THE ENGINEER IN MUNICIPAL AFFAIRS.*

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CIVIL engineering in all of its branches is concerned with directing nature to man's use and convenience. In the municipality, man has come together and organized that he may have various conveniences which are not enjoyed by his brother in the rural districts. What organization could have more use for a man trained to direct nature's forces to man's use and convenience, or where could the civil engineer find a better field for his endeavor?

Early in the history of every city a competent engineer should be employed to devote his whole time and attention to the affairs of the city. Smaller municipalities should consult freely with the engineers of nearby cities or with consulting engineers on all matters of public service. The duties of the engineer employed by any city should be whatever he may find to do in the service of the people of the city, together with the keeping of such records of all that he does as will be intelligible to a man of like pursuits many years later.

In selecting their city engineers I would suggest that the larger cities should draw from the smaller cities, taking only engineers whose work has been of the highest class; and the smaller cities should depend upon the recommendation of successful engineers in the larger cities or in private practice. Cases in larger cities may be found when it is advisable to promote the assistant engineer to the vacant position of city engineer, but as a general rule the position of city engineer in a smaller city will better equip an engineer for the position in the larger city than will the subordinate position in the same city in which the vacancy occurs. Too much care cannot be exercised in selecting a good engineer.

For purposes of comparison, I gathered statistics from the various city engineers in Michigan cities ranging between 15,000 and 25,000 population. The results in several instances were appalling to anyone who realizes the value of engineering service to the municipality. In one case a city of 15,000 to 20,000 people employed one man part time only at the sum of $900 per annum, and allowed him one man to help when necessary at $2 per day—the wages of a man without any intelligence. Other cases were nearly as bad. I know from my own experience that it is absolutely impossible for a city of this size to have even the most necessary engineering work done with such a department. And yet the tax rate in cities where such conditions prevail is higher than where adequate departments are maintained.

Politics should never enter into the appointment of an engineer, and your city engineer, once appointed, should hold his position as long as his work is up to a high standard. He should have the authority to hire and discharge his assistants. I have worked for a city in another state where the mayor appointed the city engineer and all of the engineering department employees. There was a complete change in the department every two years, for no mayor succeeded in holding office two successive terms. You can well imagine the result as far as efficiency was concerned. Each administration found few records and left few. There was no index or system of any kind and no incentive to make one, for it would hardly be completed before the maker would be replaced by the next mayor. The condition and accessibility of records are an excellent indication of the character of the engineering department in any city. These records should be the property of the muncipality in all cases and maintained for the use of its people.

The engineer of to-day spends as long a time in preparing himself for the work that he is to undertake as does the lawyer or the doctor. Is he not, then, entitled to the same consideration? No city would attempt to conduct its affairs without the service of an attorney, but yet the lack of engineering advice is quite as costly as the lack of legal advice, and may be even more so. No man hesitates to call in a doctor when he thinks his life is in danger. The lack of engineering, also, may be responsible for the death of one, or many, in places where the layman would suppose no danger lay.

One of the most important duties of the city engineer is to look as far into the future as it is given one to look. Your engineer has at his command a vast wealth of statistics and the experience of others in his periodicals and in the reports of officials in other places. The interpretation of these statistics and reports, in which the engineer is trained, gives to him a knowledge of what results will follow certain conditions which cannot be had by the layman. The first cost of an engineering project is not to be considered in many instances in the light of the resulting costs to follow. Sometimes an affair which seems of very trifling importance to the layman, and is given only passing consideration, may become a matter of serious consequence in the not distant future.

*From a paper read before League of Michigan Municipalities at Alpena, Mich., on June 25th, 1915.

PHOSPHATE DEPOSITS NEAR BANFF.

A press dispatch from Ottawa refers to a discovery of undoubted importance in connection with the future development of agriculture in Western Canada that has just been made by officials of the Commission of Conservation. Dean Adams, chairman of the Committee of Minerals of the Commission, and W. J. Dick, the Commission's mining engineer, who have returned from the west, report that deposits of phosphate of lime occur in the Banff National Park, in the Rocky Mountains.

In all agricultural countries there is an enormous demand for phosphate fertilizers, and every available source has been eagerly sought and exploited. Large deposits in Florida and South Carolina are nearing exhaustion. The largest deposits hitherto discovered have been found within the last half dozen years in Utah, Idaho, Wyoming and Montana, and the United States Government reserved them from entry.

The distribution and extent of the Banff deposits are to be worked out by the Canadian Mines Department, and it is believed they will prove to be comparable in extent and quality with those of the United States.

The use of the hydro-aeroplane has been extended to assist in the prevention of forest fires. A fire ranger in northern Wisconsin uses one in detecting fires and reported their extent. Heretofore the view a ranger has had of the surrounding country has been limited to that given from a 60-foot tower at the various forestry stations. This ranger recently discovered a fire 30 miles off and on investigation found he had made an accurate estimate of its distance and extent.