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978-1-108-06790-4 - Contributions to Molecular Physics in the Domain of Radiant Heat:
A Series of Memoirs Published in the 'Philosophical Transactions' and
'Philosophical Magazine', with Additions

John Tyndall

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Contributions to Molecular Physics in the Domain of Radiant Heat

Professor of natural philosophy for the Royal Institution between 1853 and 1887, the physicist John Tyndall (1820–93) passionately sought to share scientific understanding with the Victorian public. Reissued here is the collected research he contributed to the *Philosophical Transactions of the Royal Society* and other journals. Published in 1872, it complements Tyndall's *Heat Considered as a Mode of Motion* (1863), which is also reissued in this series. Here each memoir is preceded by a short summary, explaining what he discovered and his reasons for embarking on the investigations in question. Accompanying the detailed descriptions of experimental methods are illustrations of the scientific apparatus used. Tyndall also shows how his work built upon previous research, acknowledging the insights of distinguished scientists such as William Herschel and Macedonio Melloni. In particular, he discusses at length his academic debates with Heinrich Gustav Magnus.

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Frontmatter

[More information](#)

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Frontmatter

[More information](#)

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Frontmatter

[More information](#)

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John Tyndall

Frontmatter

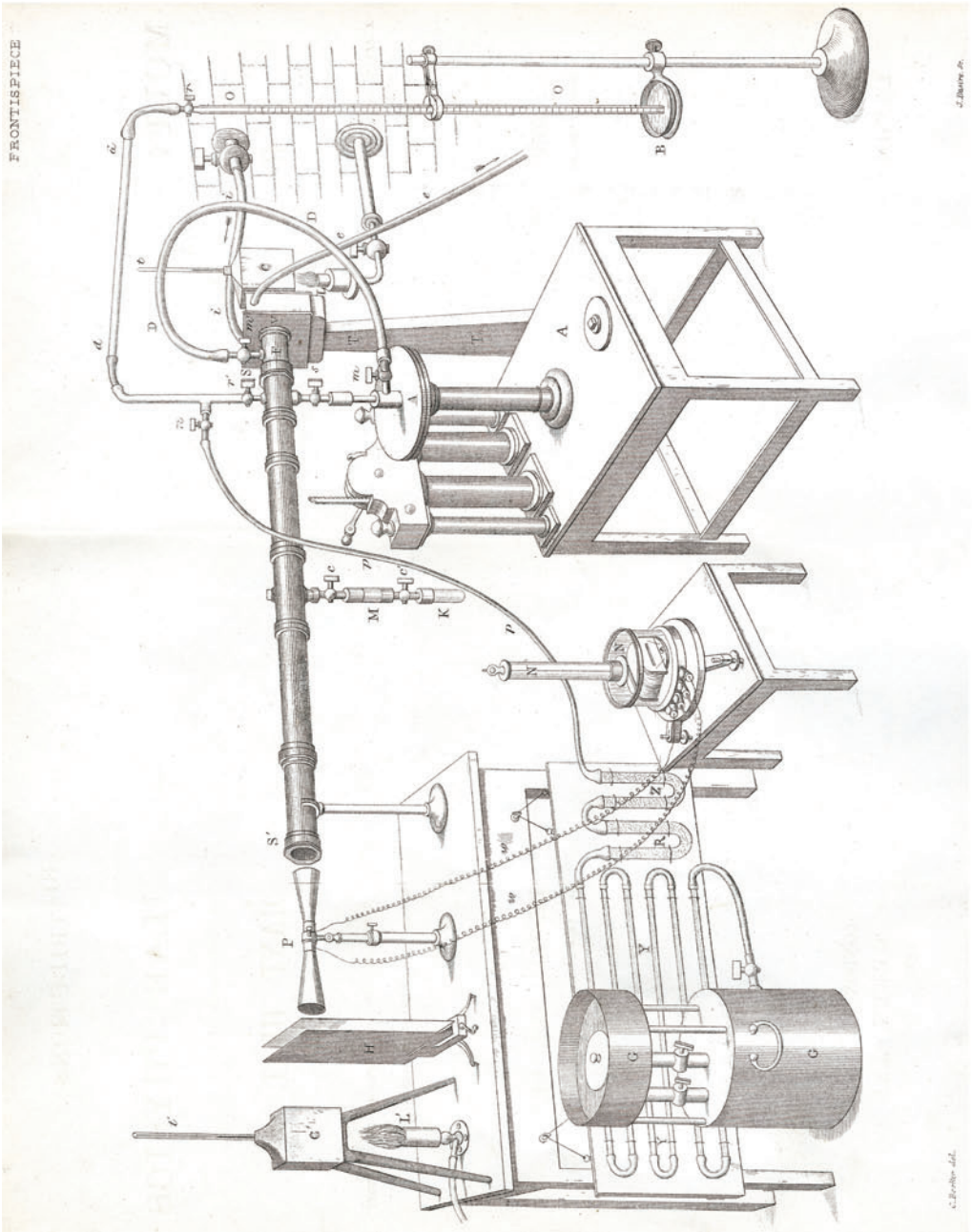
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Frontmatter

