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EXPERIMENTAL CHILD STUDY

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FOREWORD

The last decade has been marked by a rapidly increasing interest in the field of child development in both its scientific and its practical aspects. Nowhere has this interest been more apparent than in the period of development commonly known as that of "the young child" or "the preschool child."

The need of a book for students of child behavior, teachers, and parents which will describe in simple and understandable form the principles and methods of scientific child study has been sensed by many. In this book, through a series of experiments and exercises, we have tried to outline the methods available for the study of young children both prior to and after their entrance into school, and to give insight into the scientific possibilities inherent in the study of children. In so doing we have drawn extensively upon the modern literature, much of which is relatively inaccessible because of its very recency and because of the fact that the field is one in which the collection of data has outstripped its presentation in textbook form.

The book is the outcome of five years experience in teaching courses in experimental child study. Although there are a number of useful books and laboratory manuals dealing with methods of research in psychology, education, and the social sciences, none are well suited for students in child development since the experiments and methods are, as a rule, devised for adults and older children. On the other hand, neither the monographs and experimental articles on the young child nor the systematic textbooks or outlines of

knowledge furnish adequate concrete guidance for the conduct of experiments by the beginning student, because of the degree of technical and statistical knowledge which they presuppose.

In spirit, the book reflects the modern attitude in that it is frankly experimental and observational in tone rather than philosophical. This is an age of scientific inquiry in which theories unsupported by evidence command slight respect. Only through the accurate determination of facts can the principles necessary for the understanding of child nature be formulated.

We have drawn heavily upon the experience and the investigations of the Institute of Child Welfare of the University of Minnesota, which has played its part in the modern movement for experimental child study. Our gratitude to both our present and former colleagues and students can best be expressed by the hope that this volume will prove of value to students of child development, and through them, of service to children.

F. L. G.
J. E. A.

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PART I

INTRODUCTION

Chapter I

BRIEF HISTORICAL RÉSUMÉ

SCIENTIFIC interest in children late in developing. In the days of our grandfathers, popular judgment as to the place of the child in society was epitomized by the maxim, "Children should be seen but not heard." Examination of the scientific literature of the time leaves one with the feeling that the admission of children to the visual world was a concession imposed by necessity. As an object of scientific inquiry the child was neither seen nor heard—he did not exist. It is true that early in the seventeenth century such men as Ratke and Comenius on the Continent, and John Locke in England had emphasized the importance of "seeking and following the order of Nature" as a guide to the education of youth. In a sense these men may be said to have laid the foundation, or at least to have pointed the way, for the empirical studies of child development which were to follow. However, almost three quarters of a century elapsed before Locke's ideas were popularized by Rousseau in the *Emile* (1762). Another generation elapsed before Rousseau's theories were put into actual practice by Pestalozzi (1800), and still another before their special application to the education of young children by Froebel (1837). Not until the latter part of the nineteenth century did the scientific study of child development begin to assume systematic form.

From the beginning we can distinguish two very different trends or motivating forces in the study of child develop-

ment. The first is the practical aim which has for its object the molding of child behavior into some more or less clearly conceived form or pattern. This aim has probably existed in a more or less clearly recognized form in all ages and societies. However, it was not until the eighteenth century that the possibility of utilizing a knowledge of the natural development of the child as a means of facilitating the process of education was clearly recognized. The possibilities of actual experimentation in the education of children were not realized until the beginning of the twentieth century.

The second line of interest, which we may call scientific as opposed to the more purely practical educational interest, may properly be said to date its birth from the publication of Darwin's *Expression of the Emotions in Men and Animals* in 1872. Previous to that time a few scattered studies such as Tiedemann's observations on the development of his infant son had appeared, but the material was not looked upon as having any real scientific importance. In the scientific theory of that time, child psychology had no place. Once its significance had been pointed out, however, interest in the subject developed at an astoundingly rapid rate. Previous to 1872, not more than a dozen major studies devoted to child development had appeared in the literature. Before the end of the century the number had run into hundreds.

Early methods of child study: the child biography. Following the example set by Tiedemann (192),* the early studies of child development are based largely upon more or less incidental observations of single children. In the greater number of instances no consistent plan has been followed with regard to time of recording. The records commonly in-

* The numbers throughout the text refer to the bibliography on page 469.

clude a mixture of remembered instances and facts noted down at the time of observation. Moreover, in many cases there is no clear distinction between the facts observed and the interpretations which are placed upon them. For these reasons, the child biographies have been less useful for their own content than for suggesting problems to be worked out by more adequate methods. Among the best of the diaries which appeared during the last quarter of the nineteenth century are those by Darwin (57), the Scupins (217, 218), the Sterns (234, 235, 236), Major (174), and Shinn (225, 226).

