

guarantee as being within the reasonable life expectancy of the pavement without repairs.

In northern latitudes if the pavement is completed and accepted between November 1st and May 15th, the guarantee period should be extended so that it will expire on the first of June first following in order to insure weather conditions being such as to permit of thorough examination and the making of all necessary repairs before the final taking over of the pavement by the city. This provision may be omitted when climatic conditions render it obviously unnecessary.

Owing to the admitted defects and shortcomings of guarantees covered by surety bonds alone and the frequent difficulty experienced by cities in having even those repairs due to poor workmanship and materials made on time, we believe that the bond should be supplemented by a cash retainer, legal interest being allowed to the contractor on the amount retained.

For new construction involving grading, foundation and wearing surface, we would recommend that 10% of the aggregate cost of these items be retained.

For resurfacing on an old foundation, we would recommend a retainer of 20%.

#### When "Hold-Back" is Forfeited

In the case of a 2-year guarantee, the whole of the retained moneys should be payable at its expiration and not before. In the case of a 5-year guarantee, one-fourth of the retained moneys should be payable two years after the completion of the pavement and the balance in three equal annual instalments. The date when payments of retained moneys become due shall be governed by the clause previously recommended for pavements completed and accepted between November 1st and May 15th. If the contractor, having received 30 days' notice, fails to make and complete the ordered repairs at the time any annual instalment (or the whole amount) of the retained moneys becomes due, he shall forfeit to the city the total amount then due unless he shall have obtained in writing from the engineer an extension of the time, when the same provision shall apply at the expiration of the extension period.

#### FEDERAL AID FOR HIGHWAYS

HON. J. D. REID has introduced in the House of Commons the resolution upon which will be founded the government's promised highway legislation. The resolution calls for the payment by the Dominion government during the five years beginning April, 1919, of \$20,000,000 for the construction and improvement of highways. Out of this sum, \$80,000 is to be paid yearly to each province. The remainder of the money is to be distributed equally among the provinces in proportion to population. Any highway for which federal aid is granted, must be constructed or improved in accordance with the terms of an agreement between the federal and provincial governments, setting forth the cost, description and specifications. The amount of assistance to be granted by the government is to be 40 per cent. of the actual cost of the work done. The Minister of Railways says that the Dominion will grant aid only for the construction or improvement of main roads, as distinguished from roads merely affording access to market centres and roads leading to main roads and market roads. It was further pointed out that when an agreement has been made between the Dominion and a province as to the location and specifications for a main road, the Dominion government will, through its inspector, see that the work is done in accordance with the specifications.

Wanted, one copy of the November 12th, 1914, issue of *The Canadian Engineer* for a subscriber who desires to bind his papers. Anyone having a copy of that issue is requested to communicate with the Circulation Department, *The Canadian Engineer*, Toronto.

#### RECOGNITION OF THE PROFESSION

How Shall It Be Obtained? Address Delivered March 17th in Chicago at a National Conference of United States Railroad Engineers

BY W. W. K. SPARROW

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WHILE I understand the question many of us are perhaps most interested in at this time is the economic welfare of the engineer and how to secure more adequate compensation for his services, yet I feel that we should not confine our discussion or energies to this phase of the question only, but should also endeavor to secure greater appreciation and recognition of the profession socially and politically and in the problems of reconstruction with which not only this country but the whole world is to-day confronted.

There is a regrettable lack of recognition of the engineering profession, not only in the matter of compensation, but also in the administration of public affairs. As an illustration of this, take the present administration of our great railway systems, the greatest in the world, and largely the handiwork of our profession.

#### Railway Development Engineering Problem

It seems to me that if there is one position in the cabinet of the Director-General of Railroads which the engineer is peculiarly fitted to fill, it is that of Director of Capital Expenditures. The problem of the development of our railways, their economic requirements in the way of additional facilities and improvements, is certainly largely an engineering one.

While this is evidenced by the fact that practically every employee in that department is an engineer, and in every case the assistant to the Regional Director in charge of capital expenditures, is also an engineer, yet we find this important position first occupied by a lawyer and now by a gentleman who graduated from the traffic department of one of our railroads.

The same lack of recognition is found in the representation on the Interstate Commerce Commission, a body charged, among its other important duties, with one of the greatest economic and engineering tasks of the day, the valuation of our railroads; and in like manner in the representation of the state commissions, the national commission on the development of waterways and other similar bodies. This lack of recognition is sometimes almost grotesque, as for example, when a few years ago the governor of the State of Missouri appointed a lawyer as State Highway Engineer of that state.

#### Greater Recognition Lately

While in the past few years engineers have received greater recognition, as for example in the appointment by the Federal Government in August, 1915, of the Naval Consulting Board, consisting of two representatives from eleven engineering and scientific societies to co-operate with the Naval Advisory Board for the purpose of obtaining the most advanced experience and thought in technical research and engineering developments; in the important positions some have been called to fill in the administration of the affairs of our large railroad corporations in the situation they at present find themselves; and also in the administration of the municipal affairs of some of our large cities in the capacity of City Manager, yet I feel that the profession is far from taking its proper place in the affairs of our nation, states or cities.

I think that this is more marked in the United States than in some other countries, at least that was the impression I gained when I first came to this country. It is certainly true of England and South Africa, where I spent some years of my life.

Just about the time I left South Africa, where, by the way, the railroads and harbors are all government-owned and operated, it was decided to change from the British system of