

The Blank Slate

The Modern Denial of Human Nature

By Steven Pinker
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Reviewed by Brent Danning

In Brief

I must first beg forgiveness for thinking that the nature vs. nurture debate was over—that a consensus had developed acknowledging the influences of both genetic and environmental factors on basic personality traits. As it turns out, merely suggesting that heredity influences behavior—as opposed to just eye color—is still very controversial. Prof. Pinker reviews the evidence for nature vs. nurture and concludes that basic personality traits such as intelligence, extroversion, openness to experience, etc., can be best explained as 40-50% due to heredity, 50% due to non-family environment, and 0-10% due to family environment.

In many cases, our culture refuses to recognize what psychology, anthropology and sociology can amply demonstrate about “human nature.” Instead, we cling to three outdated concepts of human nature: 1) that people are infinitely malleable by social influences (dubbed the “blank slate” or empiricism); 2) that people are inherently good but become warped by society (romanticism or the “noble savage”); and 3) that mind and body are entirely separate realms and that a spirit/soul/homunculus animates the mind (dualism or the “ghost in the machine”). These concepts are either demonstrably false, or the subject of religious belief and unsusceptible to scientific analysis. A more nuanced view of human nature suggests plausible answers to some of society’s seemingly intractable problems. Prof. Pinker is particularly adept at relating human nature to issues in politics, the arts, gender, violence and child rearing.

This book is no dry critique of mounds of academic studies. Prof. Pinker bravely discusses the implications of human nature on various political and social issues with often surprising results. This book will probably not change anyone’s politics in terms of left vs. right. However, if it doesn’t change the way you think about politics and social issues, if it doesn’t change how you frame these questions—then you weren’t paying attention.

Particularly fascinating is the inside account of the political firestorm ignited by *The Bell Curve*, *The Nurture Assumption*, and *A Natural History of Rape*, in which those authors assert that genes are partially responsible for intelligence, children’s personalities, and rape as a sexual strategy, respectively. The degree to which political biases and social agendas dictated the scientific debate surrounding these books was astounding. This observation provides but cold comfort to those of us who fear the present Bush Administration’s attempts to direct scientific inquiry is

politicizing science. Clearly, science was already politicized. The Bush Administration is merely changing the ideology. Cold comfort, indeed.

The Blank Slate is an insightful summary of our knowledge of human nature and an engaging discussion of what a complex human nature implies. It is easily accessible to a lay reader such as me and well worth the time to read. Indeed, as I read it a second time for this review, I can say it's well worth the time to read twice.

In Detail

We have no choice but to hold some concept of human nature. In our everyday lives, we must predict how people are going to react to what we do. This model each of us has is a view of human nature. Over the centuries, three concepts about human nature have been explicitly defined and seem to have “stuck” in Western culture. Oddly, none of them are particularly useful in today's world.

The Blank Slate is the empiricist view that we start with nothing and learn only what experience impresses upon our mind. Appealing as this idea is, it is demonstrably false. A mind that absorbs experiences but has no pre-existing rules for association, causation, or any other sort of data processing does precisely nothing. It cannot create rules for processing information because it has no mechanism for creating those rules. Artificial intelligence programmers quickly learned that a computer with a vast amount of data but no pre-programmed set of rules for processing data and developing data processing rules simply sits there.

If you provide the mind with a set of rules for associating events in time and space, or presuming causality, or even “Seek pleasure” and “Avoid pain,” then the slate is no longer blank. What exactly these rules are, and how they apply, will be the subject of scientific inquiry for several decades at least. However, it is fairly clear that both innate rules and experience combine to form the nature of an individual. Language is a good example of this. Anyone who has ever raised a child knows that children have a predisposition to learn language. Children somehow “know” that when you hold up a black fuzzy animal and say, “Cat,” the word and the animal are related, notwithstanding the fact that this process must be repeated many times. The child could just as easily link “cat” to holding, or mouth movement, or black, or any number of irrelevant things. However, there does seem to be a predisposition for children to understand the intentionality of another person. They understand the association of “cat” to “black fuzzy animal” long before they could formulate a concept as complex as, “When I hold up an object and direct your attention to it, I am referring to that object.” While there is an innate predisposition to learn language, whether the child speaks English or Farsi is entirely dependant upon the child's environment. Thus, it is the combination of innate bias and environment that results in language development.

