

THE CHALLENGE OF EVOLUTIONARY PSYCHOLOGY
TO THE HUMANITIES:
SOME MAJOR VOICES IN THE HUMANITIES COMPARED WITH
REPRESENTATIVE VOICES OF EVOLUTIONARY PSYCHOLOGY

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THESIS: THE CHALLENGE OF EVOLUTIONARY PSYCHOLOGY
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HUMANITIES COMPARED WITH REPRESENTATIVE
VOICES OF EVOLUTIONARY PSYCHOLOGY

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ABSTRACT

This thesis compares some major voices in the humanities to some contemporary representative voices in Evolutionary Psychology regarding the mind and behavior, or what is called "human nature." The simple Standard Social Science Model which essentially embraces empiricism to explain complex human behavior appears obsolete in light of contemporary cognitive science. The author suggests that the humanities must explore ways to integrate contemporary theories of the mind into the discipline. An evolutionary approach to the humanities acknowledges that human behavior and belief systems are akin to adaptations, and that human instincts and values may be mutually supportive.

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Introduction

Just as the physical sciences strive to discover the nature of the universe, so have the traditional humanities¹ endeavored to understand the nature or essence of man.

Theologians, philosophers, and now “evolutionary psychologists” continue to debate the question of human nature from different perspectives.

One of the basic problems central to this on-going debate is the working of the human mind. Are we born with innate ideas? If so, which ones? The empiricist tradition essentially holds that all ideas are written into the mind through experience. Aristotle was among the first to compare the mind to a blank sheet of paper on which experience writes. John Locke and David Hume wrestled with this question; their ideas will be discussed below.

A second historical debate surrounding the nature of man has been the question of his basic temperament. Thomas Hobbes believed that man was basically a selfish being, whereas Jean Jacques Rousseau spread a doctrine of primitive man as a “noble savage.” These views will be compared to the anthropological record and evolutionary psychology.

A third problem that has arisen in this analysis is what philosophers call mind-body dualism. Is the mind separate from the body, or is it merely a function of the body? If the mind is purely a function of material processes (materialism), the concept of an

¹ The “traditional humanities” refers to those disciplines that seek to enrich our understanding of the human experience through philosophy, religion, history, and the arts.

eternal soul separate from the body may be illusory. This problem attempts to answer the question to what extent our thoughts or actions are freely chosen, as opposed to biologically determined. This is also referred to as the nature versus nurture debate, which is also a challenge to the first question that assumes the mind is essentially born blank. Modern psychology, especially evolutionary psychology, maintains that the human mind is the product of complex neuro-combinatorial processes created through natural selection, and that understanding the human mind requires an evolutionary perspective.

Copernicus, Newton, and Darwin

Historically, two of the greatest events that affected the traditional humanities were the Copernican Revolution of the sixteenth century and the Darwinian Revolution of the nineteenth century. The Copernican Revolution destroyed the comfortable geocentric worldview of the time endorsed by the Roman Catholic Church. Suddenly, mankind seemed no longer at the center of God's creation. The heliocentric worldview, along with the Newtonian concept of universal gravitation forwarded in his *Philosophiae Naturalis Principia Mathematica* (1687), buttressed our understanding of the world as one governed by natural laws. This "Age of Reason" influenced social philosophers, like Thomas Hobbes and John Locke, to further contemplate the nature of man and the possibility of social improvement. Just as the nature of the universe could be discovered through reason, so could man understand himself and engineer an enlightened social order. While Jews and Christians still largely respected the Bible as the divinely-inspired word of God, some conveniently removed Him from earthly affairs in what became

Deism. Some thinkers believed the exercise of reason was sufficient to build heaven on earth because the mind was merely the product of experience.

The second major influence was the Darwinian Revolution that began with the publication of the *Origin of Species* in 1859. The idea that all living species we encounter today result from the apparently 'mindless' forces of natural selection was unsettling, to the say the least. It essentially cast doubt on the traditional Judeo-Christian perception of the creation of species in a single divine act, and was used to challenge the authenticity of the Biblical account of Creation given in Genesis. While the evolutionary perspective did not arise in order to nullify traditional religion, but to explain the variation in species, it certainly had that effect, at least in terms of the Biblical Genesis account.

A third challenge to our understanding of human nature developed during the French Enlightenment and represented a radical departure from its rational premises. This was essentially the early romantic doctrines implied by Jean Jacques Rousseau in his rather mystifying classic *The Social Contract* (1762). Rousseau took issue with the premise that social progress implied enlightened self-interest. Instead, he maintained that modern social relations built on property had systematically corrupted a primitive goodness which he supposed men had once possessed. We know this as the doctrine of the "noble savage," or perhaps by a modern variation which essentially glorifies "nature" and vilifies industrial society.

The purpose of this thesis is to compare and contrast the views of major thinkers of the Enlightenment and those who followed with important contemporary thinkers in modern psychology, especially evolutionary psychology. The extent to which the

premises and perspectives of evolutionary psychology can be useful to the social sciences will be suggested by examining how an evolutionary perspective may add to the current literature and its possible impact on social policy.

The Enlightenment: Thomas Hobbes (1588-1679),
John Locke (1632-1704), David Hume (1711-1776)

After the great classical philosophers like Plato and Aristotle, one of the most important influences on Western social theorist's perception of man was Thomas Hobbes' *Leviathan* (1651).² Although Hobbes' defense of divine right and absolutism is dated by contemporary standards, his perception of human nature is acknowledged by many who do not necessarily share his politics or religion. As we shall see, evolutionary psychologists, such as Steven Pinker, more or less agree with Hobbes' contention that people by nature seek their own advantage and that some negative restraints on ambition are required for the good of the social order. The study that helps us derive the best social order Hobbes calls "the science of natural justice" (x), which assumes that man is essentially a being who lusts for power.

In Chapter 13 "Of the Natural Condition of Mankind as Concerning their Felicity and Misery," Hobbes writes of the general ability of men to cause one another harm. Whenever men want the same thing, "which nevertheless they cannot both enjoy, they become enemies" (Hobbes 105). The result is force or whatever means one employs to get what one wants. He then goes on to describe the root causes of human conflict in

² See also Glaucon's "Ring of Gyges" in Plato's *Republic*, which unfolds the concept of a state of nature; human nature; and the social contract. <http://philosophy.lander.edu/intro/articles/gyges-a.pdf>.

competition, diffidence, and glory. Men sometimes use violence for the first, violence because of the second (for security), and violence to maintain the aura of the third (106):

Hereby it is manifest that, during the time men live without a common power to keep them all in awe, they are in that condition which is called war, and such a war is of every man against every man. For war consists not in battle only, or the act of fighting, but in a tract of time wherein the will to contend by battle is sufficiently known; and therefore the notion of time is to be considered in the nature of war as it is in the nature of weather...the nature of war consists not in the actual fighting but in the known disposition thereto during all the time there is no assurance to the contrary. All other time is PEACE. (107)

Men are at war if there is no club threatening them to stop. Hence, the critical need for an all-powerful sovereign to keep men in check. Surely Hobbes' faith in the state preceded Lord Acton's dire warning: "Power tends to corrupt and absolute power corrupts absolutely."

