AN INTRODUCTION TO THE ELEMENTS OF EUCLID, PART I: BEING A FAMILIAR EXPLANATION OF THE FIRST TWELVE PROPOSITIONS OF THE FIRST BOOK

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An Introduction to the Elements of Euclid, Part I: Being a Familiar Explanation of the First Twelve Propositions of the First Book by Stephen Hawtrey

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STEPHEN HAWTREY

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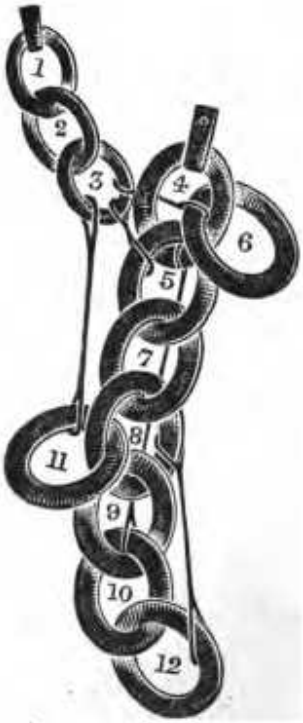
Frontispiece.



SHOWING THE INTERDEPENDENCE OF THE FIRST TWELVE PROPOSITIONS OF THE FIRST BOOK OF EUCLID.

[*For explanation see page* 124.

AN INTRODUCTION

TO THE

ELEMENTS OF EUCLID

PART I.

BEING A FAMILIAR EXPLANATION

OF THE

FIRST TWELVE PROPOSITIONS OF THE FIRST BOOK

BY THE

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SECOND EDITION

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1878

ΜΥΣΤΑΙΣ

SUIS

ἀγαπητοῖς

HOC OPUSCULUM DICAT

S. H.

Extract from 'Narrative Essay on a Liberal Education,' by the writer of this Treatise.—'And not only is the Euclid lesson an interest full of charm,—it forms a bond of firm friendship in after-life. How often, amidst the mountains and valleys of Switzerland, do I find my hand grasped, and, looking up, I see an animated face radiant with pleasant memories. "What, don't you know me? I am one of your old *μύσται*," alluding to a long and growing list, that used to hang up in the Mathematical School at Eton, of the *Initiated*—that is, of those who understood and could apply the Fourth Proposition of the First Book. These were my *μύσται*. The Platonic motto "*μηδεὶς ἀγεωμέτρητος εἰσίτω*" standing at the head of the list shut out the *profanum vulgus*; and hearty—nay, vehement sometimes—were the struggles to get into it.'

PREFACE

TO

THE SECOND EDITION.

In preparing a Second Edition of this treatise, the writer has taken great pains to make it a practically useful school-book. In doing so he has been much assisted by communications received both from teachers and learners. The names of three of his correspondents he cannot suppress:—Isaac Todhunter, Norman Macleod Ferrers, and Henry J. S. Smith; whose kind and suggestive letters have given him the most valued encouragement and help.

In comparing the present edition with the former, it will be found that a good deal of it has been rewritten; especially the discussion of the seventh and eighth propositions, which some, perhaps, will think too elaborate.

The writer would say in reply, that a long experience has taught him that beginners find none, among the early propositions of Euclid, so baffling as the

seventh and eighth. After a very long time spent on them, learners, for the most part, show that they have not taken in Euclid's meaning and aim; and so have failed to reap the intellectual benefit which is to be derived from a right appreciation of them.

Now, by approaching these propositions as is done in this treatise, it is found that one or two lessons, interspersed with pleasant laughter, are quite enough to make learners thoroughly see Euclid's intention; and get a grasp of the propositions, which they never let go.

For more than forty years the writer has found, in teaching Euclid, one of the chief enjoyments of his life, and before his time is ended he very much wishes to leave behind him as good an account as he can of his method, in order that others, coming after him, may derive the same enjoyment that he has done from the work; at the same time that they will be doing very great good to future generations of the boys and girls of England.

He hopes, then, that, under these circumstances, he will not incur the charge of self-sufficiency, if he specifies two or three results of this mode of teaching which tutors will not fail to appreciate.

First it makes the Euclid lesson to be thoroughly enjoyed; instead of its being repulsive, it becomes interesting—often, indeed, a delight to pupils as well as teachers.

In the year 1868 a sketch of the mode of teach-