The Ghost in the Machine is the religious concept of a soul. It is often associated with dualism: the idea that spirit and body are completely separate. It arose in opposition to the idea that life and mind could be explained in mechanical terms. It was feared that if mental activity were completely explicable in terms of chemical and mechanical brain states, then our behavior would

be entirely determined by the material world. Therefore, free will would not exist, except as an illusion.

However, if there is a soul, which cannot by definition be influenced by the material world, and that soul is the wellspring of free will, then the danger of material determinism is avoided. Because the soul cannot be influenced by the material world, it is insusceptible to scientific inquiry. By definition, no replicable scientific experiment could prove (or disprove) the existence of a soul. And, as dissenting philosophers have pointed out for centuries, if the material and spiritual are entirely separate realms, then there is no mechanism by which the spiritual can influence the material world, and we're still stuck without an explanation for free will.

While science cannot influence souls, souls can surely influence science. The Bush Administration has curtailed research using fetal stem cells because of the concern that the fetal tissue was "ensouled" at conception.

The Noble Savage is the romantic notion that people are innately good, but are corrupted by civilized society or "culture." Thus, if we returned to a more "natural" state, our social problems would disappear on their own. This hypothesis can be tested by anthropologists. Prof. Pinker offers many interesting examples of warfare in tribal societies. The !Kung San, who were dubbed "the harmless people" by Elizabeth Thomas in a book by that name, turn out to have a murder rate higher than that of American inner cities. The percentage of male deaths due to warfare in the eight indigenous peoples studied was 3 to 20 times higher than in the US and Europe in the 20th century, despite two world wars and a holocaust! Looking at a still broader picture, anthropologist Carol Ember showed that 90% of hunter-gatherers are known to engage in warfare, and 64% had done so at least once within the previous two years. Thus, it is unlikely that indigenous peoples are any more noble than civilized ones.

Further, this idea that culture is something imposed on otherwise helpless individuals fails to explain the most obvious questions about culture: namely, how and why do cultures change? At first blush, cultures are bewilderingly diverse. But underlying this diversity are some common threads. While the choice of driving on the left or the right is arbitrary, the need to make a common choice is very adaptive. Instead of looking at culture as an arbitrary set of rules, it is better seen as "a pool of technological and social innovations that people accumulate to help them live." Cultures are notorious for adopting ideas from other cultures, whether it is electricity or traffic regulations. Some ideas are adopted from the individual up, as when a person buys an electric generator. Others are adopted from the top down, as when a government endorses a television standard. Viewed in this light, culture is something that both shapes human nature and is itself shaped by human nature.

Reductionism is not terribly useful in understanding human nature. To a certain extent, cultures may be explained by the sum of individual actions, which in turn may be explained by biology. But why stop there? Biology can be explained by chemistry, which can be explained by physics. To describe WWI as an incredibly complex set of interactions among quarks is not very useful.

A more nuanced view is beginning to emerge from cognitive science, which shows at least some of the bridges between biology, individuals, and culture. Prof. Pinker enumerates five such observations as particularly helpful: 1) The mental world can be grounded in the physical world by the concepts of information, computation, and feedback. 2) The mind cannot be a blank slate because blank slates don't do anything. 3) An infinite range of behaviors can be generated by a finite number of combinatorial programs in the mind. 4) Universal mechanisms can underlie superficial variation across cultures, and 5) The mind is a complex system composed of many interacting parts.

If we combine the ideas of the cognitive scientists, that culture is a tool to help people live, that both biology and physical environment influence individuals, and that there are feedback loops among and between biology, individuals, and culture, then we begin to see a concept of human nature molded by a larger, multi-dimensional context. Such a view of human nature, while much more complex than uni-dimensional models based solely on biology or culture, should be far more powerful in explaining why we are the way we are.

