Review of *Descartes' Baby: How the Science of Child Development Explains What Makes us Human* by Paul Bloom
Review by Geoffrey Miller

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Paul Bloom is an author, scientist, husband, and father—all of whom wrote this book. Bloom, 41, rejects the façade of professional detachment that masks the enthusiasm of too many young scientists. As with other pioneers of developmental psychology—Charles Darwin, James Mark Baldwin, and Jean Piaget—Bloom's own family life becomes grist for his intellectual mill. *Decartes' Baby* comes complete with reference to his brother Howard's autism, his sister Elisa's moral vegetarianism, collaborations with his wife Karen Wynn (another Yale psychologist and a leading infant cognition researcher in her own right), and, most amusingly, the precocious antics of his sons Max and Zachary. The latter, Bloom notes, "with the notable exception of lust, had committed each of the seven deadly sins by the time he had his fourth birthday."

This is the golden age of developmental psychology, which has grown up from a sentimental backwater of educational theory into one of science's most fascinating topics. In the last ten years, new research methods have shown that infants are a lot brighter, much earlier than we thought, but children remain much more muddled about fundamental things, much later than we thought. New ways of measuring infant attention show that they have well-tuned expectations about their physical and social worlds, long before those expectations can be articulated through language. Yet new ways of interviewing older children show that their intuitions about artifacts, animals, and people continue maturing through confused, inconsistent stages for many years.

But so what? As it happens, children's mental development reveals much more about (adult) human nature than we ever suspected. Developmental psychology has become a clearing-house for knowledge about human evolution, development, genetics, language, social behavior, and primate behavior. It uses ingenious new methods to address ancient questions about human nature, the origins of knowledge, the reliability of perception, and even the causes of good and evil.

Descartes' Baby—Bloom's first popular science book—examines these methods and their results to admirable effect. One of the central tenets of the book is the intuitive split between matter and mind. Bloom's key point is that humans are natural dualists. We grow up thinking of people as immaterial souls that happen to inhabit physical bodies, rather than thinking of people as emergent properties of brains. For Bloom, this is not just a cultural legacy of religious doctrine or of René Descartes' 17th century French skepticism. Rather, it is an evolutionary legacy as old as our species, an early-emerging feature of children's development, and the standard operating system for adult cognition.

Dualism arose because evolution rewards adaptive behavior more than cognitive consistency. Our success at surviving, socializing, mating, and parenting is best served by viewing the world at two radically different levels of description with not much in between. We view the physical world as a set of solid, cohesive objects that interact by contact and that move along spatially continuous paths. We view the psychological world quite differently, as a set of non-material individuals with beliefs, desires, essences, and identities, who interact through language and social behavior. The levels of description that connect individuals to their bodies were almost never relevant in prehistoric life—certainly nobody was practicing brain surgery or cognitive neuroscience.

Bloom's evidence for natural dualism is substantial and well-organized. He excels at reviewing developmental psychology, and clearly explains even its most sophisticated experiments. The 227-page book is a Honda Accord of popular science writing: comfortable, reliable, and quick, it gives a good road-feel for the studies that pave the scientific path, and a good view of the implications ahead. Bloom profits from the stylistic example set by his collaborator Steven Pinker, and shows the same flair for illustrating scientific ideas with high-brow quotes and low-brow popular culture. In too much popular science writing, popular culture references to Borges, *Rain Man*, professional poker-playing,

and Tracy Emin's bed would just serve to comfort the confused reader, offering a few familiar landmarks in the dark jungles of science. Bloom's much more thoughtful examples do real intellectual work in his flow of argument, super-charging his verbal reasoning with the reader's own memory and imagination. For example, he analyzes humor as social aggression by citing Mel Brooks' definitions: "Tragedy is when I cut my finger. Comedy is when you fall into an open sewer and die." This quote leads Bloom to consider Plato's suggestion to ban comedy as a form of social subversion, and philosopher Henri Bergson's idea that humor often highlights the dualism between fallible bodies and pretentious minds.

The most intriguing parts of *Decartes' Baby* however, concern dualism's applications and implications, not its origins. Bloom argues that during our psychological evolution and cultural history, we generalized our dualism to many new domains of thought and belief, such as human artifacts, art, empathy, moral progress, moral disgust, belief in immortal souls, and belief in supernatural entities. He offers seven fascinating chapters that try to understand each as a side-effect of our natural dualism—a set of "lucky accidents" that led to much of aesthetics, philosophy, and religion.

Side-effect arguments like this are a respectable but tricky part of evolutionary psychology. Clearly, our motion perception abilities evolved to track animals and humans, but now we use these same abilities to avoid reckless drivers on the road and enemy rockets on PlayStation. Given the absence of cars or rocket-launchers in prehistory, these abilities must be side-effects of motion-perception systems that evolved for other functions. Sometimes, ancient adaptations interacting with novel environments lead to maladaptive results that impair survival and reproduction. Pleistocene appetite systems plus fast-food franchises equals mass obesity. Male visual lust plus color printing equals *Hustler*. In Bloom's view, natural dualism plus unique cultural traditions leads to conceptual art, slapstick humor, animal rights activism, theology, and other oddities of the human condition.

