
Our Ironclads and Merchant Ships

Fishbourne Edmund Gardiner

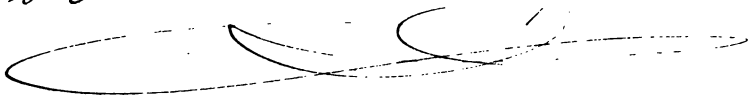
Title: Our Ironclads and Merchant Ships

Author: Fishbourne Edmund Gardiner

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With the Authors Compliments



OUR IRONCLADS
AND
MERCHANT SHIPS.

BY
REAR-ADMIRAL
E. GARDINER FISHBOURNE, C.B.



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TO THE OFFICERS
OF THE
ROYAL NAVAL AND MERCANTILE MARINE
SERVICES

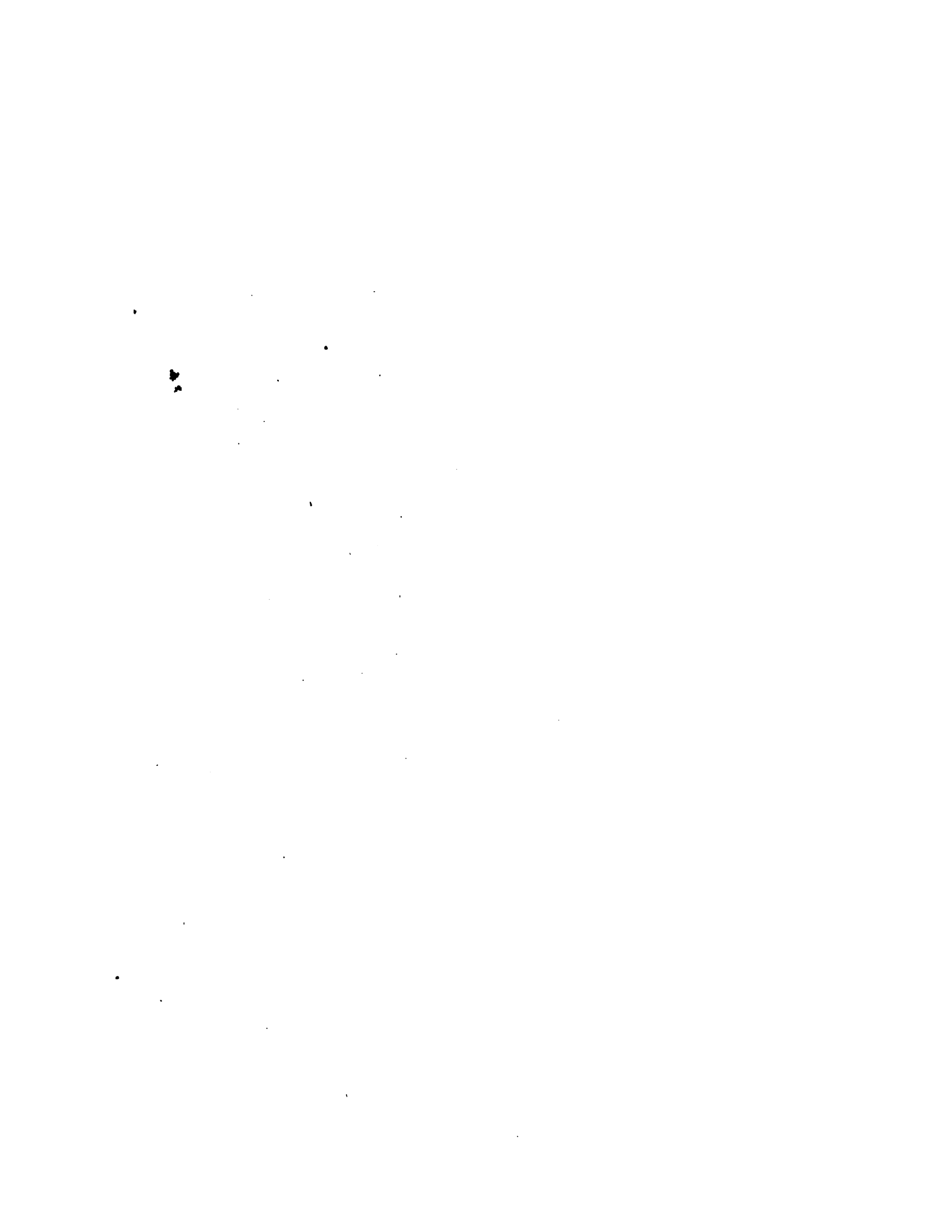
AND TO
NAVAL ARCHITECTS AND SHIOWNERS,

THIS WORK ON
"OUR IRONCLADS AND MERCHANT SHIPS"

