http://www.reason.com
http://www.reason.com/news/show/28537.html

Biology vs. the Blank Slate

Evolutionary psychologist Steven Pinker deconstructs the great myths about how the mind works.

Ronald Bailey and Nick Gillespie | October 2002 Print Edition

Steven Pinker has been called "science's agent provocateur" by the *Guardian*, named an "evolutionary pop star" by *Time*, hailed as a "wunderkind" by *The Washington Post*, and acclaimed by the *London Times* as both a "world-class cognitive psychologist" and a "stud-muffin of science." Yet Pinker, a professor of psychology in the Department of Brain and Cognitive Sciences at the Massachusetts Institute of Technology, is more than a scientific superstar. He's also the author of the bestsellers *How the Mind Works* and *The Language Instinct*. His new book, *The Blank Slate: The Modern Denial of Human Nature* (Viking), is likely to continue his string of publishing successes -- and to keep him at the red-hot center of discussions over the meaning and implications of the increasingly important field of evolutionary psychology.

Evolutionary psychologists such as Pinker argue that the human mind, like the human body, has been designed by natural selection through the process of biological evolution. Insights from evolutionary psychology are dramatically transforming the ways in which political scientists, economists, anthropologists, social psychologists, linguists, and cultural studies critics think about social and political institutions. If Pinker and his colleagues are right, it turns out that there really is an innate human nature common to all people.

To be sure, this is not your grandfather's human nature. Evolutionary psychologists argue that the brain is a physical system with built-in neural circuits designed to generate environmentally appropriate behavior. These neural circuits are specialized for handling different adaptive problems, and most brain functioning is unconscious. Because our brains evolved to handle problems faced by our Stone Age ancestors, some innate behaviors are maladaptive in the modern world. These range from our tendency to divide people into in-groups and out-groups to our sweet tooth, which helped our ancestors select ripe fruit in a world where food was scarce, but leads to obesity for many in societies where food is abundant. Innate brain modules exist for activities such as social learning, language, feeding, mating, and many other unconscious behaviors. Many of these neural circuits have been mapped by brain scans and by clinical studies of brain-damaged people.

Evolutionary psychology is addressing age-old questions about human nature. Are people inherently good? Are they social animals? Are they rational, utility-maximizing individuals? If both nature and nurture shape our characters and determine our destinies, what is the precise contribution of each? Do we have free will? These questions lie at the heart of centuries-long political, philosophical, and religious conflicts. And the answers inform how we think social, political, and economic life should be organized.

Evolutionary psychology discomfits many intellectuals and scientists and Pinker has been savagely

attacked by both the left and the right. Marxists such as Harvard's Richard Lewontin and the late Stephen Jay Gould assert that evolutionary psychology is little more than fatuous cocktail party speculation, while conservative commentators in *The Weekly Standard* and *First Things* charge Pinker with trying to undermine the religious basis of morality.

The Blank Slate, which combines scientific insights from genetics, neuroscience, computer science, and evolutionary biology, is Pinker's rejoinder to such critics. In it, he masterfully deconstructs what he calls the main "myths" about human psychology that have dominated and distorted intellectual discourse about human nature for the last century.

Pinker, a native of Montreal, received his B.A. from McGill University in 1976 and his Ph.D. in psychology from Harvard in 1979. After serving on the faculties of Harvard and Stanford he moved to MIT in the early 1980s.

Reason Science Correspondent Ronald Bailey and Editor-in-Chief Nick Gillespie spoke with Pinker this May in Washington, D.C., where he delivered a lecture at the Carnegie Institution.

Reason: What is the aim of your new book, *The Blank Slate*?

Steven Pinker: To explore why the concept of human nature and biological approaches to the mind in general are seen as so politically suspect. Why do they arouse so much emotion? Why do people think that there are great moral issues at stake, as opposed to empirical issues about how the human mind works?

Some of the issues I explore are concerns of the left, which sees evolutionary and genetic approaches to the mind as reactionary. Others annoy the right, which thinks that a materialist view of the mind that incorporates computation, neuroscience, evolution, and genetics undermines the basis of morality and leaves us with only a dangerous amoralism.

Reason: You talk about three modern "myths" in the book: the blank slate, the noble savage, and the ghost in the machine. Explain them briefly.

