



W A T T.

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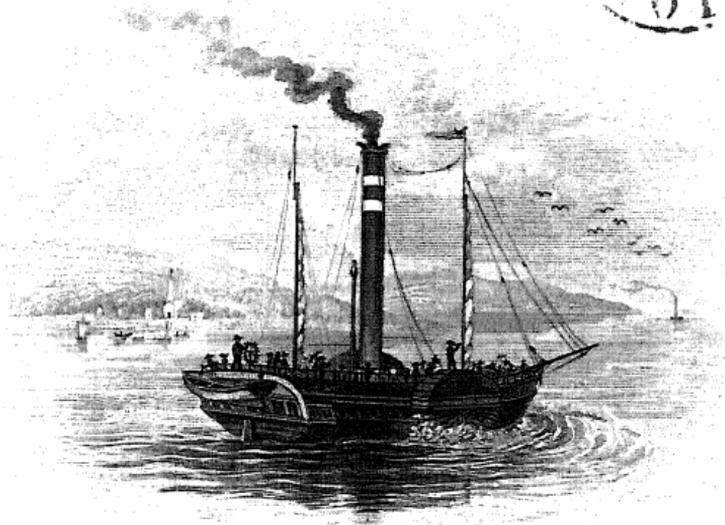
THE
STEAM ENGINE,

BY THE

REV^d DIONYSIUS LARDNER, LL.D. F.R.S.

Fellow of the Royal Society of Edinburgh, Of the Royal Irish Academy, Of the Royal Astronomical Society, Of the Cambridge Philosophical Society, Of the Statistical Society of Paris, Of the Linnean and Geological Societies, Of the Society for Promoting useful Arts in Scotland, &c.

A NEW EDITION.



LONDON:

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UPPER GOWER STREET.

THE
STEAM ENGINE

FAMILIARLY EXPLAINED AND ILLUSTRATED;

WITH

AN HISTORICAL SKETCH OF ITS INVENTION AND
PROGRESSIVE IMPROVEMENT;

ITS APPLICATIONS TO

NAVIGATION AND RAILWAYS;

WITH

PLAIN MAXIMS FOR RAILWAY SPECULATORS.

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OF THE ROYAL IRISH ACADEMY;
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PHILOSOPHICAL SOCIETY; OF THE STATISTICAL
SOCIETY OF PARIS; OF THE LINNÆAN AND ZOOLOGICAL
SOCIETIES; OF THE SOCIETY FOR PROMOTING
USEFUL ARTS IN SCOTLAND, ETC.

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FIFTH EDITION.

CONSIDERABLY ENLARGED.

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PREFACE

TO

THE FIFTH EDITION.

THIS volume should more properly be called a new work than a new edition of the former one. In fact the book has been almost rewritten. The change which has taken place, even in the short period which has elapsed since the publication of the first edition, in the relation of the steam-engine to the useful arts, has been so considerable as to render this inevitable.

The great extension of railroads, and the increasing number of projects which have been brought forward for new lines connecting various points of the kingdom, as well as the extension of steam navigation, not only through the seas and channels surrounding and intersecting these islands, and throughout other parts of Europe, but through the larger waters which are interposed between our dominions in the East and the countries of Egypt and Syria, have conferred so much interest on the applica-