# BACKWARDNESS IN THE BASIC SUBJECTS

BY

FRED. J. SCHONELL, Ph.D., D.Lit.

PROFESSOR OF EDUCATION
UNIVERSITY COLLEGE OF SWANSEA, UNIVERSITY OF WALES

OLIVER AND BOYD
EDINBURGH AND LONDON
TORONTO: CLARKE, IRWIN & COMPANY LIMITED

#### PREFACE

THE last two decades have produced striking improvement in the amount and quality of the consideration given to children who fail to make normal progress in school. There have been numerous studies of the characteristics and requirements of backward children both as individuals and as units in an educational system. A recent example of the former is Professor C. Burt's excellent volume, The Backward Child; while a scientific study of the latter kind is Miss M. E. Hill's The Education of Backward Children. In general, most of these studies have dealt with children whose educational deficiencies are sufficiently serious to warrant the organisation of special classes and the development of special methods covering the entire elementary school curriculum. Continuous testing and careful recording reveal that from 65 to 80 per cent. of the pupils in these classes are innately dull; they are, in other words, debarred from achieving scholastic standards commensurate with their chronological age because of inborn intellectual deficiency.

In addition, however, to this section of permanently handicapped backward children, there are two groups whose scholastic disabilities are largely of a remediable kind. There are, firstly, the children who make up the remaining 20 to 35 per cent. of pupils in "C," "D," or special classes for the dull and backward, but who are not innately dull; their educational difficulties in the main derive from various combinations of extrinsic conditions. Secondly, there are those children, found sometimes in special classes but more often in the ordinary classes of the elementary school, who, normal or above normal in general intelligence, are specifically backward, that is considerably below level, in one, two, or perhaps three allied subjects. The necessary emotional adjustment together with the

removal of the backwardness disability can be effected in most children in these two groups by the employment of

appropriate diagnostic and remedial measures.

Generally backward children, including both dull and not dull, form roughly 10 per cent. of the school population of Britain, although this figure varies from 5 per cent. in some areas to 27 per cent. in others. Specific backwardness, as I show in the body of the text (Chapter IV), varies from 2.0 per cent. of disability in spelling amongst girls in "good" areas to 7.3 per cent. of boys specifically backward in written English in "poor" areas, and within this range the percentages fluctuate according to the school subject. the sex of the children, and the economic and cultural conditions of the district. The average amount of backwardness, both general and specific, within the schools is approximately 15 per cent. Clinical studies of this 15 per cent. of handicapped children, modifications in educational organisation for them, and empirically determined teaching methods of a general kind have to date been adequate. For teachers, psychologists, and parents the techniques that need augmenting most are, first, the practical means of diagnosing the causes and characteristics of their children's difficulties in each of the basic subjects and, second, the provision of appropriate methods and suitably graded material for remedying the particular weaknesses revealed by the diagnosis. This I have already attempted to do for pupils backward in arithmetic in The Diagnosis of Individual Difficulties in Arithmetic which is concerned with the causes of disability in arithmetic, with scientifically constructed diagnostic arithmetic tests, and with the use of suitable remedial material in card and book form.

The present volume deals with disabilities in reading, spelling, oral and written English. Its material is based on the results of active research spread over a period of eight years in both primary and post-primary schools. The cases of backwardness on which studies of causation, diagnosis, and remedial methods were based were repre-

sentative of a school population of approximately 15,000 pupils mainly in London schools, but also in schools of contiguous authorities, and more recently in schools in and

around Nottingham.

Examination of the problems connected with disability in reading, spelling and English was conducted with reference mainly to backward children of average or above-average intelligence. Although the survey did include a few dull children, the aim was to select cases of specific backwardness in as pure a form as possible (unobscured, that is, by the additional intellectual and emotional handicaps of innate dullness), and so ensure the utmost validity in the findings. The diagnostic tests and remedial methods employed apply, however, with but slight modification equally well to backward children of both normal and subnormal intelligence.

Throughout the text the emphasis is laid on practical procedures. In other words, I have tried to provide methods of helping children who may be backward in those subjects so essential to later school progress and to efficiency in everyday life. At the same time the material is conditioned by scientific considerations, and the student of psychology should find in many of the sections of the book much that will interest him in regard to the mental processes of elementary-school children. Statistical methods, though used extensively throughout the active investigation, have been sparingly introduced into the text. Whenever possible, case studies have been included to clarify characteristics either of concrete types or of individual difficulties.

