



Readings
on the
Development
of
Children

edited by

MARY GAUVAIN & MICHAEL COLLIER

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Preface

Human development is a series of changes produced by the interaction of biological, social, and cultural factors over the lifespan that begins with conception. Developmental psychologists strive to explain this process of change by observing children, conducting experiments, and devising theories.

Students approach the subject of human development with a rich background based on their own experience of growing up as well as their observations of people of all ages. This background is a valuable resource when attempting to understand the scientific approaches to the study of human development encountered in textbooks. However, it has been our experience as instructors that textbooks alone, despite their great value as organized overviews of the field, often leave students puzzled about the process by which developmental psychologists construct their theories, collect their data, and draw conclusions. Textbooks, by their very nature, cannot devote sufficient space to the in-depth discussion of concepts or studies that form the basis of developmental theory.

The entries included in this book of readings have been selected with this problem in mind. Our intention has been to provide students with primary source material that introduces them to a broad range of scientific thinking about human development in all its diversity. We do not shy away from exposing students to classical contributions to the field simply because they do not carry an up-to-the-minute publication date; after all, physicists do not hesitate to teach about Newton's laws of motion although they were formulated several hundred years ago. On the other hand, human development is a rapidly developing discipline, so the bulk of our selections—especially research reports and literature reviews—were first published in the past few years.

The inspiration for this reader came from *The Development of Children*, Second Edition, by

Michael Cole and Sheila R. Cole. Although typical of introductory texts in many ways, *The Development of Children* is unusual in the balanced emphasis it places on the biological, social, and cultural factors that make up development. We have not, however, specifically keyed these readings to any one textbook. Instead we have selected articles that provide a representative sample of the wide range of approaches to the study of human development.

The theoretical articles provide students direct access to important and provocative statements by acknowledged leaders in the field. For example, we pair selections by Jean Piaget and Lev Vygotsky discussing the relationship between learning and development. Each article was chosen for its power to capture the essence of each theorist's ideas in a brief, but compelling manner. The articles focusing on research were selected to provoke thought and discussion about the ways researchers collect evidence on the process of development and how they interpret and draw conclusions from their data. We have taken special care to include articles about the development of children from many cultures in order to avoid the misrepresentation of middle-class Euro-Americans as the criterion against which the development of all children is measured.

All the articles were selected with the undergraduate reader in mind. Because most of our selections were originally written for a professional audience, the text sometimes contains concepts which at first may be difficult to grasp. To alleviate this problem, we have provided brief introductory notes that should help orient the reader to the article's main points. Finally, we would like to express our appreciation to the many colleagues who provided valuable feedback to us in the course of developing this reader.

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The Child Yesterday, Today, and Tomorrow

DAVID ELKIND

In this essay, David Elkind reviews prominent images of the child from the distant and recent past. He argues that current characterizations of childhood, although they draw on scientific evidence, actually reflect more general beliefs current in society at large. When bolstered by the authority of science, they may lead to extreme views that actually have harmful effects on children. By tracing the ways that later generations of developmental psychologists react to (and often against) the overstatements of previous generations, Elkind illustrates that science can most usefully be considered a dialogue—a search for truth—rather than a set of recipes for generating facts and theories. His essay also serves as a poignant reminder that, across history, children themselves have not always benefitted from the changing images of childhood.

The child is a gift of nature, the image of the child is man's creation. It is the image of the child, rather than nature's gift, that determines educational practice in any historical epoch. And the image of the child, man's creation, is as often wrong as it is correct. Wrong images are more powerful and more easily grasped than true ones. In the present as in the past, our task as educators of young children is not simply to be true to nature's gift, but also to fight against the

false images that, in any age, threaten the healthy education of young children.

IMAGES OF THE PAST

The image of the child in antiquity was that of young citizen who had to be educated by the laws and culture of society. The children of Babylon went to

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This article is, with a few minor changes, the address Dr. Elkind gave at NAEYC's November 1986 Annual Conference at the Opening General Session, Washington Hilton Hotel. David Elkind is NAEYC's President.

school at age 6 and even poor children learned to read and write except that their books were bricks and their writing tools a reed and damp clay. Children in ancient Greece played with go-carts and dolls, and at the age of 7 boys went to school. In ancient Rome, women had a more equal place and both boys and girls went to school where the discipline was strict and where they learned to write with a stylus and wax tablet.

