

Riverside Educational Monographs

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THE  
TEACHING OF HYGIENE  
IN THE GRADES

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HOUGHTON MIFFLIN COMPANY

BOSTON, NEW YORK AND CHICAGO

The Riverside Press Cambridge

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**The Riverside Press**  
**CAMBRIDGE . MASSACHUSETTS**  
**U . S . A**

**To**  
**W. H. BURNHAM**  
**PIONEER IN HEALTH EDUCATION**

## EDITOR'S INTRODUCTION

THE impotency of mere knowledge is gradually being recognized by the schoolmaster. Long he has believed in the magical influence of information about human conduct. Centuries of unchanging pedagogical tradition bear witness to his faith in the omnipotence of facts. Now, somewhat suddenly, this sublime confidence in pure, or rather isolated, intellectual training, is disturbed by lay critic and psychological skeptic.

As long as theory and practice were the separate responsibilities of two different classes of people, the dependence of each on the other could not be fully perceived, and in consequence the assumed self-sufficiency of each was safe from destruction. It is precisely because contemporaneous intellectuality has assumed practical aims, and because practical work has sought an efficiency that requires scientific aid, that we are now no longer content in education to worship pure learnedness. When learning ceases to be worshiped exclusively for its own sake and comes to gain the sanction of the actual service it may

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render to human living, it is necessarily subjected to criticism it has not known before. As a product of this criticism, two striking changes occur in the intellectual discipline of our schools. First, the intellectual content of the school curricula is chosen on a different basis — a practical one. It includes elements previously omitted and omits those before included. Second, the intellectual activity is dealt with under conditions approximating normality. It begins in proper motivation and ends in expression to a degree unknown in traditional schools. Cognition is related to its emotional backgrounds and to its functional terminus. More useful subject-matter assimilated under natural psychological conditions, rather than isolated information artificially acquired, is the characteristic demand of every modernized course of study. The critics have had their way.

Certain new practical ambitions of the public schools have revealed the weakness of educational formalism more readily than some of its ancient functions. The teaching of language and literature has been slow to respond to reform, whereas the attempts to teach morals, art, civics, and health have been sensitive. Theirs was a practical purpose, and they were bound to

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be checked by somewhat concrete social results. Mere information about goodness, beauty, and personal efficiency is too fragmentary not to be noted. Perhaps our inevitable disappointment as to the results of book learning in the field of health education has been most startling. Health is more tangible than morals or æsthetics, hence we have recognized the need of a change in pedagogical procedure. This change we are now obtaining. The memorization of the names of all the bones of the body has passed. Gone, too, is our old reliance on remembered descriptions of the old textbook physiology. Even rules for daily hygienic behavior seem not to be so highly valued as before. They, too, have failed to cover the gap between knowing and doing. The pedagogical faith is now pinned to action properly motivated, functionally explained, and much practiced. Health education is based on a regimen rather than on a textbook. It concerns every moment of the child's daily life rather than a study period or recitation spent at a school desk.

This new training in hygiene reveals itself most characteristically in the reformed teaching of progressive teachers in the elementary school grades. Its plan and its method should be known to all teachers of young children. To aid in this

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purpose we present the following monograph. It is a guide to the useful and effective teaching of hygiene. It indicates, with practical social surveys as a basis, the hygiene which has the most frequent and crucial value in daily life. It gives a hundred estimates of the worth of subject-matter, and a thousand suggestions as to right methods of teaching. Finally it includes references to further stores of wisdom too expansive to be given here, and too detailed to interest the teacher just beginning to think on the problem.

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THE purpose of this book is to give teachers and school administrators some practical suggestions on the teaching of hygiene in the grades. The word "hygiene" is here given a broader interpretation than giving instruction to children in a formal lesson a few minutes every day or week; it refers to those influences brought to bear on the children by the teacher, both incidental and systematic, to conserve and improve their health.

An effort has been made to emphasize the following points: (1) the value of health to the individual and society; (2) the relative importance of hygiene in the curriculum; (3) the present unsatisfactory status of the teaching of hygiene; (4) the specific goals of the teaching of hygiene; (5) effective methods of teaching; (6) the application of these methods to the most significant problems of teaching; (7) the special health problems of both city and rural schools and their solution; and (8) definite references to the best literature for teachers and pupils.

Many of the ideas herein presented have ap-



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peared in articles by the writer published in the *Elementary School Teacher*, *Educational Standards*, *The Rural School Teacher*, *The American Journal of School Hygiene*, and in a chapter in *Educational Hygiene* (Charles Scribners' Sons), edited by L. W. Rapeer. This chapter is entitled "The Teaching of Hygiene in Elementary Schools."

Special thanks are due Miss Laura S. Plummer, Dr. W. H. Burnham, and my wife, who read the manuscript and gave helpful suggestions, also to Mr. Arthur Kallom, who assisted in the reading of the proof.

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*December, 1917*

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# THE TEACHING OF HYGIENE IN THE GRADES

## I

### THE FUNDAMENTAL IMPORTANCE OF HYGIENE IN THE CURRICULUM

HYGIENE is an applied science of practical value having as its objects the conservation and improvement of man's health and the lengthening of human life. That health is of fundamental importance in life and education, taking precedence over all other values, is the thesis of this chapter.

#### *1. The value of health*

It is a common experience that loss of health and life leads to keen mental and physical anguish. If hygiene can alleviate this suffering in the slightest degree, its position in the elementary-school curriculum is abundantly justified, but it may do more; for preventable illness or postponable death is always a distinct economic waste. It is possible within reasonable limits to estimate this economic waste and so put a monetary value on a

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practical kind of hygiene. It is not assumed here that money is a thing of greatest worth, but, since the discomfort and pain associated with illness are well understood and are quite immeasurable, let us pass to a consideration of the economic value of health and long life, topics which are often but vaguely comprehended.

