

**THE ELEMENTS OF NAVIGATION; A SHORT
AND COMPLETE EXPLANATION OF THE
STANDARD METHODS OF FINDING
THE POSITION OF A SHIP AT SEA AND THE
COURSE TO BE STEERED; DESIGNED FOR
THE INSTRUCTION OF BEGINNERS**

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The Elements of Navigation; A Short and Complete Explanation of the Standard Methods of Finding the Position of a Ship at Sea and the Course to Be Steered; Designed for the Instruction of Beginners by W. J. Henderson

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W. J. HENDERSON

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course to be steered*

DESIGNED FOR
THE INSTRUCTION OF BEGINNERS

W. J. Henderson NY
W. J. HENDERSON, A. M.

ENSIGN IN THE FIRST NAVAL BATTALION OF
NEW YORK

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1895



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TO
COMMANDER J. W. MILLER
COMMANDING FIRST NAVAL BATTALION
NEW YORK.

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PREFACE

THE need of a short, simple, and yet comprehensive book on the art of navigating a ship has led the author to undertake the preparation of the present work. The extant treatises on the subject are of two kinds: first, introductory and simple, but incomplete; and, second, exhaustive, but incomprehensible to the beginner. The aim of this book is to instruct the beginner, leading him step by step from the first operations to the perfection of the art as found in the Sumner method. The instructions have been made as terse as possible, and yet the author believes that clearness has not been sacrificed. Fundamental principles have been explained, but no attempt has been made to elucidate the higher mathematics of the subject. Students who have tried to learn navigation from books like Captain Lecky's inimitable *Wrinkles in Practical Navigation*, which is addressed to navigators only, or from

Bowditch's *American Navigator*, which is only for mathematicians, will, it is hoped, appreciate this little book. The explanations of the uses of the tables and the *Nautical Almanac* are a new feature in a work of this kind.

The author has consulted the following authorities: Bowditch's *American Navigator*, Norie's *Epitome of Navigation*, Raper's *Practice of Navigation*, Lieutenant Sturdy's *Practical Aid to the Navigator*, Lecky's *Wrinkles in Practical Navigation*, Qualtrough's *Sailor's Handy Book*, Patterson's *Navigator's Pocket Book*, Proctor's *Half Hours with the Stars*, and Towson's *Deviation of the Compass*. He desires to express his indebtedness to all of these works, but most especially to those of Captain Lecky and Lieutenant Sturdy.

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