The first two chapters, on individual difficulties and their relation to backwardness, are essential to an understanding of the whole problem. It is necessary to have a clear conception of the forces that go to the moulding of personality and of the various factors that condition progress in school work before attempting to plan case studies of, apply diagnostic tests to, or institute courses of remedial teaching for, children endowed with widely differing intellectual equipment and revealing varying emotional

reactions. Indeed, scholastic disability in too many cases can be ascribed to the failure to grasp the far-reaching importance of the interaction of physical conditions, intellectual abilities, emotional attitudes and environmental influences. I make no apology, therefore, for the long introduction with which I have prefaced the actual study of backwardness, but rather urge all who are not conversant with a modern interpretation of the psychology of individual differences to devote some care to this part of the book.

I have thought it proper to give throughout the book extensive evidence of the intimate connection between emotional attitudes and scholastic disabilities. Continuous reference is made also to the deterioration of personality adjustment in backward children and conversely to the rapid development of personality as progress is made in school subjects. This was particularly noticeable in regard to disability in reading, which in time might produce loss of confidence, apathy, a sense of frustration and an anxiety so intense as to colour the whole of a child's attitude towards school and school work in general. The close connection between progress in school subjects and the mental health of children is apparent. Adequate treatment of backwardness particularly amongst pupils of normal intelligence would do much to eradicate the minor neuroses and unhappiness such backward children commonly exhibit.

Of equal social significance is the relationship between backwardness and undesirable behaviour. The backward children investigated yielded more than their share of cases of disorderly conduct, lying, cheating, truancy and exaggerated forms of self-display. While average figures from other areas reveal that over 60 per cent. of young delinquents are backward, many of them to the point of complete illiteracy, yet only 30 to 40 per cent. of them are below average intelligence. The fact that almost 6 out of every 10 delinquents are so backward in reading as to be deprived both of the means of making progress in school

and of a vital leisure activity indicates one worth-while direction from which this problem of delinquency might be attacked.

I could not have brought the results of this extensive research to published form without placing myself under heavy debts which it is a pleasure to acknowledge. There has been the continued stimulus of my first teacher in psychology, Professor Cyril Burt. In the early stages of my work I received kindly help from Miss G. Hume, M.A. and Miss E. Wheeler, M.A. on points concerning educational disabilities. To the many teachers who experimented with tests and remedial methods and to my students who helped with test results I am particularly grateful. My thanks are due also to Professor H. R. Hamley, Dr C. M. Fleming and Dr M. M. Lewis for reading the book in typescript and at various stages of its preparation, and to Dr B. Brooks for reading the Sections on English, Chapters XVI-XIX.

I wish to thank the Editor and publishers of the *British Journal of Educational Psychology* for allowing me to reprint selected parts of articles I have published in various numbers of that journal. I am grateful to Dr H. G. Stead for providing the blocks for the illustrations of Brambling House Children's Centre.

To the Chief Educational Editor of Messrs Oliver and Boyd I am indebted for help and advice in seeing the book through the press.

Finally, I owe the greatest debt to my wife, but for whose constant encouragement, pertinent advice on psychological problems, and indefatigable assistance with marking and with calculations it is unlikely that I should now thus happily be approaching the conclusion of my task.

F. J. S.

Nottingham March 1942

	CONTENTS	
HAPTER		PAGE
	Preface	v
I	THE PROBLEM. INDIVIDUAL DIFFERENCES AND THEIR BEARING ON BACKWARDNESS	I
	Individual differences. Nature and extent. A. Intellectual characteristics. General intelligence. Measurement of general intelligence. Specific intellectual abilities. Measurement of specific intellectual capacities. Acquired attainments and their measurement.	
II.	Individual Differences and their Bearing on Backwardness (Continued)	17
	B. Emotional tendencies. Character and temperament. Instincts and emotions. General emotionality. Emotional characteristics—possession, expression and control.	
	Acquired aspects of emotional equipment. Individual differences in development of character. Measurement of character and temperament. The rating scale. C. Physical conditions. Post-natal physical growth. Physical defects. D. Environmental influences. Parental attitudes. Schedule of individual differences.	
III.	THE NATURE OF BACKWARDNESS	50
	Correlation of school subjects and general intelligence. Deviations from average scholastic ability. Attitudes of parents and teachers. Types of backward children. Differentiation of backwardness. Intelligence tests and standardised scholastic tests. Retardation as distinct from backwardness. Summary. Dullness, backwardness, general or specific; remediable or irremediable. Retardation.	
IV.	Selection of Cases of Specific Backwardness .	67
	Classification of schools. Population from which cases were drawn. Definition of specific backwardness. Application of tests for selection. Criteria of backwardness in reading. Psychographs of cases of specific backwardness.	
	xi	

