way. There are no sewers in the city, and probably cesspools are used, but nothing was reported on this point.

Human excreta; manufacturing wastes.—There are no ordinances on these subjects, and no reports were made.

EAU CLAIRE,

EAU CLAIRE COUNTY, WISCONSIN.

POPULATION

IN THE
AGGREGATE,
1860-1880.

Year	Inhab.
1790	.....
1800	.....
1810	.....
1820	.....
1830	.....
1840	.....
1850	.....
1860	628
1870	2,293
1880	10,119

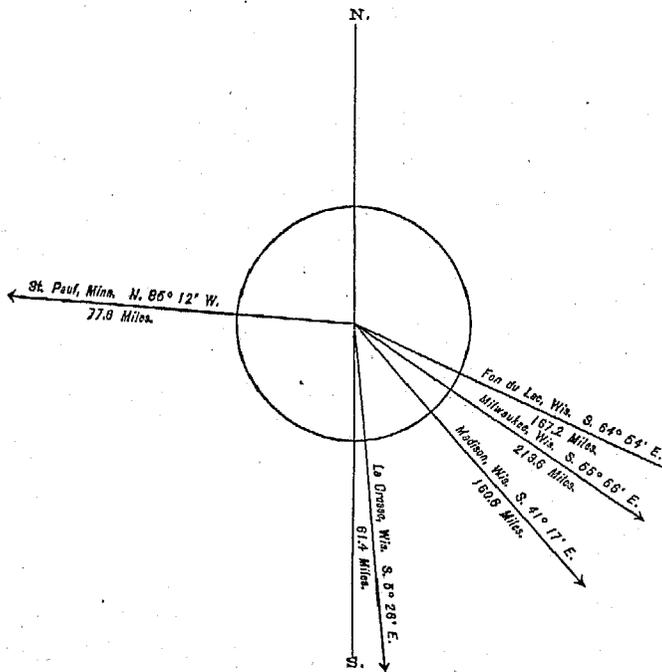
POPULATION

BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male	5,673
Female	4,441

Native	6,289
Foreign-born	3,830

White	10,109
Colored	*10
*Including 1 Indian.	



Latitude: 44° 51' North; Longitude: 91° 30' (west from Greenwich).

FINANCIAL CONDITION:

Total Valuation: \$3,541,686; per capita: \$350 00. Net Indebtedness: \$101,000; per capita: \$9 98. Tax per \$100: \$1 96.

NOTE.—Eau Claire, the capital of Eau Claire county, Wisconsin, is situated at the junction of Eau Claire and Chippewa rivers, at the head of navigation on the Chippewa. The principal business is lumbering, over 150,000,000 feet being manufactured in the vicinity yearly. It is the chief commercial city of northwestern Wisconsin. The surface of the surrounding country is uneven and the soil is productive. Eau Claire is connected by a short branch with the Wisconsin Central railroad, whose terminals are Ashland on Lake Superior, and Chicago; it is also on the main line of the Chicago, Saint Paul, Minneapolis, and Omaha railway, which connects the cities named in its title.

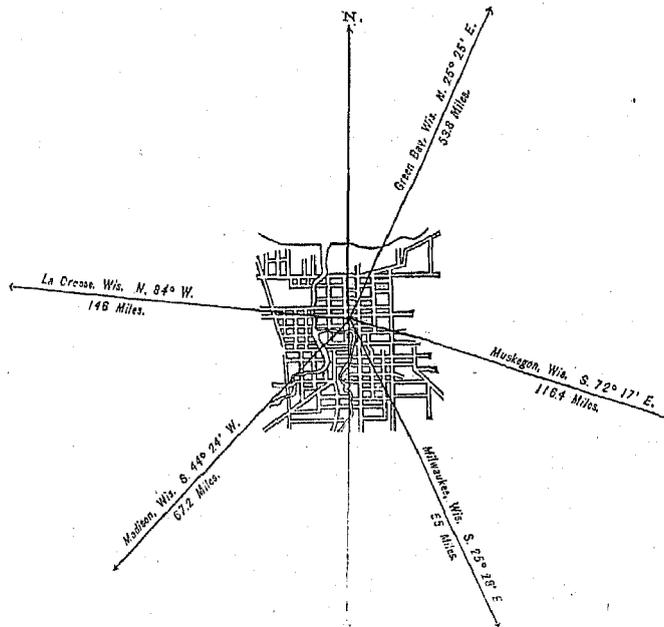
FOND DU LAC,

FOND DU LAC COUNTY, WISCONSIN.

POPULATION

IN THE
AGGREGATE,
1850-1880.

Year	Inhab.
1790	.....
1800	.....
1810	.....
1820	.....
1830	.....
1840	.....
1850	2,014
1860	5,460
1870	12,764
1880	13,094



POPULATION

BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male	6,286
Female	6,808
Native	9,564
Foreign-born	3,530
White	12,898
Colored	*196

* Including 2 Chinese and 16 Indians.

Latitude: 43° 47' North; Longitude: 88° 28' (west from Greenwich); Altitude: 751 feet.

FINANCIAL CONDITION:

Total Valuation: \$3,417,175; per capita: \$261 00. Net Indebtedness: \$165,000; per capita: \$12 60. Tax per \$100: \$3 50.

HISTORICAL SKETCH.

In the latter part of the last century and the early part of the present century, from time to time different Indian traders settled transiently in different parts of what is now Fond du Lac county, but the land was not even surveyed by the government till 1834-'35. In 1835 a number of citizens of Green Bay formed a stock company for purchasing lands somewhere near the head of lake Winnebago, and by January 1, 1836, they had secured a tract of 1,375 acres. In the preceding November, a survey having been made, a village was at once laid out on paper. This part of the country had been called by the French Canadian traders "Fond du Lac", which literally signifies "bottom of the lake", but to them meant "farthest point of the lake". This name was given to the "paper village", and the lands were at once put in the market. The first actual settler, Colwert Pier, in June, 1836, took possession of a log house which had been built there by the company in the preceding year. In December, 1836, Fond du Lac county and town were established, although there was then but one house within its limits. In 1838

another family came, and from that time on settlers began to arrive in large numbers. In 1843 the first steamer was put on the lake, in 1846 a court-house was built, and in 1847 a village charter was adopted. At that time Fond du Lac had 400 inhabitants, who had chiefly come from New England and western New York. It grew very fast, and in 1852 was incorporated as a city. The first railroad brought into use in the county was the Rock River Valley Union railroad, which was completed in 1853 from Fond du Lac through Oakfield to near Waupun, some 20 miles only. In 1851 the first work on the Chicago and Northwestern railway line proper was done in Fond du Lac, so this city is really the birthplace of that mighty fan of railway lines. The line was not completed to Janesville till 1860. Since she has had railway communication with the world her growth has been steady and rapid.

Lake Winnebago, on which Fond du Lac is situated, is 30 miles long, north and south, and from 8 to 15 miles wide, east and west, and at no point is more than 120 feet deep. In the early days of Fond du Lac the steamboat navigation of this lake was an important consideration. In 1851-'52 steamboating became almost a mania with the people, and much money was lost. As the railroads extended their lines, what steamboat business there was fell off, and now Fond du Lac is neither the proprietor of any boats, save lumber-tugs, nor in the enjoyment of regular trips from boats owned elsewhere, although large quantities of wood, logs, and lumber are brought each season by Oshkosh steamer.

The city has never suffered much by fire, the largest having been a \$100,000 fire in 1871, when 22 buildings were destroyed. The most noticeable depression in business was from 1875 to 1879, the lumbering and iron industries suffering the most. The rich agricultural district round the city buoyed up the trades that during this period suffered so much in other cities. In 1879 and 1880 the mills and factories were run to their utmost capacity. The business population of the city is mostly American. In the industrial class Germans and French form important elements. One ward of the city contains a settlement of colored people brought from the South during the war.

FOND DU LAC IN 1880.

The following statistical accounts, gathered mainly by the Census Office, indicate the present condition of Fond du Lac:

LOCATION.

Fond du Lac is situated at the south end of lake Winnebago, at the mouth of Fond du Lac river, 72 miles north-northwest of Milwaukee and 90 miles northeast of Madison. The surface of the lake is 162 feet above lake Michigan and 751 feet above the level of the sea. The harbor is not excellent, but is a fair one, and both harbor and channel are deep enough for all the craft plying on the lake. The Fox river, which empties into the lake at Oshkosh, has been connected by a canal with the Wisconsin; and the Fox river, connecting the lake with Green bay, has been improved so that boats from Fond du Lac can enter either the Mississippi or lake Michigan.

RAILROAD COMMUNICATIONS.

Fond du Lac lies on the Milwaukee, Green Bay, and Marquette line of the Chicago and Northwestern railway, which connects Chicago with lake Superior at Marquette, via Milwaukee, on the Green Bay and Lake Superior line of the same road, which connects Chicago with Green Bay via Janesville; and on the Sheboygan and Western railroad. The Fond du Lac, Amboy, and Peoria (narrow-gauge) railroad connects with the Chicago, Milwaukee, and Saint Paul at Iron Ridge, thus giving another line to Milwaukee and Chicago and to the Northwest.

