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## The Conflict of Studies

The nineteenth century was a time of great reform in education, with debate focusing on such questions as who should be educated, in what manner, and to what degree. Given the technical advances brought about by the Industrial Revolution, rigorous mathematical education was seen by many as essential. A mathematician, educator and examiner for the University of Cambridge, Isaac Todhunter (1820–84) was also known as a prolific and very successful author of mathematics textbooks. In his day, he was considered an influential, albeit somewhat conservative, figure in mathematical education. In these six essays, first published in 1873, he discusses topics raised by the reform movement (for which he had little sympathy), such as the examination system, teaching methods and materials. Born of Todhunter's vast experience in the field, this work reflects an insider's perspective and remains relevant to students and scholars interested in the history of mathematics teaching and the University of Cambridge.



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# The Conflict of Studies

And Other Essays on Subjects Connected with Education

ISAAC TODHUNTER





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# THE CONFLICT OF STUDIES AND OTHER ESSAYS.



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THE

# CONFLICT OF STUDIES

AND OTHER ESSAYS

ON

## SUBJECTS CONNECTED WITH EDUCATION.

BY

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## PREFACE.

So much discussion has occurred in recent years respecting the subjects to which this volume is devoted, that it must appear presumptuous to publish some new essays unless a reasonable claim can be established to that attention which they solicit. writer may venture to state that he has enjoyed favourable opportunities for becoming practically acquainted with the matters on which he treats. residence at Cambridge, continued occupation in lecturing, much experience in examinations, both in the University and elsewhere, and a share in the deliberations of several important Syndicates which have been employed in the reconstruction of official courses of study - all these circumstances combined might be expected to induce and enable a person to form definite opinions on many points connected with the general subject of education. How far these advantages have been duly cultivated must be left for the reader to estimate.



vi PREFACE.

It is then mainly on the ground of his own experience that the writer presumes to ask for the consideration of the conclusions at which he has arrived; and this leads him naturally to request indulgence for the form he has adopted in setting forth those conclusions. It will be seen that he has throughout referred to processes and facts which have fallen under his own observation; and that he has repeatedly expressed himself rather in the manner of a witness who is offering such evidence as he possesses than of an advocate who is arguing a cause, or of a judge who is pronouncing a decision. He trusts that this course, and the language which he has in consequence employed, will be attributed solely to his wish to accept the responsibility for his remarks, and not to an undue confidence in his own opinions. For the same reason his chief regard has been given to such points as seemed to have been altogether overlooked, or at least much neglected, in various former discussions; while those have been avoided which had already been adequately treated.

It was originally the writer's expectation that the Essays would have appeared separately in some magazine or review; but he has yielded to the suggestion that they might with convenience be collected into an independent volume. Occasionally a brief allusion will be found in one Essay to some topic which occurs also in another; this slight repetition



### PREFACE.

vii

is owing to the mode of publication which was originally contemplated, and it is hoped will be readily excused.

The Essays have been written at such scanty intervals of leisure as other very laborious engagements allowed, and have been substantially finished for many months; but unavoidable delay has occurred in finally arranging them for the press, so that they were not placed in the hands of the publisher until the commencement of the present year. The last essay remains as it was written before the first examination on the new system for the Mathematical Tripos had taken place: and no remarks have been added to shew how the anticipations expressed have been confirmed by the event.

While these sheets have been passing through the press, some of the opinions to which the writer attaches great weight have received important confirmation.

Thus on pages 19 and 20 attention has been invited to the special value of training in exact science before devotion to studies of a more popular kind; and the following sentence in corroboration may be quoted from an article on the late Professor Sedgwick by an eminent authority: "Pressed in early life through a strict course of study, he found himself stronger by that training than most of his fellow geologists, but never made them feel his superiority."



viii PREFACE.

On pages 147...152 the writer has undertaken to maintain the mathematical reputation of England in comparison with that of foreign countries, and he fears that this will at first sight appear paradoxical, so frequently is the contrary opinion either avowed or An interesting work, bearing on such a comparison, has recently been published by M. de Candolle at Geneva; and in a notice of it in the Revue des Deux Mondes for February, 1873, the high position of England is fully recognised: see especially page 731 of the Review. Almost immediately after the preceding sentence had been finished, the writer found in the Contemporary Review for March, 1873, a most able vindication of the conspicuous merit of England, both in science and philosophy, and among other references is one to the page above cited of the "leading French periodical."

On page 160 the writer has recorded his own testimony in opposition to the very disparaging statements which have recently been made as to the use of Euclid's Elements of Geometry; the report of the Cambridge Local Examinations Syndicate, just issued, speaks in extremely favourable terms of the attainments of the candidates in this subject, thus adding another to the numerous testimonies respecting the value of the well-known text-book.

Finally, the writer regrets to have observed very recently, in one of the most esteemed weekly news-



### PREFACE.

ix

papers, remarks like those which have often been made, but which are shewn to be untenable on pages 200 and 201; in this case they were indeed attributed to another paper, but they ought not to have been reproduced in a periodical of high reputation for character and intelligence. In the same place some numerical results as to marks were given, which were in direct opposition to the general statement made on page 208, and which, so far, were quite erroneous.

CAMBRIDGE, March 31, 1873.





## CONTENTS.

					PAG
I.	The Conflict of Studies			•	1
II.	Competitive Examinations .				32
III.	Private Study of Mathematics		•		68
IV.	Academical Reform				104
V.	Elementary Geometry				136
VI.	The Mathematical Tripos .				193