

the client, up to the point where the total profit amounts to 20%, after which the partition is on a fifty-fifty basis. This point was selected as being the one above which a contract is generally deemed by contractors to be good, slightly below which it is only fair, and much below which it is bad; for it corresponds to a net profit of 10%. That is as small a margin as is generally deemed safe for any bidder to tender upon, and yet it constitutes a satisfactory profit on a finished job. As for limiting the client's share of the profit to one-half—that is reasonable and just, because he would have no moral right to receive more than his partner, the contractor. If the client's share were allowed to increase beyond the point of equal division, it is conceivable that, with a very large prospective total profit, the contractor could save money for himself by making the work more expensive.

Sixth.—The contractor will feel during the progress of the construction that the client is a partner on the job, and that, therefore, he and his engineers will not be likely to be unnecessarily severe in their requirements, also that they will permit the adoption of all legitimate expense-saving expedients, and will not demand too many frills on the finishing.

Seventh.—Owing to the justice and equity involved by this method of contract-letting and profit-sharing, all concerned in the execution of the work will labor whole-heartedly and good-naturedly, avoiding petty squabbles and disagreements of all kinds; and the result will be earnest, honest effort, a satisfactory piece of construction, and the general contentment of both parties to the agreement.

Adoption of Method

If this proposed method of contract-letting and profit-sharing be received with favor by engineers, architects, contractors and builders in general, it could easily be adopted as a standard for the country by calling a small convention with a single representative from each of the leading technical and railroad societies, contracting organizations, and bankers' associations, to discuss the advisability of adopting it (or else some slight modification of it) and to report the decision of the meeting to the said bodies for their approval. If any large group of clients, such as the railroad companies, were to adopt the method as standard and use it, very soon everybody having construction contracts to let would follow their example, thus making it the universal standard of contract-letting for our country—nor would it be long before other American countries would follow our lead, thus greatly simplifying our business relations with the various American commonwealths.—From "Contracting," of Chicago.

The Asphalt Association has opened a branch, or district, office in Washington, D.C., in charge of Maj. Harry D. Williar, formerly of the Maryland Road Commission and later with the Paving Commission of Baltimore.

The following resolution was adopted last month at the Canadian Mining Institute's convention in Vancouver: "That the formation of a Canadian Association of Engineers, for the purposes of social service, mutual protection and legislation is desirable and in the best interests of the public and of the profession."

The directors of the Engineers' Club, Toronto, have decided to increase the entrance fee from \$50 to \$100, effective January 1st. All applications received this month will be subject to the former rate. The directors announce that they have no intention at the present time of increasing the present annual dues.

The annual election of officers of the Toronto branch of the Engineering Institute of Canada was held last Thursday night at the Engineers' Club, Toronto, with the following results: R. O. Wynne-Roberts, chairman; executive committee—Geo. T. Clark, Thos. Taylor, Prof. C. R. Young and J. C. Krumm. W. S. Harvey was re-elected secretary, but as he has moved to the United States, his successor will be appointed by the executive committee. The new officers will assume office about January 20th, 1920.

THE RAILWAY SITUATION IN CANADA TO-DAY

WILLIAM FRANCIS TYE, formerly chief engineer of the Canadian Pacific Railway, addressed the Montreal branch of the Engineering Institute of Canada last Thursday, the title of his address being "The Railway Situation in Canada To-day."

Transportation, said Mr. Tye, is a more important question in Canada than in any other part of the world on account of its geographical position. The Dominion is divided into an eastern area, comprising Ontario, Quebec and the maritime provinces, and a western area including Manitoba, Saskatchewan, Alberta and British Columbia, the two areas being separated by long stretches of barren territory. In the west the products are mainly agricultural, which have to be transported east, whilst the manufacturing products of the east are carried to the western provinces.

Government Has Always Helped

There are 39,000 miles of railroad in Canada, giving one mile to every two hundred people. This is practically equal to Germany with her 75 million population, to India with 330 million, and nearly as much as Russia with 170 million. The rates are low, considerably lower than those obtaining in the United States, and the service is good.

From very early days the Federal government has always helped the railways. The first assistance was a grant of \$35,000,000 and 18,000,000 acres of land given to the Canadian Pacific. Subsequently, the grant became 3,200 acres per mile for cheaper lines and 6,400 acres per mile for those lines which cost more than \$15,000 per mile to build. The third scheme conceived was the issuing of guarantee bonds, which was done on the theory that the guarantee would never be called upon, but the liability has proved to be tremendous. The guarantee on parallel lines, which was given later, appears to have been especially disastrous.

Why have the railways failed? asked Mr. Tye.

In 1906, all privately owned roads were prosperous; the C.P.R. and G.T.R. were rich, and the C.N.R., though not paying dividends, was doing well. Now the C.N.R. and G.T.R. are bankrupt, and only occasionally in late years have they earned the cost of operation of their roads.

There has been keen rivalry as to which should become the second transcontinental railway. Bond guarantees given by a liberal government enabled the G.T.R. to build 3,900 miles of main and 1,200 miles of side lines. Similar guarantees by a conservative government assisted the C.N.R. to extend their system from 2,000 to 10,000 miles. This rapid construction, and the way in which it has been carried out, has resulted in the bankruptcy of both railroads.

It has been said that "Railroads were opened first and built afterwards, i.e., in advance of civilization." This meant light revenues, and, of necessity, light expenses. Steep grades, few turnings, light rails, few terminals are necessary in building a new line in virgin territory. As the revenue increases, steam shovels can be employed to make big cuts and fills at a smaller cost than would have been incurred by using light equipment, new depots and sidetracks can be constructed, and the road can be made a good one. Heavy expenditure of money in the early stages of development is not justified, as the interest amounts to large sums. At 5% money doubles itself in fourteen years.

G.T.P. Too Expensive Construction

The Grand Trunk has always been accustomed to deal with the east, with Ontario, the United States, etc., having immense traffic, and there has always been need of heavier rails, more sidetracks, and more terminals to take care of this traffic. In expanding in the west, they have built a very expensive line, giving a fine road, with better grades than those obtained on the C.P.R., but their revenue has been insufficient to pay operating expenses and fixed charges. The parent company in the east have been getting into difficulties, and finally have had to give up the western line.