TRIBUTARY COUNTRY.

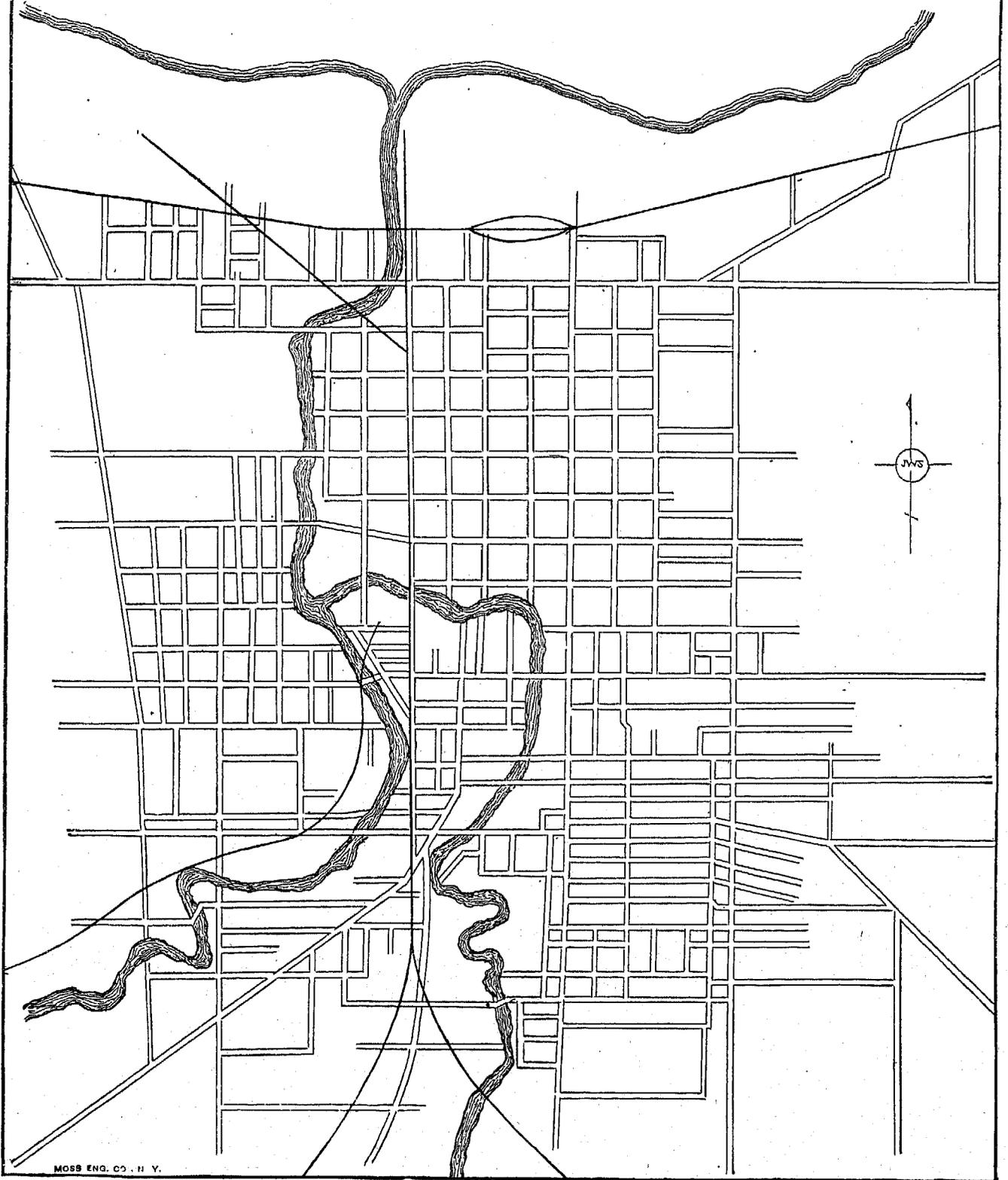
The surrounding country is mostly rich prairie, and is a wheat-raising district. Fond du Lac is a great wheat and wool market. Dairying is carried on to a considerable extent in the vicinity. The business of breeding thoroughbred stock of all kinds has also got a strong foothold. Recently some of the farmers have turned their attention to raising sugar-cane, and the contracted crop for 1880 was a large one.

TOPOGRAPHY, ETC.

The city lies on an almost level plain but a few feet above lake Winnebago. The surrounding country is equally level except to the east, where, some 2 miles distant, extends a ledge 100 feet high. This ledge, which is the elevated edge of a thick layer of limestone, well broken and thoroughly marked by the erosion of the glacial period, is remarkable for the thousands of clear, cold springs which gush from its cleft face from base to summit. Elsewhere in the county the water from this limestone layer which here crops to the surface is secured by means of artesian wells. The term artesian wells is here confined to flowing wells without regard to depth. Flowing wells depend on these requisite conditions: There should be an impervious stratum to prevent the escape of water below, a

FOND DU LAC,

WIS.



water-bearing stratum on this to furnish the flow of water, and a second impervious layer upon this to prevent the escape of the water above, it being under pressure from the fountain-head. These must dip, and there must be no adequate outlet for the water at a lower level than the well. All these conditions are met with in Fond du Lac county. The wells of the county derive their flow either entirely from the drift, from the junction of the drift with the indurated rocks below, from the Galena and Trenton limestone, or from the Saint Peter's sandstone.

In the city of Fond du Lac the vast majority of wells are comparatively shallow, deriving their flow from within 20 feet of the surface of the Galena limestone rock, either above or below it, it being from 100 to 200 feet beneath the soil. One well, the fountain on First street, belonging to B. Wild and Company, may be taken as an example. It is 326 feet deep, and passes entirely through the Galena and Trenton limestone, reaching the Saint Peter's sandstone below, whence it derives a flow of 48 gallons per minute. The stream has been carried by pipes 53 feet above the surface. It flows with such force that, with a hose and quarter-inch nozzle attached, it projects a stream from 30 to 35 feet high, and 48 feet horizontally. The water of this, like that of all the other wells, has strong mineral properties, the analysis showing the presence of various substances as follows (the figures are the thousandths of 1 per cent.): Lime, 63; magnesia, 40; soda, 61; silica, 61; sulphuric acid, 49; chlorine, 45; carbonic acid, 90. The following is the section of the well on the high-school grounds:

	Feet.
Drift, red and blue clay	95
Magnesium limestone (Trenton and Galena)	195
Saint Peter's sandstone	135
Total	425

The soil of the vicinity is a rich, productive loam, with a very few gravel knolls and occasional patches of sandy soil remarkable for its warmth and fertility. As to marshes, using the word as meaning low, wet land, unfit for cultivation or use, the county contains none; but there are certain low lands overflowed in spring and fall, which are used in the summer as pastures or meadows. There is one such west of Fond du Lac city. The county contains 3,000 acres of peat marsh. There are no forests near the city, except a small patch about 3 miles to the southeast.

CLIMATE.

Highest recorded summer temperature, 112°; lowest recorded winter temperature, -36°: From the publications of the Smithsonian Institution it is learned that the mean summer temperature is 67.5°, and the mean winter temperature 22°. The presence of lake Winnebago has the effect of cooling the air in summer, of delaying frosts in the fall, and of prolonging the cold winds in spring.

STREETS.

Total length 100 miles, of which 25 miles are paved with stone blocks covered with gravel, 4 miles with broken stone, 3 miles with wood. The cost of the wood per square yard varied from 75 cents to \$1 25, according to the process used; the cost of the other kinds was not reported. The stone blocks covered with gravel are said to be almost indestructible. The wood laid without the Nicholson process decays in 4 or 5 years; laid with that process it has to be renewed once in 10 years. The sidewalks on the business streets are generally made of limestone slabs from 6 to 12 feet wide; those on residence streets of pine plank. All the streets of the residence portion of the city are shaded by trees which have been transplanted, soft maple, poplar, and rock maple predominating in the order named. The work of paving, repairing, etc., is done by contract.

WATER-WORKS.

As has been stated, the water-supply comes from hundreds of artesian wells scattered throughout the city. Water-works for fire purposes cost only \$10,000, and are owned by the city, being supplied by waste water from private fountains.

GAS.

The gas-works are not owned by the city. The charge per 1,000 feet is \$3. There are 183 street-lamps, for which the city pays \$26 each per year.

PUBLIC BUILDINGS.

The city owns no city hall, but has a public building, built in 1878-79, at a cost of \$2,300, and also owns 3 brick engine-houses—one of which is one of the finest in the state—worth \$40,000.

PUBLIC PARKS AND PLEASURE-GROUNDS.

There are no grounds that can properly be called parks. The original plat of the city left a strip of land 8 rods deep on each side of the blocks, but they have generally been confiscated by private parties, and no public use is made of them.

PLACES OF AMUSEMENT.

Armory hall seats 1,500; Opera hall seats 800; Music hall, 600. There are a number of smaller halls in the place, used mostly for balls, parties, etc. None of these halls pay licenses as theaters, but traveling theater companies pay a license of \$25 each before playing, as also do circuses and all traveling shows. Besides the above there is the Turner hall, owned and used by the Turnverein of Fond du Lac. There are no concert- or beer-gardens in the city.

