

**Please read and send in as full a
discussion as possible at earliest date.**

The Canadian Society of Civil Engineers.

INCORPORATED 1887.

ADVANCE PROOF—(*Subject to revision*)

N.B.—This Society, as a body, does not hold itself responsible for the statements and opinions advanced in any of its publications.

IMPACT STRESSES.

By E. A. STONE, Ma. E., M. Can. Soc. C. E.

(To be read before General Section, October 14, 1909)

The many stresses to which the various members of a bridge may be subjected may be divided into two classes, the first consisting of those always to be considered, viz., the dead and live load stresses, and the second being those acting only under certain definite conditions, due to wind, snow, temperature, centrifugal force, traction, etc. Another stress, that due to impact, which might really be termed a part of the live load stress, is now generally considered and usually appears as a definite feature of the stress sheet belonging to the first class. This stress may either be derived as a percentage of the live load stress or of the sum of the dead and live load stresses (which would not seem to be so rational), or it may be allowed for by using different unit stresses in the members according to the function which they perform in the truss.

When the imperfections of construction in the rolling stock (such as imperfect balancing) and track (such as bad joints) in a bridge are considered, together with the vibration always attending train motion, it must be at once apparent that the effect of impact cannot be overlooked. It will have more effect in short spans than on long ones, and on members which receive their