If T is, say, 14,000 lbs. per square inch, C will be 700 lbs. per square inch from (D):

$$M_0 = \tfrac{5}{8}\, 700 \times 6 \times 100\,(1 - \tfrac{2}{5} \times \tfrac{1}{3}) = 227500 \text{ inch lbs.}$$

General Considerations.—The above discussion has been confined to the determination of the moment of resistance in a concrete steel beam and the stresses parallel to its axis. The magnitude of the bending moment at different points in the length of the beam (which the moment of resistance must, of course, equal), has not been taken up.

Furthermore, certain other important internal stresses have not been touched upon.

The bending moments at different points under the existing dead and live loads are computed in the same way as for timber or steel beams, but there is almost always, at least, partial continuity over the supports.

On this account, there will be a negative bending moment which may be as large as $\frac{1}{24} Wl$ at the supports for a beam of length l, carrying a total load W uniformly distributed. The tensile stresses thus produced in the upper part of the beam, must be resisted by inserting horizontal steel members near the top over the supports, and extending a proper distance each way. The bending moment at the centre of the span has a maximum value of $\frac{Wl}{8}$ for uniform loads if there is not continuity and a maximum of $\frac{Wl}{24}$ for perfect continuity and full loading on the two adjacent spans.

It is conservative practice to make the moment at the centre equal to $\frac{Wl}{10}$

The internal stresses in concrete and concrete steel beams still require much investigation, but the study of tests already made, and the analogy of iron and wooden beams, have provided some valuable practical information.

In a beam on two supports, the bending moment is at a maximum at the centre and decreases according to the law of loading to the ends. If the depth of the beam is uniform, the stresses parallel with the axis vary according to the same law, becoming zero at the supports. There are, however, other stresses in the beam, analogous to those in the web members of a steel truss or the web plate of a plate girder. These increase from the centre to the supports, and are greatest at any point in a direction making an angle of 45 degrees with the longtitudinal axis of the beam.

There are conjugate tensile and compressive stresses, the former