

**A MEMOIR ON SUSPENSION BRIDGES,
COMPRISING THE HISTORY OF THEIR
ORIGIN AND PROGRESS, AND OF THEIR
APPLICATION TO CIVIL AND MILITARY
PURPOSES; WITH DESCRIPTIONS OF SOME
OF THE MOST IMPORTANT BRIDGES**

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A Memoir on Suspension Bridges, Comprising the History of Their Origin and Progress, and of Their Application to Civil and Military Purposes; With Descriptions of Some of the Most Important Bridges by Charles Stewart Drewry

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CHARLES STEWART DREWRY

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WITH
Descriptions of some of the most important Bridges;
VIZ.
MENAI; BERWICK; NEWHAVEN; BRIGHTON; ISLE DE BOURBON;
HAMMERSMITH; BATH; MARLOW; SHORHAM; PONT DES INVALIDES
AT PARIS; PONT D'ARCOLE; JARNAC; TOURNON; GENEVA, ETC.
ALSO
AN ACCOUNT OF EXPERIMENTS
ON
THE STRENGTH OF IRON WIRES AND IRON BARS
AND
RULES AND TABLES FOR FACILITATING COMPUTATIONS
RELATING TO
SUSPENSION BRIDGES.

ILLUSTRATED BY LITHOGRAPHIC PLATES AND WOOD-CUTS.

BY
CHARLES STEWART DREWRY,
ASSOCIATE MEMBER OF THE INSTITUTION OF CIVIL ENGINEERS.

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TO

COMMANDER SAMUEL BROWN, R.N.

THIS WORK IS INSCRIBED

BY HIS OBLIGED FRIEND,

THE AUTHOR.

Transport.
Sutherland
8-14-29

PREFACE.

THE great extension that has been given, within the last ten years, to Suspension Bridges, and the hold they have acquired on public attention, have begun to render them so much an object of general as well as professional interest, that the want of something like a methodical treatise on them is beginning to be felt. Accounts of the most remarkable Suspension Bridges have been published, at various times, in scientific Journals; and investigations of parts of the theory are to be met with in works on other branches of mechanical science. But, except a very short work by Mr. Cumming, and the account of the erection of the Menai Bridge, by Mr. Provis, we have no book in the language treating exclusively of Suspension Bridges. A blank is thus left in professional literature, which it has been the attempt of the Author to fill up.

His object, therefore, in the following pages, has been to collect into one volume whatever he could find interesting and useful on Suspension Bridges; viz. first, to draw up a connected account of the History of Suspension Bridges, followed by descrip-

tions of the most important works of that class. Secondly, to draw from the practice of eminent Engineers inferences useful to those who have not opportunities of acquiring, by practice, a knowledge of Suspension Bridges; and to apply to this branch of engineering, rules which have been established by long practice in other departments of mechanical construction.

In a work of this character, much, particularly in the descriptive part, must, from its very nature, be compilation; and, accordingly, much has been selected from the scattered information communicated by other writers, in detached accounts, and in Papers and Reports printed in various scientific Journals.

To the writers of whose previous labours the Author has thus availed himself, he takes this opportunity of acknowledging his obligations; and as he has generally been careful to cite his authorities, his readers will know both to whom to assign the credit, and where to find the originals, if they desire so to do.* He has great pleasure, in particular, in expressing how much he is indebted to Captain S. Brown, R.N., Mr. W. Tierney Clark, and Mr. Brunel, jun., for the kindness with which they have communicated to him information on their works.

For the few opinions and rules which proceed from the Author himself, as they have no established authority to support them, so they will, of course, be

* A list of the works cited and referred to is subjoined.

received with doubt, and examined with severity. The method which he has pursued in forming the rules has been to establish some mode of calculation on the groundwork of experiments, and on the received principles of the strength of materials; and then to modify the formula so constructed, until its results would correspond tolerably with the proportions adopted in practice in the best existing examples of Suspension Bridges. This method is not, perhaps, the most scientific, but it is sufficient for practical purposes, because the object of rules, in practical construction, is to find results for new cases, proportionate to those that time has stamped as sufficient in previous practice. Experience, therefore, alone can determine how far the rules given are efficient; and if, upon trial, they are found to be so, the object of the Author will be attained.

*Chancery Lane, London,
September, 1832.*

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