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LEADING  
BUSINESS MEN  
OF  
LEWISTON, AUGUSTA  
AND VICINITY,

EMBRACING, ALSO,

AUBURN, GARDINER, WATERVILLE, OAKLAND, DEXTER, FAIR-  
FIELD, SKOWHEGAN, HALLOWELL, RICHMOND, BATH, BRUNS-  
WICK, FREEPORT, CANTON, BUCKFIELD, MECHANIC FALLS,  
SOUTH PARIS, NORWAY, FARMINGTON AND WINTHROP,

WITH AN

HISTORICAL SKETCH OF EACH PLACE,  
ILLUSTRATED.

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## AUGUSTA WATER WORKS.

**I**F there is any one desideratum for the prosperity and thrift of a city or town, it is a thorough system of water-works, furnishing an abundant and never failing supply of pure water for its inhabitants. Not only does it promote the industries and the business industries of the city, but as a sanitary measure alone, a water system is worth many times its cost. But to go still further there is no method yet discovered which is such an adequate protection to the ignitable property of a place as that furnished by well constructed modern water works. Augusta has but very recently completed a water system of which she is justly proud, as one of the most complete and honestly constructed of any in the country. Today we have a spacious reservoir, 24 miles of mains and a pressure of 125 pounds to the square inch on Water Street, throwing a stream over the tallest building which can be found on the street. The system was built between July and December, 1886, by the Augusta Water Company who contracted with Mr. Geo. P. Wescott and Mr. Joseph H. Manley of this city to construct the works. Over 700 men were employed in the undertaking, which was performed in the most thorough manner regardless of occasional drawbacks and obstacles, and is now, when finished, universally regarded as a credit to the city. The water is taken from the Kennebec river above the dam and is found upon analysis to be extremely pure. It is pumped into a reservoir upon Burnt Hill and thence distributed through the pipes as needed. The nature and extent of the works can best be understood by a detailed description of the main features of the system in order.

The pumps were manufactured by R. D. Wood & Co. of Philadelphia, and invented by A. Geyelin, a member of the firm. They required 40 tons of pig iron in their manufacture and are capable of pumping 2,000,000 gallons in 24 hours under an elevation of 300 feet, with perfect ease. The cylinders or valve chests are about five feet long, each has 96 brass valves 3 inches in diameter. They weigh about 10,700 pounds each, are double acting, pumping both ways of the stroke, which is 19 inches; and are both connected with a 12-inch pump. The large gear wheel weighs 4,600 pounds and is 96 inches in diameter. The running movement of the pumps is 25 strokes per minute, being capable of pumping against a pressure of 160 pounds to the square inch; and they lift 7 tons of water at every stroke. The 12-inch column of water in the pumping main travels at the rate of three feet per second. The turbine wheel which drives the pumps is supplied with power from the Edwards Company's canal. It is 72 inches in diameter with 30 phosphor bronze buckets and develops 175 horse power. A filtering house consuming some 90,000 brick, contains two circular wells in which is filter material sixteen inches thick, lying on a perforated copper plate, beneath which is a chamber receiving the filtered water in its course to the pumping well, surrounding the circular ones, or filterers. The water while filtering passes into the circular well above the filter bed, then down through and out into the pumping well and is taken from there and thrown into the reservoir. To cleanse the filter, the filter water is compelled by a system of gates to pass up and through

the filter bed, washing out all sediment, and is then taken away by a pump erected for that purpose and thrown away. This process of cleansing continues until the water becomes clear. The filtering beds consist of gravel of different grades thoroughly washed before placed in position, and was obtained at the gravel bank at Cumberland Mills. The reservoir situated on the hill to the south and west of the Poor Farm, is 19 feet in height, a prominent object to one looking west from the north end or east side. It has a capacity of 8,000,000 gallons, and its bottom has an elevation of 307 feet above the Kennebec river below the dam, the top or crest being 326. Water is held at the elevation of 325 feet above the surface of the river below the dam, 290 feet above Water Street at the junction of Bridge, giving 125 pounds pressure to the square inch.

At the elevation of 325 feet the reservoir contains over 6,000,000 gallons, while the twelve-inch pipe that supplies it will deliver that and the capacity of the pump besides in less than twenty-four hours, if required. In the construction of the reservoir care was taken to make it perfectly water tight, and to do this some 7,000 cubic yards of clay were used. This clay started from a deep trench beneath the center of the embankment and rose to within two feet of the top, making a wall averaging five feet in thickness well puddled and rolled. Adjoining this at the surface of the ground, after sod and soil had been removed was a two foot thickness of clay passing to the inside slope and thence down the slope to another trench, which acted as a footing for the gravel and paving. Overlying the entire bottom, clay was puddled at different depths, according to the nature of the material beneath.