Hobbes does not think men will know a moral sense until laws are made to constrain him. According to him, nothing in a state of nature is "sin." "Force and fraud are in war the two cardinal virtues" (108). What makes people settle on laws, says Hobbes, is the fear of death. By this logic, people bind together in communities to enhance their fitness, which seems to accord with evolutionary theory. Were social cooperation less advantageous than the law of the jungle, people would not incline

towards self-restraint, contractual relationships, or what we call cooperation, civilization, or trade. People create rules because they are personally useful.³

In his essay “Hobbes, Darwinism, and Conceptions of Human Nature,” Peter Amato argues that Hobbes’ explanation of man in a state of nature where everyone is at war with one another was done only to suggest that the true nature of man longs for comfort and peace. The point is that it is unnatural for man not to develop civic cooperation. He writes “if civic cooperation did not exist, humanity would have had to invent it” (7). The belief that man is primarily prone to aggression leads one to think that the establishment of civil society is somehow “unnatural.” According to Amato, “the idea that emerges from a careful reading of Hobbes is thus an idea of beings who live in a tension marked by both self-preservation and social orientation, which matches well what Hobbes actually says about the natural condition: “ill condition, which man by mere nature is actually placed in; though with a possibility to come out of it, consisting partly in the passions, partly in his reason” (7).

While Hobbes looked to the sovereign state as a way of handling human nature, John Locke believed that people were basically born *tabula rasa*, or “blank slates.” According to him, other than the raw ability to make sense of the world, our minds are essentially empty. Beginning at birth, information about the world is picked up through the senses. According to this view, what we call “human nature” is more the result of social experience than genetic modes. Locke’s book, titled The Essay Concerning Human

³ The question whether justice is innate or merely an artificial convention is treated in Plato’s Republic.

Understanding, first published in 1689, firmly established the empiricist's assumption that everything known entered the mind through the senses (II 2).

Using the famous image of a blank sheet of paper, anticipated by Aristotle, Locke proceeded to build an entire epistemology based on sensation and perception without a scientific understanding of what sensation and perception actually were. (So did David Hume, who declined to speculate on physiological conditions.) As Lewis Barker points out in Psychology (15), Locke's approach was the best the armchair philosophers of his day could expect without the analytical tools of modern neuroscientists to broach the question of the role biochemistry plays in memory, or genetic influences on behavior. James Clapp's article in the Encyclopedia of Philosophy cites Locke's reference to this in his early draft of the Essay. Locke rejected investigation of "the physical consideration of the mind... wherein its essence consists, or by what motions of our spirits or alternations of our bodies we come to have any sensation by our organs or any ideas in our understandings, and whether those ideas do in their formation any or all of them depend on matter or no" (Locke, qtd. in Clapp 489).⁴

Locke distinguishes three forms of knowledge: intuitive, demonstrative or inferential, and sensory. To Locke, people made sense of the world through sensation and reflection. However, Locke felt the human understanding was incapable of grasping reality in any absolute sense (Clapp 490). A world of ideas—humanly derived impressions—was separate from the "real" world. The mind could not enter a sphere

⁴ This is derived from his famous controversy with Bishop Edward Stillingfleet—whether senseless matter could think—Locke said God could have created "thinking matter."

other than what it experiences. Although human knowledge is only mental activity, it is the best we have. Given this faculty, we can assume the real existence of things.

Locke maintained there are no innate ideas. Other than the human capacity to receive stimuli and reflect upon that perceived, nothing comes with the soul (mind). Later thinkers challenged this bare-bones framework of human nature. Evolutionary psychologists argue, for example, that the human brain is actually equipped with instincts that allow for learning language, and that certain behaviors may even be inheritable. We may exhibit an ability to reason that approximates that of our parents. For example, we wonder why some parents, such as Einstein's, give birth to exceptional children while others barely attain the skills necessary for simple addition. Would it be safe to say that Einstein merely had extraordinary math instructors, while the great mass of humanity has not been so fortunate? If no ideas are innate, why is human development so uneven? For Locke's position to hold, only unique sensory experiences would explain the great variability in human intelligence, not the capacities we inherit genetically.

Clapp cites Locke's concept of an "idea" as "whatsoever is the object of the understanding when a man thinks ...whatever is meant by phantasm, notion, species, or whatever it is which the mind can be employed about in thinking" (Locke, qtd. in Clapp 490). Locke seems to get stuck by "the way of ideas" argument. He defines ideas, as Descartes had, as immediate modes of consciousnesses. Then the problem becomes how to get beyond them. It seems he intended ideas to mean the knowledge which is an operation or an activity of the mind (Clapp 490). It is not clear whether this implies all

activities, or only those of which we are conscious. In such a case we may be talking about “instincts.”

Because he likened embryonic development to the molding of clay in a pot, Locke framed the nature of man in terms of sensation and perception beginning at birth:

And he that will consider that infants newly come into the world spend the greatest part of their time in sleep, and are seldom awake but when either hunger calls for the teat, or some pain (the most importunate of all sensations), or some other violent impression on the body, forces the mind to perceive and attend to it; -- he, I say, who considers this, will perhaps find reason to imagine that a foetus in the mother's womb differs not much from the state of a vegetable, but passes the greatest part of its time without perception or thought; doing very little but sleep in a place where it needs not seek for food, and is surrounded with liquor, always equally soft, and near of the same temper; where the eyes have no light, and the ears so shut up are not very susceptible of sounds; and where there is little or no variety, or change of objects, to move the senses. (I 21)

According to Locke, the first and critical capacity of the mind is its ability to process what it perceives in experience (I 24). Apparently, this capacity accounts for human differentiation in memory and intelligence. However, he did not enunciate a

theory of memory other than to say the mind is somehow empowered with the ability to revive perceptions.⁵

Locke devoted Chapter 21 of Part II of the Essay to the subject of power, an idea he believed somehow accumulated in experience. Locke explained power in terms of the individual will to think or not to think about what one may or may not do (Clapp 494). This is not to be confused with the higher active power which he called God. According to Locke, “every one, I think, finds in himself a power to begin or forbear, continue or put an end to several actions in himself. From the consideration of the extent of this power of the mind over the actions of the man, which everyone finds in himself, arise the ideas of liberty and necessity” (XXI 7). In other words, he maintained that we have the power to govern ourselves. On the other hand, actions we choose may be inhibited or dictated by the perceptions of choices, with dangerous alternatives. He said:

Liberty may be confounded by necessity: But yet some ideas to the mind, like some motions to the body, are such as in certain circumstances it cannot avoid, nor obtain their absence by the utmost effort it can use. A man on the rack is not at liberty to lay by the idea of pain, and divert himself with other contemplations: and sometimes a boisterous passion hurries our thoughts, as a hurricane does our bodies, without leaving us the liberty of thinking on other things, which we would rather choose. But as soon as the mind regains the power to stop or continue, begin or forbear, any of these motions of the body without, or thoughts within, according as

⁵ To Locke, memory is an intuitive, cogito-like idea of the self that establishes personal/moral/legal identity (Essay II 27).

it thinks fit to prefer either to the other, we then consider the man as a free agent again. (XXI 12)

From Locke's viewpoint, it is irrelevant to ask whether the will is free (Clapp 494). Freedom is one thing, as in a power to choose, whereas the will is akin to desire (Clapp 495). Clapp summarizes Locke's position: "The only thing that can overcome the uneasiness of one desire is the greater uneasiness of another" (494).⁶

Another subject explored by Locke in the Essay is the association of complex ideas and words in language. In Book III of the Essay, "Of Words," Locke says that God gave man the capacity for language (I 1). As we shall see, the evolutionary psychologist Steven Pinker calls this capacity to develop language an "instinct" that is the product of evolution.

