Out of the minds of babes

HERBERT ZIMILES

Alison Gopnik

THE PHILOSOPHICAL BABY
What children's minds tell us about truth, love and the meaning of life
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Not so very long ago, infants were thought to be inert, unresponsive, basically vegetative creatures unworthy of being studied when there was so much else to learn about human behaviour. Concern with infancy remained insubstantial until Sigmund Freud astounded the world by suggesting that a seemingly pure and innocent baby was a veritable lusting machine that soon after birth developed the psychic apparatus to guide the passionate quest for instinctual gratification. While his speculations were made without any study of babies, they were heard and not forgotten, and remain in the background of any probing and penetrating examination of early childhood.

When psychology became a separate, if thinly staffed, discipline about a century ago, thinking about human development was (and still is to a considerable extent) dominated by already existing debates over the heredity–environment issue. Child study stations were formed at a handful of state universities in the United States and became preoccupied with studies that revolved around the basic question of whether development was mainly biologically driven, in the form of maturation, or whether environmentally mediated experience was the more powerful determinant of psychological growth. Most noteworthy, or at least most visible, was the work of a Yale paediatrician, Arnold Gesell, who conducted voluminous observational studies of different age groups, wrote book after book, and appeared in most of the family magazines of the 1930s and 40s, in which he reported his painstaking studies of young children's bimonthly changes in development, which he attributed almost entirely to the process of maturation.

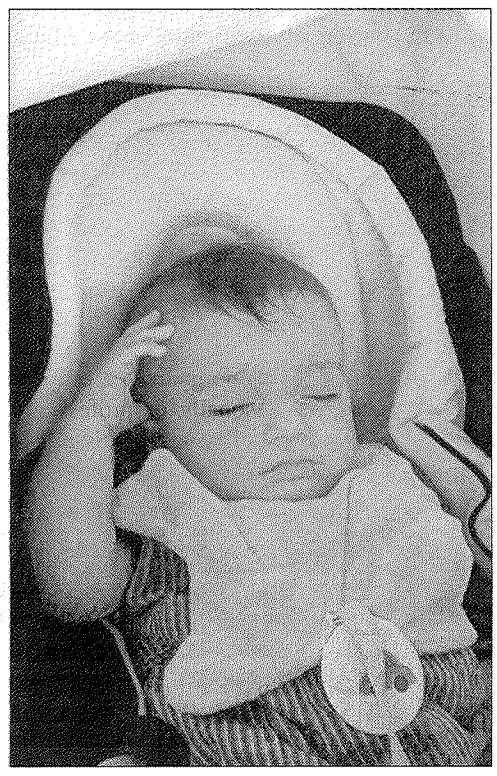
The major breakthrough in the field came with the work of Jean Piaget, a Swiss biologist and epistemologist. He posed highly original questions to children of all ages about their ideas and knowledge of the world around them, as well as producing a detailed observational study of the infancy of his own three children, for which he devised a set of tasks to determine whether and how they thought during their babyhood. He thus established a theory of different stages of cognitive development from birth onwards. Piaget's work was ignored for decades, because inquiries about thought and inner life were proscribed by the doctrine of behaviourism, which limited serious scientific study of psychology to behaviour that was directly observable. Incredible as it may seem, the concept of cognition, indeed, the very word, was excluded from psychology until about 1960, about the time when Alison Gopnik, the author of *The Philosophical Baby*, was born.

Once the strictures against the study of cognition were overturned, and with Piaget's seminal writings and research methods as a point of departure, a group of inventive and resourceful investigators devised new methods for evoking and recording the behavioural repertoires of babies. As a result, babies have been shown to be capable of mastering learning and thinking tasks at an earlier age than previously found. Some wags have suggested that babies are becoming smarter, but it is really their researchers who are becoming smarter, and who also have strong shoulders to stand on, as well as advances in technology to facilitate their heavy reliance on the recording of babies' behaviour.

Professor Gopnik has been a leading member of this group of researchers, and the widely acclaimed book that she co-authored a decade ago, *The Scientist in the Crib* (2000), provided a definitive and scholarly synthesis of what is known about cognitive functioning during the first three years of life. In *The Philosophical Baby*, Gopnik aims to describe the important features of cognition in infancy that she and others have uncovered; she examines the influence of the earliest stages of later psychological development; and, finally, she explores the affective significance of mothering, both as it is broadly viewed and studied, and as she has personally experienced it.

