MATHEMATICAL MOMOGRAPHS. NO. 17: LECTURES ON TEN BRITISH PHYSICISTS OF THE NINETEENTH CENTURY

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649628940

Mathematical Momographs. No. 17: Lectures on Ten British Physicists of the Nineteenth Century by Alexander Macfarlane

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

ALEXANDER MACFARLANE

MATHEMATICAL MOMOGRAPHS. NO. 17: LECTURES ON TEN BRITISH PHYSICISTS OF THE NINETEENTH CENTURY

Trieste

PEACOCK

DE MORGAN

HAMILTON

CAYLEY

BOOLE

CLIFFORD

SMITH

SYLVESTER

KIRKMAN

TODHUNTER

MATHEMATICAL MONOGRAPHS
EDITED BY
MANSFIELD MERRIMAN AND ROBERT S. WOODWARD

No. 17

LECTURES ON TEN BRITISH MATHEMATICIANS OF THE NINETEENTH CENTURY

BY
ALEXANDER MACFARLANE,
LATE PRESIDENT OF THE INTERNATIONAL ASSOCIATION FOR PROMOTING THE STUDY OF QUATERNIONS

FIRST EDITION
FIRST THOUSAND

NEW YORK
JOHN WILEY & SONS, INC.
LONDON: CHAPMAN & HALL, LIMITED
1916

QC.
15
M3

PREFACE

DURING the years 1901–1904 Dr. Alexander Macfarlane delivered, at Lehigh University, lectures on twenty-five British mathematicians of the nineteenth century. The manuscripts of twenty of these lectures have been found to be almost ready for the printer, although some marginal notes by the author indicate that he had certain additions in view. The editors have felt free to disregard such notes, and they here present ten lectures on ten pure mathematicians in essentially the same form as delivered. In a future volume it is hoped to issue lectures on ten mathematicians whose main work was in physics and astronomy.

These lectures were given to audiences composed of students, instructors and townspeople, and each occupied less than an hour in delivery. It should hence not be expected that a lecture can fully treat of all the activities of a mathematician, much less give critical analyses of his work and careful estimates of his influence. It is felt by the editors, however, that the lectures will prove interesting and inspiring to a wide circle of readers who have no acquaintance at first hand with the works of the men who are discussed, while they cannot fail to be of special interest to older readers who have such acquaintance.

It should be borne in mind that expressions such as "now," "recently," "ten years ago," etc., belong to the year when a lecture was delivered. On the first page of each lecture will be found the date of its delivery.

For six of the portraits given in the frontispiece the editors are indebted to the kindness of Dr. David Eugene Smith, of Teachers College, Columbia University.

Alexander Macfarlane was born April 21, 1851, at Blairgowrie, Scotland. From 1871 to 1884 he was a student, instructor and examiner in physics at the University of Edinburgh, from 1885 to 1894 professor of physics in the University of Texas, and from 1895 to 1908 lecturer in electrical engineering and mathematical physics in Lehigh University. He was the author of papers on algebra of logic, vector analysis and quaternions, and of Monograph No. 8 of this series. He was twice secretary of the section of physics of the American Association for the Advancement of Science, and twice vice-president of the section of mathematics and astronomy. He was one of the founders of the International Association for Promoting the Study of Quaternions, and its president at the time of his death, which occured at Chatham, Ontario, August 28, 1913. His personal acquaintance with British mathematicians of the nineteenth century imparts to many of these lectures a personal touch which greatly adds to their general interest.

ALEXANDER MACFARLANE
From a photograph of 1898

CONTENTS

PORTRAITS OF MATHEMATICIANS.....Frontispiece

GEORGE PEACOCK (1791–1858).....PAGE 7
A Lecture delivered April 12, 1901.

AUGUSTUS DE MORGAN (1806–1871)..... 19
A Lecture delivered April 13, 1901.

SIR WILLIAM ROWAN HAMILTON (1805–1865)..... 34
A Lecture delivered April 16, 1901.

GEORGE BOOLE (1815–1864)..... 50
A Lecture delivered April 19, 1901.

ARTHUR CAYLEY (1821–1895)..... 64
A Lecture delivered April 20, 1901.

WILLIAM KINGDON CLIFFORD (1845–1879)..... 78
A Lecture delivered April 23, 1901.

HENRY JOHN STEPHEN SMITH (1826–1883)..... 92
A Lecture delivered March 15, 1902.

JAMES JOSEPH SYLVESTER (1814–1897)..... 107
A Lecture delivered March 21, 1902.

THOMAS PENYNGTON KIRKMAN (1806–1895..... 122
A Lecture delivered April 20, 1903.

ISAAC TODHUNTER (1820–1884)..... 134
A Lecture delivered April 13, 1904.

INDEX..... 147

TEN BRITISH MATHEMATICIANS

GEORGE PEACOCK *

(1791–1858)

GEORGE PEACOCK was born on April 9, 1791, at Denton in the north of England, 14 miles from Richmond in Yorkshire. His father, the Rev. Thomas Peacock, was a clergyman of the Church of England, incumbent and for 50 years curate of the parish of Denton, where he also kept a school. In early life Peacock did not show any precocity of genius, and was more remarkable for daring feats of climbing than for any special attachment to study. He received his elementary education from his father, and at 17 years of age, was sent to Richmond, to a school taught by a graduate of Cambridge University to receive instruction preparatory to entering that University. At this school he distinguished himself greatly both in classics and in the rather elementary mathematics then required for entrance at Cambridge. In 1809 he became a student of Trinity College, Cambridge.

Here it may be well to give a brief account of that University, as it was the alma mater of four out of the six mathematicians discussed in this course of lectures.†

At that time the University of Cambridge consisted of seventeen colleges, each of which had an independent endowment, buildings, master, fellows and scholars. The endowments, generally in the shape of lands, have come down from ancient times; for example, Trinity College was founded by Henry VIII in

* This Lecture was delivered April 12, 1901.—EDITORS.

† Dr. Macfarlane's first course included the first six lectures given in this volume.—EDITORS.