

**ESSAYS ON
MATHEMATICAL
EDUCATION**

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Essays on Mathematical Education by G. St. L. Carson

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G. ST. L. CARSON

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BY

G. ST. L. CARSON

WITH AN INTRODUCTION BY

DAVID EUGENE SMITH



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INTRODUCTION

It has always been hard for people to judge with any accuracy the work of their own age, and it is hard for us to do so to-day. In spite of our optimism and of our certainty that we are progressing, what we conceive to be an era of great educational awakening may appear to the historian of the future as one in which noble ideals were sacrificed to the democratizing of the school, and the twentieth century may not rank with the sixteenth when the toll is finally taken.

It is, therefore, with some hesitancy that we should assert that we live in a period of remarkable achievement in all that pertains to education. That the period is one of advance is in harmony with the general principle of evolution, but that all that we do is uniformly progressive is not at all in accord with general experience. Certain it is that the present time is one of agitation, of the shattering of idols, and of the setting up of strange gods in their places. Nothing is sacred to the iconoclast, and he is found in the school as he is found in the church, in government, and in the social world.

Among the objects of attack in this generation is "the science venerable" that has come down to us from Pythagoras and Euclid, from Mohammed ben Musa and Bhaskara, and from Cardan, Descartes, and Newton. And yet it does not seem to be mathematics itself that is challenged so much as the way in which it has been presented to the youth in our schools, and to most of us the challenge seems justified. With all the excellence of Euclid, his work is not for the child; and with all the value of formal algebra, the science needs some other introduction than the arid one until recently accorded to it.

It is on this account that Mr. Carson's work in the English schools and before bodies of English teachers has great value. He is thoroughly trained as a mathematician, is a product of the college where Newton studied and taught, is a lover of the science in its purest form, and has had an unusual amount of experience in the technical applications of the subject; but he is a teacher by instinct and by profession, and is imbued with the feeling that mathematics can be saved to the school only through an improvement in our methods of teaching and in our selection of material. He stands for the principle that mathematics must be made to appeal to the learner as interesting and valuable, and he has shown in his own classes that, after this appeal has been successful, pupils need to be held back rather than driven forward in this branch of learning.

It is because of this feeling on the part of Mr. Carson that his essays on the teaching of mathematics have peculiar value at this time. They will encourage teachers to continue their advocacy of a worthy form of mathematics, at the same time seeking better lines of approach and endeavouring to relate the subject in a reasonable manner to the various other interests of the pupil. The problem is much the same everywhere, but the ties of a common language, a common spirit of freedom, and a common ancestry make it practically identical in English-speaking lands. On this account we, in the United States, feel that Mr. Carson's message is quite as much to us as to his own countrymen, and we shall appreciate it as we have appreciated the noteworthy work that he has already achieved in the teaching of mathematics in England.

DAVID EUGENE SMITH

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SOME PRINCIPLES OF
MATHEMATICAL EDUCATION

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