DRAINAGE.

The city has no regular sewerage system, but it has underground drains on various streets, emptying into the river. There is a system of reservoirs for fire purposes, connected by pipes and supplied from artesian wells, the surplus water from which is carried into drains and thence to rivers.

CEMETERIES.

The principal cemetery of Fond du Lac is known as *Rienzi Cemetery*. It now contains 32.5 acres, composed of beautiful hills and valleys, covered with oaks. It is situated 2.5 miles southeast of the city, and lies nearly half a mile in from the street, being approached by a smooth carriage-way shaded by trees. The "old grounds" in the cemetery contain a "potter's field", a lot belonging to the Freemasons, and one owned by the Odd Fellows.

MARKETS.

There are no public or corporation markets in the city. All the surplus meat and poultry raised in the vicinity is bought from the producers and shipped by local butchers and dealers to dealers in the mining regions in northern Wisconsin and Michigan. These regions offer a ready market for all the surplus products of this section of the state.

SANITARY AUTHORITY—HEALTH OFFICER.

The health of the city is in charge of the health officer, who is appointed annually by the city council, and who receives a salary of \$150 per year. His action is subject to the control of the city government only to the extent of consulting with the health committee of the council. The health ordinance of 1880 provides that, after taking and filing the oath of office, he shall have and exercise all the powers for the preservation of the public health, and perform all the duties conferred by the charter and this ordinance within the limits of the city of Fond du Lac, and take such measures and make such rules and regulations as may be deemed most effectual for the preservation of the public health, and see that all ordinances and regulations in relation to the health of the city be observed and enforced. He shall have authority to enter into and examine, or cause the same to be done, at any time, all buildings, lots, and places of all descriptions within the city, for the purpose of examining and ascertaining the condition thereof as far as the public health may be affected thereby. He shall order all nuisances abated, and if this is not done he shall proceed to have it done at the expense of the delinquent.

The ordinance further provides that the common council shall, in making their annual estimates and levy for the expenses of the city government, estimate and provide such sum as may be necessary for the compensation of the health officer and for all other necessary expenses incurred by him in the performance of his duties, and such expenses shall be audited and allowed and paid as other city expenses are allowed and paid.

The health officer is given power to appoint or employ such persons as may be necessary to assist in the discharge of his duties, by and with the advice and consent of the mayor and common council, and the expense of services so authorized is to be certified to the common council, and audited and paid as other accounts against the city.

He exercises control over the conservation and removal of garbage only when it comes under the head of nuisances. As to the burial of the dead, the provisions are that the attending physician must furnish the undertaker with a certificate as to name, age, and sex of deceased, and date, place, and cause of death. The undertaker must get a permit for burial from the health officer, or, in his absence, from the city clerk, and the permit shall not be given till the above-mentioned certificate is presented. In case of death when no physician was in attendance, the health officer, or in his absence the city clerk, is empowered to issue a burial permit after investigation.

The health officer has control of persons infected with small-pox, scarlet fever, and other contagious diseases, and may quarantine or isolate if he chooses. There is no pest-house, but the health officer may hire one if he sees fit. He also keeps record of deaths, and every year reports to the city council their number and cause, together with such information and recommendations as he sees fit. These reports are published in the official newspaper of the city.

MUNICIPAL CLEANSING.

Street-cleaning.—Streets are cleaned either by the city, by the wards, or by private individuals, as the case may be. That which is done by the wards is done by contract. On the business streets of the city a sweeping-machine is used, and the annual cost to the business men is from \$5 to \$10; these streets are cleaned twice a week, and the others only when it is ordered by the health officer. The work is said to be done quite efficiently, and the system, which has been employed for a number of years, gives satisfaction. The sweepings are generally deposited in low places, a small part being used for fertilizing purposes.

Removal of garbage and ashes.—Garbage is removed by householders. That on the city's own property is removed by contract; each householder has it removed as he sees fit. The only regulation concerning its conservancy while awaiting removal is the general ordinance about nuisances, that no person shall "allow an offensive matter to be or remain on his premises, or in any outhouse, stable, privy, or other place owned or occupied by him, or in any street or alley in front of such premises, or in any pen, yard, or other place within the city". Garbage is removed from the inhabited part of the city and buried. Ashes are usually sold to soap-manufacturers; coal ashes are used for filling. No nuisances of more than very brief duration are reported as resulting from the improper treatment of garbage, and the system is said to be working efficiently.

Dead animals.—Dead animals found on private property are to be removed by the owner or occupant thereof; if it is not done at once the health officer proceeds to do it, and issues a tax certificate against the property for the entire cost. Dead animals found in the streets are removed at the expense of the city, the annual cost varying from \$25 to \$50, the number removed being from 50 to 100. They are all buried.

Liquid household wastes.—Waste water from sleeping-rooms is generally thrown into privy-vaults, kitchen and laundry slops into the back yard. In localities where sewers exist, nearly all liquid waste is conducted into them. Very little runs into street-gutters, it being strictly prohibited, and also very little runs into cesspools or "dry wells". Privy-vaults are practically tight, owing to the nature of the soil, and few are provided with overflows. Drinking-water is not subject to contamination by the escape of the contents of cesspools or privy-vaults, owing to this impervious subsoil, and to the fact that the wells in use are seldom less than 60 feet deep and are mostly flowing fountains. The matter of cleaning out privies and cesspools is under the direction of the health officer, and on his efficiency a great deal depends.

Human excreta.—Nearly all the houses of the city depend upon privy-vaults. The school board is adopting the dry-earth system for the public schools, so far with good success; otherwise this system is little used. Very few water-closets deliver into public sewers or cesspools, most of them delivering into vaults. Night-soil is either sold to persons outside the city for fertilizing purposes, or buried in some out-of-the-way place.

Manufacturing wastes.—Liquid manufacturing wastes must be caught in water-tight vessels or cisterns, and removed every 24 hours when of an offensive character.

POLICE.

The police force is appointed by the city council and governed by the mayor. The chief executive officer is the chief of police, who controls and directs the subordinate officers of the force, and receives a salary of \$600 a year. In 1880 there were 5 policemen under him, one of whom was a captain, who was on duty in the daytime, and the rest of whom were night patrolmen, at salaries of \$480 per year each. Their uniform is of navy-blue cloth, with brass buttons; they furnish their own suits, the city supplying buttons. Each man uses a revolver, a billy, a pair of handcuffs, and a pair of nippers. They patrol about 3 miles of streets. There were 273 arrests in 1880, the principal causes being drunkenness and vagrancy; 70 paid fines and costs, 56 were committed to the county jail, 9 had sentence suspended, 110 were discharged, and the rest were variously disposed of. There were 101 station-house lodgers in 1880, to whom free meals were given evening and morning. The police are required to co-operate with the fire and health departments at the request of the chief fire marshal or city health officer, respectively. Special police are appointed by the mayor for any service performed by the regular force; while on duty their standing is the same as that of the regular policemen. The pay-roll for 1880 was, for regular salaries, \$2,727 25; for special police, \$279 75.

FIRE DEPARTMENT.

The volunteer system was continued in the fire department of Fond du Lac up to August 7, 1878, when the city council disbanded the old companies and reorganized the entire department. Its members are now appointed by the city council after recommendation by the chief fire marshal. The department now consists of 3 engine companies and 1 hook-and-ladder company. The chief fire marshal receives \$250 per year; assistant fire marshal, \$100; engineers, \$54 25 per month; drivers, \$32 50 per month; stokers, \$27 50; cart drivers, \$25, and pipemen, \$8 per month. The average total cost of the fire department is about \$10,000 per year. The engine-houses are all of brick, well furnished with beds and accommodations for those who always remain with the engines.

PUBLIC SCHOOLS.

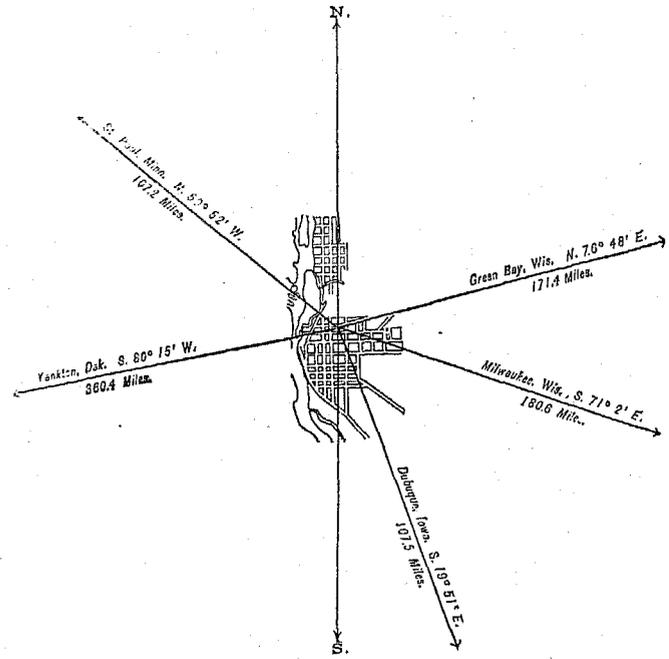
The city now contains, in addition to the high-school building, 18 public school-houses, which with their sites are owned by the corporation. They contain 40 main rooms, will accommodate 2,800 pupils, and have a cash value of \$98,700. The sites are valued at \$22,000. Nearly every school-house is provided with a fountain. In 1879 there were 5,900 children in the city of lawful age for school attendance, of whom 2,484 were enrolled as pupils in the public schools; there were 47 teachers, with an annual pay-roll of \$18,136 25. The whole cost of the schools was \$30,215 64; the average salary paid to teachers per year was \$385 87. The present high-school building was erected in 1873 at a cost of \$45,000, exclusive of the foundation.