During the Middle Ages, children fared less well and the prevailing image of the child was that of chattel, or piece of property consistent with the ideology of serfdom. The medieval castle was no place for a child, built as it was for defense rather than for comfort. The children of serfs worked and lived with the animals. Discipline was strict and punishment harsh. In England, there was a brief, golden era for children during the reign of Good Queen Bess. And during this era, the faithful nanny begins to appear in folklore and literature.

Toward the end of the 17th Century, the struggle between Cavaliers and Puritans was reflected in their quite dissimilar images of children. The Cavaliers held a mixed image of the child as part nuisance, part plaything. In contrast, the Puritans constructed an image of the child as one tainted with original sin. "Your child," wrote James Janeway, "is never too young to go to hell."

In this country the images of children changed with our rapidly changing society. In colonial times children were seen as financial assets who could help work the farm or be apprenticed out of the home at an early age. The children of slaves were an extreme example of this, but they were not the only children who labored from dawn to dark. With the industrial revolution, children, especially the children of immigrants and the poor, came to be seen as cheap factory workers until the cruelty of child labor was made public. The ensuing social reform movement transformed the image of the child from one of cheap factory labor to one of apprentice to factory work. Instead of being sent to the factory, children were sent to school to prepare them to work in factories. School bells, like factory whistles, signaled the beginning and the end of the school day. And children, like their parents, carried lunch pails to be opened at the noon whistle.

As we see, there have been many different images of children, some of which were more beneficial to child health, welfare, and education than others. And there have always been those who, at any given point in history, have been critical of the image of the child current at that time. Often this criticism took the form of an attack on parents and upon parenting, but in fact it was an attack upon the then "accepted"

image of the child. A review of these attacks upon the images of the child that were raised in earlier times is instructive. It tells us that the image of the child at any point in history never goes unchallenged and that the challengers in the past, as today, often come from the ranks of early childhood educators.

The criticism of prevailing images of the child has a long history. For his ideal Republic, Plato wanted children to be raised by professional child caretakers, and St. Augustine proclaimed, "Give me other mothers and I will give you other worlds." Rousseau's opening statement in *Emile* to the effect that everything is good as it comes from the hand of the Maker and deteriorates in the hands of man, is an indictment of the image of the child as a young savage who had to be socialized.

Pestalozzi and Froebel did not criticize parents directly, but did believe that parents needed to be given a truer image of the child that would result in more healthy childrearing practices. Parent education was an important component of early childhood education practiced by Pestalozzi and Froebel. Pestalozzi's book, *How Gertrude Teaches Her Children*, which is subtitled *An Attempt To Help Mothers Teach Their Own Children*, reflects this emphasis upon training parents. The same theme was repeated in Froebel's *The Education of Man* and in his *Songs for Mothers and Nursery Songs*.

Their successor Maria Montessori never criticized parents either, but she had less faith in parent education than her predecessors. Like Plato she wanted children reared by professionals, not by parents. For her, childrearing was too important a task to be left to untrained parents whose image of the child gave too little credit to their budding intellectual powers.

In the past, the prevailing image of the child that dictated childrearing and education was determined by a complex of social, economic, and cultural factors that may have had little or nothing to do with the natural child. And since early times, there have been critics of the prevailing conception of the child. These critics fought to replace the false image of the child with a truer one that would provide for a healthier, happier, and more productive child life.

IMAGES OF THE PRESENT

Historically, predominant images of the child were derived from the prevailing political, social, or religious ethos. What is remarkable about modern images of the child is that they are, or are said to be, scientific in origin. Unfortunately, their scientific origin has not rendered them any more valid than those

that had social, political, or religious derivations. In some ways, the scientific origin of some of the contemporary images of the child makes them even more difficult to combat than previous images. I want now to usurp the role of critic and review and comment upon three modern images of the child that have contributed to what I call miseducation, namely putting children at risk for no purpose.

The Sensual Child

The advent of Freudian psychology gave rise to the image of the sensual child. In this view, the child was "polymorphous perverse" in the sense of having the whole gamut of sexual instincts and proclivities that were once reserved to adults. In Freudian terms, children whose sexual instincts were unduly repressed were destined to become neurotic. The childrearing and educational implications of this image of the sensual child were straightforward. Children had to be allowed to express themselves, and play was the natural medium of self-expression. With adequate self-expression at home and at school, children would develop healthy personalities and their intelligence would take care of itself.