Pinker: The blank slate is the doctrine that the mind has no unique structure and that its entire organization comes from the environment via socialization and learning. The blank slate mentality is popular with people who believe that any human trait can be altered with the right changes in social institutions. It's popular in the more radical branches of feminism, although not with the original core of feminism that stressed the drive for equity between the sexes. I think it allies to some degree with Marxist approaches to society. Not that Marx literally believed in a blank slate, but he certainly believed that you could not intelligently discuss human nature separate from its ever-changing interaction with the social environment.

The doctrine of the noble savage is that people have no evil impulses, that all malice is a product of social institutions. The noble savage myth is behind the sensibility that violence is learned behavior, a slogan that is repeated endlessly whenever violence is chronicled in the news. It's also behind the Romantic idea that violent nonconformists are actually seeing the hypocrisy of society and challenging social institutions from a marginalized viewpoint, as opposed to the idea that such people are psychopaths and that we should prevent them from wreaking havoc on everyone else.

The doctrine of the ghost in the machine is that people are inhabited by an immaterial soul that is the locus of free will and choice and which can't be reduced to a function of the brain. The ghost in the

machine [idea] lies behind the religious and cultural right -- literally in the case of people who want to couch the stem cell debate in terms of when ensoulment occurs.

But it's there in a vaguer way, too, among others who fear that a materialist viewpoint -- the idea that human experience and choice are products of a physical organ called the brain -- is corrosive of morality, meaning, and ultimate purpose.

Reason: Why do you call these ideas myths?

Pinker: Because they're wrong. Let's talk about the blank slate. Just on logical grounds, blank slates don't do anything. They just sit there. *Human beings* do things. They make sense of their environment, they acquire language, they interact with one another. They use reasoning to bring about things that they want. Even if you acknowledge, as you have to acknowledge, that learning, socialization, and culture are indispensable aspects of human behavior, you have to admit that you can't have culture unless you have some kind of innate circuitry that can invent and acquire culture to begin with.

The noble savage [myth] has been refuted by studies of hunter-gatherers and societies more generally that show how violence and warfare are a human universal. The reports of tribes out there somewhere who never heard of war have turned out to be urban legends. I think many Western intellectuals had always been impressed that in many battles among hunter-gatherers, the battle is called off as soon as the first couple of people are killed. That led to the idea that warfare among pre-state societies was largely ritualistic. But in fact, if you do the numbers and count the bodies, two deaths in a band of 50 people are much bigger than the September 11th casualties in a society our size.

Careful studies show that hunter-gatherers are dead serious about war. They make weapons as destructive as their ingenuity permits. And if they can get away with it, they massacre every man, woman, and child. In our own society, which is far more peaceful than the native groups, if you ask people whether they have ever fantasized about killing someone, anywhere from 70 percent to 90 percent of the men and about 40 percent to 60 percent of women say that they have.

Reason: And the rest are lying.

Pinker: (laughs) There are also parts of the brain that seem associated with violence and outbursts. We know this partly because of accidents or operations through which certain portions of some people's brains were removed. Some sort of inhibitory brake was removed, and the individuals became more prone to violence.

As a cognitive scientist, I go back to thinking the problem through mechanistically. Just as in the case of the blank slate, you can't have learning without some kind of learning machinery. Human violence is highly nonrandom behavior. It's not the kind of thing that can arise from a simple malfunction. There's a popular notion that violence is a kind of disease or a public health problem; that's what all of the mental health agencies believe.

Reason: You say in *The Blank Slate* that Hobbes was right and Rousseau was wrong. Is civilization basically the development of institutions designed to rein in male violence?

Pinker: I think that's got a lot of truth to it, absolutely. That's what the rule of law is, and that's what a democracy is for. I don't think it's wiped out these impulses, and our fantasy lives may not be that different from those of the Yanomamo warrior. But we don't actually act on them. We can have lust and mayhem in our hearts, but not necessarily in our actions.

Reason: Why is the ghost in the machine doctrine a myth?

Pinker: Neuroscience is showing that all aspects of mental life -- every emotion, every thought pattern, every memory -- can be tied to the physiological activity or structure of the brain. Cognitive science has shown that feats that were formerly thought to be doable by mental stuff alone can be duplicated by machines, that motives and goals can be understood in terms of feedback and cybernetic mechanisms, and that thinking can be understood as a kind of computation. Not computation the way your IBM PC does computation, but computation nonetheless -- a kind of fuzzy analog to parallel computation. So intelligence, which formerly seemed miraculous -- something that mere matter could not possibly accomplish or explain -- can now be understood as a kind of computation process.

