

**INTRODUCTORY PHYSIOLOGY AND  
HYGIENE, A SERIES OF LESSONS IN  
FOUR PARTS DESIGNED FOR USE IN  
THE FIRST FOUR FORMS OF THE  
PUBLIC SCHOOLS**

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Introductory physiology and hygiene, a series of lessons in four parts designed for use in the first four forms of the public schools by A. P. Knight

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**A. P. KNIGHT**

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# INTRODUCTORY PHYSIOLOGY AND HYGIENE

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*A SERIES OF LESSONS IN FOUR PARTS*  
DESIGNED FOR USE IN THE  
FIRST FOUR FORMS OF THE PUBLIC SCHOOLS

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PARTS I AND II CONTAIN RULES OF HYGIENE FOR PUPILS IN FORMS I AND II,  
AND NOTES AND QUESTIONS FOR TEACHERS.

PARTS III AND IV CONTAIN RULES OF HYGIENE AND ELEMENTARY PHYSIOLOGY  
FOR PUPILS IN FORMS III AND IV.

BY

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Mystic

Physiology

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## PREFACE.

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A word of explanation is perhaps necessary as to how these lessons came into existence.

In August, 1904, the Education Department expressed to Mr. E. J. B. Pense, M.P.P. for Kingston, a desire to improve the model schools of the province. The communication was transmitted to Dr. Dyde, then Chairman of the Kingston Board of Education, and, as a result, arrangements were made that three short courses of lectures (one of which was in physiology and hygiene) should be given to the teachers-in-training in the Kingston model school during the autumn. After three or four demonstrations had been given, it became apparent that, if the instruction was to be made effective, some model lessons would have to be taught to school children in presence of the teachers-in-training, and so it came about that ten lectures, or most of what is included in Part IV of the book, were given in the University Buildings to the students of the model school, and most of the lessons in Parts I, II and III were taught to pupils in the first four forms of the Kingston public schools. In nearly every case the lessons are published in the form in which they were prepared and taught. A few have been added in order to complete the new curriculum. They varied in length from ten minutes in Form I to twenty minutes in Form IV.

Footnotes were inserted while the book was passing through the press. This was done on the ground that few schools possess books of reference, and that the teachers should therefore be supplied with the information necessary for teaching the lessons.

The course was given without remuneration of any kind and solely with the view of helping to improve the training given in the model school, and the book may be considered as a detailed report upon the work done during the session with the teachers-in-training.

Most of the illustrations are from photographs taken by Cyril Workman Knight, B.Sc., London Exhibition Scholar, in Columbia University, New York.

The three illustrations of the treatment of the apparently drowned have been specially prepared for this book, and show the latest positions recommended in this method of resuscitation.

In preparing the lessons for publication, valuable suggestions and criticism were received from John Dearness, M.A., Vice-Principal of the London Normal School, and from R. H. Cowley, M.A., Inspector of schools for the county of Carleton.

I am greatly indebted to Dean Connell, Professor James Third, M.B. (Tor.), Professor Isaac Wood, M.A., M.D., and Professor W. T. Connell, all of Queen's University, and to A. E. Attwood, M.A., Ottawa, for kindness in reading the proofsheets and in making suggestions for improving the book.

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## INTRODUCTION.

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It is hoped that no teacher will attempt to teach physiology to children without demonstrations and experiments. Physiology is a part of nature-study, and as such can furnish its highest educational value only when children come into direct contact with nature. This book assumes that the subject will be taught in this way, and if so taught, the knowledge acquired cannot fail to contribute to the preservation of health and to that pleasure in life which is so largely dependent upon good health.

A little consideration will show that the only instruction that can be given to pupils in Forms I and II of our public schools, under the head of physiology and hygiene, must be limited to hygiene. The rules of health as stated by the best authorities in medical science must be taught at first dogmatically to young children. The reasons for the rules cannot be understood by pupils in Forms I and II because the rules for preserving health are based upon a full knowledge of physiology, and a full knowledge of physiology implies a wide knowledge of physics and chemistry, and, along with this, a somewhat comprehensive knowledge of anatomy. To realize the impossibility of teaching hygiene in any other way, it is only necessary to glance at the curriculum of any regular medical school. Such a school requires its students to spend

two years on anatomy and physiology, and only after this, are hygiene and sanitary science studied. These latter are "final subjects" in a medical course.

The difficulty in teaching physiology and hygiene to young pupils is great enough; but, when a teacher is required in addition to teach the ill-effects of stimulants and narcotics upon the various organs of the body, he is confronted with the difficulty of teaching to school children another "final" subject of the medical curriculum—pathology. Every rational parent and teacher recognizes the terrible and degrading effects of indulgence in alcohol, opium and such like drugs, and the necessity of impressing upon children the dread of becoming slaves to their use; but surely this end can be attained without attempting to teach the changes which are produced in the tissues by these drugs—changes which experts themselves find it difficult if not impossible to understand.

Manifestly, then, in teaching hygiene to young children we must just accept the best teaching of medical science as regards the care of mind and body, express this teaching in a set of simple rules, and require young pupils to learn them. In doing this we can only hope that children who do not continue in school beyond Form III may nevertheless be induced to practise these rules of health after leaving school, just as we hope that they may practise the ordinary rules of conduct and morals.

With pupils in Form IV and perhaps in Form III the case is different. Here some further knowledge of anatomy and physiology may be acquired by observations

of parts of animals such as can be obtained in either a kitchen or a butcher's shop. With a little trouble on the part of teachers the subject can be made both interesting and instructive. This little book has been published with a view of inducing teachers and pupils to adopt this method of study. Most school text-books have in the past treated the subject in a purely descriptive way. They have, moreover, given too much space to descriptions of the bones, joints, etc., and too little to the nervous system which controls and regulates every function of the body. In the following pages the functions of the nervous system have been made prominent, because the author wishes to make pupils understand clearly that the great activities of the body—muscular movement, digestion, respiration, circulation of the blood, animal heat and excretion—are all under the control of the nervous system, and are made by the nervous system to work in harmony with each other in the interests of the body as a whole.

The order and the scope of the lessons follow pretty closely the course of study in physiology and hygiene that has recently been prescribed for the first four forms of the public schools. The method of treatment is the well-known laboratory method in which demonstration is made the basis of observation by the pupil, and, of course, the conclusions which he is expected to form. This method needs no defence in the teaching of physiology, for it has stood the test of twenty years' trial in physics and chemistry in the high schools of Ontario, and it is, moreover, the method urgently pressed upon the attention of teachers in the new programme of nature-study for public schools.