The Blank Slate's Last Stand

Several scientific advances in recent years have been misconstrued as buttressing the Blank Slate view of human nature. The discovery that there are “only” 34,000 genes in the **human genome** (as opposed to 18,000 in a tiny, 959-cell roundworm) was misinterpreted as suggesting that our genes do not contain enough information to “wire” our brains—therefore, biology cannot be a factor in human behavior. But this argument misses the mathematically obvious. Genes can do more than one thing, and can do different things depending upon the effects of environment and other genes. It is not the absolute number of genes that determines complexity, but the potential combinations of those genes. As geneticist Jean-Michel Claverie points out, if you consider the combinatorial power of genes, the human genome is not twice as complex as a roundworm, but $2^{16,000}$ times (1 followed by 4,800 zeroes) as complex.

A second misinterpreted advance is that of **neural network** computer programming. Cognitive scientists are creating programs patterned after observations about how the brain appears to be neurally wired. These programs can solve some very limited, basic problems such as pattern recognition. The argument here is that the brain is like a generic neural program that can be “wired” by experience. However, when given a more human problem like speech recognition, these programs fail—unless, of course, the program is outfitted with separate subroutines for talking about ducks in general versus a duck in particular; or talking about a new idea based not on previous objects, but upon the relationship of those objects to each other; or the ability to embed one thought inside another; or the ability to engage in categorical reasoning as well as fuzzy logic, e.g., the idea that Bob Dylan is a grandfather even though his is not very “grandfatherly.” By this point it should be clear that the cognitive scientists have proven Prof. Pinker's point: the brain is less like a single basic programmable core, and more like a set of specialized subroutines.

Plasticity is the idea that parts of the brain can serve many functions. Extreme plasticity would then be the idea that brain tissue is generic and its function becomes the happenstance of which nerves it happens to be connected to—the plastic slate, instead of the blank slate. In one

stunning experiment, neuroscientists rewired ferrets' brains so that their visual inputs fed the auditory cortex. And the ferrets "worked!" While not as visually acute as normal ferrets, they nonetheless could clearly "see." This proposition has been expanded to the idea that pieces of the brain are plastic and can be molded by neural connections and stimulation into whatever function is needed.

While no one doubts that the brain is plastic to some degree, the extreme plasticity argument overstates the case. When developing ferrets' eyes were removed, depriving the visual cortex of all input, their visual cortexes developed with the standard arrangement of connections from two eyes. Studies of patients with variously damaged brains do show that brains can adapt somewhat to the loss of brain tissue—but only within limits. And mouse studies where their brains were denied stimuli still showed "normal" brain development (but quick deterioration thereafter: it seems stimulation is necessary to maintain the brain, if not create it.) It seems far more likely that our genes code for a generalized brain organization and that sensory and neural stimulation refines and optimizes that organization. Prof. Pinker points to the hip as a simple example: the genes that code for the ball do not also control the socket. Rather than specifying both sides of the joint in detail, the genes code for a generalized joint and for modification to the joint, depending upon the feedback from the joint itself as the child kicks in the womb. As one would expect, a fetus whose joint is immobilized has a deformed hip joint.

Summary of the evidence: Prof. Pinker summarizes his case for a complex human nature as follows:

Simple logic says there can be no learning without innate mechanisms to do the learning. Those mechanisms must be powerful enough to account for all the kinds of learning that humans accomplish. Learnability theory—the mathematical analysis of how learning can work in principle—tells us there are always an infinite number of generalizations that a learner can draw from a finite set of inputs...A successful learner, then, must be constrained to draw some conclusions from the input and not others. Artificial intelligence reinforces this point. Computers and robots programmed to do humanlike feats are invariably endowed with many complex modules.

Evolutionary biology has shown that complex adaptations are ubiquitous in the living world, and that natural selection is capable of evolving them, including complex cognitive and behavioral adaptations...The study of humans from an evolutionary perspective has shown that many psychological faculties (such as our hunger for fatty food, for social status, and for risky sexual liaisons) are better adapted to the evolutionary demands of our ancestral environment than to the actual demands of the current environment. Anthropological surveys have shown that hundreds of universals, pertaining to every aspect of experience, cut across the world's cultures.