Those who followed in Locke's stead included George Berkeley (1685-1753), David Hume (1711-1776), and David Hartley (1705-1757). Among these, the foremost influential philosopher in the empiricist tradition was Hume, whose A Treatise on Human Nature, published in two volumes between 1739 and 1740, was subtitled An Attempt to Introduce the Experimental Method of Reasoning into Moral Subjects. In the editor's introduction to this work, John Flew writes that "Hume's ambitions were to lay the foundations for a would-be Newtonian science of man, and thereby to effect a sort of Copernican revolution in reverse" (7).

⁶ John Locke is generally classified as a soft-determinist, as are David Hume and John Stuart Mill.

One important result of Hume's inquiry, what distinguishes him essentially from Locke, was the secularizing effect of his method and conclusions (Flew 10). Here is perhaps the most telling passage:

When we run over libraries, persuaded of these principles, what havoc must we make? If we take in our hand any volume; of divinity or school metaphysics, for instance; let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion. (163)

To Hume, man was molded by the impressions made upon him from without, and the ideas he fashions about these within (176). He likened the human mind to a theatre, where "several perceptions successively make their appearance; pass, repass, glide away, and mingle in an infinite variety of postures and situations" (259). Our identity of self and objects depends on mental impressions which are in a constant state of flux:

It is evident that the identity which we attribute to the human mind, however perfect we may imagine it to be, is not able to run the several different perceptions into one, and make them lose their characters of distinction and difference, which are essential to them...all the nice and subtle questions concerning human identity can never possibly be decided, and are to be regarded rather as grammatical than as philosophical difficulties...All the disputes concerning the identity of connected objects

are merely verbal, except so far as the relation of parts gives rise to some fiction or imaginary principle of union. (265-267)

To Hume, man is a hodgepodge of experiences that are blended in the course of life. In contrast, evolutionary psychology takes a long-term perspective, and maintains that human nature is more the result of countless generations of adaptations through natural selection. According to evolutionary psychology, human nature resulted from the experience of evolution. The “nice and subtle questions concerning human identity” requires an evolutionary perspective.

Jean Jacques Rousseau (1712-1778): Romantic Fantastist

Another thinker with a profound impact on the eighteenth century was Jean Jacques Rousseau (1712-1778), whose importance in this study is his influence on social thought regarding human nature and inequality. Rousseau’s influence may partially explain the reluctance by some to accept theories presented by the evolutionary psychologists discussed below.

Rousseau supposed that men originally were not endowed with an innate social sense. Rather, at some point in human history primitive people contracted in society with their fellows, hence the “social contract” for which Rousseau is widely known. (This would suppose that humans had already developed a sophisticated vocabulary, a subject which will be discussed later).

Rousseau maintained that early human beings were very unlike those portrayed by Hobbes in a warring state of nature (Cole XIV). In his discourse titled on The Origin of Inequality (1754), Rousseau supposed that early peoples were more or less

comfortably adapted to their surroundings, driven only by a common need to stay alive. In Rousseau's state of nature, there was no love or family, only idyllic gathering, hunting, and raw procreation. Men did not lust for power or control over others; these he maintained came much later through living in close mutual association (XV). According to Cole's introduction to a compilation of Rousseau's works, "primitive, non-social man would be neither egoist nor an altruist in any moral sense: he would be pre-moral" (XV). If true, Rousseau produced no proof of it. According to this romantic conception of the "noble savage," men only joined together in societies when it became apparent that a higher stage of existence was possible through contracting with his fellows. One supposes that this realization was primarily economic. People contract with others primarily for their own advantage. Obviously, most choose cooperation towards these ends, but others employ outright coercion in trying to get something for nothing.

In The Origin of Inequality Rousseau further alleged that inequality between humans would have been rare in primitive societies because there was little accumulation of material possessions (73). However, it seems one must ask whether material possessions themselves explain human inequality, or the skills necessary to acquire them. If some humans are better at producing products or providing valued services people desire, or manipulating or controlling others to get what they want, human inequality would obviously follow.

Rousseau's contention that social inequality developed at odds with man's primitive beginnings is contradicted by his ambiguous conception of inequality. He began by assuming that inequalities established by "nature" ("age, health, bodily strength, and

the qualities of the mind or of the soul”) were distinct from inequalities resulting from what he called “moral or political inequality... established...or authorized by the consent of men” (44). Certainly what men establish or authorize emanate from the mind, so where does one end and the other begin? Political inequalities may also be traced to the inequalities of mind established by nature.

This does not imply that social privilege cannot or should not be reduced or abolished. Perhaps it is merely a stage to an even higher form of existence yet to be realized, such as the gradual awareness that the institution of chattel slavery was not generally in the best economic interests of men. Still, slavery persists, and there is no human record when it did not exist.

Rousseau conjectured that the greatest leap in human development occurred with the development of language and agriculture (57). Communication allowed knowledge to be passed on, and the advent of agriculture marked the beginning of the end of human life as hunters and gathers. Communication and agriculture facilitated cooperation or exchange, which we recognize as the bulwarks of civilization today.

Rousseau imagined that language began to evolve as a result of the recognized need to think to survive. Simply, language was needed to think (59). Rousseau was perplexed by this process and wondered if people would ever unravel the mystery of its development. Yet he began quite sensibly in assuming that the earliest forms of communication must have been “the simple cry of nature” (60)—“Help!” However, the important evolution of language resulted from the demands of greater cooperation in exchange, which suggests that it was basic economic desires that made for more

refinement in articulate sounds, accompanied by appropriate gestures acknowledged by “common consent” (61). He then went on to suggest how words originally might have implied whole propositions, until these were broken down into proper nouns, verbs, adjectives, and other elements of grammar.

Rousseau believed that he had plumbed a line through the heart of false doctrines to the Garden of Eden. Men were more or less on the same par in a state of nature, but in society differences in our constitution were somehow “the effects of a hardy or effeminate method of education than of the original endowment of the body” (72). He continued: “It is the same for the powers of the mind; for education not only makes a difference between such as are cultured and such as are not, but even increases the differences which exist among the former; in proportion to their respective degrees of culture...” (72). Rousseau’s reasoning boils down to something like this: Because people in nature have similar preoccupations, they are largely alike. People are reared differently in society, thus inequality and social classes are inevitable. On the other hand, if people are born with greater or lesser raw abilities, inequality will be less a function of how we are reared than our natural endowment, assuming it is put to the best use.

Rousseau found it impolite or inconceivable to suggest that men might be guided by self-interest in a state of nature (73). He thought it would be difficult for one or several to dominate others. This is understandable considering that land was not at first monopolized or fenced-in, which he more or less correctly supposed. Anyone who tried to lord it over others might soon find the camp abandoned; that is, unless he had demonstrated superior hunting or bravery in face of danger, thus making the others seem

obliged to follow his lead. Or, say someone in the group had mastered fire and assumed a god-like power by torching anyone's hair who dared to oppose him. It is not hard to imagine the emergence of a strongman setting off a primitive community of privileged elites. Fear of man by men of clever means could have easily given rise to a greater inequality of conditions, though Rousseau insists that anyone so oppressed would simply run off into the wilderness. The solution is to exert greater force, or pay a few loyalists to back up your claims with a better cut of the meat. Meanness may be in some of the genes.

Rousseau's thinking about primitive man and the origins of inequality may have comforted those who had grown skeptical or impatient with the perfect rationalism envisioned by the Enlightened French philosophers of his day. His ideas would play into the hands of French revolutionaries in much the same way that the Nazis would later distort or reinterpret the philosophy of Friedrich Nietzsche. Rousseau's ideas have done much to demonize those who would suggest that primitive man was the antithesis of a noble savage.