We may best approach these topics by reviewing briefly our national losses due to a lack of applied hygiene. According to Dr. Irving Fisher (25), the newborn child has a net worth of \$90. Since a child must be fed, clothed, housed, and educated up to at least the age of fourteen, or, in the case of one who learns a profession, until twenty or twenty-five, before there is any appreciable return on the investment so that the individual becomes self-supporting and economically productive, the vital value of the child steadily increases every year after birth. At the age of twenty a human life represents \$4000. There comes a time, of course, later in life, when the investment has been partially returned and when one's productive power wanes, that the economic value decreases. Dr. Fisher estimates that the average economic loss through preventable death is \$1700. Since 42 per cent of the 1,500,000 deaths are preventable or postponable,

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there is an annual loss to the Nation each year of approximately one billion dollars. When we consider that one third of the deaths due to typhoid and one fifth of those caused by tuberculosis occur at a time when our young people are in high schools and colleges, a period representing the maximum investment of society for the preparation of the individual for future usefulness, we get a good idea of some of the havoc that is wrought.

Preventable sickness, not resulting in death, also represents a tremendous financial loss. The cost of caring for the sick — nurses, medicine, medical attendance, etc. — and the loss of wages amount to probably another billion of dollars. The share of the American workman in these losses is enormous. According to the estimate of the American Association for Labor Legislation (7) the industrial workers in the United States lose each year because of illness about 284,000,000 days, involving a loss to industry and in wages and medical cost amounting to \$772,857,000. It is estimated that one third of this loss is preventable.

It must not be assumed, of course, that these losses are purely individual, that he who is sick pays his own bills alone. These wastes gnaw at

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the very vitals of society. The workman who falls sick not only sustains individual losses, but he tends to cripple industry and increase the cost of the manufactured article to the consumer. Sickness and death inevitably entail social hardship. For example, the English Royal Commission on Poverty states that 55 to 60 per cent of the poverty of Great Britain is due to illness. Dr. Baird (8) says the report of the Charity Organization of New York City seems to confirm the report of this commission. The cruel blight of poverty not only closes the door of opportunity to the individual, but places a heavy burden upon society. A family left destitute must often be supported by public or private charity. Children are often denied proper food, shelter, clothing, and sanitary surroundings, and are usually forced to leave school early to seek employment. As a result their usefulness to society is greatly diminished. Every individual who is not dependent upon society for his livelihood helps to shoulder a vast economic burden due to preventable illness. Rapeer (50) estimates that the average family contributes one dollar in five of its regular income through some form of taxation, direct or indirect, because of ill-health. The money loss is important, but the direct losses to

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American citizenship, so subtle that they cannot be measured, are alarming.

When we come to sum up in a word the value of health, we may say that it is a basic factor in individual and social efficiency and happiness. This is true to a remarkable extent of the school itself. Rapeer estimates that ill-health and physical defects function largely in causing about fifteen per cent of elimination, sixteen per cent of non-promotion, and seventeen per cent of retardation. The work of medical inspection during the last ten years bears out the general truth of this estimate. Children with decayed teeth, defective eyesight, and adenoids, are not likely to be either happy or successful. Health in itself may not lead directly to happiness, but without it few individuals can realize satisfactorily their ambitions and their better selves, essentials in happiness. It is not only in school that health helps to contribute to happiness and efficiency, but also in life after leaving school. The Government and an increasingly large number of business firms are beginning to appreciate this. Excellent illustrations are found in the administration of our army and navy. Only men who are physically fit are accepted, and after they are regularly enrolled every means is taken to conserve their health.

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Many commercial establishments are beginning to understand that the healthy workman is an important asset. After a workman has attained a certain amount of skill in a manufacturing establishment, inability to work means a distinct loss to the employer. Many business organizations employ physicians to give first aid to the injured. Often these workmen are given the advantage of baths, gymnasiums, lectures and printed matter on hygiene and sanitation. This interest in the health of the employed is justified, not merely from a humanitarian point of view, but from the idea of efficiency in business. What has been said of the army and navy and commercial establishments applies, of course, to all society. The prevention of disease makes for social progress and happiness. The money which society wastes in the cure of preventable disease may be diverted into helpful civic and social improvements.

### *2. The outlook for the prevention of illness and the lengthening of human life*

In the face of such an appalling waste through sickness and needless loss of life, there is one outstanding truth of conspicuous significance: illness is largely preventable and the average



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duration of life may be lengthened. The evidence bearing upon this is conclusive. The number of illnesses is decreasing and the length of life is increasing wherever sanitary science and preventive medicine are applied. Smallpox, for example, which was once the scourge of the civilized world, has become virtually extinct so that comparatively few people to-day have ever seen a case. Through recent discoveries in preventive medicine, diphtheria has lost its terrors, and typhoid is doomed to a similar fate.

Dr. Fisher believes that it is possible to lengthen the average life by fifteen years. Why, then, are we not doing more to prevent disease? There are numbers of reasons, but the most fundamental one is simply popular ignorance of the means. If the rank and file of the people really understood that we were paying large premiums for preventable disease, and that prevention is possible and much cheaper, we should probably find that more money would be spent by municipal, state, and national authorities for preventive measures and that the citizens would demand that the schools give pupils the proper training.

It takes a long time for society to form a new habit. Through the countless centuries of the past we have concerned ourselves with the cure of