IS RESPECTFULLY DEDICATED

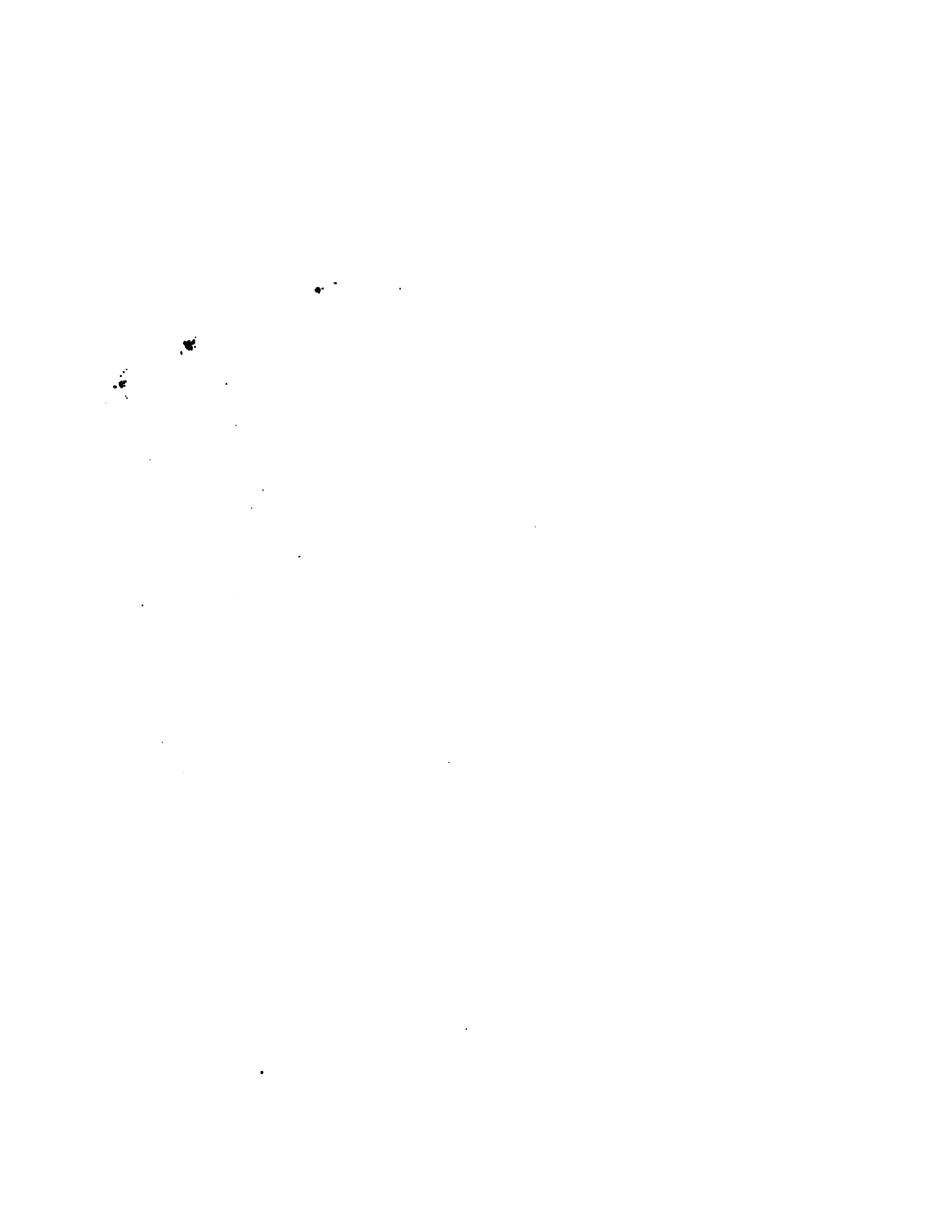
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E R R A T A.

- Page x, line 9, for "vertical," read virtual.
- „ 14, instead of $= 2 = 2$, read $2 + 2$.
- „ 42, Art. 132, for "so," read dangerous.
- „ 44, „ 137, read relatively "raised."
- „ 79, for $Mr = 6$ feet, read $Mr = 9$ feet.
- „ 82, for the portion of the arcs, read the position of the arcs.
- „ 85, read $V = \left(\frac{dx^2 + dy^2 + dz^2}{dt^2} \right)^{\frac{1}{2}}$.
- „ 87, for Fig. XXII, read Fig. XVIII; and for "put OE , Fig. XX, = 9," read put OF , Fig. XX, = 9.
- „ 88, for $\Sigma = f(y_2^2 + z_2^2)$, read $(\Sigma = f(y_2^2 + z_2^2) dM$.
- „ 96, 4th paragraph, for "low," read law.



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P R E F A C E

TO

ENLARGED EDITION OF

“OUR IRONCLADS AND MERCHANT SHIPS.”

WHEN we have deducted the misrepresentations of us by our opponents, their contradictions of each other, and of themselves, together with their oppositions of science falsely so-called, there is but little left for us to notice.

In this edition we have continued our mathematical investigations leading to demonstrations of the laws which govern the motions of ships at sea.

Some have affected, to have discovered to our discomfiture, that our method of calculating stabilities from the external pressures on the surface of the body, yields the same result as the system now in use. But these have been unable to discern that all the arguments in our book proceed, for the present, on the hypothesis of the theoretical correctness of the old system.

We have introduced in an Appendix, page 107, a fuller statement as to the erroneous character of the Froude theory and of the dangers arising from Mr. E. J. Reed's application of that theory.

In various publications issued long before Mr. Froude was known to the public, we indicated the cause of greater or less rolling of ships, in a comparison of the “Canopus” with “Vanguard” and “Vanguard” with “Superb.”

The cross sections of “Canopus” were of a U-form, while those of “Vanguard” were of a V-form with greater proportionate breadth. “Canopus” had much ballast, and