

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.—Ed.]

RAILWAY CROSS-OVER.

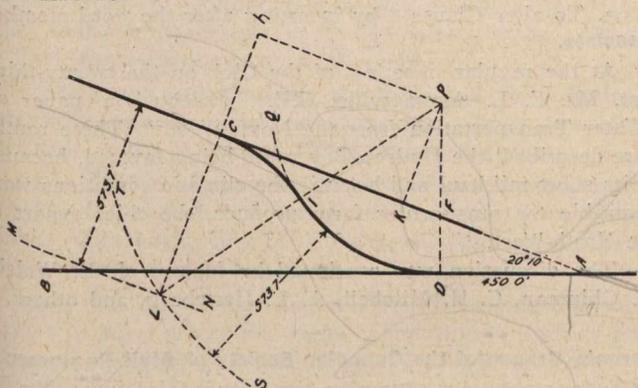
Sir,—In yours of 17th instant, "Rodman" asks for solution of joining two railroad lines by a 10° S curve.

Our first task is to solve the problem geometrically and then find the trigonometrical formulae.

The centre of the first curve, DIQ, is easily obtained by laying off the radius DP=573.ft. (radius of 10° curve). The locus of the other centre lies along the paths of two lines:

(1) An arc ST concentric to the first curve and with radius=2×573.7 ft., and (2) a line parallel to the tangent CA and 573.7 ft. from it.

These two loci intersect at L, join LP, and where it intersects curve DQ at I is the point of reverse curve. Draw the curve IC.



Now draw PH parallel to FC intersecting LC produced at H, also draw PK ⊥ CF.

$$KPF = 90^\circ - KFP$$

$$= 90^\circ - DFA = DAF$$

Also ∴ PK & HL are ⊥ to CF and consequently parallel ∴ KPI = CLI

$$\therefore DPI = CLI + DAF$$

$$FD = AD \tan DAF = 450 \tan D 20^\circ 10' = 165.3'$$

$$FP = \text{radius } r - FD = 573.7 - 165.3 = 408.4'$$

$$LH = LC + CH = r + PK = 573.7 + 408.4 \cos 20^\circ 10' = 383.4'$$

$$\cos CLI \text{ or } HLP = \frac{HL}{LP} = \frac{383.4}{2 \times 573.7} = \cos 33^\circ 28'$$

$$\therefore FPI = 33^\circ 28' + 20^\circ 10' = 53^\circ 38'$$

Note.—If the two curves are not of the same radius, but say r and r', then $\cos HLP = \frac{HL}{r+r'}$

Quebec, 19th January, 1908. A. R. Sprenger.

CONCRETE SURFACES.

Sir,—The appearance of concrete surfaces may be varied greatly, depending upon the skill and intelligence of the workmen and upon the forms used.

For ordinary vertical surfaces use planed, tongued and grooved boards in which there are no holes for the mortar to escape. As the concrete is deposited, an ordinary garden fork or spade with holes is thrust down the inside facing of forms so as to work back the stone, leaving the sand and cement against the boards.

By this method a smooth, hard and uniform surface is obtained at a nominal cost.

Yours sincerely,

Montreal, Jan. 22, 1908.

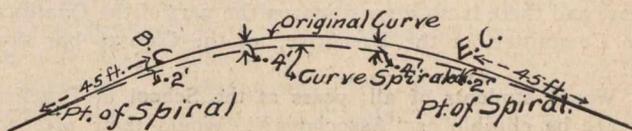
E. E. Gagnon.

Toronto, March 23rd, 1907.

The Editor, Canadian Engineer:

Sir,—Would you kindly have some of your readers answer the following questions:

What is the effect on the rolling stock of a railway of a "curve" as shown? The master mechanic of the road complains that his engines were wearing too quickly.



The original curve is 3 degrees. Instead of using an ordinary spiral, the procedure on a certain Ontario railway is as follows: The points of B.C. and E.C. offset towards centre 2 feet. At the other points on curve offset 4 feet. Measure back along the tangents from B.C. and E.C. 45 feet and use that point as the "so-called point of spiral."

In a 4 degree curve the procedure is the same except that the curve is offset 6 feet and the B.C. and E.C. 3 feet.

Yours, Subscriber.

ENGINEERS' CLUB, TORONTO.

Sir,—Your communication of even date received, asking me for my views upon Mr. F. L. Sommerville's proposed extension of the clauses of the Constitution of the Engineers' Club of Toronto, and governing the necessary qualification for membership.

Mr. Sommerville, is, I believe, to bring up his motion on the 13th February. Between that date and this, Sir, I consider that it behoves every member to do some deep thinking anent the lifted lid.

The formation of an "Associate" grade of member would be a move, perhaps, pregnant of results not presently so easy to realize. I do not care to come out flat-footed against the amendment; but Mr. Sommerville himself, I think, would be the first to declare that the potentiality for good or evil in the suggested departure from the Club's scheme of things should be fully recognized, and the whole question carefully weighed.

One needs small effort to discern many advantages in extending a welcoming hand to a score or so of contractors, et al.—neither "graduates in applied science or in civil engineering," nor professional workers of three years' standing—who would have no vote, but who would pay their yearly dues.

Although founded in 1899, the Club still has the growing pains incident to youth, and the financial aid forthcoming through the lifted lid would afford a short-cut answer to the query, "Where will the money come from?" should the sub-committee now considering the matter report in favor of larger, more adaptable and, of course, incidentally, more expensive quarters. Many gentlemen who would be eligible for "Associate" membership, it goes without saying, would possess knowledge and data for the reading of papers before