LA CROSSE,

LA CROSSE COUNTY, WISCONSIN.

POPULATION
IN THE
AGGREGATE,
1860-1880.

	Inhab.
1790.....	
1800.....	
1810.....	
1820.....	
1830.....	
1840.....	
1850.....	
1860.....	3,860
1870.....	7,785
1880.....	14,505



POPULATION
BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male	7,464
Female.....	7,041
—	
Native	9,125
Foreign-born	5,380
—	
White.....	14,449
Colored	+56
* Including 1 Chinese.	

Latitude: 43° 58' North; Longitude: 91° 23' (west from Greenwich); Altitude: 700 feet.

FINANCIAL CONDITION:

Total Valuation: \$3,125,686; per capita: \$215 00. Net Indebtedness: \$135,000; per capita: \$9 31. Tax per \$100: \$3 20.

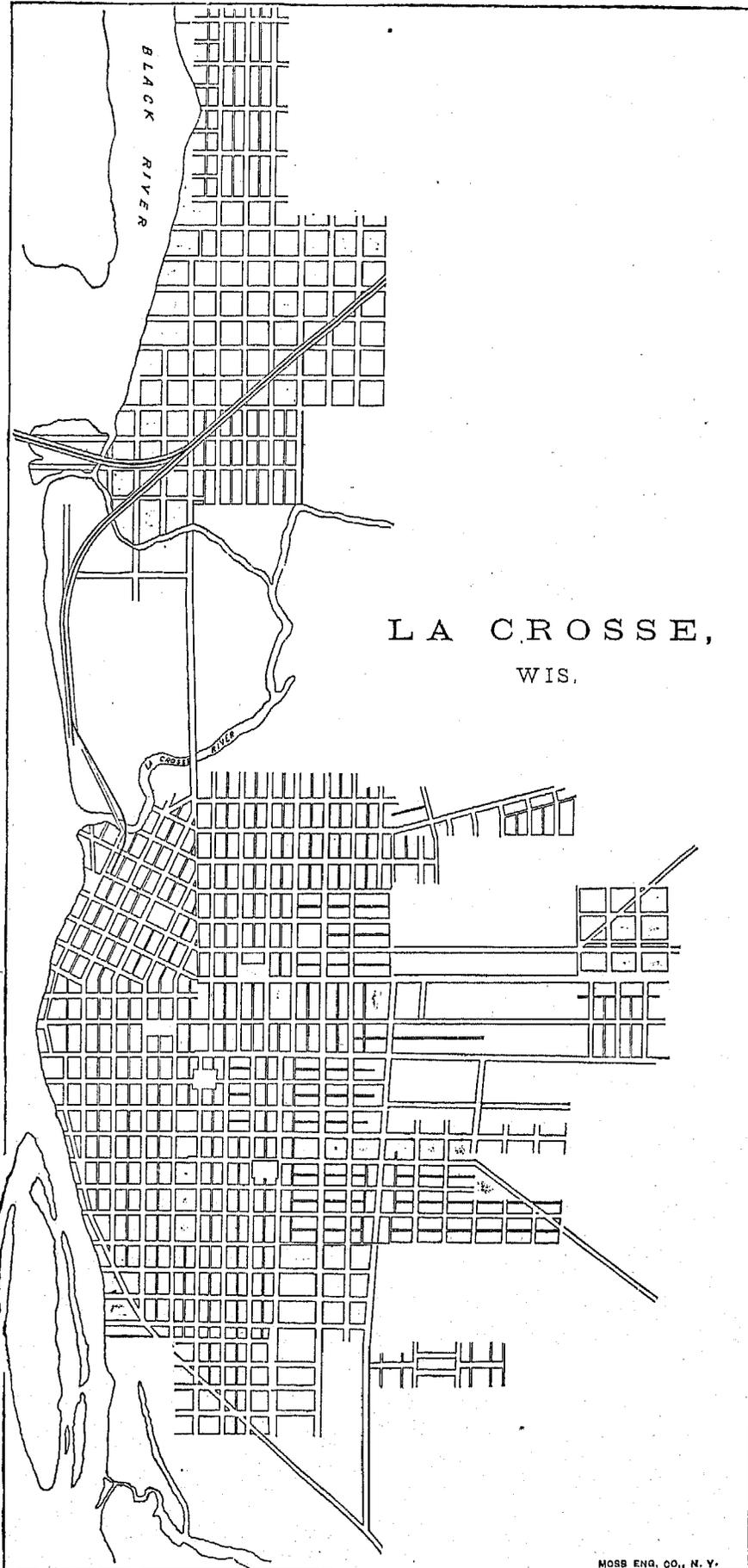
LA CROSSE IN 1880.

The name of the city is derived from the ball games which, up to dates considerably later than the white settlement, were played on the plains by the Indian tribes.

No history of La Crosse could be obtained, and the following statistical accounts, being all that could be collected by the Census Office, indicate in part the present condition of the city:

LOCATION.

The city lies in latitude 43° 58' north, longitude 91° 23' west from Greenwich, on the east bank of the Mississippi river, at the mouth of the Black river, from the north, and the La Crosse river, from the east. The place was first settled in 1850, and its growth from that time has been rapid. There have been no serious fires, while the financial troubles of 1857 and 1873 were quickly recovered from. The population is represented by people from every land and clime, no one nationality or state having supplanted others previously established. The average altitude of



LA CROSSE,
WIS.

the city is 700 feet above sea-level, the differences being about 40 feet either above or below this. The Mississippi river has here a depth of from 3 to 6 feet, with an average current of 3 miles per hour. Water communication is had from Saint Paul to New Orleans, as well as with all points on the navigable tributaries of the Mississippi.

RAILROAD COMMUNICATIONS.

La Crosse has ample railroad facilities, afforded by the following lines:

The Chicago, Milwaukee, and Saint Paul railroad, between the points named, with the Dubuque division, from here to Clinton, Iowa, and the Southern Minnesota division, from here to Flandreau, Minnesota; the Minnesota division of the Chicago and Northwestern railroad, from Chicago to Watertown, Minnesota; and the Green Bay and Minnesota railroad, from La Crosse to Green Bay, Wisconsin.

TRIBUTARY COUNTRY.

The country immediately tributary to the city is agricultural, wheat and barley being the staple products. The La Crosse river drains one of the finest farming valleys of the state, while opposite, in Minnesota, is the Root River valley, a large and rich agricultural section. In addition the Black river has an annual lumber product of over 250,000,000 feet, and the numerous industries that this gives rise to, materially swells the volume of the city's trade.

TOPOGRAPHY, ETC.

The site of the city is a level sandy prairie, the bluffs on the Mississippi and the Black river rising to a height of from 400 to 500 feet above the water. The soil is sandy, with underlying sand rock. There are 600 acres of marsh land near the city, and this is covered at high stages of water in the river. There is but little wood in the surrounding country, and the soil, like that under the city, is sandy.

CLIMATE.

Highest recorded summer temperature, 108°; highest summer temperature in average years, 96°. Lowest recorded winter temperature, -40°; lowest winter temperature in average years, -20°. Neither the adjacent waters and marsh, nor the prevailing winds, appear to have any marked climatic influence.

STREETS.

There are 35 miles of streets in the city, 8 miles of which are paved with broken stone, the cost being, as nearly as it may be estimated, 65 cents per square yard. The annual cost of keeping the pavement in repair is \$1,200, and the broken stone is preferred on streets in this section. The sidewalks are of plank. On the paved streets gutters are laid with stone. Trees are planted at the sides of the streets by the abutting property-owners. The construction of streets is done by contract, repairs by the day, and the annual cost of both is from \$10,000 to \$20,000. The mayor expresses a preference for contract work.

HORSE-RAILROADS.

The horse-railroads have a total length of 2 miles. There are 5 cars and 13 horses in use, while employment is given to 7 men. There were 100,000 passengers carried during the year, the rate of fare being 5 cents. There are no regular omnibus lines, but 3 vehicles with 12 horses, and employing 7 men, carry passengers to all parts of the city at rates of fare of from 25 to 50 cents.

WATER-WORKS.

The water-works are owned by the city, and their total cost was \$120,000. The system used is the direct pumping into the mains, the ordinary pressure being 40 pounds to the square inch. The greatest amount pumped per diem is 2,500,000 gallons, and the least 500,000 gallons, the average amount pumped per diem not being given. The annual cost of maintenance, aside from the cost of pumping, is \$1,200, and the yearly income from water-rates is \$4,500. Water-meters are not used.