The Darwinian Revolution, Sociobiology, and Evolutionary Psychology

Lewis Barker, in Psychology, points out that the works of Charles Darwin, On the Origin of Species by Means of Natural Selection (1859), and The Expression of Emotions in Man and Animals (1872) profoundly impacted human self-perception (17). Darwin challenged the traditional view that human nature as we know it was fixed at a specific point in time. His theories added to the uncertainty borne of the Scientific Revolution and subsequent Enlightenment that in turn led to a secular outlook of the world that is both

materialistic, deterministic, and devoid of spiritualism. And, as we shall see, the very concept of free will has been challenged.

Barker's Psychology provides an overview of the changes that have taken place in the sciences of human nature (95). A pioneering work that eventually impacted the study of the human mind using a Darwinian framework was Edward O. Wilson's Sociobiology: The New Synthesis, an application of evolutionary principles to the social systems of insects. Sociobiology is defined as "the study of genetic determinants to social behavior" (Barker 96). A related discipline is now called evolutionary psychology, defined as "the study of the human and animal mind and behavior from the perspective of evolutionary theory" (Barker 96). Human behavior is understood in terms of conscious and unconscious acts to enhance fitness or the perpetuation of one's genes.

Evolutionary psychology gains its intellectual support from combining Evolutionary Theory with the science of genetics based on the theory that there is a "continuity of species," in that the specific forms we observe represent an "adaptation" to a given environment measured by unique characteristics that help the plant or animal transmit its genes to the next generation (Barker 71). This does not imply that a descendant's personal experiences derived through education or training can be transferred to his/her heirs. According to Barker, "Scientific research has shown that genes of individual organisms are relatively well protected from environmental influence...The genes in sperm and eggs are not affected by the minute biochemical experiences in the brain that underlie memory and other experiences acquired during a lifetime" (73). Such a view is known in psychology as Lamarchian Evolution. For

example, we can be grateful that past generations have passed on their knowledge (through books, etc.), but unfortunately not their skills! Properly understood, a skill may be developed, but not transferred or ‘taught;’ one must develop skill. Knowledge (facts) and ability (skill) are different, though access to helpful knowledge and a barebones level of skill (e.g., common physical attributes such as sight, etc.) acquired genetically is certainly essential.

Leda Cosmides and John Tooby of UC Santa Barbara are leading scholars of evolutionary psychology whose Primer is an essential overview of the major tenets of this growing discipline. From their perspective, the key to understanding human nature lies in analyzing the specialized neural circuitry of our brains. Drawing on the work of William James, they insist we shouldn’t think of man’s ability to reason as something distinct from the deliberate or instinctive behavior of animals. It is more correct to say humans have more flexible and highly evolved instincts (1). Cosmides and Tooby say we suffer from “instinct blindness;” i.e., the very behaviors we consider common have been structured by evolution. Hence, smiling, cringing, or scowling are regarded as natural competences:

Our abilities to see, to speak, to find someone beautiful, to reciprocate a favor, to fear disease, to fall in love, to initiate an attack, to experience moral outrage, to navigate a landscape, and myriad others—are possibly only because there is a vast and heterogeneous array of complex computational machinery supporting and regulating these activities. The

machinery works so well that we don't even realize it exists—We suffer from instinct blindness. (2)

To evolutionary psychologists, psychology is a branch of biology. (However, psychology continues to remain a discipline of the “social sciences” in the academy). Cosmides and Tooby describe five basic principles that underlie the methodology used by evolutionary psychologists to understand the design and behaviors generated by the human mind:

1. “The brain is a physical system. It functions as a computer. Its circuits are designed to generate behavior that is appropriate to your environmental circumstances” (4). In short, this assertion proclaims that everything our heads think or feel is the result of chemical reactions that respond to information via sensory receptors throughout our bodies.

2. “Our Neural circuits were designed by natural selection to solve problems that our ancestors faced during our species’ evolutionary history” (4). In other words, our brains developed in ways a given environment suggested that we must in order to survive. There is no “Creator” in evolutionary theory, but rather the mindless occurrence of happenstance called natural selection. The mind is the product of adaptive problems (4).

3. Our conscious experience can mislead us into thinking that our mental circuitry is simpler than it really is (6). We know very little of what our brains are doing at any moment.

The only things you become aware of are a few high level conclusions passed on by thousands and thousands of specialized mechanisms: some that are gathering sensory information from the world, others that are analyzing and evaluating that information, checking for inconsistencies, filling in the blanks, figuring out what it all means...our intuitions can deceive us...[What seems] 'natural' can lead us to grossly underestimate the complexity of the circuits that make it possible...To find someone beautiful, to fall in love, to feel jealous—all can seem as simple and automatic and effortless as opening your eyes and seeing. So simple that it seems like there is nothing much to explain. But these activities feel effortless only because there is a vast array of complex neural circuitry supporting and regulating them. (7)

4. “Different neural circuits are specialized for solving different adaptive problems” (7). Cosmides and Tooby use the example of our circuitry (capacity) to choose “nutritious” food on the basis of taste and smell. Evolutionary psychologists call these dedicated circuits “modules.” This makes the brain a complex assemblage of these modular “dedicated mini-computers” that integrate the output from various other modules to produce behavior (8).

5. “Our modern skulls house a stone age mind,” by which the authors mean that the circuitry of our brains is adapted to a hunter-gatherer lifestyle, whereas modern brains must contend with borders and grocery stores (11). This suggests that the explosion of technology has outstripped our evolutionary development. Cosmides and Tooby say

“Natural selection is a slow process, and there just haven’t been enough generations for it to design circuits that are well-adapted to our post-industrial life” (11). They do not offer a definition of what a well-suited adaptation to a world like ours would be, nor do they adequately demonstrate that we haven’t devised sufficient behaviors already. (An exception might include those who think it is perfectly sustainable to drive an automobile in rush-hour, cell-phone a lover, and watch a television program all at once.)

Cosmides and Tooby think our Stone Age minds can handle small groups of people, but not large crowds. (Apparently we’ll be well-adapted when we can scan a thousand faces and almost instantaneously determine friends and foes.) The fact we are not particularly adapted to distinguish friends from foes in large crowds does not imply that we may not develop a “sense” as it were to predict the general milieu of a given crowd. (One takes a risk in cheering the visiting team on the home side of the field, for example.)

The fifth point takes up a large part of the literature of evolutionary psychology. It often describes how our behaviors developed in primitive times as adaptive techniques like “finding mates, hunting animals, gathering plant foods, negotiating with friends, defending ourselves against aggression, raising children, and choosing a good habitat” (11). They insist we must “realize that [the brain’s] circuits were not designed to solve the day-to-day problems of a modern American” (11). It would seem that the age-old problem of applying human energy to natural resources in order to survive has only become more sophisticated. The obvious human ‘adaptation’ has been the division of labor. Whether our “Stone Age” brains are well-suited to this reality is debatable. Still,

we are surviving and enjoying more goods with less energy through technology than our Stone Age ancestors ever imagined. Not to belabor their final loaded assertion, they insist that “Behavior in the present is generated by information-processing mechanisms that exist because they solved adaptive problems in the past—in the ancestral environments in which the human line evolved” (11). To evolutionize Santayana’s maxim, generally brains ‘remember’ (“attach,” or “record”) the successful adaptations of the past so as not to repeat those that led to extinction. Perhaps the greatest record of successful adaptation has been the memory of well-being attached to an act of cooperation. As human energy is conserved in cooperation, even greater cooperation and well-being is generated by yet more extended forms of cooperation.

