

## CONTENTS

FOREWORD by S. R. de Groot	IX
EDITOR'S NOTE	XV

### PART I / FROM *POPULÄRE SCHRIFTEN*

*(Writings addressed to the Public)*

DEDICATION (1905)	1
FOREWORD (1905)	3
1. On the Methods of Theoretical Physics (1892)	5
3. The Second Law of Thermodynamics (1886)	13
5. On the Significance of Theories (1890)	33
9. On Energetics (1896)	37
10. On the Indispensability of Atomism in Natural Science (1897)	41
11. More on Atomism (1897)	54
12. On the Question of the Objective Existence of Processes in Inanimate Nature (1897)	57
14. On the Development of the Methods of Theoretical Physics in Recent Times (1899)	77
16. On the Fundamental Principles and Equations of Mechanics, I, II (1899)	101
17. On the Principles of Mechanics, I, II (1900, 1902)	129
18. An Inaugural Lecture on Natural Philosophy (1903)	153
19. On Statistical Mechanics (1904)	159
20. Reply to a Lecture on Happiness given by Prof. Ostwald (1904)	173
22. On a Thesis of Schopenhauer's (1905)	185

### PART II / FROM *NATURE* 51 (1895)

On Certain Questions of the Theory of Gases	201
---	-----

PART III / FROM *ENCYCLOPAEDIA BRITANNICA*<sup>10,11</sup>

Model (1902)	213
--------------	-----

PART IV / FROM *VORLESUNGEN ÜBER  
DIE PRINCIPE DER MECHANIK**(Lectures on the Principles of Mechanics)*

## PART ONE (1897)

PREFACE	223
---------	-----

## I. FUNDAMENTAL CONCEPTS

1. Characterization of the Method Chosen	224
2. Fundamental Concepts Borrowed from the Theory of Space and Time. First Fundamental Assumption. Continuity of Motion	228
3. Second Fundamental Assumption. Existence of Differential Coefficients of the Co-ordinates with Regard to Time. Concept of Velocity and Its Components	231
4. Introduction of Vectors	233
5. The Concept of Acceleration and Its Components	235
6. Fundamental Assumptions 3-7	237
7. Mass and Force. Equality of Action and Reaction	239
8. General Equations of Motion	241
9. Different Modes of Expression. Resultants. Components	244
10. Poisson's Proof of the Parallelogram of Forces	245
11. Replacement of the Picture's Co-ordinate System by Others	249
12. Relation of This Representation to Others	251

## PART TWO (1904)

PREFACE	255
---------	-----

35. The Principle of Action as the Fundamental Principle of All Natural Science	256
77. Absolute and Relative Motion	259
88. The Law of Inertia	261

BIBLIOGRAPHY	267
--------------	-----

INDEX OF NAMES	279
----------------	-----