

# THE CITY'S WATER SUPPLY.

**PECULIAR FEATURES OF THE SYSTEM NOW IN OPERATION HERE.**

**Duplicate Machinery and Pumping Stations, Arranged to Reinforce One Another in Case of Necessity, Prevent Any Possibility of a Water Famine—How the Company and Its Plants Have Kept Pace With the City's Growth—From Small Beginnings It Has Expanded into a Mammoth Concern.**

Nothing is of greater importance to any city than its water supply. Every consideration of health, safety and comfort demands that the water should be pure, the supply plentiful and untailing, and the price so low as to put it within the reach of the very poorest citizen. And nothing indicates the character of a city more clearly than the amount of water consumed by its people. It is a rule to which no exception has yet been found, that the consumption increases as civilization and refinement make progress. Paved streets require constant sprinkling, drains and sewers need flushing, elaborate lawns and gardens need water, office buildings, theaters, hotels and factories use enormous quantities for purposes unknown in ruder countries.

For a little more than twenty years Kansas City's water has been furnished by the National Water-works company, an organization whose growth has kept pace with that of the city, and whose business has so directly affected so many citizens that it has seemed almost like a part of the municipal system. The contract under which the company has been acting, however, has now expired, and the courts will decide at an early date what the arrangement for the future shall be.

The peculiar topography of Kansas City makes engineering feats of every kind more difficult of accomplishment here than in cities which are fairly level, and the Water-works company has found it necessary to equip its system with a number of special features not found elsewhere.

The main pumping station is at Quindaro, Kan., where the water is taken from the Missouri river through a suction line forty-two inches in diameter. In addition to the ordinary fixed intake there is a moveable one, which can be raised or depressed as the river rises or falls. The pumping capacity of this station is 40,000,000 gallons daily, and near at hand is a reservoir with a capacity of 60,000,000 gallons. The reservoir basin is divided into four compartments, so arranged that the water is filtered during its progress through them. The value of the arrangement will be readily appreciated by any one who looks first at the water as it comes from the Missouri, then at the water as it enters the reservoir, and finally at the sediment that is left behind in the basin. The sediment is removed at very frequent intervals, and the basin, as well as all other parts of the system, is kept scrupulously clean.

The water is brought to the city through a 36-inch flowing, which follows closely the Missouri Pacific tracks. And the Kaw pumping station, which has a daily capacity of 9,000,000 gallons, distributes water under high pressure to all that part of the city, contiguous of the bluffs. The flow-line is then continued from the Kaw point station to Turkey creek, where is situated the main station, which supplies all the territory east of the bluffs. This station is equipped with five different sets of machines, with an aggregate capacity of 22,000,000 gallons a day, exclusive of the "low service" of 11,000,000 gallons. In addition to these there is the Wyandotte station, which was used by the former owners of the Wyandotte plant to supply that territory, and which is in such condition that in case of necessity it can be pressed into service at a moment's notice.

There are in actual use 175 miles of pipe and 13,500 taps or connections with the

water mark—and to supply them great pressure is necessary. The ordinary pressure is 130 pounds at the pumps. The pressure, of course, becomes less as the elevation becomes greater, so that there is a great difference between the pressures at different points in the city. The fire pressure is 165 pounds, and there are 1,650 fire hydrants.

Statistics of a water company serve to show clearly the city's progress or decline. In 1876, when the National company published its first report, there were twelve miles of pipe, while now there are 175; a pumping capacity of 5,000,000 gallons as against 35,000,000 now, and all other figures preserve the same relation to one another.

Present officers of the National Water-works company are: Giles E. Taintor, president; G. B. L'Amic, treasurer; B. F. Jones, superintendent; Charles A. Jones, assistant superintendent, and F. E. Sickels, chief engineer. The vice presidency was made vacant by the death of Mr. G. E. Simpson, whose successor has not yet been chosen.

## HOW PEOPLE GET ABOUT.

**A System of Street Railways Unequaled by Any Other City.**

In street car facilities Kansas City ranks first among the cities of the Union. In comparison with population the mileage is greater than that of any other city. Seven important systems of street transportation make every quarter of the city easily accessible. The systems are all ably managed and a most excellent service is given the people.