GAS.

The gas-works are not owned by the city. The charge per 1,000 feet is \$3. The city pays \$40 per annum for each street-lamp, 61 in number.

PUBLIC BUILDINGS.

The city owns and occupies for municipal purposes wholly or in part 1 city hall and 2 engine-houses, their total cost being given as \$21,000. The city hall is said to have cost \$1,500; but whether it is owned in common with the county, and this sum is the city's portion, or whether it is the total cost of the building, was not stated.

PUBLIC PARKS AND PLEASURE-GROUNDS.

There are two small parks of one-half block each, with shade-trees and grass sod

PLACES OF AMUSEMENT.

The Opera House, with a seating capacity of 1,000, and Germania hall, seating about 700, are used for theatrical exhibitions. Theaters pay a license to the city amounting to about \$10 annually. There are no halls used for concerts, lectures, etc. There is one concert and beer-garden, 150 by 300 feet, built in 1878 at a cost of \$5,000, that is patronized by Germans on Sunday, but which the mayor thinks "not worth mentioning".

DRAINAGE.

Only one street is sewerred, and its sewer extends but four blocks, discharging into the river below the surface of the water. This sewer is new and has not required any flushing or cleansing. It was paid for by the city. The length and size are not stated, but the cost is reported at \$1 57½ per linear foot. Cost of manholes, \$25; cost of catch basins, \$25 each. There is no plan for the future sewerage.

CEMETERIES.

There are 3 cemeteries connected with La Crosse. The Protestant cemetery, area 60 acres, is situated 1 mile northeast of the city, and the Catholic and Jewish cemeteries are 1 mile southeast of the city. Each of the last two has an area of 5 acres. There are no churchyards or private burial-grounds in which interments are no longer permitted. The total number of interments in the 3 cemeteries aggregates 1,862. There are no ordinances regulating interments, and there is no limit of time after death for burial. Graves are dug 5 feet deep. Owners pay \$3 each to have their lots cared for, while the management of the cemetery is vested in a committee which attends to the gardening, flower-beds, sodding, grading, etc.

MARKETS.

There are no corporation markets in the city.

SANITARY AUTHORITY—BOARD OF HEALTH.

The sanitary needs of La Crosse are in the hands of a board of health, composed of one alderman from each ward in the city, 6 in all, appointed annually by the mayor and controlled by the city council. With the exception of the salary of the nuisance-inspector, the board incurs no expense in ordinary times, but, in case of an epidemic, expense may be incurred to any sum necessary. In absence of epidemics the board has authority to see to the sanitary condition of the city, with powers to correct. In presence of an epidemic it can enforce quarantine and do all things necessary for the suppression of the disease. The board has no stated time for meeting and no specified system of transacting business. The executive officer of the board is the nuisance-inspector, who is always a physician. He has a general supervision over each ward in the city, and reports all sanitary defects to the board. He, as well as all the members of the board, has sufficient police powers to enforce the health regulations. Inspections are made in all parts of the city during the summer months. When nuisances are reported they are ordered to be abated, and if this is not done the responsible parties are prosecuted and the abatement is enforced. Defective house-drainage, privy-vaults, cesspools, and sources of drinking-water are treated the same as nuisances when complained of. The board has entire control over the conservation and removal of garbage. The board has no regulations concerning the burial of the dead, the pollution of streams, or the removal of excrement.

INFECTIOUS DISEASES.

Small-pox patients are sent to a pest-house, prepared for the purpose, situated about 3 miles from the city. Scarlet-fever patients are isolated at home. The board takes cognizance of the breaking out of contagious diseases in either public or private schools, and closes the same if necessary. Vaccination is not compulsory, nor is it done at the public expense.

REPORTS.

The record of births, diseases, and deaths is attended to by the county register of deeds. The board reports annually to the council, and its reports are published in the local press.

MUNICIPAL CLEANSING.

Street-cleaning.—The streets are cleaned both by the city and by private abutters, the city doing its portion with its own force. The work is done wholly by hand, no sweeping-machines being used. The business streets are cleaned once a week and the others "as often as expedient", all being said to be "kept clean". The annual cost of this service to the city is \$200, and very little to private persons. The sweepings are used, when needed, for filling-purposes.

Garbage and ashes are removed by the householders at their own expense. There are no special regulations governing the conservation of garbage while awaiting removal, except that it must not be thrown into the streets or

alleys, or kept long enough on the premises to create a nuisance. Both it and the ashes may be kept in the same vessel, and their final disposition is the same, *i. e.*, used for filling. The cost of the service is very little, and it is said that no nuisance or probable injury to health results from the working of the system.

Dead animals.—The carcass of any animal dying within the city limits is removed by order of the police if necessary. Who performs the service, or where the carcasses are disposed of, was not stated. About 75 dead animals are removed annually at a cost of \$50.

Liquid household wastes.—A limited part of the house wastes goes into the sewers, none into the street gutters, a small proportion into cesspools, and the larger part into vaults. The cesspools are porous, are not provided with overflows, in some cases receive the wastes from water-closets, and are not governed by any regulations as to cleaning, etc.

Human excreta.—About 1 per cent. of the houses in the city are provided with water-closets, half delivering into sewers, half into cesspools, and 99 per cent. depend on privy vaults. None of the vaults are even nominally water-tight, and there are no regulations concerning their construction, or prescribing the manner of emptying them. As a rule, when full they are covered with sand, a new vault is dug and the privy moved over it. Night-soil is not allowed to be used for manuring land within the gathering-ground of the public water-supply.

POLICE.

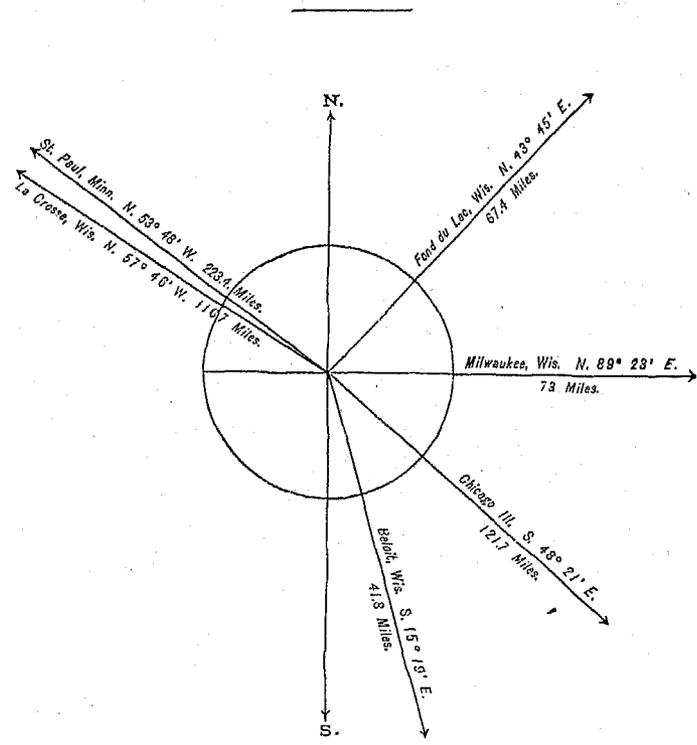
The chief of police is appointed by the mayor, and he appoints the members of the force, the department being governed by the mayor and council. The chief of police, salary \$1,200 per annum, has direct control of the force, and administers it in accordance with rules and ordinances making the usual provisions. The remainder of the force consists of 6 patrolmen at \$60 a month each. The force is not uniformed. Patrolmen are equipped with revolvers and clubs; they are on duty 12 hours at a time and patrol 5 miles of streets. During the past year 893 arrests were made; the principal cause was for drunkenness, and the cases were disposed of by fines or imprisonment, or by the offenders being ordered out of the city. There was very little lost or stolen property reported to the police, but 30 per cent. of what was lost or stolen was recovered and returned to the owners. During the year there were 420 station-house lodgers, as against 470 in 1879. Free meals are not furnished to these lodgers. The force is required to co-operate with the fire, health, and building departments "in all ways in which services can be rendered". Special policemen are appointed by the chief when necessary, but have no standing with the regular force. The yearly cost of the department (1880) is \$6,240.

MADISON,

DANE COUNTY, WISCONSIN.

POPULATION
IN THE
AGGREGATE,
1850-1880.

	Inhab.
1790	
1800	
1810	
1820	
1830	
1840	
1850	1,525
1860	6,611
1870	9,176
1880	10,324



POPULATION
BY
SEX, NATIVITY, AND RACE,
AT
CENSUS OF 1880.

Male	4,950
Female	5,374
—	
Native	7,630
Foreign-born	2,704
—	
White	10,261
Colored	63

Latitude: 43° 5' North; Longitude: 89° 24' (west from Greenwich); Altitude: 848 to 949 feet.

FINANCIAL CONDITION:

Total Valuation: \$4,560,234; per capita: \$442 00. Net Indebtedness: \$136,769; per capita: \$13 25. Tax per \$100: \$1 96.