[More information](#)

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John Tyndall

Frontmatter

[More information](#)

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IN THE DOMAIN OF
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A SERIES OF MEMOIRS PUBLISHED IN THE 'PHILOSOPHICAL TRANSACTIONS'

AND 'PHILOSOPHICAL MAGAZINE,' WITH ADDITIONS.

BY

JOHN TYNDALL, LL.D. F.R.S.

PROFESSOR OF NATURAL PHILOSOPHY IN THE ROYAL INSTITUTION.

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Frontmatter

[More information](#)

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Frontmatter

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TO

HENRY BENICE JONES, M.D. D.C.L. F.R.S.

HON. SEC. R. I.

IF unswerving devotion to the ROYAL INSTITUTION, firstly, and above all, as a school of original enquiry, and secondly as an organ for the diffusion of scientific knowledge, merit the grateful recognition of its Members and its Professors, then justice ought to require no stimulus from friendship, in associating these Researches with your name.

They were one and all conducted on the spot whence, during sixty years, issued in unbroken succession the labours of YOUNG, DAVY, and FARADAY. Would that they were more worthy of their immortal antecedents!

JOHN TYNDALL.

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Frontmatter

[More information](#)

Erratum

Preface, line 8, *for* Magno-crystallic *read* Magne-crystallic

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Frontmatter

[More information](#)

P R E F A C E .



IN the Preface to the Third Edition of my work on Heat, written in January 1868, the hope was expressed that before the end of that year the original Memoirs which I had contributed to the 'Philosophical Transactions,' and other journals, during the previous eighteen years, would be presented to the scientific public. Hitherto this hope has been only partially fulfilled by the publication of the researches on Diamagnetism and Magno-crystallic Action.

The present volume contains the Memoirs on Radiant Heat, considered as an explorer of Molecular Condition. I have read them over carefully, and have tried to augment their clearness without altering their substance.

In front of each memoir is placed an analysis of its contents, from which the reader can at once learn the nature of the inquiry. I have also added here and there some necessary historic data.

The points of difference between the late Professor Magnus and myself regarding the action of air and that of aqueous vapour on radiant heat are placed in their proper sequence and relation. At the end of the series of Memoirs the discussion is resumed, and brought, I trust, to a fair conclusion.

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John Tyndall

Frontmatter

[More information](#)

viii

PREFACE.

I ought to inform the reader who desires but a partial or general acquaintance with these researches, that summaries of most of them have been already published in the various editions of my work on Heat.

Finally, I would offer my best thanks to the Council of the Royal Society for the ready courtesy with which they granted me the use of the Plates employed to illustrate these Memoirs in the 'Philosophical Transactions.'

JOHN TYNDALL.

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John Tyndall

Frontmatter

[More information](#)

CONTENTS.