Cosmides and Tooby insist that evolutionary psychology is “relentlessly past-oriented.” They say “Cognitive mechanisms that exist because they solved problems efficiently in the past will not necessarily generate adaptive behavior in the present” (11). For example, they point out that not all behavior designed in evolution is adaptive in the present. “A taste for sweet may have been adaptive in ancestral environments where vitamin-rich fruit was scarce, but it can generate maladaptive behavior in a modern environment flush with fast-food restaurants” (13). This may explain the attraction children have for sugar-laced breakfast cereals, and why dentists often reap the benefits of this natural craving.

As an academic discipline, evolutionary psychology is separate from that branch of inquiry which assumes that the human brain is equipped with a small number of “general purpose” mechanisms, referred to as the Standard Social Science Model. Rather,

evolutionary psychology maintains that the human mind contains a “large number of information-processing devices that are domain-specific and functionally specialized” (17). Evolutionary psychologists set aside the self-conscious brain a traditionalist would attribute to God’s handiwork, and embrace the computer brain that natural selection assembled. They maintain that an evolutionary perspective is the best way to explain certain behaviors in the social realm. Indeed, social cooperation is seen in evolutionary psychology as an adaptive problem that was worked out over time. Accordingly, “The universality of a behavioral phenotype is not a sufficient condition for claiming that it was produced by a cognitive adaptation, but it is suggestive...[that the development of social exchange] does not seem to require environmental conditions (social or otherwise) that are idiosyncratic or culturally contingent” (18). This means that people have evolved to interact, and in doing so have learned to detect those who may harm such cooperation (18).

Steven Pinker: Conciliatory Voice for Bridging Biology
and the Humanities

Another major voice in evolutionary psychology is Steven Pinker, author of several best-selling books, including The Language Instinct (1994), How the Mind Works (1997), and The Blank Slate: the Modern Denial of Human Nature (2002).

In The Language Instinct Pinker sets the stage for his subsequent works, arguing essentially that the human brain evolved modules for communication that make language as we know it essentially “instinctive.” This view clearly contradicts the Lockean notion that the mind is born essentially blank, and that language is merely a creation of culture.

According to Pinker, we are born babbling and later talk. Pinker says every language has common patterns that can only be explained by something unique to human nature. In The Unofficial Web Page About Stephen Pinker: “About the Controversy over the Source of Language: Instinct or Culture?” Pinker writes: “Evolutionary theory offers clear criteria for when a trait should be attributed to natural selection: complex design for some function, and the absence of alternative processes capable of explaining such complexity. Human language meets this criterion: grammar is a complex mechanism tailored to the transmission of propositional structures through a serial interface” (Screen 1).

When Pinker was asked in an interview with the Houston Chronicle, “If language is an instinct, why does it take most infants as long as three years to learn to talk?” he replied:

Another way of putting the question is: Why isn't the baby born talking? There are probably two answers. One is simply that the structures of the brain are not completely assembled and developed at birth. Another answer is that learning is an essential part of language, because by its very nature language has to be a shared code. If you spoke a language of one, you might as well not speak at all. The learning period synchronizes the language ability of each child to that of everyone else around him. In some wild animals, it's true, the communication system is completely hard-wired. Some birds, for instance, are born with a song that is genetically determined and impervious to external influence. But our language is infinitely more complex. There's no way that you could encode 60,000

words - the vocabulary of an average high-school graduate - in a genome consisting of 50,000 to 100,000 genes. Vocabulary has to be learned. (6)

In How the Mind Works (1997) Pinker integrated his previous work into a general evolutionary theory of the mind. Unlike those in the social sciences, such as multiculturalists who stress human differences across cultures, Pinker says that people share a “detailed universal psychology”⁷ (32). We may learn different things, but our minds operate similarly in the learning. He says that “the evidence suggests humans everywhere on the planet see, talk, and think about objects and people in the same basic way. The difference between Einstein and a high school dropout is trivial compared to the difference between a high school dropout and the best robot in existence, or between a high school dropout and a chimpanzee” (34). Evolutionary psychology represents a breath of fresh air because it reminds us that basic human traits cut across cultures in more ways than relativists or those who emphasize human differences have led us to believe.

The classic debate over whether the mind is determined by nature or nurture is to Pinker a non-issue because they are entirely separate fields of inquiry. *How* the mind thinks, and what it *should* think is an *is/ought* debate: “the debate over human nature has been muddied by an intellectual laziness, an unwillingness to make moral arguments when moral issues come up” (47). Pinker believes an evolutionary theory of the mind, meaning one composed of modules created through natural selection, is important because it “allows for innate motives that lead to evil acts and for innate motives that can

⁷ Donald E. Brown’s list of “Human Universals” is provided in The Blank Slate by Stephen Pinker (435). See “Human Universals” in The MIT Encyclopedia of the Cognitive Sciences (Wilson & Keil 1999).

avert them” (51). According to this view, the struggle between good and evil is natural, as opposed to spiritual forces which the world religions have hitherto attributed to supernatural forces. Or, to take the Standard Social Science Model, complex behavior is environmentally determined because we are born essentially as blank slates. Pinker wishes to turn this theory on its head, but not to treat morality as something to be cast off. He says, “Either we dispense with all morality as an unscientific superstition, or we find a way to reconcile causation (genetic or otherwise) with responsibility and free will” (55). He believes that “free will is an idealization of human beings that makes the ethics game playable...[and] As long as there is no outright coercion or gross malfunction of reasoning, the world is close enough to the idealization of free will that moral theory can meaningfully be applied to it” (55) This seems to suggest that we have good reasons to believe that we have free will and are responsible for our actions. To Pinker, “A human being is simultaneously a machine and a sentient free agent...” (56). This admission clearly places evolutionary psychology in the realm of the Western philosophical tradition, especially among the Stoics, Hobbes, Hume, and John Stuart Mill, who essentially held that causal determinism did not inhibit, invalidate or contradict moral responsibility (Stanford 4). “According to causal determinism...one’s deliberations, choices, and actions will often be necessary links in the causal chain that brings something about. In other words, even though our deliberations, choices, and actions are themselves determined like everything else, it is still the case, according to causal determinism, that the occurrence or existence of yet other things depends upon our

deliberating, choosing and acting in a certain way” (3). The evolutionary theory of psychology insists we are morally responsible beings.

Kenan Malik’s review of How the Mind Works challenges the presumption that the modern human mind is not adapted to the problems of human life (3). He says that “the claim that we are Stone Age men living in a Space Age world is based on a thoroughly unDarwinian methodology:”

Darwin wrote that ‘the present is the key to the past.’ Reversing this method and using the past as the key to explain the present is a fatal mistake. There is no reason (apart from dogma) why we should regard what once explained human behavior in evolutionary terms as sufficient to explain human behavior now. (4)

Malik accuses Pinker of rehabilitating a kind of Cartesian dualism in separating the mind determined by evolution, on the one hand, from ‘ethics’ and questions of right and wrong on the other. To Descartes the division was between body and soul (4). Malik says that Pinker fails to really tell us how the mind works because he merely attributes it to evolution.