HISTORICAL SKETCH. (a)

The first settlement in the county of Dane was in 1827-'28, by Ebenezer Brigham, who died in this city, at the age of 72 years, in 1861. Shortly after the Black Hawk war, and on the 15th of October, 1832, an encampment was made on the present site of Madison by Captain Low, James Halpine, and Archibald Crisman. The public surveys were extended over the *Four Lake Country*, embracing this section, and were completed in 1834, and the lands were purchased by James Duane Doty, governor of the territory of Wisconsin, and Stevens T. Mason, governor of the territory of Michigan. In 1836 the territorial legislature selected the Four Lake Country as the site for

^a B. J. Stevens, esq., of Madison, secured and transmitted the detailed information concerning the past and present condition of the city, in response to schedules of interrogatories sent to him from this office, and to him is due the careful historical sketch with which this report is introduced.

the capital, but decided to hold session at Burlington (now in Iowa) until March 4, 1839, unless the government buildings should be earlier completed. The commissioners chosen to construct the buildings were Augustus A. Bird, James Duane Doty, and John F. O'Neill.

The first legislative assembly of the territory of Wisconsin convened October 25, 1836, at Belmont, in what is now La Fayette county, Wisconsin, and on the 28th of November the bill fixing the capital at the Four Lake Country passed to a third reading; the legislature shortly thereafter adjourning to meet again at Burlington, as stated above. On the 6th of November, 1837, the second session of the first legislature convened at Burlington, and continued in session until January 20, 1838, when it adjourned again to meet on the second Monday of June following. The June session was held at Burlington, lasting nearly two weeks, and on the 25th the first assembly adjourned without date, provision having been made, however, for the meeting of the next legislative assembly at Madison. The survey and plot of the city was made under the direction of James Duane Doty, with the capitol square in the center, with a succession of streets parallel to the square. These were crossed diagonally by streets running from the corners of the square, and all were crossed by avenues at right angles to the sides of the square. The Capitol square, or park, consisting of 14.4 acres, was surveyed and staked out by Moses M. Strong, in February, 1837.

Mr. Eben Peck and wife, in the spring of 1837, built the first house in Madison which was used as a residence. Although John Catlin erected a log-house earlier in the same spring, the interior was destroyed by fire before it could be occupied. On Saturday night, April 15, 1837, Mrs. Peck was awakened from her slumbers in a tent, 3 miles from the site of Madison, by the howling of wolves, and pushed on through a violent snow-storm to the site of her more substantial dwelling, subsequently built, where she sat in her wagon under a tree the remainder of the night—25 miles from the nearest white resident, at Blue Mounds, and nearly 100 miles from the settlement at Milwaukee. In June, 1837, there were 36 men engaged in work upon the grounds of the capitol building. On the 4th of July in the same year, the corner-stone was laid, and in November, 1838, the senate and assembly chambers were finished. The first meeting of the legislative assembly in Madison was held in the American hotel, before the completion of the capitol, on February 26, 1838. Soon after March 1 of the same year, the legislature moved into the capitol building, and before it was completed. The American hotel had been completed in January, 1838; it was destroyed by fire in 1868. The Madison hotel was built in 1838, and in June of that year the territorial supreme court held its first session therein. The first newspaper published in Madison was conducted by Josiah A. Noonan, and appeared in 1839.

As early as January, 1838, the territorial legislature prepared to incorporate what afterward became the State university. On the 12th of June, 1838, Congress made an endowment of public lands "for a seminary in Wisconsin, amounting to 46,080 acres". The first quorum of the board of visitors (regents) stands on record as having met pursuant to adjournment December 1, 1838, when Mr. Henry L. Dodge was chosen treasurer and John Catlin secretary. Immediately on the admission of Wisconsin as a state into the Union, in 1848, the university was formally incorporated. The present site (in the city of Madison) was purchased from Mr. Aaron Vanderpoll, of New York, on the 17th of October, 1848. A preparatory department was opened in February, 1849. John H. Lathrop, LL. D., was elected chancellor, at a salary of \$2,000 per annum, and the formal inauguration took place January 16, 1850. The north dormitory was completed in 1851, and the south dormitory in 1854. The university has continued on in prosperity, and fine buildings and extensive grounds have been added. The number of the faculty consists of 34 members, and there are 450 students, and the yearly income of the university exceeds \$80,000.

The state law library dates from the earliest existence of the territorial government. The first purchase of books was in 1837, from an appropriation made by Congress in the act creating the territory of Wisconsin, and later purchases were made from appropriations by the state. The library now contains the English, Irish, and Scotch reports complete, and only two volumes of the regular series of reports of the American courts are lacking.

The state historical society, located in Madison, began its course in October, 1846. The first annual meeting was held in January, 1847, and Morgan L. Martin was chosen president. The second annual meeting was held in January, 1848, and William R. Smith was chosen president. On January 30, 1849, a new organization was effected, at which Nelson Dusey was made, *ex officio*, president, and I. A. Lapham, corresponding secretary; Mr. Dusey was then governor of the state. In 1852, when Leonard J. Farwell, as governor, became president, he ordered a full set of the territorial and state laws and journals to be placed in the society's library. These, together with complete volumes of proceedings of the American Ethnological Society, presented by Frank Hudson, comprised the total works in the library when the present secretary, Lyman O. Draper, arrived in 1852. The society was again reorganized in January, 1854, under a charter obtained from the legislature in March, 1853, when William R. Smith was chosen president. In 1855 Daniel L. Durrie was chosen librarian, who, since 1853, has given to the society his constant and continuous service. To these two, Messrs. Draper and Durrie, is largely due the credit of building up the library and the interest in the society. In January, 1866, the library contained 21,000 books and documents, increased in 1879 to over 80,000 volumes—books and documents and pamphlets—besides newspaper files, maps, pictures, etc. Especial pains have been taken to collect from other states documents bearing upon topics of legislative and humane institutions, to aid legislative committees, boards of charities and reform, railroad commissioners, and members of geological surveys. In these departments the records are very full and valuable. The collection of prehistoric relics, especially copper and stone tools, is remarkable.

The growth of the city was rapid at first, culminating in 1856, but since then has been steady and slow, without marked periods of depression and without serious ravages by fire. Its early rapid growth was owing to the fact that it was the capital of a great territory, first being opened up to occupancy and cultivation, and to the natural beauty of the location. The foreign population or the foreign-born is about 26 per cent. of the total population, corresponding in that respect with the total population of the county of Dane.

MADISON IN 1880.

LOCATION.

Madison lies in latitude $43^{\circ} 5'$ north, longitude $89^{\circ} 24'$ west from Greenwich, in the southern central portion of the state, and 82 miles by rail west of Milwaukee. The city is pleasantly situated on an isthmus between lake Mendota and lake Monona, and is surrounded by heights from which it can be seen at a distance of several miles. The altitudes above sea-level are, average, 900 feet; lowest point, surface of lake Monona, 848 feet; and highest point, University hill, 949 feet. It has been judicially determined that one at least of the lakes near Madison is "navigable", but they are not connected with each other or with other water by navigable channels. Monona, or Third lake, is 4 miles in length by from $1\frac{1}{4}$ to 2 miles in width; Meudota, or Fourth lake, is 6 miles in length by from $1\frac{1}{4}$ to 4 miles in width, and at places from 50 to 100 feet deep. There are four connecting lakes and one disconnected, between three of which Madison is situated.

RAILROAD COMMUNICATIONS.

The Chicago, Milwaukee, and Saint Paul railroad, extending from Chicago, via Milwaukee, Madison, and Prairie du Chien, to the West, and another line from Milwaukee via Portage (at which place a branch from Madison connects), La Crosse, Saint Paul, etc., to the Northwest; and the Chicago and Northwestern railroad, extending from Chicago via Madison; to Winona, Minn., and thence to the West, and from Elroy, over the track of the Chicago, Saint Paul, and Minneapolis railroad, to Saint Paul and the Northwest.

TRIBUTARY COUNTRY.

The character of the tributary or surrounding country is agricultural. There is less of the land under cultivation for 2 or 3 miles out than farther; but, as a rule, all the land is taken into farms, leaving no unsold government lands, and but little held by non-resident owners. Very nearly all the land in Dane county is occupied by parties owning the same, the percentage in the occupation of tenants being very small, probably less than 5 per cent. Every variety of crop and farm product peculiar to the climate is to some extent raised. Wheat, corn, and stock are the chief products, the chief varieties of stock being horned cattle, sheep, and hogs. Garden vegetables, small fruits, and, to some extent, hops are raised near the city in considerable quantities. Butter and cheese are also made in considerable quantities for shipment.

TOPOGRAPHY, ETC.

The soil is clay loam, with small tracts of gravelly sand. The underlying rock is Lower Magnesian limestone. The variations in level are slight, seldom being more than 75 feet, and the surface of the ground is sufficiently undulating for good drainage. Immediately adjoining the city on the northwest is lake Mendota, with an area of about 15 square miles. Lake Monona adjoins upon the southeast and is about 6 square miles in extent, while 1 mile south of the city lake Winger occupies an area of about 2 square miles. The remainder of the country for a radius of 5 miles is mostly open, with limited tracts of small timber scattered about.