Like so many images of the child, this idea contains a partial truth. Freud made it clear that a certain amount of repression was healthy, indeed necessary, for people to live in a society. It was excessive repression, not repression, that produced neuroses. But that point was sometimes lost on those who fought for expression at all costs.

The Malleable Child

Another image of the child that has dominated contemporary thought has come from the anthropologists who were concerned with the conflict between generations. The leading writers of this genre were Kingsley Davis, Ruth Benedict, and Margaret Mead. Although they differed in detail, they were all making the same point, namely, when it comes to adapting to social change, children are plastic and adaptable whereas adults are rigid and unadaptable. Children, they argued, are better suited to social change than are adults.

Davis, for example, argued that adults are locked into the orientation they received as children and this makes it difficult, if not impossible, for them to appreciate the changed circumstances of their offspring, hence the generational conflict. Benedict said that adults are independent and children are dependent, and that it was the adult's inability to deal with the child's growing independence that was the cause of the generational conflict. And Margaret Mead argued

that in a rapidly changing culture, children, who are free of ingrained habits of thought, are much better able to adapt to new and changing technologies than adults.

This image of child malleability in contrast to adult rigidity is sometimes misinterpreted. Anthropologists are talking about change in the overall society, *not* about changes within the immediate family. When a family moves, the children have more trouble with the change than adults. And, while divorce may be hard on adults, it is certainly much harder on children. Children thrive on consistency, stability, and security, while it is adults who seek new experience and adventure. Children adapt less easily to change within the family than adults do, but the reverse image fostered by a misapplication of social scientists' ideas about change in society persists and contributes to miseducation.

The introduction of computers into early childhood education, and the teaching of programming to young children, is a direct offshoot of this malleability conception. It is simply a fact of technological development that as technology develops it requires, more, rather than less, intellectual maturity. A child can use a shovel but not a power shovel; a child can use a hand saw or hand drill, but not a power saw or power drill; a child can ride a horse, but cannot drive an automobile and certainly cannot fly an airplane. The more advanced the technology, the more advanced the intelligence required to use it. Modern warfare is another example. Modern weapons require college graduates if they are to be used properly. The modern army has no place for a Sergeant York trained with a hunting rifle. And even when a technology is easy to use, such as television, it can still be dangerous to young children.

Yet the idea that children should be programming and running computers persists despite the fact that the complexity and technological sophistication of computers is far beyond what a young child can really comprehend and master. To be used by young children, computers have to be converted into teaching machines presenting programmed learning. And programmed learning is simply boring. Exposing young children to computers in this way runs the risk that they will get turned off to computers before they have a chance to see what they can really do. It is a good example of miseducation, of putting children at risk for no purpose.

In the same way, I am often asked about programs to inform young children about the threats of nuclear war. Presumably, children have to be exposed to this idea at an early age so they will be better prepared for a nuclear holocaust when it comes. Even if one accepts this shaky premise, it has to be rec-

ognized that the concept of nuclear war is completely foreign to young children, who do not even have a conception of biological death, much less of millions of people and the power of nuclear weapons to destroy them. Recent suggestions that young children be taught about AIDS also stem from this wrongheaded image of child malleability.

To be sure, children are fresh learners to the extent that they are not handicapped by previous ideas and concepts. But this does not mean that they are ready to learn everything and anything—far from it. Their openness to learning is limited and we need to recognize these limitations. There is a time and a place for everything and early childhood education is not the time nor the place to teach children computer programming, the threat of nuclear war, or for that matter, the dangers of AIDS.

The Competent Infant

Perhaps the most pervasive and most pernicious contemporary image of the child is one that has been promoted by psychologists writing in the 60s. Responding to the Civil Rights Movement, to the War on Poverty, and to the inadequacies of the educational system, many writers gave voice to a vision of childhood that would undo these wrongs and undo them at an early age. All these wrongs, it was said, could be righted if we only got to children early enough. The result was a new image of infants and young children as having much more capacity to learn academic skills than children, regardless of background, actually have. It is true that all young children have intellectual abilities and that their thinking should be encouraged but within the context of their psychological stage of development. This 60s image of the child as consumer of skills has come to haunt us in the 80s.

