

MUNICIPAL ENGINEERING IN CANADA.

THE young graduate in engineering will find useful the following extracts from a paper presented to the University of Manitoba Engineering Society by Mr. L. M. Jones, City Engineer of Port Arthur, Ont. From a perusal of his observations many suggestions and much enlightenment for the man entering into engineering work may be obtained.

The field of municipal engineering in Canada is broadening more and more every year, due to the rapid growth of the population of our Dominion, the making and revising of our laws relating to sanitary and health matters, and the demands made by the public for up-to-date and modern conveniences which are necessary in making our villages, towns and cities more attractive places to live in than they have been during the past. Think how many villages have grown into towns and towns into cities during the past decade. The writer ventures to say that traces of the municipal engineer can be found in every one of them, to a greater or less extent. This is only a beginning of what we expect, and the works already constructed are only the commencement of what will be necessary to provide for the future of these towns and cities, and the further constructing and planning of works is practically endless, and must proceed in the same ratio as the growth and expansion, subject, of course, to financial conditions.

To the mind of the writer the field of the municipal engineer is one full of interesting work and study, and probably offers more scope for the development of ability than any other branch of engineering, for the term municipal engineering covers the design of waterworks, sewers, sewage disposal, incinerators, roadways and pavements, street railway, bridges, etc., the supervision and organization required in the maintenance of these works, the collection of garbage, street cleaning, and the works connected with various other public utilities that necessarily form part of the civic organizations which are operated for the welfare of the public. Here, also, one has to do with accounting, cost analysis, municipal and commercial law, assessments, financial matters, and opportunities are afforded, through contact with the public, for studying human nature; for, after all, a good measure of the success of the town or city engineer, in dealing with the public, depends largely upon his knowledge of human nature, and especially is this the case in the smaller places. It is said, and truly enough, that the life of an engineer in charge of the engineering work of a municipality, town or city, is full of trouble and worry. The many causes for these troubles are too numerous to mention here, and while they may appear to come fast and furious, and may appear insurmountable, always bear in mind that your companion of college days, who started out on another branch of engineering, is, no doubt, having his troubles and worries, too. Let me say right here, that no matter who the man is, or whatever occupation he is following, if he is ambitious and has aspirations of some day reaching the topmost rung of the ladder in his chosen profession, his troubles and worries will be commensurate to the amount of work he is properly controlling.

The graduate who has decided to enter municipal engineering life may do so probably as an instrumentman, inspector, or perhaps be more fortunate in securing a position as assistant engineer in some town or city; and it is then that the opportunities for gathering knowledge must be seized upon if success will attend his efforts in the future. Because the college halls have been left is no

reason why studies should be abandoned; rather should it be the reason for continuing along the lines where knowledge is required to more intelligently and scientifically carry along the work in hand. During the occupancy of such a position, a full working knowledge, as far as possible, of every department coming under the control of the superior officer should be secured. Ascertain in a general way the methods and organization of other departments coming under the authority of the civic administration. Study municipal law, commercial law, the laws pertaining to contracts, assessments covering the cost of work done as local improvements, the methods of calculating sinking funds, and so on. Keep abreast of the times in town and city planning, sewage disposal and treatment, purification of water supplies, and all other matters which, one might say, may be in a transitory stage. This, of course, can be best done by securing the latest books upon the subject, and finding out what the "other fellow" is doing, through the engineering periodicals. Another thing, and one which will be of great benefit in the future: learn, to a certain extent at least, to speak in public. One of the chief requisites of the municipal engineer is to be able to stand up before his council, which may be surrounded by a gathering of rate-payers, and explain in convincing terms and without losing control, his reasons for doing this thing and that in a certain way. In dealing with the public, cultivate the habit of being master of yourself at all times.

Gradually time moves on, and the graduate of a few years ago has reached the point where he feels capable of taking care of the responsibilities of a position as engineer to a municipal corporation. He receives an appointment, and then it is that he has his first opportunity of taking in hand the whole of the affairs of a civic department. The knowledge previously obtained will be a great benefit and will, no doubt, establish confidence, when properly imparted to others. Besides being engineer, he will become, in a sense, a civic administrator, as the position demands more than engineering alone. Sub-departments have to be established, systems worked out and established, and a hundred and one other things that come and go to make up the duties of the office. In the planning of civic works, don't fail to look far ahead, and plan according to what the probable development will demand in the future. Study out the problems thoroughly, and after a decision is arrived at, make sure the decision is right, stay by it, and see it through. In writing your reports on these decisions, do so as plainly as possible, for remember, you are reporting to laymen, and the simpler and plainer the report the more readily will the contents be grasped. The preparation of these reports may have been long and tedious, causing a vast amount of work. In presenting it to your council it may be turned down. Be not discouraged in this, but bring it up again. Doubtless, your work will be criticized more than that of other public officials, but remember again, that you are the head of the spending department, your department and its work is always in the limelight of civic affairs, and for these reasons criticisms of the engineering work will flow more freely. In this office, opportunities are afforded to meet men of other cities, who are continually negotiating with regard to civic affairs. These men, being of great business ability and broad vision, enable the engineer to establish another viewpoint, and mix the knowledge of business with his knowledge of engineering, and in so doing he is more able to decide wisely upon matters referred to him by his council concerning affairs of the civic administration.