"Say, haven't you any ambition? You aren't down South on a plantation working for a slave driver. You're a soldier working for Uncle Sam. Come now, show some ambition."

"Ambition? What good's ambition? I gets my li'le thirty per ef I got ambition, and I gets it ef I ain't."

Engineers may never fall into the utterly ambitionless class because of low salaries, but there is no gainsaying that inadequate remuneration eventually takes some of the "pep" out of nearly any man.

Contrasted with skilled mechanics, most draftsmen and instrument men are badly underpaid. Not only are their daily rates disproportionately low, but they rarely receive pay for overtime work. Aside from being unjust, this I feel is an economic mistake.

ROAD MAINTENANCE*

By F. A. Senecal
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DURING the last year there has been so much said and written in regard to highway legislation, road construction and the classification of roads that perhaps the largest problem, as it stands to-day in Ontario in regard to the general improvement of the roads, seems to be forgotten.

The obvious reason for this resides in the fact that a great change in public opinion has taken place in many localities. The people to-day seem to favor a speedy construction of high-class roads where, only a few years ago, they would have been impossible. Scores of good roads enthusiasts are developed every day, and all have ideas of their own—more or less practical. One thing, however, to be commended is the generosity of some of them. They are ever ready to give their services free of charge—especially advice —as to what must be done for the improvement of the roads.

The Lawyer's Advice

Some time ago, at a large meeting in Ottawa, the problem of road maintenance appears to have been solved in a rather startling manner. A so-called road expert—who, by the way, is a well-known lawyer—was giving a powerful address on road construction. After drawing a rather dark picture of the roads in Ontario and deploring the inferiority of the construction of some roads he had travelled over, and which, he said, were intended to be permanent when built a few years ago, he told his audience how easily he would overcome this very problem of road maintenance. He made this remarkable statement:—

"When building your roads, build your maintenance 'in' your roads," inferring, I presume, that a road, when properly constructed, would require no maintenance whatever. This statement, strange as it may appear to be, seemed to meet with the approval of his audience.

Unfortunately for us who are gathered here to-day, and who are so deeply concerned with this very problem, this "genius" did not give us his formula; he did not tell us how this could be accomplished, i.e., what kind of construction would he recommend that would be so permanent that it would do away with the problem of maintenance altogether.

No public office would be too high for the man who could devise a system or material of road construction that would not require any maintenance after its construction. His name would go down in history as a public benefactor. This lawyer's advice on road maintenance may sound very plausible, but we must admit that this problem cannot be disposed of in this manner.

True it is that a competent engineer, when supplied with all the information in regard to the nature of the traffic over a certain road, can lay out plans and specifications of a road that would meet those conditions and determine the approximate cost of the materials most suitable for that particular case, but never can a road be so constructed that it will stand under heavy traffic without a proper system of maintenance.

Sometimes we are pointed to the famous roads in Europe, such as the Appian Way, built by the Romans about 315 B.C., and also to the roads of France and England, also built after the Roman invasion, as models of efficiency and permanence, but these so-called road experts do not seem to realize that there has been a change in the conditions in the world since the invasion of Britain by the Romans.

Marvellously as some of these roads in Europe have stood the wear and tear of centuries, none of them have escaped from the natural consequences of the improved means of transportation over those roads. In fact, all the roads that are left have been resurfaced, and some of them many times,, and this invariably according to the nature of the traffic passing over those roads.

In this country the conditions are so different that we cannot always be guided by the experience of older countries. Our sparsely-settled population, climatic conditions and other matters make the problem of road-building and maintenance altogether different to that of the older countries.

New Conditions Almost Daily

With the advent of the motor traffic over the roads, new conditions are being created every day. Roads built only a few years ago to carry a certain class of traffic are now inadequate to carry the increased traffic and show evidence of deterioration on account of the new conditions. I, for my part, would not always charge that to deficiencies in construction.

It is not my intention to take up the question of road maintenance as it presents itself in connection with the various types of road construction. This would take more than the scope of one short paper on this subject would allow. My intention is merely to open up the subject in order that several amongst you may give us the benefit of their experience, especially as to the proper method of dealing with a most important problem, because it affects nearly 90 per cent. of the roads in Ontario.

When we stop to consider that about 90 per cent. of the farm products have to pass over those roads before reaching the more permanent roads or the railway stations, we may well ask ourselves if we are really giving to this question all the consideration it deserves.

To my mind, an ideal organization of road maintenance should be prompt, systematic and continuous.

It should be prompt, because when once the need of repairs becomes apparent it serves no good purpose to delay them. The longer the delay, the more difficult they become, and may soon develop into a source of liability for damages. Moreover, the action of the water remaining in the subgrade soon affects its firmness and would ultimately destroy the roadbed entirely.

Repairs should be systematic because the best results in roadwork are obtained only when a well-planned system of maintenance is scrupulously adhered to and followed to the letter.

Finally, repairs should be continuous, because no organization can be called complete unless the various sections are united together under the patrol system, which is generally followed on the county roads to-day.

There are a few other points which, I believe, should always be borne in mind by the superintendent when laying out his plans for heavy maintenance work on the roads. These are the proper location of the graded roadway, and also the question of providing sufficient drainage for the roadbed. No labor can be employed more profitably than that of locating the road properly, and, having done so, to place the underdrains wherever required, thus ensuring a perfectly dry roadbed before beginning the work of constructing with stone.

(Concluded on page 326)

*Paper read March 6th at the 17th annual meeting of the Ontario Good Roads Association.