

# A BRITISH RAILWAY BEHIND THE SCENES

*A STUDY IN THE SCIENCE OF  
INDUSTRY*

By

J. W. WILLIAMSON, B.Sc.,

Of Gray's Inn, Barrister-at-Law

*Author of "In a Persian Oil Field."*

"It is a world to see."—*Lyly.*

LONDON  
ERNEST BENN LIMITED

## CONTENTS

CHAP.	PAGE
PREFACE . . . . .	v
I. INTRODUCTORY. THE LONDON MIDLAND & SCOTTISH RAILWAY COMPANY . . .	i
II. THE DESIGN OF THE LOCOMOTIVE . . .	6
III. THE BUILDING AND REPAIR OF LOCOMOTIVES	30
IV. THE DESIGN OF THE CARRIAGES AND WAGONS	51
V. THE BUILDING AND REPAIR OF CARRIAGES AND WAGONS . . . . .	64
VI. THE PERMANENT WAY . . . . .	81
VII. SIGNALLING . . . . .	97
VIII. THE OPERATION AND CONTROL OF TRAFFIC (i) PASSENGER TRAINS . . . . .	109
IX. THE OPERATION AND CONTROL OF TRAFFIC (ii) FREIGHT TRAINS . . . . .	123
X. ELECTRIC TRACTION . . . . .	157
XI. MISCELLANEOUS UNDERTAKINGS . . .	170
XII. RATIONALISATION AND COSTING . . .	177
XIII. SCIENTIFIC RESEARCH . . . . .	191