The combined mileage of the seven systems is 126 1/4 miles. The cable system largely predominates, although there are many electric lines. There is one dummy line, and on three short suburban branch lines the mules still do service. These lines reach all the parks and places of interest about the city. With the excellent transfer systems as at present in operation one may ride many miles for one fare. The longest cable ride in the city is from the end of the Rosedale dummy line to Chelsea park, over the Westport cable and elevated railroad. It is necessary to transfer two times to make the trip, but by doing so a ride of nearly twelve miles can be secured for 5 cents.

The Metropolitan Street Railway company is the oldest corporation of the kind at present in the city, having succeeded to the old Corrigan horse car franchises. The system consists of forty-two and a half miles of single track, and includes the Fifth street and Wyandotte cable, the Twelfth street cable, the Eighteenth street cable, the Armourdale electric, the Broadway horse car and the Rosedale horse car lines. Transfer stations have been established at Fifth and Main streets, Fifth and Delaware, Twelfth and Main, the Stock Yards, Twelfth and Mulberry, Union avenue and Mulberry. The Metropolitan also transfers with the South Side Suburban Railway company at Eighteenth and Vine. The company was chartered in 1880 and has a capital of \$2,800,000. C. F. Morse is president and treasurer; George H. Nettleton, vice president; R. J. McCarthy, general manager and chief engineer; and J. A. Harder, secretary and auditor. The equipment of the road consists of 207 cable cars; 42 horse cars, 35 electric cars and 117 horses and mules. Three power houses keep the cables moving. One is at Twelfth and Charlotte, one at Eighteenth and Olive and one at Ninth and Wyoming streets. Three hundred and fifty men are employed and the pay-roll of the company is more than \$20,000 a month.

The Kansas City Cable railway is the pioneer cable road of Kansas City. It was organized in 1883 and began business in 1885. Its capital stock is \$1,575,000, and twenty-one and one-half miles of single track are operated. The system includes the Independence avenue, East Ninth street, Troost avenue and Summit street lines. It is a purely cable road. Transfer stations are at Ninth and Washington, Eighth and Troost and Eighth and Woodland. The road also transfers with the Elevated at the Union depot. Power houses are located at Ninth and Washington, Eighth and Woodland. The equipment

greater part of the road is in Kansas City, Kan. Branches extend to Chelsea park, Edgerton place, Grand View and Armourdale. During the past year the motive power of the main line has been changed from steam to electricity, and the entire system is now operated by electricity. The Armourdale branch between Kansas avenue and Armstrong, which was formerly a single track road, has recently been made double. The road transfers from all its branches. At the Union depot it transfers passengers to all Kansas City cable trains, and at Eighth and Delaware streets with all Grand avenue cable trains. Mr. Robert Gilliam is president of the road and D. D. Hoag vice president and general manager. Under their management the business of the road has been greatly increased during the past year and its general condition improved.

The Northeast Railway company is a double track electric railway extending from Market square to Burge park in the northeastern part of the city, and consists of four miles of double track railway. It is the only road reaching the fine residence part overlooking the river in the northeast part of the city.

The People's Cable Railway was organized in 1889, and in November of the same year passed into the hands of George H. Churchill, receiver. It has a capital of \$760,000. W. C. Phillips is auditor and cashier, and Frank Phillips is superintendent. The road consists of seven and one-half miles of single track and extends from Tenth and Main streets to Twenty-seventh and Brooklyn. It was never in better running condition than now, the equipment being in satisfactory shape. The equipment consists of fourteen coaches, twelve grips and eight summer cars. Seventy-five men are employed.

The South Side Suburban railway extends from Eighteenth and Vine streets to Ivanhoe park, and consists of about three miles of track. It transfers with the Metropolitan, and is doing a satisfactory business. G. K. Wheeler is president; D. J. Haff, vice president and manager; I. C. Hubbell, treasurer; C. A. Ross, secretary.

Among the new enterprises recently organized is an electric railway to be built by W. E. Winner and others from the end of the Fifteenth street line to the Blue river, a distance of two and a half miles. Mr. Winner says that work on the line will begin early in the spring.