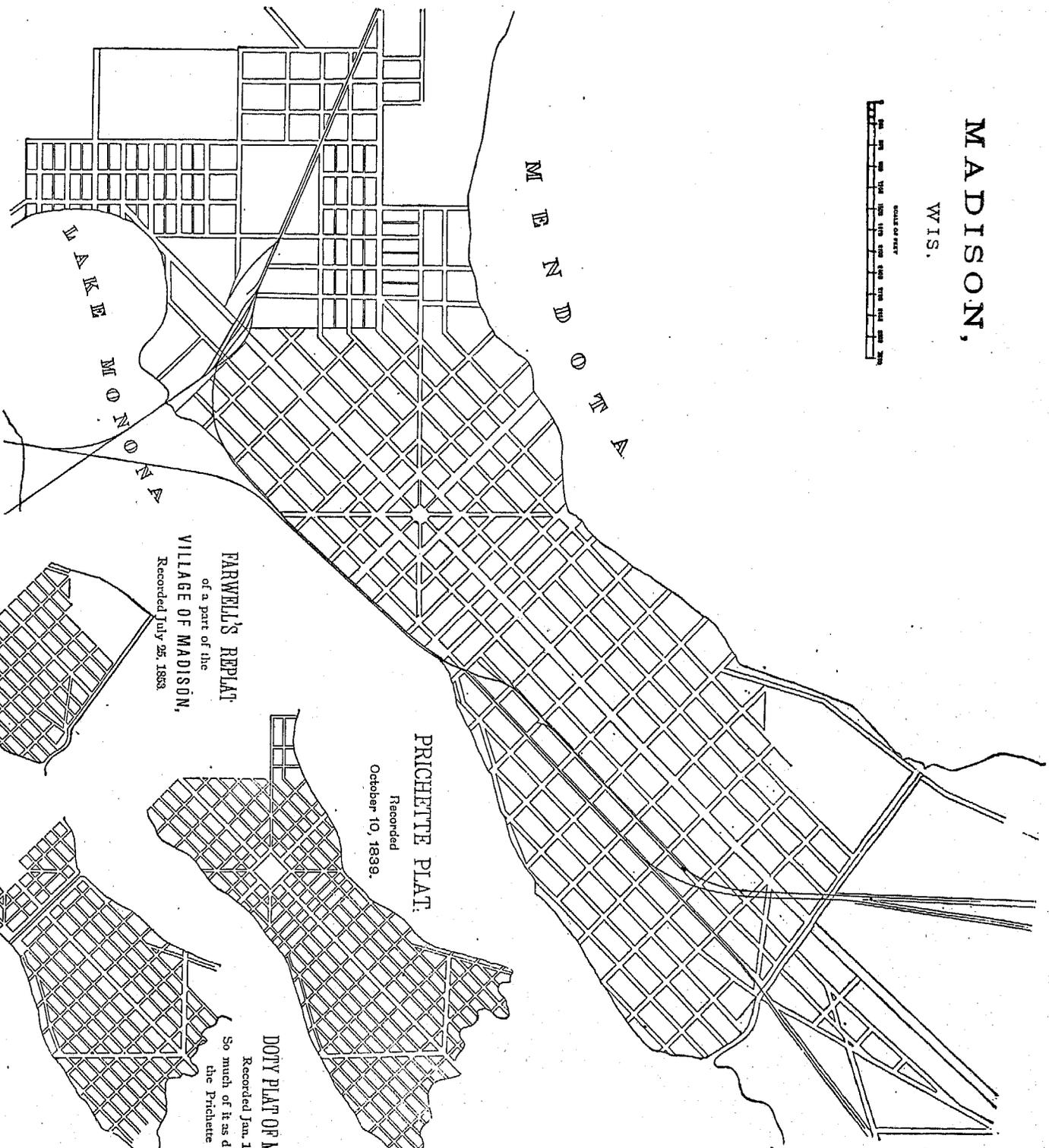
CLIMATE.

Highest recorded summer temperature, 93° ; highest summer temperature in average years, 86° . Lowest recorded winter temperature -28° ; lowest winter temperature in average years, -10° . The lakes adjoining are small and their influence is merely local, tending, however, to moderate the fall winds and to chill those of spring. The prevailing winds are from the west, southwest, and northwest, and tend to make the climate a dry one, thus increasing the extremes of heat and cold.

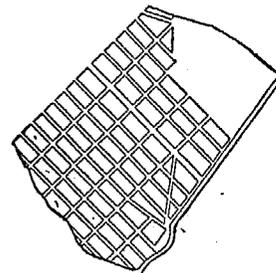
STREETS.

There are about 40 miles of streets in Madison, of which 3 miles are paved with broken stone and 7 miles with gravel. There was at one time about one-half mile of wood pavement, but it has been removed. The cost per square yard of the present pavements, as near as may be estimated, is, broken stone, 75 cents, and gravel, 25 cents. The cost of keeping each in repair is slight. Heavy accumulations from country teams are most easily removed from

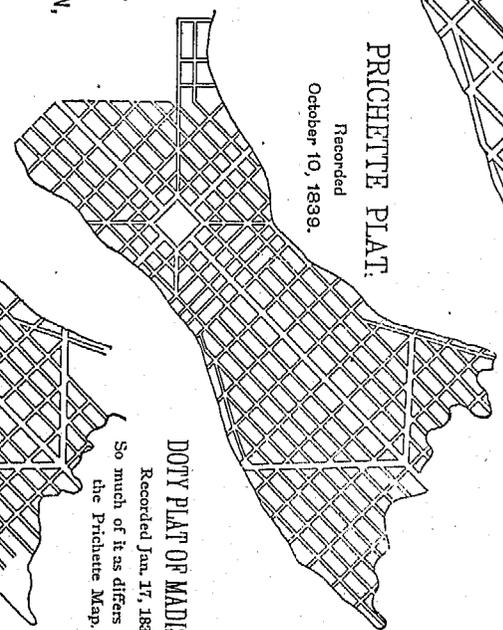
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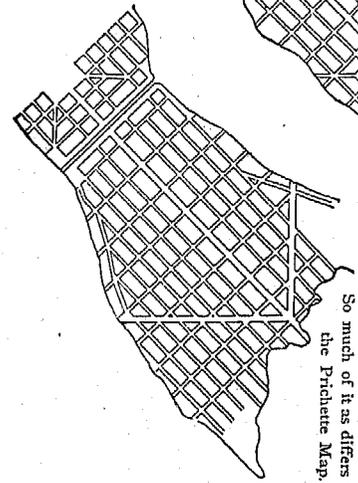
FARWELL'S REPLAT
of a part of the
VILLAGE OF MADISON,
Recorded July 25, 1853



PRICHETTE PLAT
Recorded
October 10, 1839.



DOTY PLAT OF MADISON,
Recorded Jan. 17, 1837,
So much of it as differs from
the Prichette Map.



the broken stone, this class of pavement being preferred here for quality and permanent economy. The sidewalks are of all kinds, boards, plank, stone, brick, and asphalt being used. Brick sidewalks, laid on a good foundation, are considered best. Gutters are paved with cobble and broken quarried stone, which is effective and durable, and requires cleaning only after heavy rainfalls. The gutters have an average fall of 4 inches in one rod. There has been little or no organized tree-planting along the streets, each abutter placing upon his own land, or opposite streets, such trees as he may select. The construction and repair of streets are done both by contract and by the day. The former, under proper guidance, is preferred. An iron roller weighing 5,600 pounds is used, but is useless for the gravel streets unless a surface of screenings is put on, in which case the road after rolling is left in a finished condition.

HORSE-RAILROADS, ETC.

There are no horse-railroads in the city. Two lines of omnibuses, with 9 vehicles, 18 horses, and employing 9 men, annually carry 36,000 passengers to various parts of the city at the uniform rate of fare of 25 cents, not including baggage.

WATER-WORKS.

There are no water-works, but the city intends to construct a complete system at an early day.

GAS.

The gas-works are owned by private parties. The daily average production of gas is 25,934 cubic feet. The charge per 1,000 feet is \$4 50, with a discount of \$1 for prompt payment. The city pays \$3 per 1,000 feet for gas, and this makes each street-lamp cost annually, including lighting, extinguishing, and care, about \$20. There are 91 street-lamps.

PUBLIC BUILDINGS.

The total cost of the municipal buildings belonging to the city is \$38,400, and includes the city hall, engine-houses, and hook-and-ladder house. The cost of the city hall is \$32,000, and is not owned in common with the county.

PUBLIC PARKS AND PLEASURE-GROUNDS.

The only park in the city of Madison is the inclosure in which the state capitol stands, its area being 14.4 acres to the center of the streets surrounding it. It is in form nearly square, and is inclosed by an iron fence. The total cost of the park, including land, improvements, etc., is \$72,807 97. The yearly cost of maintenance has averaged \$3,659 29 for the past 10 years. The present plan of the park, with reference to walks, trees, etc., was designed by Messrs. Cleveland and French, of Chicago, and was approved by Governor Washburne. Its control is vested in the superintendent of public property, subject to the approval of the governor.

PLACES OF AMUSEMENT.

