

The Century Education Series

READING

ITS PSYCHOLOGY AND PEDAGOGY

A Summary of Experimental Studies in Reading

BY

JOHN ANTHONY O'BRIEN, PH.D.

PROFESSOR IN THE COLUMBUS FOUNDATION AT THE UNIVERSITY OF ILLINOIS

AUTHOR OF "SILENT READING"



New York & London
THE CENTURY CO.

COPYRIGHT, 1926, BY THE CENTURY CO.
ALL RIGHTS RESERVED, INCLUDING THE
RIGHT TO REPRODUCE THIS BOOK, OR
PORTIONS THEREOF, IN ANY FORM. 299

PRINTED IN U. S. A.

To
DAVID KINLEY

PRESIDENT OF THE UNIVERSITY OF ILLINOIS

*Teacher, Scholar, and Generous
Inspirer of Youth
in Token of Friendship and Esteem and
in Acknowledgment of My Indebtedness*

THIS BOOK IS AFFECTIONATELY DEDICATED
BY THE AUTHOR

PREFACE

Upon probably no subject in the elementary school curriculum is there focussed a deeper or more sustained interest on the part of teachers, school administrators, and students of modern education than upon reading.

This widespread interest is largely traceable to two factors. First, the large volume of painstaking, scientific research, especially during the last decade, into the psychological and physiological nature of the reading process has yielded rich results. These findings are pregnant with helpful suggestions to the teacher in the practical conduct of the work in reading. They constitute the solid, scientific groundwork upon which are built effective methods of training in reading. They point the way to the construction of the most fruitful technique for the development of reading ability.

Secondly, there is an aroused consciousness and a keener realization now of the importance and value of effective habits of reading, especially of silent reading. The constantly increasing productiveness

of the present-day press, turning out so much that attracts the attention and lures the interest, renders its treasures available largely in proportion to the individual's mastery and skill in reading. There is so much of value to read, and so little time in which to read it, that a premium is placed upon the ability to gather the thought from the printed page with a minimum expenditure of time and effort. These two considerations have greatly stimulated the widespread interest in reading until now it forms the leading topic in teachers' institutes, discussion groups, and reading circles.

The great avenue for the communication of knowledge, thought, and ideas has shifted from the oratory of ancient times to the printing press of today. The chief sources of education for probably the majority of the people at the present time are books. They are the rich mines of information and knowledge on all subjects. They are the sublimation of the best thought and experience of the greatest minds of the race. Reading is the key which opens these treasure-houses of thought and knowledge by unlocking the symbols on the printed page—closed forever to the illiterate.

This book aims to place before the teacher in simple, nontechnical language, the results of prac-

tically all the important, recent scientific investigations into the psychological and physiological nature of the reading process that have yielded results of practical pedagogical consequence. Besides presenting the definite results of experimental research, the effort has been made *to interpret the pedagogical implications of these findings and to point out their practical application to the work of the teacher in the classroom*. It is thought that this latter service particularly will appeal to the teacher who is anxious to enrich her work with all the findings of modern science, but who has neither the time nor the training necessary to analyze the data in many rigidly scientific investigations of a technical character.

It has also been the aim of the author to introduce the teacher to a knowledge of the salient features of the methods employed in scientific investigations of reading, so that teachers would then be in a position to employ a type of technique suitable for the investigation of reading problems in their own classroom. Moreover, a knowledge of the methods by which results have been secured is apt to shed an interesting and significant light upon the results themselves.

It is felt that the searching, detailed analysis of

the reading situation revealing the different types of reading and the numerous adjustments made by such factors as the character of the subject matter, the kind of attention, and the purpose for which the material is read, will clarify the work of the teacher and indicate the necessity of specific training in radically different types of reading and the wisdom of having definite, clear-cut aims in the teaching of reading. Reading will then no longer be viewed as a rigidly uniform mechanical process—which view has been largely responsible for the slow, halting, mechanical, dawdling, and uninteresting poring over the printed page which has been miscalled “reading”—but it will be seen to be an almost infinitely complex process with different types, and numerous delicate adjustments in reading attitude, in the degree of tension in the central nervous system, and in the conscious patterns for the organization and interpretation of visual impressions. It is only after the teacher has secured a knowledge of these psychological differences in the reading processes that she will be able to adapt her methods accordingly, in order to meet real needs and to secure the best results.

The teaching of reading has already been greatly improved as a direct consequence of the findings of

scientific research and the distinctions set forth by the educational psychologist. There is every reason to believe that reading will continue to improve as the frontiers of knowledge are pushed farther back and there is developed a greater body of scientific data concerning the nature of the reading process and the factors influencing it. But the knowledge, to influence classroom procedure, must be brought from the fields of scientific research and the psychological laboratory and translated to the teacher in the classroom. In serving as such a vehicle and such a translation, this book finds its essential *raison d'être*.

