

## Questions on Municipal Engineering.

Subscribers are entitled to answers to all Questions submitted on this subject. It is particularly requested that all facts and circumstances of each case submitted for an opinion should be stated as clearly and explicitly as possible. Unless this request is complied with it is impossible to give adequate advice.

Questions regarding engineering matters have heretofore been answered by mail, but believing that these would be of more than local interest, it has been decided, for the future, to devote sufficient space to them in our regular columns. To insure answers in the following issue of the paper, questions should be received at the office of publication on or before the fifteenth of the month.

### THE RATING OF BOILERS.

J.—Our council contracted with a firm to supply a one hundred horse-power boiler for the waterworks. We are not satisfied that the boiler is of the capacity specified, and we would like to know how to decide what the horse-power really is.

Horse-power, as applied to boilers is a very indefinite term. Under the old method they were rated at one horse-power boiler for each five square feet of boiler surface heated. This now varies with the type of boiler from five feet to seventeen square feet. One reason for the misuse of the term is the difference of engine efficiency, one engine generating several times the horse-power produced by another, when connected to the same boiler, and consuming equal amounts of fuel. By stating the type of boiler and dimensions we can give you the information you request.

### CARE OF TAR WALKS.

COUNCILLOR.—Some tar walks laid in our village about ten years ago are in fair condition, except that the surface has worn rough. Can anything be done to improve them?

These walks are used to a considerable extent in England and there the practice is to "paint" them from time to time. The "painting" process consists in applying a thin coating of tar with a broom, and over this, clean sand is sprinkled and swept, to keep the walk from being sticky. By this means tar walks are greatly benefited and are given a smooth, elastic and agreeable surface, preferred by many to the hard, unyielding surface of cement-concrete walks.

### TILE DRAINING.

SUBSCRIBER.—"We have a short piece of sandy road which in the spring becomes very soft and wet, and we have decided to tile drain it. The drain would be sixteen rods long. Would two feet be deep enough, and what fall should we give it? The ground is very flat. Would it be advisable to protect the tile in any way to keep out silt?"

A tile drain, under the circumstances you describe, would undoubtedly do good. As to depth, three feet would be much better than two, as the drain would act more quickly in the spring, as well as

lower the water-line. A fall of three inches in one hundred feet would answer, but it would be better to give it twelve. Care should be taken to lay the tile on a uniform grade, otherwise, where depressions occur, silt will be deposited, and the carrying capacity decreased. To surround the tile with sawdust is an excellent means of preventing the entrance of silt.

### Taxation of Business Enterprises.

Municipalities and states are learning that nothing is so mobile as capital; that nothing is so easily moved as finances and business; and that no state can improperly interfere with or tax business and business enterprises without a resulting loss and injury to the state, because capital will leave the jurisdiction of such an unwise government. Lack of sound business organization, methods and administration must, sooner or later, react against a state, because, to-day, competition between states for business and capital is keen. States are learning that they cannot hold subject to legislative control, if improperly exercised, capital and business affairs. If municipalities or states improperly attack, if they improperly tax business and capital, they will surely take to themselves wings and fly away.—*Public Policy.*

### Water Waste.

The Stratford Water Company recently found a leak in its water mains, responsible it is believed, for a loss of 500,000 gallons daily. A somewhat similar story could be told of many another waterworks system, if a careful examination were made. One of the most serious sources of waste is open and defective taps in the houses of consumers. An annual or semi-annual, inspection will do much to remedy this condition as very little difficulty will be experienced in securing a greater care of water, under penalty of shutting off the supply. Water meters are the most perfect method of checking all water waste, whether by defective mains or taps, but the cost of installing them and the additional cost of reading, render them, under certain circumstances, of doubtful profit. The city of Cleveland is at present installing 10,000 meters.

Proprietor to proof-reader: "Here is a job which the customer rejects, because you spelled sausage—"sossage." How in the world did you come to pass such a palpable error?" Proof-reader: "Oh, I don't know; I thought everthing went in sausage."

### Voting Machines.

The Toronto *World* says: In the last Presidential elections, the vote in 25 of the cities, towns and villages of New York State, were recorded by voting machines. The number of machines used in each place varied from one, in some of the villages, to 108, which was the number employed in Buffalo. On the whole 442 machines were used, and the press has generally endorsed their use, on the ground that they are economical and accurate, ensure rapid voting and an immediate count and prevent needless recounts and expensive litigation. The National Congress and Legislatures of the States of New York, Michigan, Iowa, Indiana, Ohio, Minnesota, Rhode Island, Massachusetts, Connecticut and Nebraska have enacted laws authorizing the use of voting machines. A company with a large capital has been organized in Rochester to take advantage of the rapidly increasing demand for the new machines. In this connection the Buffalo *Commercial* says: The advantage secured by the use of voting machines such as have been used in Buffalo for three years past in national, state and municipal elections, are so numerous and decisive that there is no possibility of returning to the old system of ballots and "pasters."

### One Man, One Vote.

The Municipal Amendment Act of 1901, by sections 9 and 10, does away with double or treble voting for councillors at the town or township elections. The following are the new sections regulating the matter:

158 a. In towns and cities where the councillors or aldermen are elected by general vote every elector shall be limited to one vote for the mayor and one vote for each councillor or alderman to be elected for the town or city, and shall vote at the polling place of the polling subdivision in which he is a resident, if qualified to vote therein; or when he is a non-resident or is not entitled to a vote in the polling sub-division where he resides, then where he first votes and there only; and in cities where the aldermen are elected in two electoral divisions every elector shall be limited to one vote for mayor and to one vote for each alderman to be elected in each electoral division in which he has been rated for the necessary property qualification and shall vote in the manner hereinbefore prescribed.

10. Section 159 of the said Act is amended by inserting after the word "wards" in the third line thereof the following words "nor more than once in the township, though the township is divided into wards where the election is for the township at large by general vote."

Mr. Joseph Brisbois, clerk of the township of Alfred, Prescott County, has been appointed a Notary Public by the Ontario government.