In his book *The Process of Education*, Jerome Bruner voiced his now famous hypothesis that you can “teach any child, any subject matter at any age in an intellectually responsible way.” Bruner was really speaking to curriculum writers and probably did not fully appreciate the extent to which his hypothesis would be accepted, not as a hypothesis, but rather as a fact by the public at large. And it has also become the motto of entrepreneurs hawking flash cards to parents with the proclamation that you can teach a young child “anything.”

But is it true? It is only true if you either redefine the child or redefine the subject matter. The curriculum writers of the 60s, academicians such as Max Beberman at the University of Illinois or Robert Karplus at Berkeley knew their subject matter but not young children. The curricula they designed in effect redefined the competence of children without re-

course to children’s actual abilities or limitations. For example, variable base arithmetic was said to be easier for children to learn than base ten arithmetic. But even parents had trouble with variable base arithmetic! It was also claimed that children would learn math better if it were introduced as a language. Instead of answering what is the sum of $2 + 2$, children were asked to “Make this sentence true.”

The error here came from confusing what is simple to an expert in a subject with what is simple for the novice. Simplicity is the end result of learning a skill or a discipline, not its starting point. Reading is simple once you know how, but is far from simple when you first start out. Understanding multiple base arithmetic may be simple once you know base ten, but not if you don’t. Understanding the relation of language to mathematics is simple if you have a firm grasp of language and mathematics, but not if you don’t. We have to always be aware of the danger of assuming that the end point for us as adults should be the starting point for children.

The other side of Bruner’s hypothesis requires redefining the subject matter. When an infant who responds to flash cards is said to be “reading” or doing “math,” these subject matters have been drastically redefined. Suppose, for example, that I tell you that I can balance 100 pounds on my finger. You would not believe me. But suppose I take out a 3×5 card and write *100 pounds* on it. Now I put the card on my finger, and voilà, I am holding 100 pounds on my finger. Claiming to teach infants to read and do math is the same; it is a sleight-of-hand trick accomplished by redefining what is usually meant by reading and by math.

Yet people are taken in by this trickery and really believe that they are teaching their children these subjects. And this trickery has another negative fallout effect. Redefining the subject matter makes it much easier to acquire. Parents then believe that their child who is “reading” flash cards at age 2 is a budding genius. But they will be disappointed in the end. Unfortunately, making a task easier does not make children brighter.

Another contribution to the image of the competent infant came from educational psychologist Benjamin Bloom who argued from statistical summaries of IQ data that 4 year-olds had attained half of their intellectual ability and that it was incumbent upon us to impose formal learning on young children because otherwise we might lose out on this period of phenomenal mental growth. This idea that you must teach as much as possible to young children because their minds are growing so rapidly has become part of the contemporary folk wisdom and is deeply ingrained in our contemporary image of the child.

But is it true? Bloom was talking about mental test data, not about mental growth. Because infants and young children are not good test takers, their intelligence test performance is not a good index of their later test performance. By the age of 4, however, the child is sufficiently verbal and has sufficient ability to concentrate attention, and her or his test performance is a better index of true ability. From the test score a child attains at the age of 4 you can predict with some 50% accuracy what that child's test score will be at age 17. And that is all that a child attaining half of her or his mental ability at age 4 means.

It does not mean that at age 4 the child has half of all the knowledge, skills, and values she or he will ever have. It does not mean that if a child attains an IQ of 100 at age 4 she or he will attain an IQ score of 200 at age 17. It does not mean that a child at age 4 is a better learner than she or he will be at age 17. Even if we grant that mental growth is rapid during the early years of life, it does not follow as dawn follows the night, that this calls for formal, teacher-directed learning. During periods of rapid mental growth, children seek out the stimuli to nourish themselves mentally. We serve them best by providing an environment rich in materials to observe, explore, manipulate, talk, write, and think about. You do not prune during the growing season.

Still a third writer who has contributed to the contemporary image of the competent infants is J. McV. Hunt. In his book *Intelligence and Experience* he surveyed a great deal of evidence and concluded that intelligence was malleable and not fixed, the view he attributed to professionals of the time. But no reputable psychologist ever claimed that intelligence was fixed. In 1954, in a chapter of the *Handbook of Child Psychology*, Florence Goodenough made it clear that all the evidence supported the view that the environmental factors accounted for between 20 and 40% of an individual's IQ.