The person who tries to learn to swim or to play tennis by his own unguided efforts, by a sort of trial and error process, may succeed; but he is almost certain to form habits in which there are many wasteful and ineffective movements, in which there is much lost motion. The individual, on the other hand, who is trained in the proper strokes, in the most effective technique, by a teacher who distinguishes between the wasteful and the effective strokes, will make far more rapid progress and gain a far greater mastery of the art. So too with reading. The individual who has received training in the various adjustments adapted to different types

of reading, and for a variety of purposes, will display a flexibility, a suppleness, a technique, suited to all these widely varying reading activities which will enable him to surpass greatly the individual to whom reading is one rigidly uniform mechanical procedure.

The author is under many obligations because the book brings within its covers the ripe fruit of the years of painstaking scientific research of many workers. To Charles H. Judd for his searching psychological analysis of the reading process, not less than for the many investigations he has directed, to G. T. Buswell, W. S. Gray, C. T. Gray, and P. W. Terry, there is an especial indebtedness. The results of their careful scientific studies of reading, which are embodied in some detail in this volume, are among the outstanding recent contributions to our knowledge of reading.

The book also reflects the results of the studies of many other workers in the field, such as Raymond Dodge, W. F. Dearborn, W. H. Smith, C. R. Stone, and especially that great pioneer investigator of reading, Edmund B. Huey. To G. T. Buswell for his gracious permission to reproduce certain graphs from his monographs, the author's thanks are due.

Edward H. Cameron, Professor of educational

psychology at the University of Illinois, and John A. Clark of the Bureau of Educational Research at the same institution, read the entire manuscript and favored the author with many helpful suggestions and criticism. To Michael V. O'Shea, Professor of Education at the University of Wisconsin, he is indebted both for the suggestion to undertake the work and for his unfailing encouragement in carrying it through to completion. The author acknowledges gratefully, too, the advantage of having the editorial supervision of Charles E. Chadsey, Dean of the College of Education at the University of Illinois.

The author will feel well compensated for his years of labor in the preparation of this volume, if the work serves to open up for the teacher a new vista and a deeper insight into the nature of the reading process and quickens the interest in her work. The author also cherishes the hope that the volume may render the work in reading more pleasant and more effective for both the teachers and the pupils in the schoolrooms of America.

JOHN A. O'BRIEN

EDITOR'S INTRODUCTION

That the permanency and stability of a democracy depend upon the efficiency of the educational training of its constituent members is accepted as axiomatic. The steady upward trend of the curve of educational preparation for citizenship, as evidenced by the average number of days of schooling secured before permanently ending formal training, constitutes a genuinely encouraging evidence of the soundness of our educational theories and of the firm foundations upon which our democracy is built.

Whatever the degree or amount of formal education which may have been attained, it is evident that the training received in Reading is of fundamental importance. Efficiency in any of the subjects of the curriculum is dependent primarily upon ability to comprehend the written word. The great range of ability in comprehension and speed in reading indicates that greater attention to the underlying elements, physiological and psychological, upon which intelligent reading depends should be

given by all connected directly or indirectly with the teaching of this subject.

Fortunately we now have available an immense amount of critical, scientific material bearing directly upon the physiological elements involved in the reading process. The practical application of the knowledge thus obtained to the improving of reading ability constitutes one of our most important educational problems.

Unfortunately, relatively few of those actually engaged in teaching reading have acquainted themselves either with the results of scientific investigation of reading or with the application of these results to reading technique. We need to have more volumes dealing with the psychology and pedagogy of reading suitable to the comprehension and capable of sustaining the attention and interest of our army of reading teachers.

Through an intelligent utilization of what is now known to be involved in the acquisition of skill and facility in reading we can rest assured that corresponding improvements in the work of the entire elementary curriculum will follow. In fact, already a decidedly improved technique has been formulated and is in successful operation in many of our more progressive schools.

The author of this volume has in a painstaking way surveyed the whole field of experimental investigations in reading together with their practical applications to teaching. While no effort has been made to evade the discussion of the psychological and physiological principles involved, the non-technical treatment of the subject makes the reading of the text interesting and stimulating. All interested in knowing the results of modern investigations in reading will find here a wealth of valuable information presented in a systematic and effective manner.