Gopnik begins by calling attention to the extraordinary openness to experience of babies by virtue of their immense learning capacity and their affinity for imaginative thinking, a trait she attributes to their readiness to entertain counterfactuals. According to Gopnik, the vigour and scope of babies' explorations, unfettered by the inhibitions and distractions of later life, give them a freedom and fluidity that render them as truly exceptional beings. She describes the remarkably inventive procedures that were devised to demonstrate how very young babies have been shown able to engage in such complex cognitive processes as causal thinking and to demonstrate an awareness of the rudiments of statistical probability. Accompanying these reports of pathbreaking knowledge is a meandering meditation and elegiac portrayal of early intellectual life improbably described from a hi-tech perspective. Gopnik is clearly fascinated with the idea that there is a machine-like quality to babies' reasoning and thinking skills, reminiscent of the workings of a computer. Here, she offers an important distillation of information along with original ideas about babies' conceptual awareness and scope of thinking that not so long ago was considered to be beyond their capabilities, a time, also, when information processing analogues were not applied to describe such skills and mind sets.

It may seem to be a pointless quibble for one investigator to claim that a particular ability can be detected at the age of seven months as opposed to a previously observed ten-month time of onset, but it is the charge of developmental psychologists concerned with infancy to determine if, when, and how babies' basic sensory and reasoning capabilities appear, to identify origins, sequences and landmarks in the development of perception, language and logical functioning. As Gopnik



more than once points out, the closer to the beginnings of life that the seedlings of these abilities appear, the more likely it is that they reflect innate predispositions to function in particular ways, thereby suggesting that in such cases experience writes not on a blank slate but on one designed to receive its messages. In addition, Gopnik brings to bear newly acquired data from neuroscience that point to structural and functional changes in the young child's growing brain that appear to underlie developmental changes observable in their overt behaviour. The two independent fronts of investigation – brain research and the study of behaviour – serve as guides to each other's pursuits and as a basis for corroborating tentative findings, another reason for maximizing the accuracy of behavioural assessments of babies. In her enthusiastic portrayal of the intellectual abilities of babies, Gopnik appears to be describing the modal baby. It would be interesting to learn more about the range of variation she has observed among babies with regard to these remarkable abilities; marked levels of variability from child to child are a highly salient feature of early development that should never be overlooked. This is not, however, a book about particular babies she has known but about babies *qua* babies.

The importance that Gopnik attaches to early childhood extends beyond its boundaries. She proposes that not only are babies remarkable in and of themselves, but they have an inordinate influence on the psychological patterns of adaptation that succeed them. In assigning such potent formative influence to early environments and the psychological patterns to which they give rise, Gopnik recognizes that she must contend with new and competing claims from genetic studies of the origin of behaviour. Whereas most psychologists, by virtue of their interest in monitoring and inducing psychological change, have in the past been primarily invested in the role of environmental impact and have therefore come to attribute overriding influence to it, new data have caused many of them to re-examine this extreme environmentalist outlook. Recent more refined studies of identical twins reared apart, along with studies of adopted children, have shown that some psychological traits and abilities are substantially determined by genetic factors. Without discounting these findings, Gopnik remains a staunch believer in the potency of environmental influence pointing to the vastness of accomplishment and sophistication that has been cumulatively wrought by civilization over the ages.

To explain her belief in the disproportionate influence of early childhood experience on later development, Gopnik reminds us that children participate in an ever-changing construction of reality on the basis of early perceptions and learnings, early established tastes and preferences, and dispositions to respond in particular ways. Later life experiences are an outgrowth of these earlier modes of perceiving and responding by virtue of their continuing influence on the formation of later age-related habits, interests and styles of behaving. Gopnik refers to the process of continuous revision of previous modes of

Heroics

Kids down the street have been blowing some bubbles which glint in the sun as they file past,
Fine as Achaeans in bronze. They are shaping themselves in the warm wind,
Foreign amidst all the cars and the walls, with a delicate tense life.
Caught by their colours, the world is transformed for a time, then it pricks them,
Letting us gaze at the darkness that grows on the faces that leave us.

WILLIAM WOOTTEN

apprehending and relating to the world around them as a process of "cascading causal changes". We see her here, paradoxically, co-opting a line of reasoning put forth by proponents of the genetic determination of behaviour in their claim that environments are not so much causative agents as they are shaped and chosen to accommodate to preexisting traits, to traits believed by them to be inborn. Thus, for example, on encountering a lighthouse keeper who is reticent and shy, instead of concluding that these traits were caused by the social isolation of his occupational environment, they would attribute his choice of a socially remote occupation to the dispositions of shyness and reticence he inherited. Gopnik applies the same argument to account for the manner in which earlier experiences and propensities continue to be mediated by later environmental influences. As children grow older their environmental choices and creations are consonant with the preferences and predilections of earlier stages of development, so that their choices reflect a continuity with their past and their earliest psychological orientations and propensities.