Colin McGinn’s essay on the book, titled “The Know-It-All,” takes Pinker to task on several grounds. He likens How the Mind Works to “Cognitive Darwinism,” a “grand synthesis of neo-Darwinian gene-based natural selection theory and the computational model of mind favored by contemporary cognitive science” (McGinn 3). He says that Pinker oversteps his study when he tries to explain why people like art or music in Darwinian terms. “Pinker cannot accept that something might possess an objective

aesthetic value that we have the capacity to appreciate; no, the value has to be a projection of some psychological buzz that we experience for adaptive reasons” (3).

McGinn does not demonstrate how objects might possess “objective value” since perception is thought to be a subjective experience.

McGinn generally agrees with Pinker’s controversial chapter, entitled “Family Values,” wherein he applies to the psychology of the family the same theory Richard Dawkins developed in his Darwinian classic, The Selfish Gene (1976). According to Dawkins, successful organisms replicated themselves genetically (191), as the very idea of survival implies genetic replication. In this sense, the genes pursue their own ends, looking out for themselves, as it were, in obeying the mindless “logic of replication” (McGinn 5).

It is interesting to note that while Dawkins generally looks at the survival of species from a Darwinian standpoint, he feels that Darwinian explanations do not allow for cultural variation. “For an understanding of the evolution of modern man,” he writes, “we must begin by throwing out the gene as the sole basis for our ideas of evolution” (191). What then should guide our understanding of modern man? His answer is to devise a concept that represents the transmission of culture in a way that approximates what DNA does in biology. His concept is ‘Mememe,’ Greek for *imitation*, which is shortened to “meme.” Put simply, memes are the ideas of culture that are transmitted from brain to brain, generation after generation. They are spread by word of mouth and imitated through various media (193).

Pinker is less sympathetic to the notion of cultural evolution through memes.

“Evolution created psychology, and that is how it explains culture. The most important relic of early humans is the modern mind” (Pinker 310). When ideas are passed around they are often questioned or rejected. The mind, he says, evolved to process information, not merely to copy it.

Chapter 7 of How the Mind Works explores the psychology of social relations.

The mind is the tool that has evolved to cope with what economists call scarcity, meaning essentially that our desires are unlimited while the resources immediately available to satisfy those desires are limited. Resources must be allocated, and natural selection has designed the “on-board computers” of us social organisms to “access the opportunities and risks at hand and compete or cooperate accordingly” (428). He thinks that conflict is part of the human condition, and wishing it were not so doesn’t change it (429).

Jean Jacques Rousseau supposed that man in his primitive state was peaceful and not prone to fight, but the facts say otherwise. Pinker cites numerous studies showing that primitive warfare has been “a major selection pressure in evolutionary history,” and has shaped parts of the human psyche (510). A primary motive for warfare in foraging societies, he says, has been to hold or get women in order to enhance the long-term prospects of one’s genes.

Aggression by a coalition of individuals, Pinker points out, tends to occur only among large-brained animals like humans, chimpanzees, and dolphins (515). Apparently, warfare takes certain “sophisticated mental machinery” to plan and support. Men are always the ones who band together to fight, seldom women, because “a woman’s

reproductive success is rarely limited by the number of available males, so any risk to her life while pursuing additional mates is a sheer loss in expected fitness” (515).

Pinker contrasts the stark facts of man’s knave-like side with his capacity to develop non-violent means to counter his aggressive side. “The mind has many components, and accommodates not only ugly motives but love, friendship, cooperation, a sense of fairness, and an ability to predict the consequences of our actions. The different parts of the mind struggle to engage or disengage the clutch pedal of behavior, so bad thoughts do not always cause bad deeds” (518). Pinker notes that literacy, knowledge, and the spread of ideas have helped improve the human condition, even though the human brain remains adapted to a primitive hunter-gather existence. For examples of “increments of civility” he includes face-saving measures, contracts, deterrence, courts, and monogamy (519). These admissions should dispel misconceptions in linking hard-determinism with Evolutionary psychology.

Evolutionary psychology also provides an interesting analysis of the nature of man in relation to the family. Simply put, we tend to favor family members over non-family members because we share a greater percentage of genes. The family is the most common way of extending ourselves into the future. “*Homo sapiens* is obsessed with kinship” (430). Pinker says this flies in the face of Marxists and academic feminists who think that the “sense of kinship has nothing do with biological relatedness,” and that the nuclear family of husband, wife, and children is a “historical aberration” not seen in primitive tribes (431). In brief, Pinker asserts that “blood really is thicker than water.”

Families, he says, are important in every human society. “All societies have marriage. A man and a woman enter a publicly acknowledged alliance whose primary goal is children; the man has a ‘right’ of exclusive sexual access to the woman; and they are both obligated to invest in children” (432). Parents are naturally more devoted to their own children, which should be no surprise. While stepparents generally love their children, he cites one study which claimed that stepparenthood “is the strongest risk factor for child abuse ever identified” (434). According to Pinker, “people are wired to want to make...sacrifices for their own children but not for everyone else (434). He says “Only two to six percent of homicide victims are done in by their blood relatives” (435).

The genetic interests of a man and women merge in having children. An interesting twist to this is Pinker’s claim that the family is a “subversive organization” because family loyalty does not itself serve the church or state. Religious or political doctrines notwithstanding, family priorities compete vigorously for one’s loyalties (439). Pinker notes that to be successful, religions and states must adapt to and coexist with families.

While we naturally feel a certain loyalty to those whose genes we share, the development of personality is not entirely influenced by the family. Pinker says “Much of the variation in personality—about fifty percent—has genetic causes (448). One would assume that the great portion of the other fifty percent would come from parents through upbringing. Shockingly, Pinker says, “Being brought up in one home versus another account, at most, for five percent of the differences in personality” (449). The other forty-five percent is a mystery. Pinker offers two explanations. One is how children develop in

competition with their siblings, and the other is how one adapts to the pressures faced by one's peer groups. The main point is that "The biggest influence that parents have on their children is at the moment of conception" (449).

Daniel Dennett: Darwin's Dangerous Idea (1995)

Another major voice that follows the general framework of evolutionary psychology is that of the philosopher Daniel Dennett, who describes the fundamentally "dangerous idea" of Darwin as the notion that "all the fruits of evolution can be explained as the products of an algorithmic process," or "natural selection" in Darwin's Dangerous Idea (60). In his book, Dennett outlines the historical reaction against Darwin's claim that all design in the universe could be explained in terms of a 'mindless' evolutionary process.

Dennett says the "irreplaceable core" of Darwinian thinking is adaptationism, the method of "reverse engineering" in order to figure out "what Mother Nature had in mind," i.e., the application of an engineering perspective to biological systems (228). As stated previously, evolutionary psychologists believe that nature engineered the brain in a way to enhance survival.

Dennett accepts the concept of memes forwarded by Dawkins: "The concept provides a valuable perspective from which to investigate the complex relationship between cultural and genetic heritage. He says, "The shaping of our minds by memes gives us the autonomy to transcend our selfish genes" (369).

After discussing the evolution of the moral sense by which humans have come to appreciate the benefits of sympathy and cooperation, Dennett discusses the decision-

making process. He says, "Ethical decision-making, examined from the perspective of Darwin's dangerous idea, holds out scant hope of our ever discovering a formula or an algorithm for doing right." Instead, we are equipped with "the mind-tools we need to design and redesign ourselves, ever searching for better solutions to the problems we create for ourselves and others" (510).