CHARLES E. CHADSEY

CONTENTS

	PAGE
CHAPTER I READING: ITS HISTORY AND ITS CULTURAL RÔLE	3
The pictograph stage—the ideograph stage—the phonogram stage—the rebus-phonogram stage—the alphabet stage—the cultural value of reading—familiarity with the great minds of the race—the values of imaginative literature—the values of poetry—its fundamental importance as a tool subject—the amount of money spent for the teaching of reading compared with other school subjects—problems and topics for discussion and investigation—references	
CHAPTER II COMPARISON OF SILENT AND ORAL READING	25
Comparison of rate in silent and oral reading—comparison of comprehension in silent and oral reading—values of oral reading—values of silent reading—exclusive teaching of oral reading—an anachronism—evil effects of over-emphasis on oral reading—shift emphasis from oral to silent reading—the psychology of meanings—the function of pictures—material should be within the scope of the child's experience—material should appeal to child's interest—problems and topics for discussion and investigation—references	
CHAPTER III THE PHYSIOLOGICAL BASIS OF READING .	51
Evolution of technique for photographing eye-movements—what photographic records reveal—physiological basis of difference between silent and oral reading—good readers generally have a wide eye-voice span—poor readers generally have a narrow eye-voice span—conclusions—the complex character of meaning—wide general attention span is underlying cause—problems and topics for discussion and investigation—references	
CHAPTER IV GROWTH STAGES IN THE FUNDAMENTAL ELEMENTS OF READING	86
Insight into the psychophysical process of reading renders the teacher's work more interesting—steps in tran-	

sition to reading maturity—rate of reading measures growth—standardized educational tests measure growth—photographic records of eye-movements reveal growth in the different fundamental elements of reading—growth in the visual span—growth in the rate of recognition—growth in regularity of eye-movement—correlation of growth curves with reading efficiency—comparison of growth curves for the three elements of silent reading—problems and topics for discussion and investigation—references

CHAPTER V ADJUSTMENTS IN READING IN DIFFERENT TYPES OF MATERIAL 115

Width of visual span is affected—other adjustments—significance of changes in eye-movements—reading patterns are complex—conclusions—adapting reading to the end in view—lack of definite, well-ordered plan of attack in reading—need of specific training in reading for different purposes—fluent, straightforward reading is sidetracked in analytical study—conclusions—problems and topics for discussion and investigation—references

CHAPTER VI THE READING OF FOREIGN LANGUAGES . . 141

Reading of French shows great difficulties are encountered—reading of Latin is metamorphosed into analysis—conclusions—effective methods of teaching are based upon psychological distinctions—spelling and reading were formerly confused—distinction between reading and phonetics—perception—visual and auditory—relation of articulation to meanings—psychological distinctions afford basis for different pedagogical methods—reading and skimming—change in methods in passing from primary through intermediate grades—type of American textbook—library reading material—the English classics—the breakdown of Latin teaching—problems and topics for discussion and investigation—references

CHAPTER VII CHARACTERISTICS OF ARITHMETIC READING 165

Partial first reading and re-reading—conclusions—photographic records of arithmetic reading—conclusions—practical applications to classroom teaching—analysis of arithmetic problem complex—when methods should be introduced—problems and topics for discussion and investigation—references

CONTENTS

xxi

PAGE

CHAPTER VIII READING DIFFICULTIES: THEIR DIAGNOSIS AND REMEDIAL TREATMENT THROUGH THE USE OF STANDARDIZED TESTS 181

Final aim of tests is to improve teaching—careful administration of the tests—computation of the individual scores and the class average—interpretation of the scores—planning remedial instruction—use of reading tests in Cleveland survey—diagnosis of individual needs—diagnostic reading charts—beneficial results of corrective treatment—individualizing the instruction—conclusions—problems and topics for discussion and investigation—references

CHAPTER IX READING DIFFICULTIES: THEIR DIAGNOSIS AND REMEDIAL TREATMENT BY CLINICAL METHOD 207

History of cases—inferior learning capacity—congenital word blindness—poor auditory memory—defective vision—narrow span of recognition—ineffective eye-movements—inadequate training in phonetics—inadequate attention to the content—inadequate speaking vocabulary—small meaning vocabulary—speech defects—lack of interest—guessing versus accurate recognition—timidity—exercises to increase accuracy of recognition—exercises to increase span of recognition—exercises to increase ability in word recognition—exercises to aid in interpretation—conclusions concerning remedial instruction—analysis in school work—summary concerning individual differences—problems and topics for discussion and investigation—references

CHAPTER X THE DEVELOPMENT OF SILENT READING ABILITY 247

Practice in rapid silent reading—decrease of vocalization in silent reading—training in perception—character of subject matter—habits of eye-movement—purpose for which subject matter is read—concentration of attention—ability to grasp the contents—recognition of the value of rapid reading—will to read rapidly—pressure of a time control—individual graph—class chart—statement of method—preparation—directions to pupils—statement of method to decrease vocalization in silent reading—teacher's preparation—extra-foveal vision—meaning premonitions—foveal vision—statement of method—the fundamental idea—the transfer

	PAGE
of perception to printed page—instructions to pupils in perception—teacher's preparation—problems and topics for discussion and investigation—references	
CHAPTER XI IMPROVEMENTS IN READING EFFECTED BY TRAINING	281
The results—the effect upon comprehension—the rela- tive amount of gain made by different grades—average rates attained by pupils after training compared with present norms—tentative norms for pupils trained in rapid silent reading—increase in rate shown by class charts—problems and topics for discussion and investi- gation—references	
INDEX	305