The idea of the formative influence of early experience is not new – it has been previously emphasized in the seminal writings of Freud and his followers, in John Bowlby's analysis of the role of early emotional attachments, and reverberates in the discussions and belief systems of scores of today's educators and psychologists. What is distinctive about Gopnik's treatment of this issue is that she focuses on the cognitive underpinnings of early development, whereas previous emphases have been on the enduring effect of emotional trauma and early affective relationships. Her discussion and demonstration of the vivid intellectual life of babies add to the plausibility of the proposition that babies know enough, and have sufficient reasoning ability to construct mappings of reality, to make it possible for early experience to have so potent and enduring an effect.

There are dangers to being too deeply interested in one's work. Gopnik's expert knowledge of the intellectual prowess of babies leaves her open to the criticism that she brings to bear a hyperrational, overly cognitive perspective to the study of infancy, a developmental stage during which fears and rages and the role of wide variation in temperament play an important part of the story. It is not that she isn't sufficiently warm in her appreciation of babies, nor that there is an absence of reference to the dimension of affectivity. In a final section she calls attention to the fundamental need for parental love in babies and summarizes current research approaches to the development of emotional attachment. She concludes with a meditation on the profundity and meaning of the love relation she has shared with her three sons. Thus, the domain of affectivity is attended to, but the reader does not receive as incisive or insightful a portrayal of the dynamics of the emotional life of babies. As is not uncommon these days, the tendency to view psychological reality through a cognitive lens adumbrates the affective dimension of early childhood. But these considerations do not diminish the value of the new knowledge and creative thinking about what it means that Alison Gopnik has contributed.

Termites and penguins

CAROL TAVRIS

Joan Freeman

GIFTED LIVES

What happens when gifted children grow up
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978 0 415 47009 4

The great pianist Leopold Godowsky is said to have observed that "When a child prodigy grows up, the prodigy vanishes and the child remains". Musicians often note with sadness – or *Schadenfreude* – how few child prodigies manage to maintain their early brilliance. The pressure of performance, the glare of the spotlight, the vanity puffed up by audience adoration – it is factors like these, not some inevitable waning of musical talent, that so often destroy genius.

Joan Freeman has been observing and documenting the lives of 210 gifted children since the mid-1970s. Her previous books provide the details and overall data of her research, research that earned her a lifetime achievement award from the British Psychological Society; in *Gifted Lives*, she has chosen to write in depth about twenty of the study's participants, charting their lives from childhood to middle age, and exploring the reasons for the diverse directions their lives took. "Diverse" is an understatement. If anyone still thinks that talent, like cream, inevitably rises to the top, this book will sharply correct that misconception. Although Freeman chose children who were at the very highest levels of intellectual or artistic ability (some were gifted in both domains), that giftedness proved to be no guarantee of later success, measured personally or professionally; indeed, Freeman believes that only about six of the children have fulfilled their childhood promise, living adult lives of exceptional accomplishment. In this book, drawing from her in-depth interviews, Freeman shows why so many of the others did not.

Some children overcame heavy odds to succeed, while others had odds entirely in their favour, but "simply turned their faces away from golden opportunities" under the perceived pressure of having to do well. Some complained that they dropped out because their pushy parents gave them no room to breathe, play and read comics; others were grateful that their parents pushed them to excel, making them study hard and practise. Some found life too frustrating and "lowered their sights to what was expected of them" – namely, not much. Some could not overcome the relentless emotional pummelling of living in families riven by conflict and disturbance. Some rose to challenges and others were knocked down by them. "Just a few of my sample rose to worldly fame and fortune", Freeman observes wistfully. "Without exception, no matter how glittering their early prospects, everyone who reached a high level had worked extremely hard for most of their lives to reach it. The vital spark has been encouragement throughout life's challenges and positive outlooks all around."

The fact that Freeman found no pattern, no predictability, is important news for parents, teachers and gifted children themselves, because of the widespread assumption that the gifted just naturally "have what it takes" to get ahead. The word "gift" is appropriate in this context, because exceptional children have certainly been given an endowment from nature: artistic and intellectual genius is not inherent in every child. But just as a modestly talented child can perform far beyond prediction with opportunity and encouragement, an exceptionally talented child can perform far below prediction if these environmental facilitators are missing.