Cognitive scientists have discovered that distinct kinds of representations and processes are used in different domains of knowledge, such as words and rules for language, the concept of an enduring object for understanding the physical world, and a theory of mind for understanding other people. Developmental psychology has shown that these distinct

modes of interpreting experience come on line early in life: infants have a basic grasp of objects, numbers, faces, tools, language, and other domains of human cognition.

The human genome contains an enormous amount of information, both in the genes and in the non-coding regions, to guide the construction of a complex organism. In a growing number of cases, particular genes can be tied to aspects of cognition, language, and personality. When psychological traits vary, much of the variation comes from the differences in genes: identical twins are more similar than fraternal twins, and biological siblings are more similar than adoptive siblings, whether reared together or apart. A person's temperament and personality emerge early in life and remain fairly constant throughout the lifespan. And both personality and intelligence show few or no effects of children's particular home environments within their culture; children reared in the same family are similar mainly because of their shared genes.

Finally, neuroscience is showing that the brain's basic architecture develops under genetic control. The importance of learning and plasticity notwithstanding, brain systems show signs of innate specialization and cannot arbitrarily substitute for one another.

“Behavioral science is not for sissies.”

Prof. Pinker next turns to the politics within the scientific community concerning human nature. In many respects, this is the most interesting discussion within the book. Opposition to the idea of a complex human nature came from both the political left and right. Unfortunately, many (mostly politically liberal) scientists sought reasons to oppose war, racism, and oppression with the idea that humans are all biologically and mentally identical, and, therefore, any sort of discrimination is irrational. Yet there are plenty of other grounds to oppose these sorts of oppression, which are moral issues and not scientific questions. As research began to show that indigenous peoples are warlike, that biology favors family, clan and tribe and, therefore, provides an explanation (but not a justification) for discrimination—it challenged the liberal notion that society could be transformed into anything we like. The concept of a “human nature” would put limits, albeit broad limits, on what structures a society must (and cannot) include.

Particularly galling are the tactics employed in “scientific debate” on the subject of human nature: Tactics which included deliberate misquoting, threatened and actual physical violence, protests prompted by false claims of racism, name calling, ridiculing a proponent's sex life, and falsely accusing researchers of deliberately infecting the Yanomamo with measles. This whole discussion is a fascinating look at the rough and tumble of scientific debate.

The political right attacked not just the idea of an evolved human nature, but of evolution itself. Largely extinct in academia, the political right argued more in political circles and the popular press. Their concern was summed up by creationist John West: “If human beings (and their beliefs) really are the mindless products of their material existence, then everything that gives meaning to human life—religion, morality, beauty—is revealed to be without objective basis.” Instead, the political right proposed Michael Behe's theory of Intelligent Design, which argues that the “molecular machinery of cells cannot function in a simpler form, and therefore could not

have evolved piecemeal through natural selection.” At least Intelligent Design is a testable hypothesis subject to the glare of scientific scrutiny, where it seems to be withering.

The Four Fears

Critics of the idea of a human nature express four fears:

1. If people are innately different, discrimination is justified.
2. If people are innately immoral, the human condition is hopeless.
3. If people are products of biology, they cannot be held responsible for their actions.
4. If people are products of biology, life would have no higher meaning.

Critics from both the left and right argue that the philosophical and social consequences of a biologically based human nature are dire enough that we should just reject the notion, regardless of its truth. Prof. Pinker points out that these fears are based on faulty logic or a simplistic misunderstanding of a complex human nature.

In the case of discrimination, Prof. Pinker’s concept of complex human nature, people are qualitatively the same but differ quantitatively. Which is to say, each of us has some language skills, some athletic ability, and some arithmetic skill. We each have these qualities. However, we possess them in different amounts. Part of our skill level will depend upon whether our environment encouraged or discouraged that skill set, and part will depend upon our genetic gifts regarding that skill.

Among the universal qualities found in a complex human nature is that no one likes to be enslaved; no one likes to be humiliated; and no one likes to be treated unfairly. This is a strong foundation for opposing discrimination, regardless of whatever scientists may discover in the future about the distribution of intelligence, social skills, etc., among various groups of people.