Reason: Do you feel like we're going through a cycle of anti-science sentiment, of technophobia? Biotechnology, in particular, has raised the ire of both the right and the left.

Pinker: I think part of the fear of biotechnology really comes from a notion of the ghost in the machine. One of the great fears of cloning -- the absurd idea that cloning is going to create an army of mindless drones -- comes from a mental model of cloning that says that it's duplicating the body without a soul. The other fear is that it is some kind Faustian grab at immortality, a hubristic desire to make ourselves immortal. That relies on a mental model of cloning as duplicating the soul together with the body. So if I clone myself, that's actually going to be me. So much of the debate on cloning comes from these misconceptions of what it is. Which I think makes perfect sense, if the mental model that most people have of other humans is a body inhabited by a ghost.

I also think there's a notion of purity vs. contamination at work. It's a kind of noble savage myth. Cognitive psychologists call it "intuitive essentialism" -- that living things have an essence that gives rise to their biological properties. It's easy to think of genetically modified foods as living things whose essences have been contaminated by polluting elements as opposed to the biological view, which is that organisms are bundles of genes which vary continuously over the course of evolution.

Reason: In an earlier book, *How the Mind Works*, you say it's possible we will never understand the mind. Do you still believe that?

Pinker: We may never understand it at an intuitively satisfying level. From a scientific standpoint, I think we can be satisfied that every aspect of conscious experience can be tied to or caused by some process in the brain. But what it actually *feels* like to have a brain is one of these age-old paradoxes that probably is an artifact of the way our mind conceptualizes things. I would liken it to our puzzlement over how time can begin at the Big Bang. It's impossible not to think, well, what was it like before the Big Bang? Or, what is the effect of the universe being curved in the fourth dimension -- what exactly does that look like? There, the problem is not a deficit in physics; the problem is a deficit in our own intuition. There is an aspect of reality that can never be intuitively satisfying even though our best science tells us that it is true.

Reason: In the new book, you suggest that "we may have to make room for a pre-scientific explanatory concept in our view of human nature -- fate." What do you mean by that?

Pinker: By *fate*, I don't mean divine preordination. I mean uncontrollable fortune. We can't account for about half of the variation in things like personality and intellect. I suspect that this 50 percent of the variation that is neither in the genes nor in the family may be chance events in development, the way your brain wires itself up within the constraints of the genes.

Reason: So for whatever reason, during development, something zigged rather than zagged?

Pinker: Yes, whether the growing axons in your brain zig rather than zag. Whether you inhaled a virus or your mother inhaled a virus, whether you got the top bunk bed or the bottom bunk bed. All kinds of uncontrollable events that may have a profound role in making us who we are. Indeed, there is reason to suspect just from the studies of biological development of simple organisms that chance has to play a role. When you look at genetically homogenous strains of roundworms and fruit flies growing up in a well-controlled monotonous laboratory environment, they are not the same. They have physical differences. They have longevity differences.

Reason: You've exposed the essentially materialist roots of human society. How does that *not* translate into humans just being apes, precisely in the way with which the right is so uncomfortable?

Pinker: We *are* apes, but we're our own species of apes. We're not chimpanzees, and we're not gorillas. We're a species of ape that has this outsized brain. Among the faculties of this outsized brain is the ability to learn from history via language and recorded documents. And a moral sense and an ability to perceive consequences of our actions.

I don't really know where the moral sense is located in the brain because, in a sense, it encompasses a number of the different faculties. Morality encompasses a mentality of autonomy and interchangeability of interests. It is also tied to notions of purity and defilement and to notions of conformity to community norms. If you could take any person and tap his or her moral intuitions, you would get this melange of sentiments, not all of which coincide with morality as it would be understood by a moral philosopher.

People, for example, tend to equate morality with high rank. We see that in the language: words like *noble*, which are ambiguous, [meaning both] high ranking and morally exalted. We see it in celebrity worship: People think that Princess Diana and John Kennedy Jr. were highly moral people, but they were pretty average. People tend to blur good looks with morality. You can give them a bunch of photographs and ask them to judge how nice they think the people are. The better-looking people are judged as being nicer.

