CHAPTER I

INTRODUCTION

When adults study and assess children’s ability to read, they are apt to consider this ability as a single homogeneous entity. This is not unnatural, for in educated adults reading has become a firmly established habitual activity which they perform with great ease and speed. Consequently they are unaware of the various processes which they themselves must carry out in reading. And they do not recognize that children who are in the early stages of reading may utilize procedures which are quite different from those employed by adults. In such children, reading is not a well-organized system of habits. A child must go laboriously through a number of interrelated activities before he can fully understand the meaning of printed words and sentences. He may stumble or break down at any stage in the proceedings. Such a failure may interfere badly with the whole process of reading, and the child will appear to be a backward reader or even an illiterate.

It is important therefore before we begin to investigate the causes of backwardness in reading to attempt a rough classification of the various stages in reading, and the failures that may occur at these stages. A more detailed analysis of the psychological processes taking place at some of these stages will be given later.

There seem to be few if any recorded cases of adults, or even of older children, who have passed through the educational mill without learning to read anything at all, apart from those of low intelligence or with organic brain defect or injury. The illiterate adult can usually recognize a few words which he has memorized—for instance, the words which he frequently sees on advertisements and public notices. The illiterate child often knows his letters, and can pick out a few simple words in a story book, especially if these are accompanied by appropriate pictures. But he cannot read consecutively, nor recognize words other than the few he has memorized.
INTRODUCTION

At the next stage, we have the individual who reads with great difficulty; the adult or the child who can stumble through an easy story book with a simple vocabulary, or can read the remarks in a ‘comic’. When he encounters a word he cannot recognize, he may guess at it, or he may try with greater or less success to work it out by sounding the letters or groups of letters in the word. At a rather higher stage are the children who, when asked to read aloud, do what has been called ‘barking’ at the print. They may be said to have mastered the ‘mechanics’ of reading, in that they are able to analyse the printed words into their constituent units, give these their correct phonetic sounds, blend these sounds together and enunciate the whole words more or less accurately. But they do this slowly and with difficulty, and their attention is concentrated to such an extent upon enunciation that they do not take in the meanings of the words. Thus they cannot remember what they have been reading about, nor answer questions on it. These individuals, once they have reached a certain age, are usually classed as semi-literates.

Among those who can read with some understanding, there are all degrees and varieties. There are those who can understand only short sentences and newspaper headlines; those who can read simple stories, but slowly and laboriously, perhaps studying almost every word in the text. These individuals may have learnt to read very late, and their disability may still appear in their wildly incorrect spelling. Finally, there is the highly educated adult who can skim rapidly through even a difficult book, extracting what interests him and disregarding the rest. There are even geniuses such as Carlyle who, we are told, could ‘read’ a whole page at a single glance. But their mental processes are quite outside our purview.

Now it seems clear that in any study of backwardness in reading we should be clear as to which of these stages we are investigating. The difficulties encountered in the illiterates, those who have failed to learn the mechanics of reading, and the underlying causes of these difficulties, may very well be different from those of less backward readers. As we shall see, the former appear to be similar
INTRODUCTION

to those of the child who is just beginning to read. But the condition, in older children and adults, is so severe as to put them in a class apart from those who are merely backward; and it may well be termed a specific ‘disability’.\(^1\) The problem it presents is one of unusual interest to the psychologist. It is also of considerable importance to the teacher, who finds that an illiterate child of eight or nine and upwards is often excessively resistant to remedial teaching.

In the very extensive investigations which have been carried out into the incidence and causes of backwardness in reading, the distinction between the illiterate and the semi-literate has too often been overlooked. Frequently, large groups of children have been tested with standardized reading tests, which give the children scores in terms of the average performance of children of a given chronological or mental age. Individual cases are then classified as backward readers when their test performances—or ‘reading ages’—are retarded by one year, two years, three years, and so on, below the average performance for their chronological or mental age. This practice is convenient from the point of view of the teacher who has to classify and teach the children. But it does not reveal the manner in which they attempt to read, nor their difficulties in doing so. A more detailed study of these difficulties is necessary before it is possible to gain a psychological understanding of their disability.