	PAGE
ANALYSIS OF MEMOIR I.	2
I. ON THE ABSORPTION AND RADIATION OF HEAT BY GASES AND VAPOURS, AND ON THE PHYSICAL CONNEXION OF RADIATION, ABSORPTION, AND CONDUCTION	7
INTRODUCTION	7
Sect. 1. The Galvanometer and its Defects.—Magnetic Analysis of its Wire	8
2. First Experiments on Absorption by Ordinary Methods	11
3. Method of Compensation	13
4. Final Form of Apparatus	15
5. ABSORPTION OF RADIANT HEAT. First Results.—Action of Ozone and of Compound Gases on Radiant Heat	17
6. Variations of Density.—Relation of Absorption to Quantity of Matter	21
7. Action of Sulphuric-ether Vapour on Radiant Heat	24
8. Extension of Inquiry to other Vapours	27
9. Action of Chlorine.—Possible Influence of Vapours on the Interior Surface of the Experimental Tube	34
10. Action of Permanent Gases on Radiant Heat	36
11. Action of Aqueous Vapour.—Possible Effect of an Atmospheric Envelope on the Temperature of a Planet	38
12. RADIATION OF HEAT BY GASES. Reciprocal Experiments on Radiation and Absorption	41
13. The Varnishing of Polished Metal Surfaces by Gases	44
14. First Observation of the Radiation of a Vapour heated dynami- cally	44
15. On the Physical Connexion of Radiation, Absorption, and Con- duction	46
SUPPLEMENTARY REMARKS, 1872	51
1. Note on the Construction of the Thermo-electric Pile	51
2. Note on the Construction of the Galvanometer	53
3. Remarks on the different Values of Galvanometric Degrees	55
4. Calibration of the Galvanometer	56
HISTORIC REMARKS ON MEMOIR I.	59

Cambridge University Press

978-1-108-06790-4 - Contributions to Molecular Physics in the Domain of Radiant Heat: A Series of Memoirs Published in the 'Philosophical Transactions' and 'Philosophical Magazine', with Additions

John Tyndall

Frontmatter

[More information](#)

X

CONTENTS.

	PAGE
ANALYSIS OF MEMOIR II.	66
II. FURTHER RESEARCHES ON THE ABSORPTION AND RADIATION OF HEAT BY GASEOUS MATTER	69
Sect. 1. Recapitulation	69
2. New Apparatus	71
3. Preliminary Efforts and Precautions.—Chlorine, Ozone, and Aqueous Vapour	72
4. First Experiments on the Human Breath.—Chlorine and Hydro- chloric Acid —Bromine and Hydrobromic Acid	75
5. New Experiments on Gases	80
6. Radiation through Black Glass and Lampblack	83
7. Selective Absorption by Lampblack	84
8. New Experiments on Vapours.—Further Proof of the Influence of Chemical Combination on the Absorption of Radiant Heat	85
9. Superior Action at one Pressure does not prove Superiority at all Pressures	88
10. DYNAMIC RADIATION AND ABSORPTION	89
11. To determine the Radiation and Absorption of Gases and Vapours without any Source of Heat external to the Gaseous Body itself. I.—Vapours	91
12. Attempted Estimate of Quantity of Radiant Vapour	93
13. II.—Gases	95
14. Influence of Length and Density of Radiating Column	96
15. Laplace's Correction for the Velocity of Sound.—Remarks on the Radiant Power of Molecules and Atoms	97
16. Action of Odours upon Radiant Heat	99
17. Action of Ozone upon Radiant Heat	102
18. Experiments of De la Rive and Meidinger	103
19. On the Constitution of Ozone	104
20. Action of Aqueous Vapour upon Radiant Heat.—Experiments of Professor Magnus	105
21. Night-Moisture on the Interior Surface of Experimental Tube. —Abandonment of Rock-salt Plates	110
22. Proposed Solution of Discrepancies	114
23. Action of Atmospheric Envelope.—Possible Experimental Deter- mination of the Temperature of Space	117
24. Remarks on the Experimental Evidence of Gaseous Conduction. —Influence of Density on Convection.—Internal Friction of Air	118
ANALYSIS OF MEMOIR III.	124
III. ON THE RELATION OF RADIANT HEAT TO AQUEOUS VAPOUR	127
1. Objections to Rock-salt Plates considered.—New Experimental Arrangement	127
2. Objection to Employment of London Air considered.—Radiation through Air from Various Localities	128
3. Radiation through Open Tubes	131
4. Radiation through Closed Tubes —The Quantity of Heat absorbed proportional to the Quantity of Humid Air	133
5. Radiation through the Open Air	135