A related fear proffered by a group of politically liberal scientists (self-dubbed “radical scientists”) is eugenics. If there is any biological basis for behavior, the political right will start human breeding and extermination programs. Prof. Pinker responds:

Contrary to the belief spread by the radical scientists, eugenics for much of the 20th century was a favorite cause of the left, not the right. It was championed by many progressives, liberals, and socialists, including Theodore Roosevelt, H.G. Wells, Emma Goldman, George Bernard Shaw, Harold Laski, John Maynard Keynes, Sidney and Beatrice Webb, Margaret Sanger, and the Marxist biologists J.B.S. Haldane and Hermann Muller. It’s not hard to see why the sides lined up this way. Conservative Catholics and Bible Belt Protestants hated eugenics because it was an attempt by intellectual and scientific elites to play God. Progressives loved eugenics because it was on the side of reform rather than the status quo, activism rather than laissez-faire, and social responsibility rather than selfishness. Moreover, they were comfortable expanding state intervention in order to bring about a social goal.

The second fear is that if humans are innately gifted with greed, lust and malice, then all hope of social progress is lost. Yet this fear is based on a myopic view of human nature. Yes, fear, selfishness, and aggression are part of our genetic makeup. So are love, sympathy, friendship, foresight, self-respect, empathy, a desire for respect from others, and an ability to learn from our own experiences and those of our neighbors. To the extent that we can create social institutions to encourage useful traits and discourage harmful ones, so much the better. A thorough understanding of human nature can only assist in this regard.

The third fear is that a biological explanation for human behavior means that we can't hold people responsible for their acts. Again, this fear is based on an incomplete understanding of our complex human nature and confuses explanation with exculpation. Recall that Prof. Pinker's view of the human mind is one of many parts, not all of which are necessarily in agreement. So, one might be able to explain that a violent act originated in a particular part of the brain, as a result of a certain (im)balance of brain chemistry. Since the offender doesn't control his brain chemistry, he can't be held responsible for his violence. However, to argue that this excuses the violent behavior is to ignore the rest of human nature.

Other parts of the brain suppress anti-social behavior, and obviously failed to mediate this violent act. One of those mediation components is the concern over how behavior will be viewed by one's peers. If one's peers were to condemn the violent act by punishing the offender, then the violence mediation component of the offender's brain will have been reinforced (and similar effects will be noted among his peers). Thus, it is perfectly rational to punish an offender because such punishment discourages bad behavior in both the offender and his peers.

The final fear is that of nihilism: If our behavior is explicable by biology, we must, therefore, be meaningless. This argument has been offered by no less than the Pope! And yet, logically, there does not seem to be any connection between meaning and explanation. For example, our depth perception is a result of complicated visual and brain circuitry, which can be explained in terms of biology. However, that explanation does not mean that there are no cliffs, trees and other three-dimensional features out in the world. Similarly, should science one day be able to explain how and why our brains perceive meaning, purpose, morals and beauty, it will not mean that these ideas do not exist independently in the world. That debate will continue.

“Evolution is surely most deterministic for those still unaware of it.”

So says biologist Richard Alexander. Prof. Pinker next turns to a closer examination of what our complex human nature looks like. Unfortunately, our nature is less interested in “truth” and “reality” than we would like.

The first point to realize is that our perceptions evolved not to give an ever more accurate representation of the world, but to provide us with information that was useful for survival to a small group of bipeds in a savannah environment. Interlinked with this mental map of the world are intuitive models for physics, language, psychology, biology, economics, number, special sense, and probability, among others. These models provide a quick and dirty take on what is happening in the world, but are not nearly sophisticated enough to compete with modern science. Thus, we often find ourselves wanting to believe one thing even when the scientific evidence suggests the contrary.

This has profound implications for education. We don't need education to focus on speaking the dominant language—children will do this naturally. We need education to focus on the aspects of the world we don't do naturally, such as reading, writing, and complicated mathematics.

And it is not only our sense of the physical world that evolution created using these rough and dirty models. The moral world, too, looks like a creation of evolution. Evolutionary psychologists have long noted that reciprocal altruism (the trading of favors) is clearly beneficial to both parties, and could be a trait subject to evolutionary selection. Reciprocal altruism also provides a framework for the moral emotions. Guilt, outrage, fairness, gratitude, moral awe, shame, revenge—these are all emotions that work to enforce reciprocal altruism, or punish those who violate it.

