

**FIRST MNEMONICAL
LESSONS ON
GEOMETRY, ALGEBRA,
AND TRIGONOMETRY**

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First Mnemonical Lessons on Geometry, Algebra, and Trigonometry by Thos. Penyngton
Kirkman

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THOS. PENYNGTON KIRKMAN

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MNEMONICAL LESSONS.



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FIRST MNEMONICAL LESSONS

IN

GEOMETRY, ALGEBRA,

AND

TRIGONOMETRY.

BY THE

REV. THOS. PENYNGTON KIRKMAN, M.A.

RECTOR OF CROFT WITH SOUTHWORTH.

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M.DCCC.LII.

183. c. 17.

TO

SIR JOHN BLUNDEN, BARONET,

THIS LITTLE MEMORIAL

OF DAYS PLEASANTLY AND THANKFULLY REMEMBERED,

IS INSCRIBED,

WITH FEELINGS OF HIGH AND MOST

DESERVED ESTEEM,

BY HIS FAITHFUL SERVANT,

AND SINCERE FRIEND,

THE AUTHOR.

PREFACE.

It is reckoned a small ambition which is content to write a book of rudiments; and a wise man will hardly do this, unless he knows beforehand, from his fame or scholastic influence, that the profit of the work will compensate its lack of honour. With this reflection, I have 'kept my peace' *above* 'ten years;' and, finally, misdoubting the profit which my obscurity might command, I have saved my paternal feelings, by presenting this little book to the publisher as an addition to his cheap series of elementary mathematics. To this I was moved by my admiration of the remarkable zeal and spirit displayed by him for the diffusion of scientific knowledge. While it is hoped, that these pages will be easily understood by readers who are familiar with arithmetic of whole numbers and fractions, and with the extraction of the square root, it is evident, from the arrangement and treatment of the topics, and particularly from the paucity of examples, that this little work is intended not as a substitute, but as a companion, for other rudimentary treatises. If the experience of others in tuition agrees with my own, I may perhaps look to reap a little praise—not mathematical, on ground like this, but simply didactical—the praise of teaching well, of which I confess myself covetous. It appears to me, that distaste for mathematical study often springs, not so much from any abstruseness in the subject at any point, to the student who has mastered the approaches, as from

the difficulty generally felt in retaining the previous results and reasoning. This difficulty is closely connected with the *unpronounceableness of formulæ*: the memory of the tongue and of the ear are not easily turned to account: nearly everything depends on the thinking faculty, or on the practice of the eye alone. Hence many, who see hardly anything formidable in the study of a language, look upon mathematical acquirements as beyond their power, when in truth they are very far from being so. My object is to enable the learner to *talk to himself*, in rapid, rigorous, and suggestive syllables, about the matters which he must digest and remember. I have sought to bring the memory of the vocal organs and of the ear to the assistance of the reasoning faculty, and have never scrupled to sacrifice either good grammar or good English, in order to secure the requisites for a useful *Mnemonic*, which are smoothness, condensation, and jingle. I would beg to have judgment pronounced upon my method, not from its usefulness or beauty in the eyes of a mathematician, but from its success, good or ill, in the instruction of young persons, of ordinary apprehension, who have all their mathematics yet to learn.

My only apology for the form and colloquial style of these lessons is *the fact*, that they were at first begun in their present shape, save a few trifling variations, for a juvenile class, which included certain nieces of mine. The readiness, with which school-girls of fair capacity, who had been well taught arithmetic, apprehended and retained the subject by these aids, strengthened an impression, which I had cherished for many years, that something of the kind might be generally useful. If my method finds favour with students, it will be easy for me to extend the assistance, here offered

at the entrance, to the subsequent and higher stages of their mathematical career; for I have good store of such aids, adapted to most of the leading topics in mathematics, both pure and applied. See a Paper "On Mnemonical Aids in the Study of Analysis," in the Ninth Volume (N. S.) of the *Memoirs of the Manchester Philosophic and Literary Society*.

The art and mystery of Mnemonics has been brought into disrepute by such writers as Feinagle and Coglan, men worthy of chairs in the university of Laputa. Their cumbrous inventions are about as fit to be compared, for elegance and speed, with the *ſua vrepſerra* of Richard Grey, as a Dutchman's ox-wagon in Kaffirland with a nobleman's chariot in Middlesex.

Concerning Grey's *Memoria Technica* there are two opinions; one, of those who in *their student-days* had the good fortune to have the book placed in their hands; and another, of those who have learned (and forgotten?) their chronology, &c. without it. I am sometimes amused by the readiness of the latter division of persons to pronounce judgment on the philosophic old Doctor, with the air of men who have well considered the matter. More than one good scholar and good teacher do I know, who dispose of him coolly thus: 'the difference between studying and not studying Grey's book is this, that, in the latter case, you have certain things to learn and remember, and, in the former, you have the same things to learn, and a mass of frightful jargon besides.'

Once upon a time, there was a handy man, who took a fancy to joinering. He went up the town, and bought a complete assortment of carpenter's tools, everything from a wood-man's axe to a sprigbit. As he was scratching his ear in meditation about the best way to convey them home, a simple bystander suggested, 'Why don't