Cambridge University Press

978-1-108-06790-4 - Contributions to Molecular Physics in the Domain of Radiant Heat:
A Series of Memoirs Published in the 'Philosophical Transactions' and
'Philosophical Magazine', with Additions

John Tyndall

Frontmatter

[More information](#)

CONTENTS.

xi

	PAGE
Sect. 6. Application of Results to Meteorology.—Tropical Rains.—Cumuli. —Condensation by Mountains.—Temperatures at Great Eleva- tions.—Thermometric Range in Australia, Tibet, and Sahara.— Leslie's Observations.—Melloni on Serein	137
ANALYSIS OF MEMOIR IV.	146
IV. ON THE PASSAGE OF RADIANT HEAT THROUGH DRY AND HUMID AIR	149
ANALYSIS OF MEMOIR V.	164
V. ON THE ABSORPTION AND RADIATION OF HEAT BY GASEOUS AND LIQUID MATTER	165
INTRODUCTION	165
1. Further Experiments on the Power of Gaseous Matter over Radiant Heat.—New Apparatus.—Absorption by Gaseous Strata of different Thicknesses	166
2. Effect of an Atmospheric Shell of Gas or Vapour two inches thick upon the Temperature of a Planet	170
3. New Method of Experiment and its results—Division of Experi- mental Tube into two chambers.—Transmission of Radiant Heat through Gases in one or both	172
4. Influence of 'Sifting' by Gaseous Media	176
5. Application of Method to Vapours	179
6. New Experiments on Dynamic Radiation.—Radiation of Dynami- cally heated Gas through the same Gas, or through other Gases	183
7. Influence of Tarnish, or of a Lining on the Interior Surface of Experimental Tube.—Dynamic Radiation from the Surface	186
8. Radiation of dynamically heated Vapour through the same Vapour and through a Vacuum.—Influence of Length of Radiating Column. —Different Effects of Length on Gases and Vapours	188
9. First Comparison of the Actions of Liquids and their Vapours upon Radiant Heat	191
ANALYSIS OF MEMOIR VI.	196
VI. CONTRIBUTIONS TO MOLECULAR PHYSICS	199
1. Preliminary Considerations.—Description of Apparatus	199
2. Absorption of Radiant Heat of a certain Quality by eleven different Liquids at five different Thicknesses	205
3. Absorption of Radiant Heat of the same Quality by the Vapours of these Liquids at a common Pressure	209
4. Order of Absorption of Liquids at a common Thickness, and Va- pours at a common Pressure	210
5. Order of Absorption of Liquids and Vapours in proportional Quantities	211
6. Remarks on the Chemical Constitution of Bodies with reference to their Powers of Absorption	214

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A Series of Memoirs Published in the 'Philosophical Transactions' and
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John Tyndall

Frontmatter

[More information](#)

xii

CONTENTS.