Biologist Robert Trivers provides an intellectually elegant model for how and why non-reciprocal altruism could develop: altruistic behavior is evolutionarily favored where the cost of the altruism is less than the benefit to the recipient times the degree of genetic relatedness. This simple formula captures why “blood is thicker than water.” But Trivers' idea of “following the genes” explains far more than altruism. Siblings each share 50% of their parent's genes. Therefore, a parent would want to treat viable siblings equally. However, each child is 100% genetically related to itself but shares only 50% of its sibling's genes. Therefore, each child would want resources split 2/3:1/3 in its favor (sibling rivalry), while parents would want resources split 50:50. This observation alone goes a long way in explaining why families are not the idyllic havens we'd like them to be.

Hot Button Issues

Perhaps the most fearlessly entertaining section of this book is the discussion of hot button issues as they relate to human nature: Politics, Gender, Violence, Children and The Arts. Prof. Pinker never actually states his political beliefs. However, after reading him, one cannot help but get the impression that he is more comfortable on the leftish side of politics. It is with some reluctance that he finds himself forced to admit—by intellectual honesty and the weight of the scientific evidence—that the more radical leftish notions are unworkable. Still, he is rather an optimist because, while an understanding of a complex human nature may not lead us to nirvana, it will help us make better decisions to improve our world.

Politics

It has long been said that political philosophies are, at base, opinions about human nature. Is society the aggregation of individuals, or is it something separate and above, something for which the individual should sacrifice his/her personal desires? Are human beings infinitely malleable, and, therefore, able to be shaped to meet whatever needs society demands?

Prof. Pinker has clearly shown that human nature is malleable, but only within rather narrow limits. Thus, the Marxist and Utopian visions, while attractive, are not feasible. As one ant biologist quipped of Marxism: “Wonderful theory. Wrong species.” Prof. Pinker finds that the emerging complex human nature tends to undermine traditional leftists' “remake society”

political ideals. Human nature will not allow a society premised upon people treating strangers as kin, abandoning self-interest, or shunning competition for status. Such political thought will have to change from utopian visions to “better than now” goals compatible with human nature.

Prof. Pinker also predicts that a robust understanding of a complex human nature will cut across current political attitudes in seemingly surprising ways. For example, he says, if intelligence is partly hereditary, and income is largely dependant upon intelligence, then society should accept some form of redistribution of income to support those who aren't making it through no fault of their own. Why? Because within that complex human nature is also a desire for fairness. As another example, people seem to save insufficiently for old age. This short time frame may well have been adaptive on the savannah 50,000 years ago. However, it is to no one's benefit to have a large group of impoverished old folks cluttering the sidewalks. Therefore, the leftish political argument that people need be forced to save for old age through social insurance programs is supportable.

Violence

Theories abound purporting to explain human violence. Some, at least, can be easily shown to have no factual basis, even if they remain popular. For example, TV violence cannot be empirically linked to street violence. From 1800, when there was no TV, to the present, murder rates have fallen 90%. Yet TV was clearly unavailable during the times of high violence. Similarly, violent video games were introduced in the 1980's and 1990's to children, and violent crime fell. Japan, home to many of these violent games and TV shows, nevertheless has very low rates of street violence. Similarly, guns, poverty, disease, and nutrition find little evidentiary support as causes of violence when compared across communities. Unfortunately, the problem is just not that simple.

Age and gender, however, are clearly linked to violence. Across cultures, men are 20-40 times more likely to kill than women, and the majority of these killers are ages 15-30. Of these young men, 7% account for 79% of repeat violent offenses. Furthermore, violence is not learned. Studies show that the most violent behavioral age among males is toddlerhood! The reason toddlers don't kill more often is that we don't give them access to guns and knives. It is fairly clear that people are socialized against violence, not the other way around. The question should perhaps be restated from, “Why are people violent?” to “Why aren't people more violent?”