There is 1 theater in the city, known as the Opera House, with a seating capacity of 600, and the following halls used for concerts, lectures, etc.: Turner's hall, seating 600; City hall, seating 650; and University chapel, seating 1,000. No license is required on any theater building, but, by ordinance, all exhibitions are required to pay a license of not less than \$1 nor more than \$20. The Shutzen park, area 20 acres, is situated just outside the city limits, and cost \$7,000. It pays an annual license to the state of about \$15, is fairly patronized, and was first established in June, 1871. In the present year it was consolidated with Der Madison Turnverein, an association incorporated in 1859, and whose hall cost \$10,000.

DRAINAGE.

There are no public sewers in Madison, only a few private sewers, one of which was built by the state, running from the capitol to the Third lake. A few laterals from hotels and residences discharge into this. The other private sewers discharge mostly into Fourth lake. The mouths of the sewers are below the surface of the lake, usually in 6 feet of water, or at a depth sufficient to prevent causing a nuisance, and the conditions relating to discharge are generally mentioned in the permit granted by the city council. Persons desiring to construct sewers do so at their own expense, after obtaining permission from the city council.

CEMETERIES.

There is one public cemetery in Madison—*Forest Hill*—owned by the city, and divided into two parts, one used by the Protestants and the other by the Roman Catholics. It contains 80 acres of land, according to the government survey, and is crossed diagonally by a highway that cuts off about 20 acres. This latter is the Roman Catholic cemetery, the remainder being used by the Protestants. It is situated $2\frac{1}{2}$ miles southwest of the capitol, which stands in the center of the city. A cemetery, now no longer used, and from which all bodies are thought to have

been removed, is located in the eastern part of the city, and contains about four blocks of ordinary size. There are no private burial-grounds known as such, though one or two graves lie on one of the lots bordering on Fourth lake; and there have never been any churchyard cemeteries. Reliable records of interments have not been kept for long periods of time. From what are supposed to be approximately reliable records there were 100 interments in 1879 and 121 in 1880. No burial is allowed to be made in the cemetery until the party applying shall furnish the sexton with the name, age, sex, nativity, and cause and date of death of the deceased. The sexton keeps a record of such reports, and after noting interment gives them to the superintendent, who files the same with the city clerk. The depth of graves is 4 feet for children and 5 feet for adults. The sale of lots in Forest Hill cemetery is attended to by the superintendent, all conveyances being executed by the mayor and the city clerk, and no burial is permitted in any lot until the same is paid for.

MARKETS.

There are no public markets in the city. Hitching-posts or railings, for the convenience of farmers wishing to hitch teams, have been erected, by lease of the council and by the city, in a portion of one of the avenues but little used. This is the nearest approach to a city market.

SANITARY AUTHORITY—BOARD OF HEALTH.

The chief sanitary organization of Madison is the board of health, composed of 5 aldermen—one from each ward in the city—appointed by the mayor and under control of the mayor and council. There is no requirement that the members of the board be physicians, but at present two are such. In ordinary times the expenses of the board, including the removal of nuisances from the streets, are from \$150 to \$200, and during an epidemic there is no limit to the amount expended, the bills being audited by the council. In absence of an epidemic the board has no authority beyond what may be granted by the council from time to time, excepting the power given by the charter to employ a physician at \$5 per day when acting, to abate nuisances, to order the cleaning of cesspools, etc., and also to employ officers at \$2 per day to see that the health ordinances are enforced. During epidemics the authority of the board does not appear to be extended, but the practice is to do what seems to be for the best and trust to the council to ratify what is done. The chairman of the board is the executive officer; he receives no salary, and his duties are to see that the health ordinances are enforced. A health officer—a physician—is employed when necessary, and the chief of police and street commissioner also act with the board. The board has no formal mode of transacting business, no rules, and no regular or fixed times for meeting. Inspections are made regularly once a year, between April 15 and July 1, and afterward as reports are made. When a nuisance is reported the health officer is sent to examine, with directions, at his discretion, to order abatement, and if this is not done the parties offending are prosecuted for violation of ordinance. Defective house-drainage, privy-vaults, cesspools, sources of drinking-water, and sewerage are treated in the same manner, when either found at the annual inspection or reported afterward. The board has no control over the conservation and removal of garbage unless it becomes a nuisance. There are no regulations concerning the burial of the dead, other than what have been noted under the head of "Cemeteries", and the board has no regulations in regard to the pollution of streams, etc.

INFECTIOUS DISEASES.

Whenever small-pox appears and there are several cases, a pest-house is improvised, there being no permanent one. When the cases are few they are treated where found, but intercourse with them is prohibited, and largely prevented. Scarlet-fever patients are quarantined at home in such manner as the health officer, or some member of the board, may direct. The board takes cognizance of the breaking out of contagious diseases in either public or private schools, and, when thought best, close the same. Vaccination is not compulsory, nor is it done at the public expense.

Practically there is no registry of either births, diseases, or deaths. At times a registry of deaths is more or less reliably kept. The statutes direct that the register of deeds of each county shall keep a record of marriages, births, and deaths, and it is made the duty of attending ministers and physicians to report, with penalty of \$25 for neglect.

REPORTS.

The board reports to the council from time to time, and annually a report is made to the state board of health. Reports to the council are published as part of its proceedings in the daily papers, and the report to the state board, in whole or in abstract, is published in the proceedings of the board in book form by the state. The medical profession are required by the ordinances to report to the board of health all cases of contagious disease, under the penalties therein stated. So little of sickness obtains of a contagious nature that the regulations are not so completely observed as otherwise they would be.

MUNICIPAL CLEANSING.

Street cleaning.—The streets are cleaned both by the city and by the abutters, the city doing its share with its own force. The work is done wholly by hand, no sweeping-machines being used. The cleaning by the city is done

chiefly in the spring and fall, and is apparently thoroughly done. The cost to the city is between \$200 and \$300 per annum, but the cost to private persons was not ascertainable. The sweepings are deposited on low lots in remote parts of the city, the present system being "probably as good as could be applied here at present. Deposits improve the low lots".

Removal of garbage and ashes.—All garbage and ashes, excepting the refuse from the public buildings, are removed by the householders, but frequently, on request, the city wagon will take such garbage and ashes as may be placed on the street for removal. Garbage must not be kept long enough to create a nuisance, and must not be thrown on the ground or into the lakes. Some of it is taken by persons as food for swine, but the majority of it is disposed of in the same way as street-sweepings. So far as is known, no ill-effects have arisen from the manner of handling or disposing of garbage, and the system is reported as satisfactory.

Dead animals.—The carcasses of all dead animals are removed by the city and buried outside its limits. The annual cost of the service is about \$15 or \$20.

Liquid household wastes.—With the exception of a small portion disposed of by private sewers and drains, the greater part of the liquid household wastes is run into cesspools and privy-vaults, a little being thrown on the surface of the ground, and a little at times reaching the street-gutters. The cesspools, as a rule, are not closed at the bottom, and sometimes are not walled up. They are not provided with overflows, do not usually receive the wastes, and are cleaned out in the same manner as privy-vaults. An analysis from 300 wells was made by a student of chemistry at the university, under order of the city council, and he reports that there is considerable contamination of wells by sewage, not more than 10 per cent. being entirely free from organic matter, while about 10 per cent. were regarded by him as being unfit for use. It is proper to say that this report is not approved by certain of the citizens who claim to have given study to these subjects, but have not made general experiments. In only one case to date (1880) has typhoid fever been traced, by a report of the attendant physician, to contaminated well-water.

Human excreta.—Not more than 5 per cent. of the houses in the city are provided with water-closets, 3 per cent. of which deliver into the private sewers, while the remainder depend entirely on vaults. There do not appear to be any regulations concerning the construction of privy-vaults, and probably less than 5 per cent. of them are even nominally water-tight. They are not allowed to be cleaned out in the daytime between June 1 and November 1, and the contents must be thoroughly disinfected before being taken out. The dry-earth system is used but little. The night-soil is taken outside the city, and is in some cases used for farming lands.

Manufacturing wastes.—The liquid and solid manufacturing wastes, chiefly from breweries, are discharged into the lakes.

POLICE.

The police force of Madison is appointed by the mayor, subject to confirmation by the city council, and is governed by the mayor. The chief of police, salary \$4 per day, is the executive officer, and has direct charge of the force, which consists of 4 policemen at \$1 a day each. The men wear no uniform, only a star on the breast of the coat, and are equipped with clubs and revolvers, the former being furnished by the city. The policemen do no patrol duty, but remain at the station-house, subject to call, all night. A private watchman, who is paid by certain citizens, patrols a portion of the city. No account of arrests was kept for 1880, but the principal causes of arrests during the year were drunkenness and vagrancy. The offenders were taken before the municipal courts and sentenced either to hard labor or to pay fines. During the year property to the value of \$300 was reported to the police as either lost or stolen, and of this about one-half was recovered and returned to the owners. There are no station-house lodgers here. The force is not especially required to co-operate with either the health or fire department, but it generally does so. Special policemen are appointed by the mayor, and while on duty are under the orders of the chief and receive the same pay as members of the regular force. The annual cost of the police force is \$2,000.