All that is to say that the psychology of morality is multifaceted. There is no one answer to where morality is in the brain. Recent research has been looking at the part of the brain called the ventro-medial prefrontal cortex, pretty much the part of the brain that sits above the eyeballs. When that is damaged by early brain injury, you grow up with what looks like defective conscience, an inability to empathize, an inability to think through conflict resolution. But I suspect that it's a complex system involving a number of parts of the brain.

We're stuck with brains. These are brains that give us pleasure and satisfaction from certain outcomes. We appreciate beauty. We fall in love. We have a sense of justice and morality. I don't see what's so terrible about satisfying those particular values that our brains provide us with.

In the case of morality there is a kind of built-in logic, namely that it's inherently contradictory to impose a standard of behavior on others that you are not willing to have applied to yourself. An amoral egoist might be able to prevail by sheer brute force by terrorizing everyone else, but if you want to justify the way you behave to others, if you are part of a community in which your well-being depends on others, you are kind of stuck with some kind of moral logic. That's why the universal core of morality across cultures is some kind of golden rule mentality.

Reason: How does a materialistic approach play out on the left? Isn't there an impulse to say, "Let's take

these human monkeys and train them in a way that is more perfect?"

Pinker: The fear on the left is that if there *is* a human nature, we won't be free to design a better society in the future. They worry that we are marionettes or meat puppets on the ends of strings and that we're doomed to create a world of oppression and inequality. The reason that doesn't follow is that human intelligence is an open-ended combinatorial system.

Language is the prime example: Even if we're equipped with a fixed set of grammatical rules and a fixed vocabulary, we can spin out a mind-boggling array of sentences that have never been uttered before. Each one of those sentences corresponds to a distinct thought. The open-ended creativity of language is just a way of externalizing the open-ended creativity of thought. People can come up with new ways of resolving conflicts or attaining social goals in the same way that they can cook up new technological solutions to problems. You don't need an unconstrained ghost in order to account for human ingenuity.

Additionally, a number of people think that there is a kind of logic that propels human moral progress. This is what [philosopher] Peter Singer refers to as the "expanding circle." Intuitions that may have evolved to deal with life in the clan or the tribe are now enabling us to extend sympathy to other people and treat them as having interests equivalent to our own. Over the course of history, we have expanded that circle out from the clan to the tribe to the nation to both sexes and to all races and to all humanity. Having that kind of moral progress doesn't mean that human nature has ever been erased and reprogrammed. It simply means that a gadget that may have evolved to deal with a clan can be applied to larger and larger groups of humans.

Reason: Doesn't a materialist approach undermine Enlightenment notions of free will and autonomy? As you point out in your book, people are already using excuses such as, "It wasn't me, it was my amygdala. Darwin made me do it. The genes ate my homework."

Pinker: What we call free will is a product of particular circuits of the brain, presumably concentrated in the prefrontal lobes, that respond to contingencies of responsibility and credit and blame and reward and punishment and alter their operations as a consequence.

Our decision to hold people responsible for their behavior is itself part of the environment in which the brain works. The brain *can* respond to an environment in which people are held responsible, and that's why we should continue to hold people responsible.

More to the point, you don't need to invoke a soul or some mysterious process of free will to hold people accountable. Indeed, one could argue the opposite of that: If we really are totally unconstrained -- if there is a self or soul that can do what it damn well pleases -- that's when holding people responsible would be futile. The soul could always choose to ignore contingencies of credit, blame, reward, or punishment: "I don't care if you think that I'm a lying, cheating bastard. I do what I damn well please."

Reason: There's a cartoon about evolution that shows a sequence in which a fish looks up from a pond, followed by an amphibian, a reptile, and a primate, ending with a guy wearing a tie. The first four figures have thought balloons over their heads that read, "Eat, survive, reproduce." The final balloon, over the man's head, reads, "What does it all mean?" Our genes are interested only in replicating themselves, so evolution has designed us, and all other living things, with that goal in mind. You have written that if you choose not to reproduce, you're saying, "If my genes don't like it, they can go jump in the lake." How does one account for this ability to defy *the* evolutionary imperative?

Pinker: I don't think evolution did design us to reproduce. Evolution designed us to enjoy sex and to

love children. Well, *our* children, anyway. There is a fallacy that people easily slip into, especially when they hear explanations of evolution that use the metaphor of the "motives" of genes. It's easy to confuse the metaphorical motives of the genes with the real motives of the whole person.

