

extreme. Experimental investigations have shown that the allowable stress on steel columns depends quite as much on the make-up of the section as on the slenderness ratio, and that a short column will not necessarily carry a greater load in pounds per square inch than a column of considerably greater slenderness ratio. It might be remarked that a careful study of actual full-size column tests, made by the engineer members of the Citizens' Committee on the revision of the Toronto Building By-law, showed that a formula very closely approximating that of the New York Building Code fitted the results of tests better than any other, and a working formula was, therefore, proposed which does not differ materially from that formula.

While the practice as followed by the writer, of distinguishing the dead loads and live loads in column design has had very extensive following, it is both inconvenient and liable to lead to trouble. Modern specifications almost universally proportion for dead load and live load by the same formula, making proper allowance for the trying character of the live load by means of an impact formula. The actual simplification of design thus effected is of some importance.

In structural practice on this side of the water, sliding factors of safety are not popular. There is no very good reason why the proper factor of safety for all values of the slenderness ratio cannot be contained in the working formula, and such is the almost universal practice at the present time.

The above comments on this paper are not made in a critical spirit, for the work done and the conclusions arrived at deserve a good deal of attention at the hands of engineers. There is no question that a standard formula for column design (that of the American Railway Engineering Association, or a similar one) would be of great benefit to the designing engineer and the manufacturer. We are glad that the writer has presented his thoughts so clearly in this excellent paper, and we hope that some discussion will arise as a result.

### THE RAILWAYS IN BRITISH COLUMBIA.

A vast prospect opens up in British Columbia as the result of the programme outlined in the Provincial Legislature for railway development. Legislation recently enacted provides for the closing link in the new route between the Kootenay and the coast by granting a cash bonus of \$10,000 per mile for the continuation of the Kettle River line from Coldwater Junction to Hope. This joins up with the present boundary branch of the Canadian Pacific Railway to Coldwater by the line now under construction from Midway westward and from Penticton eastward. This new route will provide a far shorter and better location than the main line, with the advantage of easier grades.

The Provincial Government also announce the projected acquisition by the Canadian Pacific Railway of the former Great Northern right-of-way in the Kootenay Lake basin of the Slocan. The Canadian Pacific Railway will take over the right-of-way from the syndicate of Kaslo citizens, which took it, with Government backing, from the Great Northern last year. Under the new management the line will be re-built to standard gauge and joined to the Canadian Pacific Railway's Slocan system.

The above announcements, when crystallized in action, will have a great effect in developing the latent resources of British Columbia, as well as in the case of

the short route to the coast, introducing the traveller to the developed eastern British Columbia instead of as at present to picturesque mountain scenery as a part of a lengthy journey. The improved shipping facilities should immediately increase the silver-lead and zinc shipments from the Slocan district.

There is no doubt that better railway facilities in British Columbia, combined with the improvement of the harbors and the opening of the Panama Canal, will cause a tremendous influx of capital with the consequent development of the rich resources of the province.

### THE FAMINE IN CHINA.

There is a bad famine in China and immediate relief is necessary. Canada, we know will be among the first nations to give much needed assistance. A national movement is being inaugurated and money, wheat and flour will be dispatched to the responsible international committee in China, who will see to its proper distribution. The Canadian railways have promised to help, the leading Canadian milling companies will, if required, grind wheat at cost for shipment to China. Prominent citizens throughout the country will co-operate, and we must have the help and financial assistance of the Dominion Government. Talk is frequent regarding the bonds which exist between nations. Here is an opportunity for us to prove that the talk has a practical and sympathetic phase. From the humane viewpoint, there should be no hesitancy in sending a ship load of wheat, flour, and funds—a national gift from Canada to the famine-stricken Chinese.

Aside from the duty, which is apparent, there are many other good reasons for such action. First, we need the friendship of every nation we can secure. The Oriental labor problem has yet to be solved, and it will be easier to negotiate with an ally. Again, there must be removed from the average Chinese mind the impression that there is only an "America." We should tell the Chinese as a nation that on the North American continent is the great Dominion of Canada, rich in natural resources, and whenever occasion arises, wealthy in practical sympathy.

The suggested action by Canada would have another important bearing. Despite what is said by many diplomats, the Far Eastern situation in its relation to Great Britain and the Empire is by no means removed from the danger zone. The contribution to China, by the principal of the overseas empires should prove of considerable assistance in the future conduct of Empire diplomacy. Then there is the awakening of China to the imperative necessity of the application of modern science to national life. The floods are the cause of the present famine. Floods have proved a national disaster in China time and again. Engineering skill would mitigate, if not abolish altogether, this devastation. Engineering skill would improve the present unsanitary conditions existing in many parts of China and which, with the floods, are responsible for large loss of life. Canadian engineers can take their share of that work in China.

Here then is a worthy appeal to the people of Canada. Immediate action is necessary. With that object in view, organization and national committees are being formed, the membership of which will probably be made known in a few hours.