CHAPTER		PAGE
V.	DISTRIBUTION OF CASES AND GENERAL CHARACTERISTICS	79
	Frequency of specific backwardness. Reading. Spelling. Written English. Relationship between disability in reading and disability in spelling. Intelligence of specifically backward pupils. Other educational attainments of specifically backward pupils.	
VI.	DIAGNOSIS OF SPECIFIC BACKWARDNESS	93
	Scheme for diagnosis of specific backwardness.  I. Measurement of intelligence of backward pupils.  2. Application of scholastic tests.  3. Diagnostic tests.  4. Sensory tests. Tests for defects of vision. Tests for hearing.  5. Assessment of emotional characteristics. Rating scale for temperament. Information for use in connection with the trait rating scale—description of traits and type situations.  6. Recording of interests.  7. Brief enquiry into personal history.  8. Educational history in the backward subject.  9. Personal interviews. Anxieties, conflicts.	
VII.	ABILITY IN READING	122
	The psychology of the reading process. Span of perception and recognition. Means by which children recognise words: (a) total visual pattern; (b) phonic constituents; (c) articulatory recognition; (d) meaning; (e) kinæsthetic clues. Oral and silent reading. Facility in word recognition.	
VIII.	DIAGNOSIS OF DISABILITY IN READING	133
	Tests. Recording test results. Diagnostic information from the graded vocabulary test and the simple prose test: 1. Letter by letter attack. 2. Correct phonic attack. 3. Weak auditory analysis. 4. Visual errors. 5. Use of meaning of words. Level of silent reading. Comprehension and speed compared with word recognition. Diagnostic tests for weakness in word recognition. Details of diagnostic reading tests and values in diagnosis.	
IX.	Causes and Symptoms of Disability in Reading . I. Weakness in perception of visual patterns of words.	152
	(a) In discrimination. Theories of reading disability. (b) Weakness in perceiving the orientation and letter	

204

248

CHAPTER

sequence of words. Relation of certain perceptual errors to handedness. Evidence from the present investigation.

2. Combinations of handedness and eyedness amongst backward and normal readers. Case study. 3. Defects of visual acuity. 4. Weakness in auditory discrimination of speech sounds. 5. Speech defects and their relation to reading disability. 6. Stammering. 7. Causal factors within the home and the school: (a) immaturity: (i) psychological or organic, (ii) educational; (b) irregularity of attendance and change of school; (c) neglect of reading disability within the school.

8. Emotional factors as determinants of reading disability. Plurality of causes in reading disability.

#### X. REMEDIAL TEACHING OF BACKWARD READERS

Principles of remedial teaching: (a) individual attention; (b) the attitude of the teacher; (c) use of materials; (d) selection of method; (e) short, systematic lessons. Methods of teaching backward readers. Fernald and Keller's work. Gates' remedial methods. Monroe's programme for backward readers. A comprehensive method of teaching backward readers. Stage 1. Memory reading to arouse confidence. Stage 2. Learning words connected with a topic of interest. Stage 3. Reading new material. Stage 4. Differentiated work for individual difficulties: (a) weakness in discriminating phonic units; (b) lack of knowledge of common phonic units; (c) weakness in discriminating visual patterns of words; (d) unsystematic visual attack on words. Improvement Planning reading in Junior Classes. of weak readers. Class sections for reading lessons. Group reading. Suitable material for different reading age levels of backward readers in the Junior School. Backward readers in the Senior School. Methods and materials.

#### XI. ABILITY AND DISABLITIY IN SILENT READING

Aims in silent reading. Tests of silent reading. Relationship between silent reading and intelligence. Disability in silent reading. (a) Fast but inaccurate readers. Causes of weakness. (b) Slow but accurate readers. Causes of weakness. Speed in reading. Relationship between speed and comprehension. Exercises for improving extreme slowness in reading. Exercises for improving comprehension.

