Chapter XX. illustrates an approximate method of designing any single track bridge without making the usual calculations. Its office is to serve those who have not received much technical education, and to act as a check on the designs of engineers.

Chapter XXI. shows how to prepare order bills and shipping bills, also how to mark the iron so as to facilitate erection.

Chapter XXII. treats of methods of erecting and maintaining bridges.

Chapter XXIII. contains a mathematical discussion of the effects of a braked train upon the bottom chords of pin-connected bridges, showing that under the worst possible circumstances, the author’s bridges have in this respect a large factor of safety.

Chapter XXIV. is a recapitulation of the steps, in bridge designing, following which is an addendum containing the results of some investigations made by the author subsequent to the preparation of the treatise.

Eight pages are devoted to the Glossary and eight to the Index, both being intended to facilitate the use of the book in designing.

Most of the plates are drawn on the scale of an inch to a foot. They illustrate everything needed by a designer who is entirely unacquainted with the subject of bridges.

From the thirty diagrams of stresses and sections can be found the correct sizes of all the main parts of any bridge that will ever be required on Japanese roads according to the present system.

That the bridges of the treatise and those in use in Japan are fundamentally different will be apparent to every technical reader of the work; and it is to be hoped that the Japanese engineers will not be slow to appreciate the difference.

They are not asked to adopt a new and untried system of bridges, or the ideas of a mere theorist, for Professor Waddell is acknowledged both in England and America as an authority upon bridge construction. In proof of this we quote the following from the leading technical papers of these countries, which, as will be seen, have reference to another book of his, published last January by Wiley and Sons, of New York, entitled “The Designing of Ordinary Iron Highway Bridges.”

The London technical journal Engineering has the following notice of the book in its issue of April 24th:—

This is a work of a class practically unknown in our own country, but which English engineers would do well to imitate. There is no recognised standard type of road bridge in Great Britain, although thousands of such bridges have been built since the introduction of railways. The Railway Clauses Act of 1845, fixes the minimum spans and headways, and the Board of Trade requirements limit the maximum stress upon the metal; but in all other respects the young engineer is free to indulge his fancy, and as a result some extraordinary examples are scattered about this country. . . . . Within the limits which the author has set for himself in the present work, his treatment of the subject may be regarded as not merely satisfactory, but exhaustive. He has aimed at producing a treatise upon bridge designing rather than one upon stresses, which we think, will materially conduce to the usefulness of his work in this country, where students are, as a rule, more familiar with stresses than with practical details.