Fortunately the number of illiterates in the general population is small in comparison with the number of semi-literate. In the investigation described in the Ministry of Education’s pamphlet, Reading Ability (1950), ‘illiterates’ among older children, aged 15–18, were defined as those with reading ages below 7 years; that is to say, they could probably guess a few simple words at sight, but had not grasped the mechanics of reading, and could not be

\(^1\) In recent years the term ‘dyslexic’ has been applied to children of normal intelligence with marked specific disability in reading. Apparently this term has been adopted in order to indicate that these cases are comparable with those of ‘ alexia’ produced by cortical injury. For reasons described in chapter v, this hypothesis cannot at present be accepted. Therefore the term ‘dyslexic’ will not be employed in this book.
INTRODUCTION

said to read in any real sense of the word. They constituted 1.4% of the 15-year-olds and 1.0% of the 18-year-olds. Among the 11-year-olds the term ‘illiterate’ was used in rather a different sense. But 4.2% per cent of this group had a reading age under 7 years. A further 20.3% of the 11-year-olds, 4.3% of the 15-year-olds and 2.6% of the 18-year-olds had reading ages of 7 years or over, but under 9 years. They probably formed a somewhat heterogeneous group, who had acquired the bare mechanics of reading, so that they knew how to analyse words into their constituent letter groups, and thus were able to tackle new and unfamiliar words. But their reading was stumbling and halting; they read one word at a time, and hence reading was of little pleasure to them because comprehension was so slow.

A more recent study of a sample of 11-year-olds in London schools (Child, 1955) showed the proportion with a reading age below 7 years had dropped to about 1.0%. But the proportion of backward readers with reading ages between 7 and 9 years had not decreased, and might even have increased. Another recent study was made in Middlesbrough (1953) in which the complete 11-year-old age group of about 2000 children was tested with the Burt Graded Word Reading Test. It was found that 3.9% of the boys and 1.3% of the girls had a reading age of 7 or less—that is to say, they were illiterate in the sense of the word used above. This figure is lower than that of the Ministry of Education pamphlet, but above that of Child. Hence a certain fluctuation may be expected from time to time and in different parts of the country. It is doubtful if the figure would ever fall to zero, but it should not rise above 4% if teaching conditions are adequate (see also Appendix II).

The main study of this book will centre upon the illiterates—those who for some reason or other are unable to master even the simpler mechanics of reading. From the vast literature on the subject, we shall endeavour to select experimental and clinical studies of such cases, and differentiate them from those who have
INTRODUCTION

some grasp of the mechanics of reading, but are failing in other ways—for instance, in understanding what they can enunciate. The latter form an ill-defined group to whom little systematic study has been devoted. It may be that in general they are in a transitional stage, and that a continuance of adequate teaching will enable them to learn to read successfully, provided that they have sufficient intelligence and interest. We know, however, that real illiterates, even those of good intelligence, require special teaching, and even to this they are often extremely resistant. They are unlikely to surmount their difficulties at all without such special attention. It is also interesting to compare them with older children who have managed to learn to read, but are utterly incapable of learning to spell correctly. Their difficulties may be due to the same factors as cause complete illiteracy.

It seems fairly clear that many of these illiterates, and especially the older ones, can be detected by the use of adequate reading tests,1 provided that their actual reading age is ascertained. It is essential, however, to differentiate between the younger ones—for instance, those aged 8–9 with a reading age below 7—who may be merely somewhat lagging in their grasp of the mechanics of reading; and the older ones, of 9 years and over, who have by then been ‘stuck’ for so long at a reading age below 7 that special efforts are required to help them.