Up until the 60s, however, psychologists were mainly concerned with middle-class children who, presumably, had maximized their environmental potential. It was only when attention was turned to low-income children who had less than optimal environmental input that the significance of environmental input became a matter of concern. Consider the following analogy. Suppose you place a group of undernourished children on a full calorie, well-balanced diet. Surely such children will make significant gains in both height and weight, but similar gains will not be made by children who are already on a full calorie, well-balanced diet. The potential benefits of an improved program are always relative to the quality of the previous environment.

This idea of intellectual malleability has become

common currency among parents who are being told that with the proper program of stimulation they can have a "brighter child" or that they can raise their child's IQ. Yet there is no evidence that children growing up in an environment where they are talked to, played with, and read to, and which is rich in things to look at, listen to, and explore, will derive additional benefit from prescribed exercises and symbolic materials. If anything, most middle-class children today are over- rather than understimulated.

The last contributor to the image of the competent child is not a psychologist but a historian. In his book *Centuries of Childhood*, Phillip Aries argues that childhood is a social invention and that there was no such conception in the Middle Ages when children were depicted and treated much as adults. The implication is that for the last couple of hundred years we have been coddling children and infantilizing them and ignoring their true competence and abilities. This thesis fit in neatly with the other ideas about infant competence and gave it a historical dimension.

More recent historians of childhood, like Pollack, have shown Aries was wrong. Even in the times Aries was writing, diaries of parents show quite clearly that adults appreciated that children were different from adults and had to be treated differently. Sir Francis Bacon, writing in the 16th Century, even talked about the value of "allowances" and the negative effects of not giving a child a sufficient allowance, and suggested that "The proof is best when men keep their authority towards their children, but not their purse."

These four ideas, then, that a child can be taught any subject at any age, that children have half their intellectual ability at age 4 when mental growth is more rapid, that the IQ is malleable, and that childhood is an invention, all emerged in the 1960s to form a new image of child competence. Although this new image may have corrected a previous image that played down child competence, it went to the other extreme. Ideas meant to improve the conditions of low-income children have been taken over by middle-class parents and have become the rationale for much of the miseducation of young children today.

As in the past, we have not only to assert the values of child-centered early childhood education, but we must also struggle to reveal the concepts of early childhood malleability and competence for what they are, namely distortions of how young children really grow and learn.

IMAGES OF THE FUTURE

Given the brief history I have just outlined, it seems reasonable to predict that the false images of children

today will be replaced by equally false images tomorrow. I have no crystal ball, only a belief that history is prologue and that the image of the child at any point in history always fills the predominant parent needs and defenses of that developmental epoch. We have to ask then what the needs of future parents will be and how these will be reflected in a new image of the child.

Our society is already a service and information society with more than 70% of our population in these occupations. I believe that we will eventually get high quality child care for all those youngsters who need it and that those who care for infants and young children will have positions of respect and will be paid well. We may even have parent professionals to care for and rear other people's children. This will not happen immediately and without a great deal of hard work and pain, but I do believe we will get there.

What then? What new image will emerge when the image of the malleable competent child has run its course? What sort of image of the child will be most in keeping with the needs of tomorrow's parents? If present trends continue, it appears that parents will spend less time than ever parenting. Once parents no longer feel guilty or uncomfortable about this, the need for the image of child intellectual competence will diminish. In its place will emerge a new image of child social sophistication and self-sufficiency. In an information and service society these are the requisite

skills. We already see hints of this in the current emphasis upon social cognition. Psychologists are eager to point out that Piaget was wrong and that infants and young children are much more socially skilled than we gave them credit for being.

And while it may be true that children are more socially proficient and self-sufficient than we may have recognized, they will not be as socially proficient as the image of social sophistication will have us believe. And the cycle will once again repeat itself, the next generation of early childhood educators will have to challenge the new image of the child as, to use the computer term that may well become the catchword of this new image, *an expert system* with respect to social interaction. The next generation will once again have to reassert the values of sound early childhood education.

Our task as early childhood educators then is never ending. Each generation presents a new challenge and a new battle. And it is a battle that we can never really win, because each new generation is prone to the same mistakes. Yet if we do not fight it is a battle we can most assuredly lose. For those of us in early childhood education it is a battle well worth fighting and, even if we fall before our time, we can take comfort in the knowledge that there will always be others, sufficiently committed to the well-being of young children, to carry on the fight.

