

**A PRACTICAL TREATISE ON THE
CONSTRUCTION AND FORMATION OF
RAILWAYS, CONTAINING THE
MOST APPROVED SYSTEM OF
EXCAVATING, HAULAGE, EMBANKING,
PERMANENT WAYLAYING, ETC.**

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A Practical Treatise on the Construction and Formation of Railways, Containing the Most Approved System of Excavating, Haulage, Embanking, Permanent Waylaying, etc. by Jas. Day

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JAS. DAY

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CONSTRUCTION AND FORMATION OF
RAILWAYS, CONTAINING THE
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To the Editor of the
Irish Railway Gazette
With the author's
Compto

A PRACTICAL TREATISE
ON THE
CONSTRUCTION AND FORMATION
OF
RAILWAYS.

Entered at Stationers Hall.

A PRACTICAL TREATISE
ON THE
CONSTRUCTION AND FORMATION
OF
RAILWAYS,

CONTAINING
THE MOST APPROVED SYSTEMS OF
EXCAVATING, HAULAGE, EMBANKING,
PERMANENT WAYLAYING, &c. &c.

ALSO, THE METHOD OF ESTIMATING
THE GROSS LOAD AND USEFUL EFFECT PRODUCED BY MECHANICAL
OR OTHER MOTIVE POWER UPON A LEVEL,
AND UPON ANY INCLINATION;

ILLUSTRATED WITH
DIAGRAMS AND ORIGINAL USEFUL TABLES.

TO WHICH IS ADDED,
COMPREHENSIVE EARTHWORK TABLES.

BY JAS. DAY,

AUTHOR OF THE RAILWAY CALCULATOR, OR ENGINEERS' AND
CONTRACTORS' ASSISTANT, &c. &c.

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TO

JOSEPH LOCKE, ESQ. M.P., F.R.S.,

AND

J. E. ERRINGTON, ESQ., M. Inst. C. E.,

THIS WORK IS,

WITH THEIR KIND PERMISSION,

RESPECTFULLY

DEDICATED,

BY THEIR MOST OBEDIENT SERVANT,

THE AUTHOR.

PREFACE.

THE object of this Work is to give a practical exposition of that now popular and all-important subject, RAILWAYS, a medium of internal communication which has been brought so rapidly forward to its present comparative state of perfection by the united efforts of the British nation.

The Work has been arranged in the following order: — INTERNAL COMMUNICATION, GRADIENTS, EXCAVATING, HAULAGE, EMBANKING, BRIDGES AND CULVERTS, FENCING, PERMANENT WAYLAYING, and EARTHWORK TABLES, each subject forming a chapter of itself. The Author has thus endeavoured to treat separately of the several kinds of works, their nature, material, stages, processes, &c. &c., in order to render each subject distinct, clear, and comprehensive.

The Tables, it is hoped, will be of great utility, not only as a medium of general reference, but also of abridging tedious calculations. It was deemed advisable to give copious examples illustrating their