Unfortunately the methods used in studying backwardness in reading have frequently not differentiated at all adequately between children who are merely slow and backward in reading, and those who, in spite of reasonable intelligence, appear incapable of mastering the mechanics of reading. It is of course difficult to draw a

1 No detailed study of standardized reading tests is included in this book. An extensive list is given by Robinson (1953a). A large variety of these tests is in use in the U.S.A. But the author has had no opportunity of studying them or of assessing their validity. For British children, the tests of Burt (1921) and of Schonell and Schonell (1950) are probably the most widely used, and appear to be quite satisfactory. It would be unwise to apply the norms of American tests to assess the reading ages of British children. Although group tests of reading comprehension are valuable for making a rough assessment of the reading ability of large numbers of children, no child should be diagnosed as illiterate, or as suffering from specific reading disability, until he has been given individual tests, including an oral test of reading words.
INTRODUCTION

hard-and-fast line; but nevertheless, if anything is to be done to understand real disability in reading, the merely backward must be differentiated from those who can do no more than recognize a few words at sight. But a great many of the studies of reading backwardness have been made on large, heterogeneous, and ill-defined groups of children. Sometimes all those with reading ages of a year, or even only half a year, below their mental ages are classed together, quite irrespective of whether or not they can read in any real sense of the word, and the frequency of certain characteristics in this group contrasted with their frequency among normal readers. Sometimes the frequency of such characteristics has been correlated with the reading performance or reading ages of a whole group of children of all levels of proficiency. It is clear that such studies can give only very imperfect evidence as to the characteristics of those with real reading disability. It is not surprising that an extreme diversity of factors has been suggested as having some connection with backwardness in reading; or even as being the cause of reading disability. There is not even much agreement as to the main features of these children’s attempts to read.

It is clearly essential therefore to discuss first what the child does when he tries to learn to read; and what it is that he fails to do when he is unable to learn, his peculiar mistakes and difficulties. When the characteristics of those with real reading disability have been distinguished, it may be more possible to investigate the underlying causes of the disability. The only really satisfactory method of making this investigation is the intensive study of individual cases. Unfortunately the number of satisfactory case studies made in the past is all too small. Too often, superficial diagnoses have been made of ‘narrow perceptual span’ or ‘poor auditory memory’—as if these characteristics could be in any sense regarded as inherent or basic. Or else the investigator has been content to point to the apparent multiple causation in each single case, and has failed to extract such factors as appear common to all, or to a large proportion, of cases. However, this failure is understandable. There is no doubt that these cases do present, at
INTRODUCTION

least superficially, a great and complex diversity of features. Moreover, the cases are rarely recognized when their inability to learn to read is in its early stages. By the time that they are detected and studied, the original causes may have been overlaid and concealed by a whole tissue of confused cognitive processes, emotional resistances, and so on. Events which occurred early in the child’s development may by now be altogether forgotten. Thus again and again we shall encounter the difficulty, if not impossibility, of distinguishing what is the cause from what is the effect of the reading disability. However, we hope that it may be worth while to make a thorough and detailed study of the experimental investigations that have been made; and to present and to weigh up the evidence as to the importance of the various factors which appear to be associated with the inability to learn to read.
CHAPTER II

VISUAL PERCEPTION IN READING

(1) THE DEVELOPMENT OF VISUAL PERCEPTION IN CHILDREN

Before we study in detail the characteristics of the illiterate individual's attempts to read, and the causes of his disability, we must first devote some attention to what appear to be the processes that occur as the child learns to read. Clearly, he must begin by perceiving some kind of shape or pattern which constitutes the printed letter or word. It is difficult to be certain exactly what the little child does perceive—though in all probability he does not see just what the adult sees.

Before the child can perceive printed shapes, he must be capable of perceiving small 'meaningless' shapes, containing a good deal of detail. It is therefore important to consider the evidence which has been obtained as to the development of this ability in children. Not many systematic investigations of the development of shape and pattern perception have been carried out; perhaps because the accurate perception of pattern is not very important to the child until he begins to try to read. The young child is concerned mainly with the perception of three-dimensional solid objects which can be touched and manipulated, as well as seen. He is eager to find out what they are like, what they do, and what he can do with them. His experience of two-dimensional form comes mainly through looking at pictures in books, and through drawing or scribbling. It does seem possible that he establishes a certain association between the shapes which he sees in pictures, and the movements, and images of movements, he makes in drawing them. It has been stated that children tend to draw from their ideas about objects, rather than by copying from pictures, or from their own imagery—though Gesell, Ilg and Bullis (1949) consider that the 5-year-old likes to trace and copy pictures. But we cannot assume that the child has much previous experience
DEVELOPMENT IN CHILDREN

of a kind relevant to the establishment of an association between reading and writing the shapes of letters and words.