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2

Darwin and the Beginnings of Child Psychology

WILLIAM KESSEN

The work of Charles Darwin had a formative influence on the emergence of developmental psychology. Among Darwin's contributions was the simple yet profound idea that change is a natural part of living systems. By pointing to change as a natural and required feature of life, Darwin cast the analysis of development as central to understanding life forms. Although Darwin is best known for his theories of biological evolution, he also wrote about child development in the form of a baby biography describing his own observations of his firstborn son's early infancy. In the following article, William Kessen discusses Darwin's role in the development of child psychology as a scientific discipline and presents a passage from Darwin's baby biography. This passage illustrates how careful observation can advance our understanding of child development; it also illustrates how subjectively based inferences may obscure objective interpretation.

There is enough cruelty, enough poverty, and enough theology left in the world for us to imagine the life of a child bereft of the medical and social reforms of the last century or two. It is far harder to imagine what scholars thought of children before the publication and slow assimilation of *The Origin of Species* (1859). Our notion of the child—in fact, of all psychology—was changed so dramatically by Darwin's

work that the remainder of this history will become an account of extended variations on the naturalist's basic themes.

There are several ways in which Darwin's speculations directed the history of child psychology. In the first place, the notion of species evolution gave a mechanism in full scientific dress for the notions of perfectibility that the ideologues of the eighteenth

century had proposed on grounds less certain. To be sure, the struggle for survival was a grim affair that did not fit well with the conception of man as rational and free, but clearly the result of the ugly contest was the development of a truly superior being. Perhaps the loss of biological uniqueness was painful but in return Darwin provided a rationale for boundless expectations for man. Just as animal life had grown in a natural way from protozoan to rational being, so society had grown from its primitive savagery to Victorian sensibility and might yet grow more. In the hands of the practical social Darwinians, chief among them the members of the Establishment who had thus far survived the struggle, this doctrine did not always lead to greater interest in the protection of the child, but it became an article of faith in the Western community that evolution, developing and developed by science and industry, would bring society to its natural fulfillment.

But Darwin's proposals had more direct effects on the study of man. The notion that the phylogenetic progression had its homologues in the development of man in society (an idea of Rousseau's, too) found expression in the sociology of Sumner and his students. It took the study of primitive cultures from the hands of literate tourists and made it into anthropology. The Darwinian proposals did more than build a base for the comparative study of societies; Darwin looked the other way, toward the signs of man in animal life, and it was this innovation that assured him the enmity of theologians and influenced so strongly the formation of empirical psychology. With the chapter comparing "the mental powers of man and the lower animals" in *Descent of Man*,* Darwin invented the discipline of comparative psychology, and the course of its development is clear and unbroken through Romanes and Lloyd Morgan to Thorndike and Watson to contemporary investigators of animal behavior. There are ironies in the genealogical record; Darwin put psychology into the animal and made the comparative study of mind a wholesome and permitted occupation but, by modifications of greater or less scope, the study of animal behavior shifted until, in mid-twentieth century, the questions about mind that intrigued Darwin were abandoned but the systematic study of the animal was kept.

The contribution of the evolutionary revolution to psychology did not end with the creation of com-

parative psychology. In at least three other ways, widely varying in their later historical development, the Darwinian principles influenced psychology and the study of the child. At the most general level, so well assimilated into the definition of psychological problems that we forget its origins, lies the model of a struggle for existence among competing responses of the organism. Learning is an expression of the war among conflicting tendencies of the animal or person and the strongest of them survive. Taine saw this point clearly.

. . . So, in the struggle for life, in which all our images are constantly engaged, the one furnished at the outset with most force, retains in each conflict, by the very law of repetition which gives it being, the capacity of treading down its adversaries; this is why it revives, incessantly at first, then frequently, until at last the laws of progressive decay, and the continual accession of new impressions, take away its preponderance, and its competitors, finding a clear field, are able to develop in their turn.**

And, in a footnote to the passage, Taine writes, "The theory of the great English naturalist is nowhere more precisely applicable than in psychology." Henceforth, it will be difficult to see association as the passionless building of connections.