Regrettably, violence is altogether rational from an evolutionary perspective. Thomas Hobbes laid out a conceptual framework for the use of violence citing three basic strategies: 1) Competition (taking resources), 2) Mistrust (pre-emptive strikes) and 3) Deterrence (an “honor” society). A village that raids another uses violence to take resources. Having observed other villages being raided, another rational village may well arm itself and mount a pre-emptive raid not to acquire resources but to prevent their own resources from being stolen. A successful village may then adopt a war faring culture, where even minor insults are avenged in blood, so that their reputation for violence discourages attackers. These strategies apply both to individual and group levels.

This suggests violence can be reduced by more and better policing. Indeed, the success of community-based policing supports this view. Perhaps the political right was correct about policing. Prof. Pinker relates his own experience on the need for police:

“As a young teenager in proudly peaceable Canada during the romantic 1960s, I was a true believer in Bakunin’s anarchism. I laughed off my parents’ argument that if the government ever laid down its arms all hell would break loose. Our competing predictions were put to the test at 8:00 a.m. on October 17, 1969, when the Montreal police went on strike. By 11:20 a.m. the first bank was robbed. By noon most downtown stores had closed because of looting....By the end of the day, six banks had been robbed, a hundred shops had been looted, twelve fires had been set, forty carloads of storefront glass had been broken...This decisive empirical test left my politics in tatters (and offered a foretaste of life as a scientist).”

Honor societies have been extensively studied. They tend to arise where there is no “law” and where wealth is easily stolen. The classic case is herder societies, whose animals can be stolen and who often occupy marginal lands with little governmental control. In modern America, smaller honor societies have emerged around drugs, prostitution and gambling—exactly as predicted. These groups cannot appeal to the law because they are themselves illegal, and what is vital to their operations—their territories—are easily stolen. Consequently, the cost of making these activities illegal is not just police salaries, prison costs, and reduced individual freedom, but also increased violence. Perhaps the political left was right about victimless crime after all...

Solutions to violence among nation states are less obvious. One proposed predictor of a country’s willingness to engage in warfare is simply the percentage of the population aged 15-29. If this is true, then one must fearfully note that both China and India have swelling demographics in this age range. Peace activists would be well advised to start planning now.

Gender

Prof. Pinker’s discussion of gender focuses on two incendiary topics: workplace equality and rape. While the two sexes are equal in terms of general intelligence, there are some subtle differences in specific aptitudes. For example, women are better at spelling and verbal fluency, while men are better at abstract math and math word problems. Women do better remembering landmarks; men are better at manipulating 3-D objects in space. Prof. Pinker takes great pains to reiterate that acknowledging that men and women differ does not in any way imply that one gender is somehow “better” than the other.

The differences, however, go a long way towards explaining why university mathematics departments are dominated by males and the field of psycholinguistics by females. There is mounting evidence that women prefer certain fields, and men others. This explanation is taboo under the present regime of political correctness. Yet more than half of all undergraduates are women; half of all science majors are women; and only one woman proceeds to doctoral candidate in mechanical sciences for every eight men. Further, this can no longer be attributed to women being discouraged from entering advanced science programs. When the National Science foundation surveyed women leaving advanced sciences, they found many more women

than men who said they ignored their own aspirations and entered science, math or engineering because of pressure from teachers, family and friends. Research in gender equality needs to abandon the myth that “society” can be blamed for all ills and begin to explore the possibility that human nature will create male and female dominated fields as a result of aptitude.

Rape is perhaps the most incendiary topic Prof. Pinker deals with. First, he must dismiss the taboo of talking about rape. The politically correct view is that rape is always an expression of male subjugation of females. This view is held with nothing short of religious fervor. Yet it is farcically absurd. First, if men as a gender wanted to use rape to subjugate women as a gender, why would men have made rape illegal in all cultures? Second, note that men often want sex with women who don't. Third, males use violence to steal money, establish territory, establish dominance, and avenge perceived slights or insults. Men have killed each other over designer sneakers and 25-cent bets. In short, some men can and do use violence to obtain whatever it is they may want. To suggest that sex is the one thing that males want but won't use violence to obtain is absurd. Rape, first and foremost, is about sex.