Even the perception of pictures may be partial and vague. Griffiths (1954), however, found that the average child began to look at pictures, though only momentarily, as early as his second year. The Terman–Merrill Intelligence Test (1937) expects an average child of 3½ years to be able to name fifteen out of eighteen simple outline drawings of familiar objects; and to pick out and name three objects from a fairly complicated picture. Thus it may be supposed that by the time the child begins to learn to read, he can identify pictures of objects with which he is familiar, either as real objects or as pictures. Indeed, it has often been said that a child must be able to name pictures without difficulty before he can begin to learn to read (see Monroe, 1951). For in many reading books pictures are shown of objects and activities of various kinds, which the child has to understand in order to associate with them the printed description of the object or activity which accompanies the picture. Yet children are much slower to understand the meaning of a picture, and the nature of the activity it presents, than they are to name simple representations of objects. Binet and Simon (1908) drew attention to the inability of young children to ‘understand’ pictures. In the Terman–Merrill test, a child is not expected to give the meaning of the picture of the telegraph boy till he is 12 years old. This is perhaps rather a difficult picture to interpret. But the author (1940) observed that the average child could not fully interpret a picture till he was about 11 years old, though he could give a simple description of its more obvious activities by the age of about 7 years. This often included a considerable amount of irrelevant detail. Miller (1938) also found that children of 8 or 9 years could describe only about 20% of the main items—those which gave the real meaning of the picture—in pictures taken from the books they were actually using in school. They tended to see these items as isolated details, with no relationship to the meaning of the picture as a whole; and often the most important items were altogether overlooked. Again, Poston and Patrick (1944) showed that, although, in general, children of 6–8
years could identify printed names of objects more readily when
these were presented with pictures of the objects, in some cases
the pictures had a misleading effect, because the children mis-
interpreted them. For instance, the word ‘hen’ was often read as
‘chicken’, presumably because the latter was a more familiar name
for the picture given. Clearly then, if children are to be taught to
read through the use of pictures, it is most important that the
teacher should ascertain that they know what the picture repre-
sents and means.

But a more important problem lies in the perception of two-
dimensional shapes without representational meaning, such as the
shapes of letters and words. It is doubtful how soon the child is
able to perceive such shapes. We know that very simple shapes
such as a triangle, square and circle, can be differentiated from one
another at 2 years (Gellerman, 1933); and that these shapes can be
remembered and recognized in different settings, colours and
spatial positions. In the Terman–Merrill test, the average child of
4 years is expected to match eight out of ten simple outlined
geometrical shapes. Piaget and Inhelder (1948) found that in
copying figures the 5-year-old could differentiate between a square
and a rectangle, a circle and an ellipse, a horizontal-vertical and
a diagonal cross. Gesell and Ames (1946) showed that children
could copy a cross recognizably at 3 years, a square at 4½ years,
and a triangle and diamond at rather greater ages. Copying a
diamond appears in the Terman–Merrill test among the items for
the 7-year group; that is to say, most normal children of 7 years
should be able to do this.

More complex figures are not fully grasped till later. Thus
Gesell and Ames found that the figure shown was
reproduced at 4 years with a single central vertical
line and numerous cross-lines. Between 4 and 5 years,
the tendency was to draw the inner lines as spokes radiating from
the centre, but unrelated to one another. At 6 years, there were a
vertical-horizontal and a diagonal cross, but their centres did not
necessarily coincide. Clearly the child analysed the complex shape
into several constituents, without relating them to one another.