The irreducible contribution of Darwin to the study of children was, however, in his assignment of scientific value to childhood. Species develop, societies develop, man develops. From the publication of *The Origin of Species* to the end of the nineteenth century, there was a riot of parallel-drawing between animal and child, between primitive man and child, between early human history and child. The developing human being was seen as a natural museum of human phylogeny and history; by careful observation of the infant and child, one could see the descent of man. Enthusiasts found parallels of remarkable scope and the child-as-prototype movement reached its peak with the publication in 1901 of *The Child: A Study in the Evolution of Man* by Alexander Francis Chamberlain. Chamberlain discusses, with more restraint than some of his contemporaries showed, the place of the child in evolutionary theory and summarizes part of his conclusions in these words.

*C. Darwin, *The Descent of Man and Selection in Relation to Sex*. (New ed.), New York: Appleton, 1897. The first edition was published in two volumes in 1871.

** H. Taine, *On Intelligence* (Translated by T. D. Haye), 2 vol., New York: Holt, 1889. Vol. I, p. 81. The first French edition was published in 1869.

The “ages of man,” the epochs noticeable in the origin and growth in the individual of somatic characteristics, anatomical and physiological peculiarities; “critical periods,” physical and intellectual; epochal development of the senses, of language, etc.; periodicity and epochism in the growth of the sense of self, of character, of emotiveness, of psychic activities in general and in particular, of sociality, of religiosity, or morality, of the various artistic activities, etc., furnish a multitude of facts, many of which, seemingly, cannot receive their interpretation except upon the theory that they represent things once important, useful, necessary to, or characteristic of, the race-ancestry of the individual, in whom they are repeated more or less completely.*

Nothing much is left of this radical notion now. The functionalist revisions in biology and psychology cleared away almost all the defenders of what was held to be a teleological view of man and his workings; the late nineteenth-century notion of parallels between animal and man remains in the academic literature only as a half joking reference to the phrase “Ontogeny recapitulates phylogeny.” But, as we shall see later, the idea of animal-child parallels has been subtly transmuted to remain one of the central postulates of child study.

Putting aside later refinements of the doctrine of developmental recapitulation, however, there is good reason for noting the enthusiasm of turn-of-the-century commentators for the assignment of remarkable animal and cultural analogues to the behavior of children. It was a fact in the history of child study, a fact as secure and as highly respected by contemporary true believers as was Hall’s questionnaire method and today’s Rorschach. But, more than that, the search for phylogenetic and society shades in the child marked the beginning of a science of child behavior. Man was not to be understood by the analysis of his adult functions, an analysis that was rational in conception and closely linked to logic; rather, man was to be understood by a study of his origins—in nature and in the child. When did consciousness

dawn? What were the beginnings of morality? How could we know the world of the infant? Questions like these which, in form of more or less sophistication, were to dominate child psychology for many years, derive their sense from a genetic view of man. The Rousseauian child is put on a firm biological pedestal. He is neither made at birth nor understandable in his adult guise alone; man develops, grows, and becomes through the course of his first years, and it is the particular and special function of the child psychologist to record the visible changes. Darwin gave us the child as a legitimate source of scientific information about the nature of man. He also legitimized the baby journal.

As several commentators have noted, Rousseau was never more in error than when he predicted no imitators of his *Confessions*. In Brett’s words, “The sentimental romance became the medium of self-expression, and the example set by Rousseau gradually became the basis of a new literature.”** And a new psychology! The introspective analysis of sensation and emotion by eighteenth- and early nineteenth-century gentlemen prepared the ground for Fechner’s quantification and for Wundt’s systematization. That development is not part of our story, but diaries and notebooks also led to an innovation of great significance to child study—the baby biography. First used at length by Dieterich Tiedemann† the procedure of keeping a day-book of infant behavior (almost invariably, the behavior of the investigator’s first child) became usual in the nineteenth century. Taine used his observations of children in his book *On Intelligence* (1869), and it was the publication of some notes on language acquisition by Taine that led Darwin to the preparation of the paper which follows here. Drawing on observations of his first-born, William Erasmus (Doddy), in 1840 and 1841, Darwin shows in brief compass the attraction and the problems of the baby biographer. No one can know as well as the attentive parent the subtle and cumulative changes that take place in the world of the child and in his behavior but, on the other hand, no one can distort as convincingly as a loving parent. Darwin, like almost every baby biographer after him, not only saw children, he also

*A. F. Chamberlain, *The Child: A Study in the Evolution of Man*, London: Walter Scott, 1901, p. 446.

