



WATT.

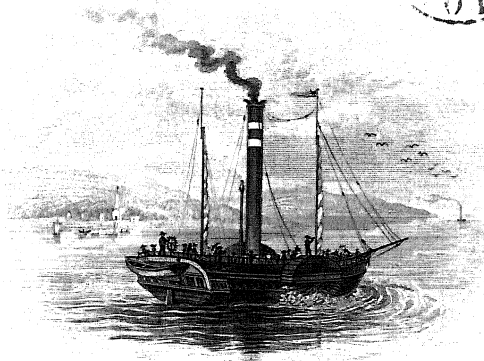
engraved by HALLARD, from a Drawing by H. CORBOULL, taken with the permission of James Watt, Esq.

FROM THE STATUE BY CHANTREY.

THE
STEAM ENGINE,
 BY THE
REV^d DIONYSIUS LARDNER, LL.D. F.R.S.

Member 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 Zoological Societies, Of the Society for Promoting useful Arts in Scotland, &c.

A NEW EDITION.



LONDON:

PRINTED FOR JOHN TAYLOR,

Bookseller & Publisher to the University of London.

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.

BY THE
 REV. 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 LINNÆAN AND ZOOLOGICAL
 SOCIETIES; OF THE SOCIETY FOR PROMOTING
 USEFUL ARTS IN SCOTLAND, ETC.

Illustrated by Engravings and Woodcuts.

FIFTH EDITION.

CONSIDERABLY ENLARGED.

LONDON:
 PRINTED FOR TAYLOR AND WALTON,
 BOOKSELLERS AND PUBLISHERS TO THE UNIVERSITY OF LONDON,
 30. UPPER GOWER STREET.

1836.

LONDON :
Printed by A. SPOTTISWOODE
New-Street-Square.

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-