detail; and it undoubtedly makes a very serviceable bridge. But, as usually constructed, the Howe Bridges contain a large amount of waste material, producing but little useful effect; as previously explained in this Work, on page 27.

The Plan of Truss represented in Figs. 34, 35, & 37; was devised as a means of obtaining the nearest practicable approximation to the true proportions of parts, according to the Forces respectively withstood by such parts; in connection with the most economical general arrangement and proportions of the truss.

To effect these objects, requires such a variety in the dimensions of pieces, even of those of the same class; (the Chords increasing in section toward the centre, and the Diagonals, toward the ends of the truss,) that considerably more care and contrivance are requisite to make the parts fit, & work together properly, than in case of uniformity of dimensions among the members of each class of pieces.

Hence, Engineers and Builders incline rather to copy a Stereotyped Plan, than to undergo the labor and responsibility of arranging & attending to the more diverse details of a plan less common, though more economical.

It is not my purpose to urge the adoption of any particular plans of construction, farther than by simply setting forth as clearly as I may, the respective qualities & capabilities of such plans as seem available, and which afford opportunity for choice.