Inside this clay wall and lining and beneath the paving, above the original surface, was placed the best clay material the reservoir site afforded, rolled in layers of eight inches depth. The clay wall was rolled in six-inch layers, and not allowed to dry or crack in the sun. The poorer material was placed outside of this wall of clay, being intended to act as a weight, as it has no effect as a water-tight medium. Surrounding this embankment on top and the outside slope are some 2,000 cubic yards of loam covered with sodding, which is necessary to prevent washing by rains. There are now laid 6,839 feet of 12 inch pipe, 1,443 feet of 10 inch pipe, 59,589 feet of 8 inch pipe, 44,698 feet of 6 inch pipe, 9,616 feet of 2 inch pipe, 5,295 feet of 1 inch pipe, and there are 80 city hydrants and 12 private hydrants. The iron pipe is from the manufactory of R. D. Wood & Co., Philadelphia, and is prevented from rusting by a process which introduces tar into the pores of the iron under a high temperature.

The depth of mains below the surface is five feet and a half and is thus below the frost. There are gates at each end of the bridge and the 10 inch main which crosses can be emptied at any time. Gates are placed in the pipe so that the water can be shut off from certain sections and streets when necessary. The pipe is all tested at a pressure of 300 pounds to the square inch, and, in fact, the entire pumping main has that strength. The value and usefulness of these water works is now fully demonstrated, not only by the constant supply of pure water they afford, but also by the fact that they save our citizens \$4,000 yearly for insurance premiums, reductions of rates having been made by the insurance companies in consequence of this increased protection these works bestow against fire losses. The works have also had their

effect upon the city fire department, which has been enabled to dispense with its cumbrous and expensive engines and to substitute a hose carriage service, making use of the numerous hydrants of the water service.

## KENNEBEC LIGHT & HEAT COMPANY.

**T**HE Augusta Gas Light Company was incorporated March 9th, 1853. The city was first lighted with gas October 26, of the same year. The Hallowell Gas Light Company was incorporated April 8, 1854, the works were built by the same company which built the Augusta works, in 1855. The two companies were united under the name of Augusta and Hallowell Gas Light Co., and the company continued under that name until February 4th, 1867, when it was changed to Augusta Gas Light Co., and the Hallowell portion of the plant sold to private citizens. The streets of Augusta were first lighted with gas in 1859. The Legislature, in February 1887, chartered the Kennebec Light & Heat Co., and authorized the Augusta Gas Light Co. to sell its property and franchise to it. The legislature also gave the Kennebec Light & Heat Co. full authority to purchase the property and franchise of the Gardiner Gas Light Co., and gave it authority to furnish light and heat in Hallowell. The Kennebec Light and Heat Co. was organized in order to combine the lighting of Augusta, Hallowell and Gardiner by gas and electricity under one Corporation. The property of the several companies has been transferred to the Kennebec Light & Heat Co. Under the new management large sums have been expended in permanent repairs, and in a new gas plant. New main pipes for distribution have been laid in the principal streets and a new gas holder of 45,000 cubic feet capacity has been built. This holder was built in the most substantial manner of brick and iron. The company, also built four large purifiers of the most improved pattern. On the east side of the river, the Kennebec Light & Heat Co. have leased from the Edwards Manufacturing Co. power and erected a building to generate their electricity. The building is 60 feet in length and 36 feet wide and one story in height. Two large turbine wheels, constructed by Mr. P. C. Holmes of Gardiner, have been placed in one of the new flumes and furnish the power for the electric light station.

During the summer of 1888 a number of street electric lights were put up by the company, proving so satisfactory that in the following October a contract was made with the city government for 54 arc lights of 2,000 candle power each, to be placed at street corners. These lights are equal to 270 gas lamps, furnishing nearly twice the former amount of illumination. Besides these some dozen others are owned by private parties. Seven of the city lamps, on Water and Cony Streets burn all night, at a yearly cost of \$125 each. The others burn from sunset till midnight, and cost \$75 each per year.

The company propose to extend their lines, and string their wire so as to furnish electricity in Hallowell and Gardiner as well as in Augusta. Both systems of electric light are to be used, the arc and incandescent, and one of the most extensive electric plants in New England will be established.