What is the fate of traditional religion in Darwinian ethics? Dennett sees religion as a cultural meme to be preserved, if only to be disbelieved. (514). He thinks that all fundamentalist faith is the most dangerous force on the planet (515) because it teaches intolerance for contrary views. Yet, Dennett is not only suspicious of religious fundamentalism; he is equally wary of some fanatical environmentalists who would place the survival of nonhuman species above humans:

Darwin's dangerous idea helps to create a condition in the memosphere that in the long run threatens to be just as toxic to these memes as civilization in general has been toxic to the large wild mammals. Save the Elephants! Yes, of course, but not by all means. Not by forcing the people of Africa to live nineteenth-century lives, for instance. (515)

Dennett believes the perspective of evolutionary psychology is necessary to move humanity forward. He seems to condone the curbing of teachings he finds false, such as Creationism. (516). Dennett's solution to the teaching of conflicting doctrines would be the following policy: "You are free to preserve or create any religious creed you wish, so long as it does not become a public menace." (516). The working definition of "menace" he provides suggests disarming those who impose an anti-scientific view on children or

From *Intuition Pumps & Other Tools of Consciousness*
by Daniel C. Dennett
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pursue doctrines which would coerce others. Dennett seems to hope traditional religion will eventually pass into footnotes. (This appears to be the case in contemporary Europe, but not in America, even though evolutionary scholarship continues to mushroom in the United States. This suggests that a major segment of American society remains wedded to the traditional Judeo-Christian worldview unmodified by the evolutionary perspective.) To Dennett the great cause worth fighting for is creating a world in which fanaticism “doesn’t make sense” (517). The important thing he sees is to “take steps to conserve what is valuable in every culture without keeping alive (or virulent) all its weaknesses” (517). He thinks that a respectful scholarship is needed to preserve the best of the memes.

Dennett says the evolutionary perspective built on the mindlessly adaptive “Tree of Life” is not a substitute for God, but a concept that is “surely a being that is greater than anything any of us will ever conceive of in detail worthy of its detail” (520). How he is certain this view is greater than the concept of an omnipotent God built on faith he doesn’t say.

The Blank Slate

This tour de force takes the reader on an unforgettable voyage...With this magnum opus, a new polymath arrives in the world of intellectual science.
---Martin Seligman, former president, American Psychological Association

Stephen Pinker’s popular best-seller, The Blank Slate: The Modern Denial of Human Nature, is perhaps the greatest single contemporary work challenging the Judeo-Christian and philosophical views of human nature described above. The basic denial to which he refers is that there is an innate structure to the mind that largely determines the nature of man. His basic thesis is that it should not be thought “extreme” that the mind is

a combination of nature and nurture (3). To build his case for a human nature characterized by the tenets of evolutionary psychology, Pinker first tries to show where most other views fall short.

Pinker acknowledges that the Judeo-Christian view of human nature is the most widely accepted one in the United States, but disowns this tradition because he feels that the Biblical account of Creation is false, and its basic theory of human nature is flawed in the eyes of most in the scientific and academic community (2). He rejects the view that humans are “made in the image of God...unrelated to animals...that women are derivative of men and destined to be ruled by them...[that] the mind is an immaterial substance [that] can continue to exist when the body dies” (1). In addition, this view holds that people are born “with a moral sense, an ability to love, a capacity for reason that recognizes whether an act conforms to ideals of goodness and a decision faculty that chooses how to behave” (2). This may or may not conform to the general Judeo-Christian theory of human nature. But assuming Pinker has correctly summarized the generally accepted Judeo-Christian view of human nature, he fails to show precisely how this view is entirely at odds with or contradicted by evolutionary psychology. Indeed, later he seems to agree that some aspects of the Christian view of human nature coincide with certain assumptions of evolutionary psychology, such as the experience of conflicting desires. As to an innate moral sense, this may conform to the human universals of “moral sentiments,” and “distinguishing right from wrong,” cataloged by anthropologist Donald Brown and acknowledged by Pinker. It would appear that Pinker rejects the basic Judeo-

Christian worldview, even if some of its teachings coincide with the discoveries of science.⁸

Certainly the “moral sense” is something tuned by nurture, but that we have a capacity or tendency (as an innate potential) to follow a moral standard once defined is generally acknowledged. Yet, Pinker acknowledges that behavior “comes from an internal struggle among mental modules with differing agendas and goals” (40). He admits that this “struggle” is similar to the Judeo-Christian theory as well as the psychoanalytic theories of Sigmund Freud.

Pinker doesn’t prove that humans lack a universally innate capacity for love, which he assumes to be a false doctrine of Christianity. Instead, he focuses on human flexibility stemming from the contention that our brains have been programmed through evolution to “generate an unlimited set of thoughts and behavior” (41). This suggests that some people may experience what we call “love” in different ways, if at all.

Three Persistent Major Views of Human Nature attacked by Pinker

Pinker says that the most persistently held view of human nature in the academic community is the doctrine of the “Blank Slate.” Tracing the legacy from Locke’s *tabula rasa*, he shows that academics have clung to the notion that everything in the human mind results from experience and can be changed or reformed through proper education or parenting. This view holds that such things as poverty and underachievement can be reduced simply by altering people’s lifestyles.

⁸ Stephen Pinker. The Blank Slate, 435-439. (A partial list is provided here. See Appendix B, pg. 84).

The doctrine of the “Noble Savage,” traced to John Dryden in 1670 but later immortalized by Jean Jacques Rousseau, is the second major view. As described previously, this argument maintains that in a state of nature people were originally unselfish and at peace with their fellow humans. Rousseau countered Hobbes’ contention that men in a state of nature were actually in a state of war “of every man against every man” (7).

The third major view Pinker calls the “Ghost in the Machine,” a view expressed by Gilbert Ryle and attributed to the mind-body dichotomy argument of Rene Descartes, i.e., the mind is a non-body mechanism that survives the body. These three major views are essentially empiricism, romanticism, and dualism, each firmly entrenched in modern intellectual life. Pinker believes each represents a false understanding of human nature that prevents us from realistically appreciating our similarities and differences and dealing with social issues.

The doctrine of the Blank Slate is to modern intellectual life as the belief in the indestructibility of the soul is to the major world religions. Pinker says theories of human nature have the ability to assume some of the functions of religion in that they form the basis of a worldview. The doctrine of the Blank Slate, though rarely articulated as such, is the “secular religion of modern life” (3). It assumes that social relations determine the very structure of the mind, and that altering someone’s environment can fundamentally change the way people behave. As we shall see, this view has formed into many schools of thought.

The first important manifestation of the doctrine of the Blank Slate is empiricism, described previously. Locke's empiricism dovetailed with his epistemology and helped provide a foundation for his overall political philosophy which questioned the status-quo, and "undermined a hereditary royalty and aristocracy, whose members could claim no innate wisdom or merit if their minds had started out as blank as everyone else's" (5). In short, the doctrine of the Blank Slate laid the foundation for liberal democracy and the widespread condemnation of the institution of slavery and unequal political rights.

It would appear that the long-term effect of the doctrine of the Blank Slate on social thought cannot be overstated. According to Pinker, modern psychology has "sought to explain all thought, feeling, and behavior with a few simple mechanisms for learning [a Lockean notion]...The social sciences have sought to explain all customs and social arrangements as a product of the socialization of children by the surrounding culture: a system of words, images, stereotypes, role models, and contingencies of reward and punishment" (6). He says even concepts we should think of as natural to human nature, like emotions, kinship, and the sexes are assumed to be "socially constructed" (6).

The doctrine of the Blank Slate presumes that racial, sexual, and individual differences all come essentially from learned experience. It assumes that "underachievement, poverty, and antisocial behavior can be ameliorated" through education and rewards. The doctrine suggests that any discrimination on the basis of inborn traits, sex, or ethnic differences is to deny scientific truth (6). We are really all alike. To say that anyone is actually "dumb" is to blaspheme the Blank Slate.

