

**A TREATISE ON GEOMETRICAL
CONICS: IN ACCORDANCE WITH THE
SYLLABUS OF THE ASSOCIATION
FOR THE IMPROVEMENT OF
GEOMETRICAL TEACHING**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649067657

A Treatise on Geometrical Conics: In Accordance with the Syllabus of the Association for the Improvement of Geometrical Teaching by Arthur Cockshott & F. B. Walters

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

ARTHUR COCKSHOTT & F. B. WALTERS

**A TREATISE ON GEOMETRICAL
CONICS: IN ACCORDANCE WITH THE
SYLLABUS OF THE ASSOCIATION
FOR THE IMPROVEMENT OF
GEOMETRICAL TEACHING**

① A TREATISE
ON
GEOMETRICAL CONICS

IN ACCORDANCE WITH THE SYLLABUS
OF THE ASSOCIATION FOR THE IMPROVEMENT
OF GEOMETRICAL TEACHING.

BY
ARTHUR COCKSHOTT, M.A.,
ASSISTANT MASTER AT ETON COLLEGE, FORMERLY FELLOW AND ASSISTANT
TUTOR OF TRINITY COLLEGE, CAMBRIDGE,

AND
Frank Bridge.
REV. F. B. WALTERS, M.A.,
PRINCIPAL OF KING WILLIAM'S COLLEGE, ISLE OF MAN, AND FELLOW OF
QUEENS' COLLEGE, CAMBRIDGE.

London:
MACMILLAN AND CO.
AND NEW YORK.
1889

[All Rights reserved.]

~~VI 5856~~
Math. 5138.89

QA
559
C626
1869

JAN 8 1911

Harvard Univ.

Cambridge:
PRINTED BY C. J. CLAY, M.A. & SONS,
AT THE UNIVERSITY PRESS.

81...
98

PREFACE.

THE need of some recognized sequence of propositions in Elementary Geometrical Conics has long been very generally admitted. This need the Association for the Improvement of Geometrical Teaching has attempted to supply by the publication of the Syllabus of Geometrical Conics, which was drawn up by an influential Committee and accepted by the Association at their annual General Meeting in January, 1884.

In the following pages we have given proofs of the propositions in the hope that they may be found useful to those teachers who desire to adopt the order to which the Association has given the weight of its approval.

We have introduced a chapter on Orthogonal Projection immediately after that on the Parabola, as we think it important that the student should understand as early as possible the close connection between the ellipse and circle and should be introduced at once to a method by which so

many properties of the ellipse may be deduced from well-known properties of the circle.

At the end of the book will be found a large collection of Cambridge problems; we have given a list of important properties of Conics, not included in the propositions in the text—all of which are considered as well known and may therefore be assumed in the solution of any other problems.

A. C.

F. B. W.

May, 1889.

TABLE OF CONTENTS.

	PAGE
PARABOLA	1
ORTHOGONAL PROJECTIONS	26
ELLIPSE	33
HYPERBOLA	74
RECTANGULAR HYPERBOLA	120
SECTIONS OF A CYLINDER AND CONE	121
ADDITIONAL PROPOSITIONS	144
PROBLEMS	148



PARABOLA.

DEF. I. A *parabola* is the locus of a point (P), whose distance from a fixed point (S) is equal to its distance (PM) from a fixed straight line (XM),
($SP = PM$).

II. The fixed point (S) is called the *focus*.

III. The fixed straight line (XM) is called the *directrix*.

DEF. A curve is *symmetrical with respect to a straight line*, if, corresponding to any point on the curve, there is another point on the curve on the other side of the straight line such that the chord joining them is bisected at right angles by the straight line.

DEF. The straight line is called an *axis* of the curve.

DEF. A *vertex* is a point at which an axis meets the curve.