	PAGE
Sect. 7. Transmission of Radiant Heat through Bodies opaque to Light.— Remarks on the Physical Cause of Transparency and Opacity	215
8. Influence of the Temperature of the Source of Heat on the Trans- mission of Radiant Heat	219
9. Changes of Diathermancy through Changes of Temperature.— Radiation from Lampblack at 100° C. compared with that from white-hot Platinum	222
10. Changes of Diathermancy through Change of Source of Heat.— Radiation from Platinum and from Lampblack at the same Temperature	224
11. Radiation from Flames through Vapours.—Further Changes of Diathermancy	226
12. Radiation of Hydrogen Flame through Dry and Humid Air.— Influence of Vibrating Period on the Absorption	229
13. Radiation of Carbonic-oxide Flame through Dry and Humid Air, and through Carbonic Acid Gas.—Further illustration of Influ- ence of Vibrating Period	230
14. Comparative Radiation of Carbonic-oxide Flame through Carbonic Acid Gas and Olefiant Gas	232
15. Radiation of Hydrogen Flame through Carbonic Acid Gas and Olefiant Gas	233
16. Radiation of Carbonic-oxide Flame through Carbonic Oxide and of Bisulphide-of-Carbon Flame through Sulphurous Acid	234
17. Radiation of the Flames of Carbonic Oxide and Hydrogen through Sulphuric and Formic Ether Vapours.—Reversal of Order of Absorption	235
18. Radiation of Hydrogen Flame, and of Platinum Spiral plunged in Hydrogen Flame, through Liquids.—Conversion of Long Periods into Short ones	236
19. Radiation of Small Gas Flame compared with that of Hydrogen Flame—Further Changes of Diathermic Position	240
20. Explanation of Certain Results of <i>Melloni</i> and <i>Knoblauch</i>	241
21. Radiation of Hydrogen Flame through Lampblack, Iodine, and Rock-salt.—Diathermancy of Rock-salt examined	243
22. Physical Connexion between Radiation and Conduction	245
 ANALYSIS OF MEMOIR VII.	 250
VII. ON LUMINOUS AND OBSCURE RADIATION	253
1. Spectrum of Hydrogen Flame	253
2. Influence of Solid Particles	256
3. Persistence and Strengthening of Obscure Rays by Augmentation of Temperature	256
4. Persistence and Strengthening of Rays illustrated by means of a Ray-filter of Iodine and Bisulphide of Carbon	258
5. Combustion by Invisible Rays	261
6. Melloni's Method of determining the Ratio of Visible to Invisible Rays.—Diathermancy of Alum and of the Humours of the Eye	263

Cambridge University Press

978-1-108-06790-4 - Contributions to Molecular Physics in the Domain of Radiant Heat:
A Series of Memoirs Published in the 'Philosophical Transactions' and
'Philosophical Magazine', with Additions

John Tyndall

Frontmatter

[More information](#)

CONTENTS.

xiii

	PAGE
ANALYSIS OF MEMOIR VIII.	270
VIII. ON CALORESCENCE, OR THE TRANSMUTATION OF HEAT RAYS	273
Sect. 1. General Statement of the Nature of this Inquiry	273
2. Source of Rays.—Employment of Rock-salt Train	275
3. Methods of Experiment and Tabulated Results	276
4. Graphic Representation of Results.—Curve of the Electric Spectrum.—Deviations from Solar Spectrum	279
5. Rays from Obscure Sources of Heat contrasted with Obscure Rays from Luminous Sources of Heat.—Further Observations on the Construction of a Ray-filter	282
6. Invisible Foci of the Electric-light.—Efforts to intensify their Heat.—Danger of Bisulphide of Carbon, and trial of other substances.—Final Precautions	286
7. Calorific Effects at Invisible Focus.—Placing of the Eye there	290
8. Improvement of Mirrors.—Exalted Effects of Combustion at Dark Focus	293
9. Transmutation of Heat Rays.—Calorescence	294
10. Various Modes of obtaining with the Electric-light Invisible Foci for Combustion and Calorescence	296
11. Invisible Foci of the Lime-light and the Sun	300
12. Relation of Colour to Combustion by Dark Rays	302
13. Calorescence through Ray-filters of Glass.—Remarks on the Black-bulb Thermometer	303
ANALYSIS OF MEMOIR IX.	308
IX. ON THE INFLUENCE OF COLOUR AND MECHANICAL CONDITION ON RADIANT HEAT	311
1. Proof that White Bodies sometimes absorb Heat more copiously than Dark ones.—Explanation	311
2. Melloni on Colours, and Masson and Courtépée on Powders, in relation to Radiant Heat	314
3. New Experiments on Chemical Precipitates.—Influence of Colour and Chemical Constitution.—Sulphur Cement	315
4. Tabulation of the Radiant Powers of Powders.—Employment of Electric Attraction instead of Sulphur Cement	320
5. Qualitative Experiments.—Radiation of various Bodies through Rock-salt.—Unequal Diathermancy of the Substance	321
6. Radiation of Powders.—Reciprocity of Radiation and Absorption	325
ANALYSIS OF MEMOIR X.	330
X. ON THE ACTION OF RAYS OF HIGH REFRACTIBILITY UPON GASEOUS MATTER	333
1. <i>Introduction</i>	333
2. Theoretic Notions: Formation of Actinic Clouds through the Decomposition of Vapours by Light	336
3. Description of Apparatus	338