The Merrim Park, Rosedale and Kansas City Electric railway is a new company organized last month. It is proposed to build from the end of the Troost avenue cable to the southern city limits of Westport. The road will also be extended to Shawnee and, ultimately, to Olathe, Kan. The motive power will be electricity, with trains running to Olathe every half hour. The officers of the new company are: A. A. Pearson, president; B. F. Hollenback, vice president; S. W. Brown, treasurer, and T. J. Wilson, secretary.

capacities to and at importance as a city increased. The city now enjoy re-communication from many, Belgium to those countries, have been quite proportions has and Kansas City continual increase from that country. An effort has been made to the export The week before amount of grain from made over the the Liverpool. The experiment, and ledly lead to the rough route from antient coast and shipments heretofore New York or Philadelphia. New Orleans in regarded as one Kansas City, and entirely new changing competition hours and miles the city and Liverpool. action was caused ar by an advance from the west this was regarded nation against has not with that the officials led to a conference the grain interest ago. As a result affected which will

Year. Kansas City by follows:

Month	Wheat	Corn	Oats	Rye	Bertry	Flax	Barn Hay
January	2,170,600	1,028,200	227,000	43,000	6,600	600	31
February	1,182,500	1,053,500	369,000	32,000	2,400	8,600	28
March	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32
April	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32
May	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32
June	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32
July	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32
August	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32
September	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32
October	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32
November	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32
December	1,112,200	1,052,500	385,000	21,000	2,400	1,900	32

Storage capacity bu.	Receiving and discharging capacity bu.
400,000	100,000
175,000	80,000
45,000	80,000
200,000	40,000
450,000	200,000
49,000	50,000
300,000	70,000
250,000	70,000
45,000	15,000

## A Natural Food.

Conditions of the system arise when ordinary foods cease to build flesh—there is urgent need of arresting waste—assistance must come quickly, from natural food source.



## Scott's Emulsion

is a condensation of the life of all foods—it is cod-liver oil reinforced, made easy of digestion, and almost as

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

inches in diameter. In addition to the ordinary fixed intake there is a movable one, which can be raised or depressed as the river rises or falls. The pumping capacity of this station is 40,000,000 gallons daily, and near at hand is a reservoir with a capacity of 60,000,000 gallons. The reservoir basin is divided into four compartments, so arranged that the water is filtered during its progress through them. The value of the arrangement will be readily appreciated by any one who looks first at the water as it comes from the Missouri, then at the water as it enters the reservoir, and finally at the sediment that is left behind in the basin. The sediment is removed at very frequent intervals, and the basin, as well as all other parts of the system, is kept scrupulously clean.

The water is brought to the city through a 30-inch flowline, which follows closely the Missouri Pacific tracks. And the Kaw pumping station, which has a daily capacity of 9,000,000 gallons, distributes water under high pressure to all that part of the city west of the bluffs. The flowline is then continued from the Kaw point station to Turkey creek, where is situated the main station, which supplies all the territory east of the bluffs. This station is equipped with five different sets of machines, with an aggregate capacity of 22,000,000 gallons a day, exclusive of the "low service" of 11,000,000 gallons. In addition to these there is the Wyandotte station, which was used by the former owners of the Wyandotte plant to supply that territory, and which is in such condition that in case of necessity it can be pressed into service at a moment's notice.

There are in actual use 175 miles of pipe and 13,600 taps or connections with the mains. The daily consumption of water is 12,000,000 gallons.

During the year the equipment of the system has increased and improved by the addition of a 10,000,000-gallon Worthington engine to the Quindaro plant. This was made necessary by the increased consumption of water.

One of the peculiar features of the system is that the water for the territory lying east of the bluffs is conveyed by three entirely independent lines, of which one is sixteen inches in diameter, one twenty inches and one thirty inches. This prevents the possibility of a water famine. Most cities are supplied by one large line, and an accident to that cuts off the supply entirely. Brooklyn, Chicago, Cincinnati, St. Louis, have more than once suffered from want of water, but Kansas City has had no trouble of that kind. As a matter of fact there have often been breaks in one of the lines which could not be repaired in less than thirty-six hours, but the public has seldom known anything about it. Water continued to flow freely through one of the alternate pipes and no one suffered. This is one result of the system having been built "piece-meal." Further, the pumping stations are so arranged that in time of need any one of them can reinforce the others, making the supply under all circumstances and conditions, a "sure thing." In the twenty years of the company's existence there has never been a lack or even a scarcity of water for an hour.