**G. S. Brett, *A History of Psychology*, 3 vol., London: George Allen, 1912–1921, Vol. II, p. 321.

†Apparently, no full English translation of Tiedemann’s *Record of an Infant’s Life* (1787) exists, for all its popularity as a citation in secondary sources. Soldan’s transition of Perez’ commentary on Michelant’s French translation of the original German [F. L. Soldan, *Tiedemann’s Record of Infant-Life. An English version of the French translation and commentary by Bernard Perez*. Syracuse: Bardeen, 1890] does not permit any general statement about Tiedemann’s techniques or principles.

saw a living expression of his theoretical position. The evolutionist is clearly at work in this charming little account, and there are two details that are particularly illuminating of Darwin's attitude and his psychology. One is the ascription to the child of

specific affect (the "violent passion" of anger, for example), an ascription which we will find imitated for many years. The other is Darwin's perplexed and obviously parental proposition that the tendency to throw objects is inherited—in boys.

A BIOGRAPHICAL SKETCH OF AN INFANT BY CHARLES ROBERT DARWIN (1809–1882)*

M. Taine's very interesting account of the mental development of an infant, translated in the last number of *MIND*, has led me to look over a diary which I kept thirty-seven years ago with respect to one of my own infants. I had excellent opportunities for close observation, and wrote down at once whatever was observed. My chief object was expression, and my notes were used in my book on this subject; but as I attended to some other points, my observations may possibly possess some little interest in comparison with those by M. Taine, and with others which hereafter no doubt will be made. I feel sure, from what I have seen with my own infants, that the period of development of the several faculties will be found to differ considerably in different infants.

During the first seven days various reflex actions, namely sneezing, hickuping, yawning, stretching, and of course sucking and screaming, were well performed by my infant. On the seventh day, I touched the naked sole of his foot with a bit of paper, and he jerked it away, curling at the same time his toes, like a much older child when tickled. The perfection of these reflex movements shows that the extreme imperfection of the voluntary ones is not due to the state of the muscles or of the coordinating centres, but to that of the seat of the will. At this time, though so early, it seemed clear to me that a warm soft hand applied to his face excited a wish to suck. This must be considered as a reflex or an instinctive action, for it is impossible to believe that experience and association with the touch of his mother's breast could so soon have come into play. During the first fortnight he often started on hearing any sudden sound, and blinked his eyes. The same fact was observed with some of my other infants within the first fortnight. Once, when he was 66 days old, I happened to sneeze, and he started violently, frowned, looked frightened, and cried rather badly: for an hour afterwards he was

in a state which would be called nervous in an older person, for every slight noise made him start. A few days before this same date, he first started at an object suddenly seen; but for a long time afterwards sounds made him start and wink his eyes much more frequently than did sight; thus when 114 days old, I shook a paste-board box with comfits in it near his face and he started, whilst the same box when empty or any other object shaken as near or much nearer to his face produced no effect. We may infer from these several facts that the winking of the eyes, which manifestly serves to protect them, had not been acquired through experience. Although so sensitive to sound in a general way, he was not able even when 124 days old easily to recognise whence a sound proceeded, so as to direct his eyes to the source.

With respect to vision,—his eyes were fixed on a candle as early as the 9th day, and up to the 45th day nothing else seemed thus to fix them; but on the 49th day his attention was attracted by a bright-coloured tassel, as was shown by his eyes becoming fixed and the movements of his arms ceasing. It was surprising how slowly he acquired the power of following with his eyes an object if swinging at all rapidly; for he could not do this well when seven and a half months old. At the age of 32 days he perceived his mother's bosom when three or four inches from it, as was shown by the protrusion of his lips and his eyes becoming fixed; but I much doubt whether this had any connection with vision; he certainly had not touched the bosom. Whether he was guided through smell or the sensation of warmth or through association with the position in which he was held, I do not at all know.

The movements of his limbs and body were for a long time vague and purposeless, and usually performed in a jerking manner; but there was one exception to this rule, namely that from a very early period, certainly long before he was 40 days old, he could move his hands to his own mouth. When 77 days old, he took the sucking bottle (with which he was partly fed) in his right hand, whether he was held on the left

*C. Darwin, A biographical sketch of an infant, *Mind*, 11, 1877, 286–294.