

# MUNICIPAL DEPARTMENT

## WOODEN STAVES FOR JOINTING PIPES.

The experience of the city of St. John, N.B., may possibly be of some service to other municipalities in a solution of the problem of protecting water mains from destruction by electrolysis.

The water supply of St. John is furnished by three mains leading to the city from Little River. One of these was laid in the year 1851 and the second in 1857, both being jointed almost entirely with pine staves. The third was laid in the year 1873 with lead joints. The work was carried out under the direction of Mr. Wm. Murdoch, engineer and superintendent of the Water and Sewer Department, by whom we are advised that the wooden staves were supplied at the following prices per joint: 24 inch pipe, 13 cents; 12 inch pipe, 7 cents; 8 inch pipe, 6 cents. Mr Murdoch states that the majority of the leaky joints have been found in the main having lead joints, leaks very rarely occurring in the wooden joints. The staves when removed to make changes or for other purposes have always been tight and sound. The elasticity of the wood allows each joint to yield when changing temperatures alter the length of the pipe line, while the inertia of the lead leaves it wherever dragged under similar circumstances, and the pressure finally blows it out.

The following extract from the specifications of wooden staves for the Spruce Lake pipe line at St. John may be of interest:

### SPECIFICATION OF WOODEN STAVES.

1. There will be required by the Board of Management of the Department of Public Works of the city of St. John:

- 2,400 joints for 24-inch pipe
- 250 " " 12-inch "
- 80 " " 10-inch "

2. A joint in each case shall consist of a sufficient number of staves to encircle the exterior surface of a pipe, and the circumference shall be as follows:

- 24-inch pipe..... 81 inches
- 12-inch "..... 42 "
- 10-inch "..... 35 "

Each stave is to have a length of four and a quarter (4 1/4) inches, and a thickness throughout of seven-sixteenths of an inch. The outer and inner surfaces are to be concentric and the sides radial.

3. Each stave is to conform transversely with the curvature of a circle, whose radius shall be as follows:

- For 24-inch pipe, radius 12 3/8 inches
- " 12-inch " " 6 3/4 "
- " 10-inch " " 5 1/2 "

4. All of the staves are to be made of clear white pine, straight in grain, without knots or shakes, worm holes or rot. No stave will be accepted which does not conform with this condition, and they must also be well seasoned and thoroughly dry.

5. All of the staves must be made to the satisfaction of the engineer and superintendent of sewerage and waterworks for the time being. He will have the authority to reject any that, in his judgment, do not conform with the conditions of this specification, and his decision will be final. He shall also have the right to explain any supposed ambiguity, and to alter any dimensions named herein prior to or during the course of manufacture of the staves,

such alteration not to affect the contractor's right to be paid for those already made, and it shall be the duty of the contractor to cause such staves made by him or under his direction to have the exact dimensions so given by the said engineer and superintendent, when stated in writing by the said engineer to that effect.

6. The engineer to have the right to increase or diminish the number of joints to the extent of ten per centum above or below the number herein named in each class, giving notice to the contractor to that effect, in writing, prior to the manufacture of the staves; but should the whole number of any class be made, and the engineer then find that all are not required, the city shall, nevertheless, accept the whole.

## QUALITY OF HAMILTON SEWER PIPE.

The Hamilton & Toronto Sewer Pipe Company advise us that the city authorities of Winnipeg, Man., have been laboring under the impression that sewer pipes manufactured in Hamilton are not as true, neatly made, nor as strong as those of some other factories. That this impression gained currency is due to the fact that many years ago six car-loads of sewer pipe were shipped from Hamilton to Winnipeg by the Campbell Sewer Pipe Company. It is said that the pipes shipped were not true in circle, and were not what would be called to-day first-class goods. The manufacture of sewer pipe was then in its infancy, and the goods were not turned out to compare with the quality that is manufactured to-day. Furthermore, the Hamilton & Toronto Sewer Pipe Company justly maintain that their company should not be held responsible for the mistakes of a company which has gone out of existence long since, and which had no connection with the Hamilton & Toronto Sewer Pipe Co. This latter company report that they are at present supplying the corporations of Sherbrooke, Lennoxville, Quebec city, Hamilton, London, Chatham, Lindsay, Woodstock, Sarnia, Ingersoll, Kingston, and Brantford, the contract with

the latter city including 2,500 feet of 24-inch pipe for conveying water by gravitation, which requires the best article. By an agreement with the other sewer pipe manufacturers they are not supplying any pipe to the cities of Toronto and Montreal. They claim that the quality of the sewer pipe now manufactured in Hamilton is equal to any to be obtained in Canada.

## DISINTEGRATION OF CEMENT.

The London "Lancet" says the disintegration of cement in the lining of water reservoirs results from the action of the bacterium known as the nitrifying organism. This organism is useful in purifying sewage and effete matters and produces nitrous acid. This acid leads to the disintegration of the cement linings. This disintegration has heretofore been thought to result solely from the action of carbonic acid as a solvent. A gradual "change of scientific thought seems to be creeping in" in this matter, says the writer. "Julien, some time since, showed that the disintegration of certain stones was brought about not so much by carbonic as by crenic and appocrenic acid. Recent researches, especially by Russian investigators, point to the circumstance that certain chemical changes are brought about through the medium of bacteria, and, in the absence of the latter, those changes do not take place. We are far from warranted, in the present state of knowledge, in saying that all chemical change is wrought or promoted by organisms, but it is impossible not to recognize the general trend of thought in that direction. If, as is now suggested, the gradual disintegration of cement in reservoirs is due to organic agencies, then cement makers will have to devise a cement with special reference to the action of the nitrifying organism; the resulting mud of decomposition teems with this bacteria. As the presence of the latter is distinctly beneficial to the water, the remedy certainly lies in employing a cement which shall be capable of withstanding their onslaughts, rather than by removing these bacteria from the water as far as possible.



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