XII. S	Spelling Ability	276
	Factors influencing spelling ability. 1. The spelling process. 2. Relationship of age, intelligence and educational attainments to spelling ability. 3. Influence of foreign parentage, foreign language in the home and bilingualism on spelling ability: (a) Anglo-Chinese and other Anglo-Orientals; (b) Jewish children; (c) Italian children; (d) Pupils of Eçole Protestante Française. Summary.	
	DIAGNOSIS OF DISABILITY IN SPELLING	289
	CAUSES OF DISABILITY IN SPELLING	297
	REMEDIAL TEACHING OF BACKWARD SPELLERS. Attitudes towards teaching spelling. Reading as an aid to spelling. General principles of teaching backward spellers. Specific aid for different types of backward spellers. Backward speller with weak visual powers—Two types: Backward speller with weak auditory powers. Backward speller due to temperamental causes.	326
	Disability in English Composition Objectives and values in composition. General procedure. Causes of disability in English composition: 1. Poor home conditions. 2. Insufficient out of school experiences. 3. General weakness in verbal subjects. Relationship of composition, vocabulary, sentence structure, usage, reading and spelling. 4. Emotional characteristics and disability in composition. Emotional influences on structural aspects of English.	340
	ATTAINMENT LEVELS AND AGE GROUP CHARACTERISTICS IN WRITTEN COMPOSITION  Values of attainment standards. Method of obtaining attainment standards. Qualitative aspects. Selection	364

CHAPTER

of median attainment specimens. A. Compositions based on the reproduction of a story. Story for reproductive compositions. Median samples of reproductive compositions for age groups 7 to 12 years. Characteristics of progress in the reproductive compositions. B. Narrative-descriptive type of composition. Median samples for age groups 7 to 13 years. Characteristics of progress in narrative compositions. C. Imaginative type of composition. Median samples. Characteristics of progress in imaginative compositions. D. Explanatory or expository type of composition. Median samples. Characteristics of explanatory compositions. Sentence structure in composition: (a) words per sentence; (b) type of sentence.

XVIII. BACKWARDNESS IN COMPOSITION AND ITS RELATIONSHIP TO MATERIALS AND METHODS. PART I. . . .

417

Oral composition. Aids to expression in oral English. Errors in oral composition. Punctuation. Written composition. Topics. Projects, activities, centres of interest: Specimen projects for juniors and seniors. Range in written English. Cross classification. Class sections. Developing the simple sentence. Sentence structure. Developing sequence of ideas. Mechanics of written English. Grammatical usage. Diagnostic English tests.

XIX. BACKWARDNESS IN COMPOSITION AND ITS RELATIONSHIP TO MATERIALS AND METHODS. PART II.

472

The use of models. Sample models for class use. Short compositions. Letter writing. Punctuation. Marking of compositions. Composition scales. Teaching and diagnostic value of a marking schedule. Correction in composition. The place of spelling in composition.

XX. SUMMARY AND EDUCATIONAL CONSIDERATIONS . . .

490

Review of causal conditions. Relative importance of causal conditions: (i) intellectual, (ii) emotional, (iii) environmental. Related disability in verbal subjects. General principles of remedial teaching. Methods for developing diagnostic testing and remedial teaching: (a) courses for training teachers in diagnostic and remedial methods; (b) flexible groups within the school; (c) experimental schools; (d) coaching teachers; (e) suitable graded material; (f) educational psychologists; (g) child guidance clinics. Future objectives.