There's some pedagogical advantage to putting yourself in the mind-set of the genes -- to think that genes are driven by this supposed desire to make copies of themselves. But it's important not to confuse that with what people want to do. I don't think most people want to make copies of themselves. The way the genes accomplish their metaphorical motive of making copies of themselves is wiring the brain to like sex and to love little children. In a world without contraception, that's enough to get genes to make copies of themselves. If you change the world to one with contraception, and adoption, and many other things that sever these old cause-and-effect contingencies, then you can have the same desires but they do not necessarily result in babies.

Reason: What do insights from evolutionary psychology tell us about what society should be?

Pinker: I think a concept of human nature gives you insight into human interests, what makes people happy in general. But this understanding can't provide any insight into how you trade off the happiness of one person against the happiness of another in cases in which they conflict. That's why we will always have politics and moral arguments and so on.

Reason: Many critics of evolutionary psychology fear that it may exacerbate social and economic inequalities by justifying them on biological grounds.

Pinker: Whether humans are mentally indistinguishable or not is an empirical question, and we're not going to make people into clones by a desire that they be clones, even on the dubious premise that that is desirable.

Yet we can adopt measures that achieve greater equality if we decide that that is a social good. I think all that biology tells us is that there may be costs as well as benefits. It is not a new idea, but people have pointed out that equality of outcome and equality of opportunity are not only different but they are necessarily in conflict. That doesn't mean necessarily that you have to sacrifice equality of outcome. It just means that different political ideologies can be arrayed on what point along that tradeoff they argue is best.

An extreme authoritarian Marxist would sacrifice all freedom to the goal of the equality of outcome. Perhaps an extreme libertarian position would sacrifice any kind of equality of outcome in favor of equality of opportunity. If those are the terms of the debate, science can't tell us what's the optimum point along that tradeoff.

Now, the moral principle regarding equality is simply that people not be prejudged on the basis of certain group averages, the averages of the groups to which they belong. That is, you should not discriminate against someone based on gender or ethnicity. That doesn't say that all races and all ethnic groups and all genders are indistinguishable, although they may be. It says that you don't even have to worry about that; you should treat individuals as individuals.

Reason: The evolutionary psychologist's account of human behavior is clear and succinct, but as the physicist Steven Weinberg says, "The more comprehensible the universe becomes, the more pointless it seems."

Pinker: It may be pointless in some cosmic sense, in the same sense in which there's no point going on

living because, as the young Woody Allen character in *Annie Hall* said, "The universe is expanding, and someday it will break apart and that will be the end of everything, so why should I do my homework?" There's a point at which the Woody Allen anxiety -- what we might call the "Karamazov worry" -- is confusing two levels of analysis. The first scale consists of billions and billions of years and a universe which came into existence and which will go out of existence. The second is the scale of hours, minutes, days, and years in which we live our lives. Just as you don't worry about putting your laptop on the table after the physicist says that it's mostly empty space on an atomic level, you don't worry about life being a sham just because the neuroscientist says that morality comes from the brain.

We are looking inside our brains, and the moral sense is an inextricable aspect of human experience that we have to live with precisely because that's the way our brains are put together. We can go through the mental gymnastics of stepping outside our brains and looking at how it functions, but once we live our lives and deal with one another as individuals, these are the intuitions that we are stuck with. And again, not arbitrarily but for reasons that we can even gain some insight into when we do step outside ourselves.

Reason: That wonderful ability of recursion that we have -- that we are able to step outside and look at how our brains function -- still leaves us feeling a sort of ultimate meaninglessness?

Pinker: (laughs) Yeah.

Reason: In other words, except for science, we haven't really gotten much further than Descartes when it comes to grounding meaning and existence?

Pinker: Yes, in some sense. But what's the alternative? It's not as if there is some coherent alternative that we're abandoning. It's not as if God decreed on the day of creation that *this* is the meaning of life. The same curiosity that leads you to step outside yourself to ask, "Why do we have moral intuitions?" also makes you step outside God's world and ask, "Well, what told God to create *that* as the meaning of our existence?"

So you still have that gnawing existential anxiety. But let me go back to the question of whether seeing morality as a product of the brain licenses amorality. In practice, it is less dangerous than the idea that morality is ultimately vested in the commands of a religious authority. 9/11 is only the most recent example of a case where morality derived from religion leads to horrible atrocities.

Try Reason's award-winning print edition today! Your first issue is FREE if you are not completely satisfied.