

**RADIOGRAPHY AND THE 'X'
RAYS IN PRACTICE AND THEORY:
WITH CONSTRUCTIONAL AND
MANIPULATORY DETAILS**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649686018

Radiography and the 'X' Rays in Practice and Theory: With Constructional and Manipulatory Details by S. R. Bottone

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

S. R. BOTTONE

**RADIOGRAPHY AND THE 'X'
RAYS IN PRACTICE AND THEORY:
WITH CONSTRUCTIONAL AND
MANIPULATORY DETAILS**

RADIOGRAPHY

WORKS BY S. R. BOTTONE.

A Guide to Electric Lighting. For Householders and Amateurs. With many Illustrations. Pictorial cover. 16th Thousand. 1s.

'Accurate, lucid, and suitable for the purpose.'—ELECTRICIAN.

How to Manage a Dynamo. A Practical Handbook for Workmen and others. Second Edition, Revised and Enlarged. Illustrated. Post 8vo. for the pocket, cloth, 1s.

'This little book will be very useful.'—ELECTRICAL ENGINEER.

Electro-Motors. Third Edition, Revised. With 70 Illustrations. 3s.

'Mr. Bottone has the faculty of writing so as to be understood by amateurs.'—INDUSTRY.

Electrical Instrument Making. Sixth Edition, Revised and Enlarged. With 70 Illustrations. 3s.

'To those about to study electricity and its application this book will form a very useful companion.'—MECHANICAL WORLD.

Electric Bells. Fifth Edition. With 99 Illustrations. 3s.

'No bell-fitter should be without it.'—BUILDING NEWS.

Radiography: its Theory, Practice, and Applications. 3s.

WORKS BY G. E. BONNEY

The Electro-plater's Handbook: a Practical Manual for Amateurs and Young Students in Electro-Metallurgy. Second Edition. With full Index and 61 Illustrations. 3s.

'An amateur could not wish for a better exposition of the elements of the subject.'—ELECTRICAL REVIEW.

Induction Coils: a Practical Manual for Amateur Coil-makers. With a New Chapter on Radiography for those wishing to Experiment with Röntgen 'X' Rays. With 101 Illustrations. 2s.

Electrical Experiments. With 144 Illustrations. Second Edition. 2s. 6d.

'An excellent book for boys.'—ELECTRICAL REVIEW.

London: WHITTAKER & CO., Paternoster Square, E.C.

RADIOGRAPHY

74729

AND THE 'X' RAYS

IN PRACTICE AND THEORY

WITH CONSTRUCTIONAL AND MANIPULATORY DETAILS

Revised BY
S. R. BOTTONE

AUTHOR OF 'THE DYNAMO' 'ELECTRIC BELLS' 'ELECTRO-MOTORS'
'ELECTRICAL INSTRUMENTS' ETC.

WITH 47 ILLUSTRATIONS

WHITTAKER & CO.

2 WHITE HART STREET, PATERNOSTER SQUARE, LONDON
AND 26 FIFTH AVENUE, NEW YORK

1898

PRINTED BY
SPOTTISWOODE AND CO., NEW BIKLEY SQUARE
LONDON

PREFACE

In the following pages, an attempt has been made to give a clear and trustworthy account of the steps that have led up to the discovery and application of those electric waves that are now known as 'X' rays. Every care has been taken to treat the subject with lucidity and accuracy, and to this end nearly every one of the statements made has been verified by personal experiment. Where this has been impossible of execution, the source of the statement, or the name of the experimenter, has been given. Considerable prominence has been given to constructional details and measurements, with the view of facilitating the student in making the apparatus necessary. No sensational matter, or far-fetched applications of radiography, insufficiently confirmed, have been admitted into this work; but full and at the same time clear explanations have been given, which, it is hoped, will render the subject easy of comprehension.

S. BOTTONE.

WALLINGTON : *January* 1898.

Amherst 20. 8-19-37

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

CONTENTS

CHAP.	PAGE
I. ON THE ACTION OF LIGHT ETC. ON CERTAIN SALTS OF SILVER	1
II. ON THE EFFECTS OF A PARTIAL VACUUM ON ELECTRICAL DISCHARGES	13
III. THE INDUCTION COIL	22
IV. ON THE CHOICE OF SOURCE OF CURRENT.	53
V. CROOKES' TUBES: STANDS	64
VI. THE WIMSHURST MACHINE	73
VII. THE HOLTZ MACHINE	94
VIII. FLUORESCENT SCREENS	102
IX. GENERAL MANIPULATORY DETAILS.	123
X. THEORETICAL CONSIDERATIONS	157
INDEX	173