

# CORRESPONDENCE.

[This department is a meeting-place for ideas. If you have any suggestions as to new methods or successful methods, let us hear from you. You may not be accustomed to write for publication, but do not hesitate. It is ideas we want. Your suggestion will help another. Sketches accompanying letters should be made separate, on white paper or tracing linen, in India ink lines. Letters or figures should be plain.—Ed.]

## CURVATURE OF WYES.

Sir,—It was found necessary last spring to put in a Y at Bala, a point on the Muskoka Section of the C.P.R. Owing to the existing tracks and want of tail room the curves that could be used were limited to a  $15^\circ$  leading off the main line and  $16^\circ 48'$  leading on to a siding. There was some discussion regarding the advisability of using any curves sharper than  $10^\circ$  so a short sketch of the result will be interesting.

The track was laid with 60 lb. steel without tie-plates, a gauge of  $4'-9\frac{1}{4}"$ , and 3" super elevation to the outer rail, this latter was taken out by the section-men soon after, leaving the rails level.

It was then found that while engines passed around the sharper curve, they all dropped off at a certain place on the other leg. I checked in the curves with a transit and found that owing to the switches, the  $16^\circ 48'$  curve was sharpened to an  $18^\circ$ , and the  $15^\circ$  to a  $16^\circ 30'$ ; and at a particular place on the latter curve the track was six feet out of line, the track gang having swung in to avoid a shallow piece of rock and had not relined after surfacing. After the track was lined to centre no difficulty was experienced, and since then besides watching it carefully, the section-men have had no trouble with it.

At Footes Bay Ballast Pit the Y has one leg of  $10^\circ$  and one of  $7^\circ 30'$ , the former has been in constant use since April. The track was laid with 80-lb. steel on hemlock ties without plates,  $\frac{1}{2}"$  extra gauge and seven inches super elevation to the outer rail. This was much too high and caused the inside rail to cant, the trains travelled at a rate from 25 to 30 miles per hour, owing to a heavy grade in the pit. When resurfaced this summer the elevation was cut down to 4" and even this proved too much as a compound consolidation was then put in the pit which seldom travelled faster than 5 or 6 miles per hour and the inside rail still continued to cant causing endless trouble to the section-men.

The engines used both on construction work and on passenger trains are Moguls and Compound Consolidations; the former having an average wheel base of  $15'-9"$ , and the latter  $15'-0"$ , some having blind driving wheels, but the majority being flanged.

I believe that the correct gauging, surfacing and lining to be of more importance than the degree of curvature, this, of course, within reasonable limits, and that tie-plates should be considered indispensable.

I would like to see some one else's views on the subject.

Yours truly,

Chas. D. Norton.

Footes Bay, January 13th, 1908.

## CONCRETE.

Sir,—With respect to mixture for concrete, I have pleasure in submitting the following:—

Evidently the writer who quotes the specification contained in your letter to me was endeavouring to adopt a very concise wording, and if it were to be broken stone concrete, probably this short form would be sufficient, although I

would suggest that some size of broken stone be included, as for instance, "broken stone to be of size capable of passing through a  $2\frac{1}{2}$ -inch ring."

The introduction, however, of gravel, complicates the specification considerably, and in order to obviate this I would suggest that the following be added to the wording already submitted viz.: "Gravel, if used, to be of general uniform size. Sand and gravel may be combined to form eight parts of the aggregate, in which case sizes shall be graded so as to fill voids; sizes to be approved from time to time by engineer according to nature of work to be done."

In any case in such a specification it should certainly be required that all materials be approved as to quality by the engineer. In the case of gravel this introduces a difficulty of inspection due to possible lack of uniformity as the material comes from the gravel pit, consequently I have suggested that the gravel be "approved from time to time" and according to nature of work to be done." Yours very truly,

C. H. Mitchell.

Toronto, January 28th, 1908.

## RAILWAY CROSSOVER.

Sir,—I herewith attach particulars of a solution to "Rodman's" query, your issue of January 17th last:—

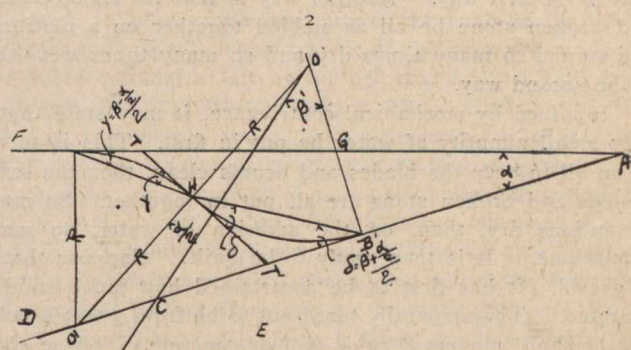
The angle B is required—

$OH = O'H = \text{radius of curve} = R.$

DE is drawn parallel to FG at distance = R.

With a radius =  $2R$  and centre O, cut DE in  $O^1$ .

2  
Cut off  $O'OC = \frac{1}{2}R$ ; then  $COB = B^1$ .



It will be most convenient to plot to scale the diagram and measure the angle  $B^1$ ; then

BC

$\tan B^1 = \frac{BC}{BO}$ , and thus  $B^1$  can be found from tables.

BO

TT<sub>1</sub> is a common tangent to the two branches of the curve.

It will be noticed that  $y + d = B^1$ .

W. H. PRETTY.

Peterboro', Jan. 27th, 1908.

## RE CONCRETE.

Sir,—In reference to specifications for concrete, referring senger trains are Moguls and Compound Consolidations; the five of broken stone, I beg to say, that according to my judgment there should be one part less of sand in order to give the best, and most economical mixture.

The following proportions are recommended by Mr. John Watt Sandeman, M. Inst. C.E., for the construction of economic concrete:—

Cement.	Sand.	Broken Stone.
1	1	$3\frac{1}{2}$
1	$1\frac{1}{2}$	$4\frac{1}{4}$
1	2	5
1	$2\frac{1}{2}$	6
1	3	7