



POPULAR LECTURES  
AND  
ADDRESSES

VOL. III.



*NATURE SERIES*

---

# POPULAR LECTURES

AND

# ADDRESSES

BY

SIR WILLIAM THOMSON, LL.D., F.R.S., F.R.S.E., &c.

PROFESSOR OF NATURAL PHILOSOPHY IN THE UNIVERSITY OF GLASGOW, AND  
FELLOW OF ST. PETER'S COLLEGE, CAMBRIDGE

IN THREE VOLUMES

VOL. III.

NAVIGATIONAL AFFAIRS

WITH ILLUSTRATIONS

London

MACMILLAN AND

AND NEW YORK

1891

*The Right of Translation and Reproduction is Reserved*

RICHARD CLAY AND SONS, LIMITED,  
LONDON AND BUNGAY.

## PREFACE

A LARGE part of this volume was already in print when it was decided, and promised in the Preface to Vol. I., that the second volume should include subjects connected with Geology, and the third should be chiefly concerned with Maritime affairs. Accordingly, two hundred pages on navigational subjects were marked "Vol. III." and struck off before any progress was made with Vol. II. Hence Vol. III. now appears before Vol. II., the publishers having advised me that they would not be professionally shocked by such an irregularity. The present volume ends with an article kindly contributed by Capt.