Freeman also demolishes the notion that gifted children are more likely than average children to be, or become, emotionally disturbed. "As a psychologist and expert", she writes,

> I am often in the position of defending the state of giftedness from the charge of bringing children unhappiness. The myth of genius being akin to madness is widespread – anything from schizophrenia to autism. Yet all the scientific evidence shows that the gifted are much like other people in every respect, other than their ability to do something, or many things, at a far higher standard than most other people.

When great artists or people with brilliant intellectual capacity are emotionally disturbed, it is easy to infer that their genius caused the disturbance, or the disturbance the genius. But, as Freeman illustrates with the case of Jeremy, his adult emotional instability had two roots: an innate predisposition towards bipolar disorder, which would have afflicted anyone of any level of mental ability, and the way he was treated by the important people in his life – "from nursery-school onwards, he felt that he was undergoing a non-stop trial by performance". "I used to feel like a performing penguin", he told Freeman. For every Jeremy, of course, there is a Gail, off the chart in maths, whose parents "never took any interest in what I did or my dreams and hopes. None whatsoever".

Just as being gifted does not necessarily create (or reflect) mental illness, neither does it confer kindness, empathy, wisdom, or moral judgement. Morality, Freeman reminds us, is independent of high-level achievement and of intelligence. Too many proponents of the view that intelligence is largely innate and that white men have more of it than women and ethnic minorities – such proponents include Francis Galton, the authors of *The Bell Curve* Richard J. Herrnstein and Charles Murray, and Arthur Jensen – have argued that it is mainly those with a low IQ who tend towards crime. This view conveniently overlooks the fact that all too many people with high IQs in positions of power are "inclined to crime" of other sorts, from Ponzi schemes, financial corruption and war crimes to genocide. Nor is IQ a predictor of great wealth. It increases the likelihood of having a fairly well-paid job, but only up to a point. As Freeman points out, there are not many Rolls-Royces in university car parks.

Freeman describes her twenty selected individuals over their life trajectories to date. Although it is easy to lose sight of the big picture in the minutiae and occasional repetitiveness of all these stories, the cumulative effect is to thwart easy assumptions about the influence of childhood experiences on adult outcomes when those take an unpredictable turn at the age of thirty-five or forty-five. Taking the long perspective reminds the reader that "success" or "failure" is not a final destination at any given station of life, but can change with circumstances. A boy whom Freeman originally thought lost to childhood depression, a boy whose spirit had been crushed by his anxious, overbearing single mother, later "broke out of his chrysalis" when he left home, ending up with a life "crowded with friends and laughter, fun and sunshine" – running a bar in the south of Spain. A successful life indeed!

Though this book is not meant to be a review of research, it is surprising that Freeman does not even mention one of the most important and longest-running longitudinal studies of gifted children ever done. In 1921, Lewis Terman and his colleagues began following more than 1,500 children (nicknamed the "Termites") who had IQ scores in the top 1 per cent of the distribution. As they entered adulthood, most became successful in the traditional, gender-role confining ways of the times, men in careers and women as homemakers. Yet quite a number of the gifted men dropped out of school and ended up in low-level work. When later researchers compared the 100 most successful men in the Terman study with the 100 least successful, they found that the former were ambitious, socially active, had many interests, and had been encouraged by their parents. The least successful drifted casually through life. Just as Freeman found, there was no average difference in IQ between the two equally gifted groups.

Today, therefore, researchers have turned their attention to factors other than IQ that influence a child's motivation to do well. Of these, as Freeman's case studies exemplify and as many experiments confirm, perhaps the strongest is self-discipline. In a longitudinal study of ethnically diverse young teenagers in the US, researchers assigned each student a self-discipline score based on the students' self-reports, parents' reports, teachers' reports, and questionnaires. They also included a behavioural measure of self-discipline, namely the teens' ability to delay gratification – getting a small amount of prize money right away or waiting a week and getting double the amount. Self-discipline counted for more than twice as much of the variation in the students' final grades and achievement-test scores as IQ did. Correlations between self-discipline and academic performance were much stronger than those between IQ and academic performance. That, ultimately, is the message of Joan Freeman's book: the gift of talent and intelligence is only the clay. Personality, cultural values, economic opportunities or obstacles all intersect to determine whether that clay will be pummelled flat or shaped into a work of art.