A serious limitation of the diary method soon became evident to most persons who attempted to use it. Since there was no control of the situation in which the child was placed, it became necessary to describe not only the child's behavior but also the varying circumstances under which the responses took place. With advancing age the number and variety of stimuli to which a child would respond multiplied rapidly, and the complexity of behavior-responses increased proportionately. Adequate observation and record of all pertinent facts soon become impossible. It was obviously necessary to limit the field in some way if useful material were to be obtained. Towards the end of the century we accordingly find interest in the general biography, with its attempt to include all facts of importance regarding the child's development, shifting to the more specialized record of the development of behavior of some given type. Among these specialized studies, the records of language development, particularly the development of vocabulary, and the studies of children's drawings occupied a leading place. In these investigations we note also an initial recognition of the need for group study. This tendency is especially evident in the work on children's drawings where many of the studies, even at this early period, were based upon large numbers of cases.

A third type of large-scale investigation, popular at the end of the century, was the study of the concepts formed by young children regarding many items in their environment. Of these, Hall's study on the contents of children's minds on entering school (115) is one of the best known.

The use of children as subjects in controlled investigations of specific problems. During the last quarter of the nineteenth century, at the time when Darwin's influence had aroused intense interest in genetic and comparative psychology, as mentioned in a former paragraph, a second movement of equal or possibly even greater importance was occurring in the field of psychology. This was the development of the experimental method which had its origin in the laboratories of such men as Weber, Fechner, Helmholtz, and Wundt in Germany. The interest of this group centered largely about various problems of the sense organs and sensations. Their work was therefore closely allied to physiology on the one hand and to physics on the other. To them we owe a large part of our present knowledge of the psychology of sensation. Much of the apparatus at present in use in the psychological laboratories was developed by them. Their most important contribution, however, lay in the fact that through their work, psychology, which had previously been regarded as a branch either of physiology or of philosophy, was given a recognized place among the experimental sciences. Investigation took the place of speculation; demonstration replaced theory. However, in the work of the German laboratories of this period, child psychology had no place. Many factors, such as the widespread insistence upon the use of introspective method, the close demand upon attention, and the many long and fatiguing trials necessary to secure reliable data, contributed to make the use of children as laboratory subjects in experiments of this kind hardly practicable. Indirectly, however, the work of these

laboratories had a profound influence upon the study of child development. The clear demonstration of the marked and sometimes quite unexpected changes which take place in performance when conditions are modified showed the need for control of the techniques of investigation, and for caution in interpreting the results of studies in which such control was lacking. Although it was apparent that the methods developed in the psychological laboratories of that period were not well suited for use with young children, the clear-cut nature of the results obtained led to many efforts to modify the methods in such a way as to make them applicable for genetic research. One of the most active workers in this respect was Binet in France to whom we shall return in a later section.

The work of G. Stanley Hall. It is doubtful whether any single man up to the present time has done so much to foster interest in the study of child development as G. Stanley Hall. Although his work has been severely and justly criticized from the standpoint of technique, nevertheless his enthusiastic and prophetic insight as to the possibilities of genetic research, made him for his time the unquestioned leader of the child study movement in America, if not in the world. His contribution can hardly be measured adequately in terms of his own accomplishment, since few men have had so great a gift for imparting to others their own enthusiasm. Among the eighty-one doctorates in psychology conferred by Hall during the period of his presidency at Clark University, we may note particularly the following names: Terman, Gesell, Goddard, Mateer, Blanchard and Kuhlmann—all of whom are active contributors to the study of child development and behavior at the present time.

Hall's interest in children was dynamic and practical. In spite of his German laboratory training and the fact that he founded the first psychological laboratory in America, the

work of which was largely modelled along Wundtian lines, his personal interest lay chiefly outside the field of sensation and psychophysics. He was interested in the whole child—how he lived, thought, played and worked, his opinions, attitudes and emotions. In his zeal to throw light on some of these questions, he made such extensive use of the questionnaire method originally devised by Galton that it became associated with his own name. The questionnaire as used by Hall was extremely crude. Both in content and form, the questions violated many of the modern rules for questionnaire construction. Nevertheless, in spite of the inadequacy of his method, Hall was able to secure an enormous amount of valuable data concerning aspects of child behavior which had previously been little studied or understood.

Hall's greatest work is *Adolescence,* published in two large volumes. Among the most important of his studies of younger children may be mentioned his *Aspects of Child Life and Education* (297), his study of children's fears (116), of anger (117), the content of children's minds on entering school (115), and a large number of shorter studies dealing with various aspects of play, attitude toward religion, natural phenomena, social events and relationships, personality, *etc.*

In interpreting his data Hall employed only the simplest methods. His statistical treatment is confined at most to a few percentages. In many instances only generalized statements with no quantitative material are given. In one respect, however, his method is worthy of particular note. Few investigators have examined the literature in the field with more thoroughness in order to relate their findings to those of other workers. In his *Adolescence,* for example, there are almost 4,000 citations from more than 1,200 different authors, and even in his minor studies he always