The difficulty of successfully operating a system of water-works in Kansas City is due, as has been said, to the topography of the city. There are many consumers who get their water at an elevation of 300 feet above what engineers call the "directrix"—that is an arbitrary line supposed to be low-

er than the level of the river. The officers of the new company are: A. A. Pearson, president; B. F. Hollenback, vice president; S. W. Brown, treasurer, and T. J. Wilson, secretary.

ing to Olathe every half hour. The officers of the new company are: A. A. Pearson, president; B. F. Hollenback, vice president; S. W. Brown, treasurer, and T. J. Wilson, secretary.

ing to Olathe every half hour. The officers of the new company are: A. A. Pearson, president; B. F. Hollenback, vice president; S. W. Brown, treasurer, and T. J. Wilson, secretary.

The Kansas City Cable railway is the pioneer cable road of Kansas City. It was organized in 1883 and began business in 1885. Its capital stock is \$1,575,000, and twenty-one and one-half miles of single track are operated. The system includes the Independence avenue, East Ninth street, Troost avenue and Summit street lines. It is a purely cable road. Transfer stations are at Ninth and Washington, Eighth and Troost and Eighth and Woodland. The road also transfers with the Elevated at the Union depot. Power houses are located at Ninth and Washington and Eighth and Woodland. The equipment consists of 191 grip cars and coaches. Three hundred men are employed, and the pay roll is about \$15,000 per month. The officers are William J. Smith, president and general manager; Frank C. Peck, assistant general manager; James A. Blair, vice president; James F. Thornton, treasurer; William H. Lucas, secretary; William A. Satterlee, auditor.

The Grand Avenue Railway company was organized in March, 1880, and has a capital of \$1,200,000. Nearly twenty-three miles of single track are operated by it. The system includes the Fifteenth street line, the Westport line, the Holmes street line, the Rosedale motor line and the Prospect avenue line. The last named is a horse-car line. Transfer stations have been established at Thirty-third and Main, Fifteenth and Grand avenue, Fifteenth and Holmes and Fifteenth and Prospect avenue. Last September this road also began transferring passengers with the Elevated railway at Eighth and Walnut. The system has so far proved quite satisfactory to both roads, and in all probability will be continued indefinitely. The equipment of the road consists of eighty-one cable cars, seven horse cars, two motors and coaches and forty-seven horses and mules. Four power-houses drive the cables. One is located at Fifteenth and Grand avenue, and the others at the end of the Fifteenth street, Holmes street and Westport lines. The officers of the line are Walton H. Holmes, president; Victor B. Buck, vice president; Daniel B. Holmes, secretary; W. B. Clarke, treasurer; C. W. Holmes, general manager, and Thomas J. Fry, auditor.

The Kansas City Elevated railroad has its beginning at Eighth and Delaware streets, and operates twenty-one miles of track. The

### A Natural Food.

Conditions of the system arise when ordinary foods cease to build flesh—there is urgent need of arresting waste—assistance must come quickly, from natural food source.



### Scott's Emulsion

is a condensation of the life of all foods—it is cod-liver oil reinforced, made easy of digestion, and almost as palatable as milk.

Prepared by Scott & Bowne, N. Y. All druggists.

# GLENN'S SULPHUR SOAP

IS THE MOST EFFICACIOUS REMEDY KNOWN FOR ALL SKIN DISEASES.

It Softens, Bleaches and Beautifies the Flesh and Complexion. Ladies everywhere use it as a fine cosmetic, and those who have tried it as a cure for Pimples, Blisters, Redness and Discolorations of the Skin pronounce it a

**PROMPT, POSITIVE AND PERMANENT BANISHER.**

It has grown to be a requisite in every well-ordered household, and being the most economical Medicinal Agent known to the people, Glenn's Sulphur Soap should be used, and well-used, by every man, woman and child in America. Sold by all druggists.

**The CHAS. N. CRITTENDEN CO.,**  
Sole Proprietors, N. Y.

BAL  
INS  
FIR  
FIG  
Rooms  
S. W. WO  
WH  
1206 AND  
KANSAS  
WES