Despite modern birth control, about 5% of rapes result in pregnancy. Thus, evolution could have selected for rape as a sexual strategy. It is unlikely to have been a primary strategy as the rapist faces possible injury or death from the struggles of the female and the vengeance of her mate and kin. This leaves two possibilities: First, that rape is a contingent sexual strategy for males of such low status that it is their only chance of reproduction; and second, that rape is simply an opportunistic use of violence to obtain sex. Neither theory has yet been adequately explored to decide between the two and the current taboo of considering a biological basis for rape hinders that exploration.

Children

Perhaps the greatest relief to be found in this book concerns child rearing. Prof. Pinker analyzes the results of decades of study on siblings, fraternal twins and identical twins raised separately and together. In short, there is no evidence that systematic child rearing strategies have any effect whatsoever. Adopted children raised together are no more alike than any two strangers picked at random. If you follow Dr. Spock, Dr. Phil, or Dr. Zhivago, it just doesn't matter. The better strategy may well be to spend time with your children doing what you and they enjoy, rather than fruitlessly endeavoring to mould them with every activity.

Prof. Pinker finds that basic personality traits such as intelligence, extroversion, openness to experience, etc., can be best explained as 40-50% due to heredity, 50% due to non-family environment, and 0-10% due to family environment (at most). However, he does leave open the possibility within this explanation: chance developmental events. Random events—such as whether a molecule branches left or right—may also have an effect on the developing brain. This may be what accounts for the fact that identical twins raised together are not 100% identical. This is an intriguing thought that deserves more research.

The popular press has recently latched onto birth order as a determinant of personality. It should not be surprising that first-born children would adopt similar strategies when competing with new siblings for their parents' attention and resources. Nor should it be surprising that middle

children would have a different set of strategies. And studies have shown similarities in children's behavior—but only when that behavior was measured in the family environment! Studies that have asked teachers or third parties to evaluate children find no correlation between birth order and rebellion, assertiveness, etc.

The Arts

Prof. Pinker uses human nature to offer several observations without truly endorsing any of them. Still, they are provocative ideas, each with at least a grain of truth. And knocking artists off their pedestals is nothing if not good, clean fun.

Despite constant sloganeering to the contrary, art is never for art's sake. What artist creates and then destroys her work before another can see? No, art is first and foremost a social interaction. Admittedly, some art may be destroyed—just as I censor some of my social speech in order not to emphasize what I don't want to talk about. But this is only to say that artists display art about which they are proud.

What we consider “classical” arts are actually dated examples of conspicuous consumption. Portraits, string quartets, Faberge eggs and symphonies were displays of wealth and status. In the 18th century, these were not found in the homes of the middle classes, or even the intellectual class—except as they happened also to be rich. The more rare, refined and expensive a piece of art, the more status it brings.

And, indeed, in nature we find species using art to compete for mates. The male satin bowerbird creates elaborate nests adorned with orchids and berry paint to attract females. Artistic expression is one way a male can display fine motor skills, intelligence, and the sensitivity to see what other people want/need and provide it—a valuable social skill. Art provides a way for prospective mates to evaluate the artist's brain, and, indirectly, his genes. Thus, there is theoretically a path through which selective evolution could work.

I must confess that I am so baffled by Modern and Postmodern art that I've become a self-proclaimed Philistine. I see little new territory in abstract art that my 5-year-old has not already thoroughly discovered. Thanks to Prof. Pinker, I now understand why. Prior to the 20th century, art was limited by its production to one-of-a-kind pieces. With the advent of mass production, everyone could have a passable Rembrandt hanging in a reproduction frame. Art was in danger of losing its ability to convey status. “Art could no longer confer prestige by the rarity or excellence of the works themselves, so it had to confer it by the rarity of the powers of appreciation.” In order to create exclusivity, art deliberately became less beautiful, less accessible, less intelligible. Speaking now for the unwashed masses, it should now be obvious why we are not interested in supporting art which is designed to be unintelligible to us!

Prof. Pinker also offers a more charitable interpretation of art: namely, that art arises as the unselected consequence of other very useful skills. While art may be useful at times for impressing mates or achieving social status, it may also be, “a by-product of three other adaptations: the hunger for status, the aesthetic pleasure of experiencing adaptive objects and environments, and the ability to design artifacts to achieve desired ends.”