Fig 9

The ordinates of the different points B_1 C_1 etc., measure the moments in relation to B, C, etc., of all the weights at the left, and if we want to find the values $R \times N\,l$ and M_1 when M is at D and the ends of the truss at K and T_1, M_1 will be measured by $D_1 D_2$ and $R \times N\,l$ by $T_1 T_2$

Remarking that for a distributed load the polygonal curve $AB_1 C_1 D_1$ becomes a parabola, we could find the demonstration of many interesting properties of the parabola.

4° Bending moments in continuous bridges of 2 spans.

The maximum bending moments at each point are given by considering three cases of loading, viz., each span loaded and both spans loaded.
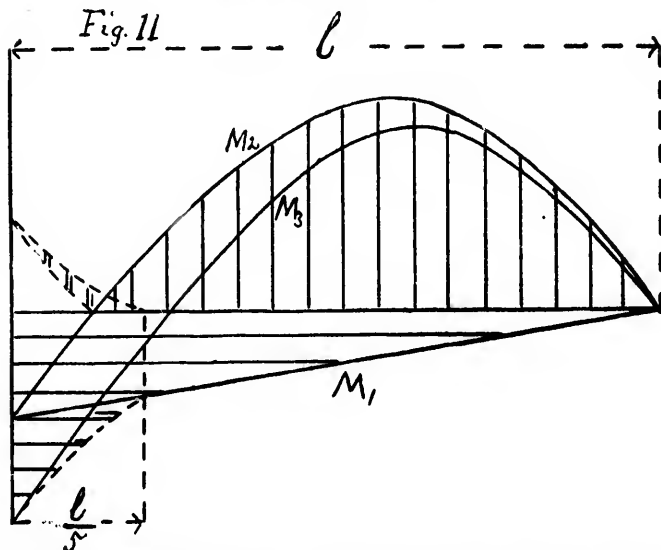

Fig 10
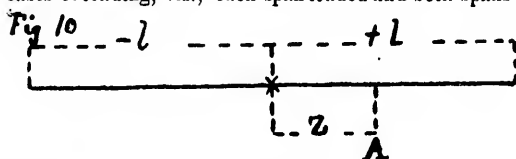
The maxima are then given by the line

$$M_1 = \tfrac{1}{16}\, pl(l - z) \qquad (1)$$

and the two parabolæ

$$M_2 = \frac{Z}{16}\, pl\,(l - z) - p\frac{(l - z)^2}{2} \qquad (2)$$

$$M_3 = \tfrac{3}{?}\, pl(l - z) - p\frac{(l - z)^2}{2} \qquad (3)$$

Fig. 11

If a complete discussion were made, it would be found that for a length $\dfrac{l}{5}$ from the centre, an hyperbola intervenes, increasing the negative moments, and giving also positive moments as shown by double