

**MEMOIRS OF THE
MANCHESTER LITERARY
AND PHILOSOPHICAL
SOCIETY; EIGHTH VOLUME**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649646326

Memoirs of the Manchester Literary and Philosophical Society; Eighth Volume by Manchester Literary and Philosophical Society

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

MANCHESTER LITERARY AND PHILOSOPHICAL SOCIETY

**MEMOIRS OF THE
MANCHESTER LITERARY
AND PHILOSOPHICAL
SOCIETY; EIGHTH VOLUME**

MEMOIRS OF THE MANCHESTER
LITERARY AND
PHILOSOPHICAL SOCIETY.

MEMOIRS

80505

OF THE

MANCHESTER

LITERARY AND PHILOSOPHICAL SOCIETY.

THIRD SERIES.

EIGHTH VOLUME.

LONDON:
TAYLOR AND FRANCIS,
RED LION COURT, FLEET STREET.

1884.

CONTENTS.

ARTICLE	PAGE
I.—On the Mean Intensity of Light that has passed through Absorbing Media. By JAMES BOTTOMLEY, D.Sc., F.O.S.	1
II.—Correction of the Formula used in Photometry for Absorption when the medium is not perfectly transparent. By JAMES BOTTOMLEY, D.Sc., F.O.S.	5
III.—On the Failure of certain Mathematical Solutions of the Problem of the Motion of a Solid through a Perfect Fluid. By R. F. GWYHER, M.A.	7
IV.—On the Manufacture of Salt in Cheshire. By THOMAS WARD, Esq.	9
V.—Remarks on the Terms used to denote Colour, and on the Colours of Faded Leaves. By EDWARD SCHUNCK, Ph.D., F.R.S.	26
VI.—On Differential Resolvents and Partial Differential Resolvents. By ROBERT RAWSON, Esq., Assoc. I.N.A., Hon. Member of the Society	41
VII.—An Analysis of the recorded Diurnal Ranges of Magnetic Declination, with the view of ascertaining if these are composed of Inequalities which exhibit a true Periodicity. By BALFOUR SCHWART, M.A., LL.D., F.R.S., Professor of Natural Philosophy at the Owens College, and WILLIAM DODDSON, Esq.	54
VIII.—Colorimetry.—Part VI. By JAMES BOTTOMLEY, B.A., D.Sc.	70

ARTICLE	PAGE
IX.—On the Motion of Developable Cylinders. By JAMES BOT- TOMLEY, B.A., D.Sc., F.C.S.	82
X.—On the Development of the Common Frog. By THOMAS ALCOCK, M.D.	89
XI.—On the Levenahulme Limestone: a Section from Slade Lane eastwards. By Wm. BROCKBANK, F.G.S.	125
XII.—On the Transformations of a Logical Proposition contain- ing a single Relative Term. By JOSEPH JOHN MURPHY. Communicated by the Rev. ROBERT HARTLEY, F.R.S.	132
XIII.—List of the Phanerogams of Key West, South Florida, mostly observed there in March, 1872. By J. COSMO MELVILL, M.A., F.L.S.	158
XIV.—On the Occurrence of Caffeine in the Leaves of Tea and Coffee grown at Kew Gardens. By C. SCHORLEMMER, F.R.S.	155
XV.—On the Change produced in the Motion of an Oscillating Rod by a Heavy Ring surrounding it and attached to it by Elastic Cords. By JAMES BOTTOMLEY, B.A., D.Sc., F.C.S.	158
XVI.—On the Leaves of <i>Catha edulis</i> . By C. SCHORLEMMER, F.R.S.	169
XVII.—On Singular Solutions of Differential Equations. By ROBERT RAWSON, F.R.A.S., Hon. Mem. Manchester Literary and Philosophical Society, Assoc. L.N.A., Memb. of the London Math. Society.	170
XVIII.—On the Formula for the Intensity of Light transmitted through an Absorbing Medium as deduced from Experi- ment. By JAMES BOTTOMLEY, B.A., D.Sc., F.C.S.	198
XIX.—On the Intensity of Light that has been transmitted through an Absorbing Medium, in which the Density of the Colouring-matter is a Function of the Distance traversed. By JAMES BOTTOMLEY, B.A., D.Sc., F.C.S.	202

CONTENTS.

vii

ARTICLE	PAGE
XX.—On a New Variety of Halloysite from Maidenpek, Serbia. By H. E. Roscoe, LL.D., F.R.S., President	213
XXI.—On the Introduction of Coffee into Arabia. By O. SCHON- LEMMER, F.R.S.	215
XXII.—On the Equations and on some Properties of Projected Solids. By JAMES BETTONLEY, B.A., D.Sc., F.C.S.....	218

NOTE.

The Authors of the several Papers contained in this Volume are themselves accountable for all the statements and reasonings which they have offered. In these particulars the Society must not be considered as in any way responsible.

MEMOIRS
OF THE
MANCHESTER
LITERARY AND PHILOSOPHICAL SOCIETY

I. *On the Mean Intensity of Light that has passed through
Absorbing Media.* By JAMES BOTTOMLEY, D.Sc., F.C.S.

Read October 4th, 1881.

In colorimetric experiments the areas compared are assumed to be of the same tint throughout. When, however, we look through columns of coloured liquid at external white surfaces, this condition will not be exactly fulfilled.

Suppose the bottom of the containing cylinder to be perfectly flat. Owing to the adhesion of the liquid to the sides, and the consequent elevation there above the general level, the colour will be more intense near the sides. This, however, if the cylinders are of moderate