

**THE ELEMENTS: AN INVESTIGATION
OF THE FORCES WHICH DETERMINE
THE POSITION AND MOVEMENTS
OF THE OCEAN AND ATMOSPHERE,
VOL. II, PP. 1-59**

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WILLIAM LEIGHTON JORDAN

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BY

WILLIAM LEIGHTON JORDAN.

VOLUME II.

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1867.

TO
SWINFEN JORDAN, ESQ.

This Volume is Dedicated,

AS A TRIBUTE OF AFFECTION AND ESTEEM,

BY HIS SON,

THE AUTHOR.

PREFACE.

SIR ISAAC NEWTON, in the preface to his 'Principia,' remarks that—'all the difficulty of philosophy seems to consist in this—from the phenomena of motions to investigate the forces of nature, and then from these forces to demonstrate the other phenomena.' And then, after stating that on this principle he had, in the work above mentioned, demonstrated the motion of the heavenly bodies, he goes on to say: 'I wish we could derive the rest of the phenomena of nature by the same kind of reasoning from mechanical principles; for I am induced by many reasons to suspect that they may all depend upon certain forces by which the particles of bodies, by some causes hitherto unknown, are either mutually impelled towards each other, and cohere in regular figures, or are repelled and recede from

each other : which forces, being unknown, philosophers have hitherto attempted the search of nature in vain ; but I hope the principles here laid down will afford some light either to that or some truer method of philosophy.'

The progress of knowledge appears to be gradually demonstrating the correctness of the opinion expressed in these sentences ; and their appearance as a prefix to this volume will not be considered inappropriate, if I am not mistaken in supposing that herein is shown the mechanism which causes the stormy epochs in the northern and southern hemispheres respectively ; the mechanical cause of the annual and diurnal oscillations of the barometer ; the mechanical cause of the relative distribution of land and water in the northern and southern hemispheres ; and the mechanical cause of certain marked peculiarities in the conformation of the undulations and fractures of the stratified surface of the earth. I offer no further comment on them ; but—continuing in the words of Sir Isaac Newton—' I heartily beg that what I have here done may