Cambridge University Press

978-1-108-06790-4 - Contributions to Molecular Physics in the Domain of Radiant Heat:

A Series of Memoirs Published in the 'Philosophical Transactions' and

'Philosophical Magazine', with Additions

John Tyndall

Frontmatter

[More information](#)

xiv

CONTENTS.

	PAGE
Sect. 4. The Floating Matter of the Air	338
5. Deportment of Nitrite of Amyl	342
6. Iodide of Allyl and Iodide of Isopropyl	345
7. Deportment of Liquids and of their Vapours towards Rays of High Refrangibility	346
8. Influence of a Second Body on the Actinic Process	349
9. Generation of Artificial Skies	352
10. Changes of Polarization in Actinic Clouds	354
11. Early Difficulties and Sources of Error.—Action of Infinitesimal Quantities of Vapour	357
12. Details of Experiments	362
13. Action of Rays of Low Refrangibility	374
 XI. AQUEOUS VAPOUR: DISCUSSION RESUMED	 378
ANALYSIS OF PROFESSOR MAGNUS'S PAPER ON GASEOUS CONDUCTION AND ABSORPTION	378
1. Gaseous Conductivity	378
2. Gaseous Diathermaney	380
3. Proof of Convection	381
4. Experiments in Glass Tubes with Glass Ends	382
OBSERVATIONS ON PROFESSOR MAGNUS'S PAPER 'ON THE INFLUENCE OF THE ABSORPTION OF HEAT ON THE FORMATION OF DEW'	383
1. Explanatory Remarks	383
2. Discussion of Paper	385
First Remarks on the Paper of Professor Magnus	387
Professor Wild's Experiments	389
Professor Magnus's Last Paper	390
Remarks on Professor Magnus's Last Paper	392
Concluding Remarks and Summary	396
Ice-making in the Tropics	399
 XII. RECENT RESEARCHES ON RADIANT HEAT	 405
 XIII. ON RADIATION THROUGH THE EARTH'S ATMOSPHERE	 421
 XIV. ON A NEW SERIES OF CHEMICAL REACTIONS PRODUCED BY LIGHT	 425
Action of the Electric-light	425
Action of Sunlight	427
Physical Considerations	427
Production of the Blue of the Sky by the Decomposition of Nitrite of Amyl	429
 XV. ON THE BLUE COLOUR OF THE SKY, THE POLARIZATION OF SKY-LIGHT, AND ON THE POLARIZATION OF LIGHT BY CLOUDY, MATTER GENERALLY	 431
 XVI. ON COMETARY THEORY	 441
 XVII. ON THE FORMATION AND PHENOMENA OF CLOUDS	 445

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978-1-108-06790-4 - Contributions to Molecular Physics in the Domain of Radiant Heat:
A Series of Memoirs Published in the 'Philosophical Transactions' and
'Philosophical Magazine', with Additions

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Frontmatter

[More information](#)

LIST OF PLATES.



PLATE ILLUSTRATING MEMOIR I. ON THE ABSORPTION AND RADIATION
OF HEAT BY GASES AND VAPOURS, AND ON THE PHYSICAL CON-
NEXION OF RADIATION, ABSORPTION, AND CONDUCTION . *Frontispiece.*

PLATE ILLUSTRATING MEMOIR XI. ON AQUEOUS VAPOUR *to face page 378*