

THE PRESSURE OF LIGHT

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The Pressure of Light by J. H. Poynting

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J. H. POYNTING

**THE PRESSURE
OF LIGHT**

THE PRESSURE OF LIGHT

W. D. Campbell

THE ROMANCE OF SCIENCE

THE PRESSURE OF LIGHT

BY

J. H. POYNTING, Sc.D., F.R.S.

MASON PROFESSOR OF PHYSICS AT THE UNIVERSITY OF BIRMINGHAM

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PREFACE

IN the course of the last few years the author has lectured on the Pressure of Light in many places. Some of the lectures have already been published in full or in abstract. In this book the substance of these lectures is set forth more completely and in greater detail than was possible in any one lecture.

For readers who desire to study the mathematical calculations involved in the theory of the subject, a series of notes is appended.

July 1910.

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PRESSURE OF LIGHT

I

HOW LIGHT EXERTS PRESSURE

WHEN we see the havoc wrought on a sea-wall by a storm, it is easy to believe that ocean waves exert a pressure against the shore on which they beat. But it is not easy to think that the tiny ripples of light also press against every body on which they fall, to think that when a lamp is lighted waves of pressure are sent out from it—pressing against the source from which they start, pressing against every surface which they illuminate. Yet we now know certainly that light does exercise such pressure. It is a very minute pressure, far too small, even when it is strongest, to be felt by our bodies, and only to be detected by exceedingly sensitive apparatus.

In the following pages I shall try to give some account of the reasoning by which the existence of light-pressure was predicted, and shall then describe the experiments by which it was, many years later, actually detected and measured. I shall then point out some consequences of the