RESISTANCE OF AIR

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649171125

Resistance of air by R. De Villamil

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

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R. DE VILLAMIL

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TO THE

Memory

OF

CHARLES HUTTON

LL.D., F.R.S., ETC.

LABORIOUS AND PAINSTAKING AUTHOR

WHOSE

EXPERIMENTAL WORK

(MUCH OVERLOOKED TO-DAY)

LAID A FIRM FOUNDATION FOR

A SOUND THEORY OF

AIR RESISTANCE

THIS LITTLE BOOK

IS

RESPECTFULLY DEDICATED

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PREFACE

M. LUCIEN POINCARÉ has said that, in science, the really essential thing is to have, as a guide through the unknown, a map which certainly does not claim to represent all the aspects of Nature, but which, having been drawn up according to predetermined rules, allows us to follow an ascertained road in the eternal journey towards Truth.

Such a map I offer the reader. It can, perhaps, lay no claim to minute accuracy; but it will, I trust, enable him to find his way about in the science of aerodynamics—the dynamics of *air*.

In *The Great Instauration* it is said that it is wiser to engage in an undertaking that admits of some termination, than to involve oneself in perpetual exertion and anxiety about what is interminable. The ways of contemplation, indeed, nearly correspond to two roads in Nature, one of which, steep and rugged at the commencement, terminates in a plain; the other, at first smooth and easy, leads to huge rocks and precipices.

Following this good advice, I shall not attempt to treat of the whole subject—which is, indeed, interminable,—but confine myself to a very small part of it: the *law* of the resistance, and the *coefficient of resistance* of flat plates of about one foot square. How the resistance is altered by shape is outside my present purpose, with *one exception*, and that is, the coefficient of shape for a sphere.

As I elect to take the "first road in Nature," it must be expected to be a little steep and rugged at the commencement; but it terminates in a plain, where the reader will see that a good deal that appeared contradictory and confusing is far from unintelligible. He will be, I trust, well rewarded for his trouble.