		PAGE
Api	PENDIX I. INSTRUCTIONS AND NORMS FOR DIAGNOSTIC TESTS	
	IN READING	509
API	PENDIX II. INSTRUCTIONS FOR ADMINISTERING, MATERIALS FOR, AND TABLES OF AVERAGES FOR SUPPLEMENTARY	
	DIAGNOSTIC TESTS	516
API	PENDIX III. COPIES OF READING TESTS	521
	Test R 2. Simple prose reading test.	1
	List of questions to be asked after reading prose test F Test R 3. Silent reading test (test A).	2.
	Test R 4. Silent reading test (test A).	
	Test R 5. Test of analysis and synthesis of words	
	containing common phonic units.	
	Test R 5a. Test of letters and sounds.	
	Test R 6. Test of directional attack on words.	
	Test R 7. Visual word discrimination test.	
App	PENDIX IV. A WORKING LIST OF TESTS AND TEST MATERIALS .	544
IND	EX	553
	SCHEDULES	
SCHE	DULE	PAGE
A.	Schedule of individual differences	48
В.	Rating scale for temperament	106
C.	Information for use in connection with the trait rating scale	109
D.	Schedule for recording interests of backward pupils	115
E.	Family and personal history sheet	116
F.	Educational history sheet	118
G.	Story for reproductive composition. Urashima, the Fisher	
	boy	374
H.	Median samples of reproductive type of composition for	
	age groups 7 to 12+ years	379
J.	Median samples of narrative type of composition for age	
	groups 7 to 13+ years	386
K.	Median samples of imaginative type of composition for	
	age groups 7 to 13+ years	395
L.	Median samples of explanatory type of composition for	
	age groups 7 to 13+ years	407
M.	Schedule of common errors in oral compositions	428
N.	Approximate order for teaching punctuation marks and	
	capital letters	477
0.	Schedule for marking written compositions	184

xvii

## TABLES

TABLE		PAGI
I. Correlation coefficients of school subjects with intelligence for 100 boys	general	51
II. Distribution of chronological ages of all pur junior mixed school	oils in a	
III. Distribution of I.Q.'s of 317 pupils in a junio school.	or mixed	58
IV. Distribution of English and arithmetic quot	tients of	58
322 pupils in a junior mixed school  V. Social conditions of sample schools used	in the	60
investigation		68
backwardness were drawn . VII. Frequency of cases of specific backward		69
reading		81
VIII. Frequency of cases of specific disability in specific. IX. Frequency of cases of specific disability in	lling . written	82
English		83
of 215 specifically backward pupils in of three social grades (in percentages)	schools	0.0
XI. Distribution of I.Q.'s of specifically backward	l pupils	86
(in percentages)	pupils,	88
showing confusion and transposition of and reversals of words in reading and wri	letters	160
XIII. Hand and eye relationships amongst 73 bareaders and a control group of 75 normal	ckward	
(in percentages)		163
XIV. Percentages of visual defects amongst backwa normal readers		170
XV. Attainment ages of 109 backward readers (50 50 girls) in reading, spelling and composi	boys,	194
XVI. Reading results of experimental and control gr	coups .	237
XVII. Correlations between I.Q.'s and results in reading tests A and B		254
VIII. Numbers of three types of backward reader junior school of 320 pupils	s in a	1
XIX. Correlation ratios showing relationship of spel	ling to	255
age, intelligence and educational attainmed XX. Spelling and reading ages of Anglo-Orienta		280
English children		282

TABLE	등이는 그들이 보고 하면서 살을 때 때문에게 되어 그렇게 하는 것이 되었다.	PAGE
	Spelling ages of pupils of École Protestante Française	287
XXII.	Causes of specific backwardness in spelling as shown by 105 pupils (50 girls and 55 boys)	298
XXIII.	Percentages of defects amongst backward and normal spellers	311
XXIV.	Chronological, mental, spelling and reading ages of pupils whose spelling disability is mainly	2.0
XXV.	temperamental	318
XXVI.	composition	346
	written composition	347
XXVII.	Observed correlations of scores in composition, vocabulary, sentence structure, English usage, reading comprehension, spelling and reading done (119 boys, 12-13 years)	354
XXVIII.	Average number of words written in thirty minutes in four different types of compositions	370
XXIX.	Average number of words per sentence from 2800 compositions (200 per age group—50 of each type of composition)	414
XXX.	Type of sentence. Approximately 2800 compositions.  200 of each age group. 50 of each type of composition. Frequency of occurrence for 100 compositions	415
XXXI.	Average number of errors made in test R 2 simple prose reading test	509
XXXII.	Average times taken and questions correct in test R 2 simple prose reading test $\dots$ .	510
XXXIII.	Average number of questions correct in nine minutes in test R 3 silent reading test (test A)	512
XXXIV.	Average times taken and average number of questions correct in unlimited time in test R 3 silent reading test (test A)	512
XXXV.	Average number of questions correct in test R 4 silent reading test (test B)	513
XXXVI.	Average number of marks in test of immediate recall of three-letter words—visual presentation	518
XXXVII.	Average number of marks in test of immediate recall	
XXVIII.	of three-letter words—auditory presentation Average number of marks in test of three-letter	519
	nonsense syllables—visual presentation	520