In some of the most provocative cases, Bloom's arguments are compelling. Belief in supernatural beings seems nicely explained as dualism gone psychotic in culturally acceptable ways. We attribute to deities all the typical features of psychological entities (beliefs, desires, memories, plans, knowledge), but play around with their physical forms and behavioral abilities. We embody them in humanesque bodies with miraculous powers (Aphrodite, Christ, Shiva, the Nazgul, Jenna Jameson), in human-animal chimeras (Ganesha, Quetzalcoatl, Dracula, Spider-Man), or in ethereal forms (Jehovah, the Tao, the Inner Child, Agent Smith from *The Matrix*). Following books by Pascal Boyer such as *Religion Explained*, Bloom suggests a reliable way to invent a supernatural being: "(1) Start with the notion of an immaterial soul, (2) Embody or modify it in an unusual way, (3) Stir in interesting details." Most cultures have always portrayed gods as people plus a little something extra—like modern super-stars or super-heroes. The Greeks had Mount Olympus; we have the Academy Awards. *The Passion of the Christ* hit box office gold with its holy trinity—direction by Mel Gibson, salvation by James 'Jesus' Caviezel, screenplay by God. Theologians view this sort of star-struck anthropomorphism as a childish foible to be overcome, but Bloom sees it as fundamental to the whole phenomenon of religion. In an age dominated by the war between the fossil fuel theocracies of Texas and the Persian Gulf, his is a bravely secular position for any writer to take.

In other cases, Bloom's arguments seem weaker. Sometimes, mental quirks that he views as side-effects of dualism seem more likely to have evolved as adaptations in their own right, for some direct social or sexual payoffs. Here, Bloom seems unaware of some of the exciting new evolutionary psychology work on the origins of technology, art, morality, and religion. This is an important fault as science progresses through comparative evaluation of the strongest current theories.

For example, Bloom makes a plausible case that morality and art depend on our intuitive psychology—our ability to "mind read"—so he interprets them as side-effects of dualism. In evolutionary psychology though, we have to consider all of the usual suspects that might explain the origins of a complex human trait. Did altruism or art-making bring our ancestors any hidden payoffs in terms of survival, social status, sexual attractiveness, benefits to kin, or low-cost benefits to group? Current evidence suggests the answer in both cases is yes, so altruism and art are probably adaptations in their own right, not just side-effects of something else. Conspicuous kindness to non-relatives seems pretty well-explained as a strategy for attaining higher social status and reproductive

success. Likewise, our obsession with judging art in terms of artistic effort and virtuosity seems well-explained if art evolved as a signal of the artist's fitness and skill—as argued by biology (Herbert Spencer), philosophy (Friedrich Nietzsche), economics (Thorstein Veblen), anthropology (Franz Boas), paleontology (Steven Mithen), and art history (Ernst Gombrich and Denis Dutton). When Bloom doesn't argue his side-effect views against the best current adaptationist theories about his topics, he may win over the lay reader, but he will not convince his scientific colleagues.

Bloom also tries to explain some quandaries of consciousness as side-effects of dualism—a sort of philosophical C4 that explodes certainty and ignites skepticism. We think of other individuals as different from their bodies, so perhaps that is why we can think of ourselves as separate from the world that we perceive. Bloom echoes Descartes in claiming that we cannot reasonably doubt our own existence as rational beings, though we can doubt the existence of everything and everyone else. This may be true for most adults in most conscious states. Yet personal identity can seem a surprisingly fragile construct in more extreme states: take 200 micrograms of LSD, or float for a couple of hours in a sensory deprivation tank, then see whether you still feel existentially alarmed by Descartes' *Discourse on Method* from 1637. Thought experiments aside, about one percent of people in real life develop schizophrenia, which often creates severe confusion about the unity, validity, clarity, and continuance of personal identity. Conversely, doubting the existence of everything and everyone outside oneself may seem easy for a famously narcissistic arm-chair philosopher such as Descartes, but I doubt it could be sustained by a breast-feeding mother, or by young lovers enjoying a night of Ecstasy and Astroglide. The bonding hormone Oxytocin—whether released by lactation or copulation—seems the feminist antidote to Descartes' macho dualism. Only when we are sober, sane, well-fed, well-rested, alone, and idle can the self seem a rock of certainty in a sea of illusion. At most other times, when we are caught up in work, leisure, or socializing, our embodied experience is not very dualistic. Then, with our minds fully engaged with our bodies and our world, our conscious state is better described as 'Being-in-the-World' (Martin Heidegger), 'Flow' (Mihalyi Csikszentmihalyi), or 'Mindfulness' (Ellen Langer). When mindfully-flowing-in-the-world, we still use dualism in the narrow sense to distinguish passive objects from active people, but we don't feel an existential chasm between soul and body, or self and world.

Despite over-extending the dualism argument in a few cases, *Descartes' Baby* has many virtues. Bloom is an excellent guide through the new developmental psychology that has not yet been well-explained in popular science publishing. He succeeds in making the minds of children—who can seem exceedingly tedious to those not currently raising any—a fascinating place to spend a few hours. It is also a humbling reminder that we adults may have out-grown breast-feeding and Beanie Babies, but few of us out-grow dualism's down-sides: racist disgust, moral absolutism, and religious crusading.

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