

canvas. When the concrete has set sufficiently to obviate the possibility of marring, and where local conditions permit, suitable longitudinal and transverse dikes should be built and water supplied to cover the surface of the concrete to a uniform depth of 2 in. The water should be maintained on the surface for not less than 14 days. Under conditions where it is impractical to adopt the ponding method of curing, the surface of the concrete should be covered with not less than 2 in. of earth and kept moist for at least 14 days by wetting not less frequently than intervals of 12 hours.

Traffic should not be permitted to use the pavement in less than 21 days if the pavement has been subject to favorable curing conditions; nor in less than 40 days if subject to unfavorable curing conditions.

Traffic should not be permitted to use the pavement for a period of at least three days after removal of the water or earth covering.

MOOSE JAW WATER SUPPLY*

Commissioner Mackie Favors Plan for a 24-inch Continuous Wood Stave Pipe Line from Caron Head Works to the Saskatchewan River at a Cost of \$1,630,000

AT a recent meeting held in Moose Jaw, Sask., at which representatives of nearly every Moose Jaw organization were present, steps were taken and a committee was appointed to take up immediately the question of the Saskatchewan River water scheme for Moose Jaw, as outlined by City Engineer G. D. Mackie, which, in the unanimous opinion of the meeting, was the only solution for the water problem that now exists.

Commissioner Mackie, although he mentioned several alternatives in his address, favored, for financial reasons, the plan for a 24 in. continuous wood stave pipe line from the Caron head-works to the Saskatchewan River, a distance of between 54 and 70 miles, depending on the route selected, which can be constructed and in operation, if started at once, by the end of this year, at an outside cost of \$1,630,000, with an effect on the mill rate of from 5 to 7 mills, depending on the city assessment, if the city pays the entire cost, or of one mill only if it is found possible to secure aid from other sources as suggested.

Committee Appointed

The meeting, which was called under the auspices of the Board of Trade, at the suggestion of President George A. Maybee, resolved itself into a Citizens' Committee, with Mayor Hamilton as chairman. Mr. Mackie was then called upon to make his address, and following that, a short discussion which occurred was brought to a close by a motion stated by William Grayson and seconded by George C. Ingram, that the men named below be appointed a committee to go immediately into the engineering, financial and legislative problems that surround the scheme, and report back to a meeting of citizens to be held in the near future.

Mr. Grayson named the following members of the committee: Mayor S. A. Hamilton, City Engineer Commissioner G. D. Mackie, Alderman W. G. Ross and W. D. McIntyre, President George A. Maybee of the Board of Trade, Arthur Hitchcock, John H. Grayson, ex-Mayor W. W. Davidson, W. Gardner and W. E. Stephenson of the Moose Jaw Trades and Labor Council Executive.

Present Supply

Mr. Mackie, in discussing the water situation, dealt with the present water supply of the city, pointing out the fact that the maximum summer flow is now one million gallons per day, and that the maximum winter flow varies from 800,000 gals. per day to as low as 700,000 gals. per day. The average consumption per head per day in 20 cities of Alberta is 74.5 gals. In ten Saskatchewan towns the average is 47.9 gals. per head per day, and in the Dominion, as a

whole, it is 111 gals. per head per day. Moose Jaw's average consumption per head per day is 53 gals.

In dealing with the industrial water consumption of the city, Mr. Mackie stated that in Moose Jaw the industries consumed more water than those in any other city in the province, and that in the months of January, February and March of this year one firm alone consumed 300,000 to 350,000 gals. per day. The water situation as a whole, he said, was that the city had a possible maximum supply of one million gallons per day, and that the average consumption in 1918 was 883,000 gals. per day, and that the industrial consumption had increased from 150,000 gals. per day in 1914, to an average of between 300,000 and 350,000 gals. per day.

High Cost Per Capita

Dealing with the cost of Moose Jaw's water system, the commissioner said that Moose Jaw's water system, if carried out as per his proposed scheme, would be the most expensive per head in the Dominion. To date, the total expenditure on the city's water system is \$67.65 per capita. The expenditure to date per head in the Greater Winnipeg water area is \$106.63, and Moose Jaw's, if the Saskatchewan River line is built, will be \$149.15 per head.

Referring to a previous meeting at which he made the statement that there was sufficient water in Moose Jaw Creek to supply the city's needs for several years to come, Mr. Mackie said that he could only repeat that statement. The average run-off of the creek per year for eight years is seven and one-half billion gallons. Were that scheme gone ahead with, it would be necessary to build a ten billion gallon reservoir, which would hold enough water to supply the present population for three years. The land that would be flooded by such a reservoir would be five thousand acres, and the minimum estimated cost would be \$1,250,000, of which amount \$450,000 would be required for the pipe line alone. Of that sum \$400,000 would have to be spent in the east end of the city, because of the fact that there is not at present any water main system there to connect with the mains large enough to start the distribution within the city of such a large amount of water. In addition, another disadvantage of this proposal is that if the city outgrows the supply that can be secured from the Moose Jaw Creek, the expenditure entailed in construction will be lost, because the next scheme possible of consideration is the Saskatchewan River. If the cost is at all comparable, there is no doubt that the Saskatchewan River scheme is the better of the two.

Mr. Mackie then considered the Saskatchewan River as a source of water supply for Moose Jaw. Mr. Francis, who was the engineer in charge of the Caron water works construction, and who recommended the Caron scheme over the Moose Jaw Creek, although admitting that it was only a tentative solution, did recommend Caron, because it was a distance of 20 miles gained toward the then considered ultimate solution, the Saskatchewan River, while the Moose Jaw did not offer that advantage. Mr. Francis, however, estimated on the Saskatchewan River scheme, and his figure was five million dollars.

Other Schemes Very Costly

Various Dominion government schemes are estimated at between eight and fifteen million dollars. Major McPherson, who proposed to build an open ditch carrying water from Pelican Lake, and through Thunder Creek, estimated his project at \$850,000, but the disadvantages of his scheme were that the city would have such a supply available for but seven or eight months of the year, and that in order to secure a million gallons per day it would be necessary to pump between ten and twelve million gallons to take care of evaporation and percolation over the 60-mile open ditch. A flow of but one foot every two seconds could be secured.

Local Supply is Limited

It is possible by further development to augment the city's present supply locally, but the outside estimate made by Mr. Mackie is that 150,000 gallons per day could be thus secured, which amount, in his opinion, is not worth considering. With the stock yards in operation, they with the packing house and the C. P. R. could be expected to consume from

*From the "Western Canada Contractor."