## FIGURES AND DIAGRAMS

FIGU	JRE	PAGE
Ί.	Psychograph showing specific backwardness in reading and spelling (Case John S.)	76
2.	Psychograph showing general backwardness accompanied by specific backwardness in reading and spelling (Case Charles A.)	77
3.	Distribution of I.Q.'s of 155 specifically backward readers .	89
4.	Photographs of eye movements of backward and normal readers	123
5.	Psychograph of educational attainments of Doris C	181
6.	Psychograph showing psychological test results of a weak visualiser (Case Ellen H.)	300
7.	Psychograph of psychological test results showing weakness in auditory perception (Case Albert H.)	306
8.	Psychograph of educational levels of pupil specifically backward in English (Case Annie W., age 15.6; I.Q. 125).	358
9.	Diagram to show average number of words written in thirty minutes by pupils 7+ to 13+ in four different types of compositions	371
10.	Diagram to show effects of cross classification (subject sets) in English	445
II.	Diagram to show effects of cross classification (subject sets) in English	446
12.	Diagram to show division of sections in written English .	448

#### CHAPTER I

#### THE PROBLEM

## Individual Differences and their Bearing on Backwardness

The problem of backwardness in school, whatever its type or degree, is now recognised as part of the larger problem of individual differences among children. Inability to progress normally in school work was formerly attributed to laziness or lack of intelligence. Recent research and records from class teaching indicate, however, that its explanation is more likely to be found in a study of the pupil's entire personality. The failure to maintain a standard of scholastic progress compatible with intellectual capacity is associated with factors intellectual and emotional, physical and environmental.

Psychological studies have, in recent years, revealed innumerable instances of the interdependence and interrelation of these four fundamentals in the formation of

personality.

The principal force in child development is now realised to be a purposive striving for expression and power in physical, emotional and intellectual realms.

Security, social contact, and a measure of success are the usual nutritives for normal growth of this expressional life, but the particular nature of the dynamic urge differs with the individual's inborn equipment, and differing personal attitudes are developed towards life's activities. These reactions have, in turn, a vital influence on the

<sup>&</sup>lt;sup>1</sup> The word "personality" is here used in the psychological sense and is taken to mean that complex integrated resultant of innate equipment and environmental influences attained by an individual in the course of his development. It is built up from intellectual abilities, temperamental traits, motor capacities, sentiments, complexes, habits, and physical characteristics, which, through a variety of experiences, are moulded into a personal pattern which distinguishes one individual from another.

elements of personality already formed, and as a consequence a child's personality presents, not only a picture of inherited tendencies but, in addition, a mirror of the conditioned states produced by the environment.

In the field of education one is made acutely aware of this psychological interplay of inherited characteristics and acquired attitudes, so that all concerned in the teaching of children are constrained to remember that progress in school is dependent not only on intellectual abilities but also upon emotional stability, interests, physical fitness and the nature of personal contacts in home, school and

society.

Equally important is the recognition of the interdependence of these factors. Favourable influences, advantage or success in one direction bring, in most cases, increased efficiency and invigoration in other directions, while unfavourable conditions, defect or failure in one sphere can produce lessened effectiveness in several other spheres. If, for example, a pupil is especially interested in school handwork his output of intellectual energy in that subject is increased by virtue of the emotional incentive: he thinks more clearly and quickly because his power of application and his speed of reaction have been temporarily raised to a maximum. In the physical realm the onset of fatigue is postponed and more lasting general effect may be obtained because his school work and out-of-school activities are linked together in a natural way and his leisure time and every-day contacts in that field are enriched and made more pleasurable. Similarly, if a pupil is failing in a school subject, the all-pervading influence of failure not only in itself reduces efficiency in the particular academic tasks, but also often affects unfavourably the emotional and intellectual accompaniments of associated activities.

Scholastic failure must be regarded then as psychological failure. To consider a single intellectual factor or an isolated experience in the child's life as the sole causal factor in backwardness is totally unsatisfactory. Just as