In the academy, the progress of democracy and the gradual changing of attitudes regarding race and sex have given strength to the doctrine of the Blank Slate (17). The name given to this view of human nature is the Standard Social Science Model, or social constructionism. Pinker describes the different paths taken in the social sciences which follow the broad assumptions of the Blank Slate, described above. He notes that these changes were “propelled by the same historical events and progressive ideology” (17). Examples given include the social mobility of women and minorities in academic and professional life, which served to break down stereotypes and prejudices. Another example was making education compulsory, and the mushrooming of social programs designed to help the less fortunate. All of these were guided by the assumption that “all human beings had an equal potential to prosper if they were given the right upbringing and opportunities” (18). Another assumption, though rarely stated, was that government intervention was justified to equalize opportunities and/or the distribution of wealth. The philosophy of socialism becomes perversely intermixed with the doctrine of the Blank Slate, because if all people are essentially equal, one person’s need becomes a valid claim on another person’s property. The many forms of welfare statism are guided by this assumption. The two most extreme examples of this doctrine in the twentieth century were Communism and Nazism, as both denied or condemned individualism.

According to Pinker, the first to apply Locke’s doctrine of the Blank Slate to social problems was John Stuart Mill (1806-1873), who championed women’s suffrage, compulsory education, and improving conditions for the working poor (18). Intellectually, Mill was reacting to the “intuitional philosophy” of his day, which

assumed that certain properties of the mind were innate. Mill helped further the development of a theory of the mind called associationism, which tried to show that humans made sense of the world by repeated association of sensations (supposedly to contradict the concept of innate organization).⁹ The repeated succession of sensations, called “ideas” or “features,” helps us build mental categories (e.g., fur, barking, four legs, becomes ‘dog’) (18).

Pinker says the major school of thought to follow the model of associationism in psychology was behaviorism, founded by John B. Watson (1878-1958) and energetically pursued by B. F. Skinner (1904-1990). Pinker says that behaviorists deny there is such a thing as talents or ability (19), having no regard for beliefs, desires, or feelings. The only things they focus on are “stimuli” and “responses.” Behaviorists were dedicated to the proposition that in order for psychology to gain respect as a science it must pursue measurable objectives. Hence, behaviorists emphasized studying “overt behavior and how it is controlled by the present and past environment” (19). Behaviorists used the concept of associationism to build their case for “conditioning” (19).

Behaviorism was explored using laboratory animals. For example, B. F. Skinner became famous with his studies of rats and pigeons, “where the only behavior was lever pressing and key pecking” (20). According to Pinker, behaviorists separated behavior and biology and were hostile to genetics. Behaviorists like Skinner believed that the world could be reformed through proper conditioning, if only we “controlled behavior deliberately rather than haphazardly, we could eliminate aggression, overpopulation....

⁹ Associationist psychology had its origins in the epistemological theories of Hobbes, Spinoza, Locke, and Hume. For example, Hobbes writes of the “30 pieces of silver” we may *associate* with Judas.

etc.” (20). While behaviorism has run its course in psychology, Pinker says psychologists and neuroscientists continue to “equate learning with the forming of associations and look for an associative bond in the physiology of neurons and synapses, ignoring other kinds of computation” (21). Pinker thinks associationism fails to explain complex forms of behavior. He writes:

For example, storing the variable in the brain, as in “ $x=3$,” is a critical computational step in navigating and foraging, which are highly developed talents in animals in the wild. But this kind of learning cannot be reduced to the formation of associations, and so it has been ignored in neuroscience. Psychologists and neuroscientists still treat organisms interchangeably, seldom asking whether a convenient laboratory animal (a rat, a cat, a monkey) is like or unlike humans in crucial ways. Until recently, psychology ignored the content of beliefs and emotions and the possibility that the mind evolved to treat biologically important categories in different ways. (21)

Behaviorists steered clear of the psychology of William James (1842-1910), who connected Darwin’s theory of evolution with the operation of the mind as a biological adaptation. According to Pinker, “James invoked the notion of instinct to explain the preferences of humans, not just those of animals, and he posited numerous mechanisms in his theory of mental life, including short-term and long-term memory” (19).

Another school of thought which attempted to explain cognition in the latter half of the twentieth century was connectionism, based on the thinking of psychologists David

Rumelhart and James McClelland, who argued that massive amount of training based on associationist logic could explain all mental processes (21). According to this view, the only difference between humans and rats is that we humans have been subjected to a different milieu of associations or “cultural devices” (22).

The use of “culture” to explain human behavior is attributed to anthropologist Franz Boas (1858-1942), who was influenced by George Berkeley (1685-1753), an empiricist thinker of the Enlightenment who developed his own brand of idealism he called immaterialism, the notion that “everything that exists is either a mind or depends for its existence upon a mind” (Internet Encyclopedia of Philosophy 1).

According to Boas, differences between people in groups were a function of “culture,” now defined broadly (rather than in the classical sense in which one cultivated an appreciation of the arts), as “the totality of socially transmitted behavior patterns, institutions, and all other products of human work and thought.” Pinker agrees this is the correct way to view groups, but not individuals. He says there is no Jewish race or Eskimo race, but a Jewish culture and an Eskimo culture (22). According to Pinker, Boas did not believe all cultures were equal, nor did he accept the concept of a perfectly Blank Slate. “What mattered to him was the idea that all ethnic groups are endowed with the same mental abilities,” a view with which Pinker concurs (23).

Boas’ students were more dogmatic. The most committed to the doctrine that nearly everything human could be explained in terms of culture was Albert Kroeber. According to Kroeber, heredity had no role in history. Everything “involves the absolute conditioning of historical events by other historical events” (23). To Kroeber there were

no innate properties of mind, which Pinker thinks exist. He wrote of culture as something “superorganic,” i.e., greater than the sum of its parts. The idea that all social phenomena could be explained by an endless stream of “social facts” was a basic idea held by Emile Durkheim (1858-1917), the founder of sociology.

Pinker says that the social sciences have together denied that the human mind is fundamentally important, but have done so in different manners. Beliefs and desires as mental entities were replaced in psychology with the cold logic of “stimuli and responses.” In anthropology and sociology, beliefs and desires were found “in cultures and societies rather than in the heads of individual people” (24). In other words, rejecting the thinking that what we call beliefs are really a product of the way people evolved. Others think that human ideas are the unique product of the way people speak, again a cultural phenomena. Incredibly, Pinker notes that Watson thought “thinking” was only generated by movements of the mouth and throat! However, the common thread running through the social sciences has been a “shared dislike of instincts and evolution” (24). (A list of quotations that enforce the doctrine of the Blank Slate are provided in Appendix A.)

To Pinker, thinking about people as cultural products is fundamentally flawed, with dangerous consequences. “It underlies the tendency to reify ‘society’ as a moral agent that can be blamed for sins as if it were a person. It drives identity politics, in which civil rights and political perquisites are allocated to groups rather than to individuals” (26).

While the doctrine of the Blank Slate continues to drive thinking in various schools of thought, so does the doctrine of the Noble Savage. Writers like Margaret Mead, Bertrand Russell, H. L. Mencken, and Ashley Montagu romanticized “uncivilized” peoples as psychologically integrated, peaceful, and without sexual hang-ups (26). If only we could get back to something we lost, we would restore humanity to its primordial health. Sociologist Charles Ellwood (1873-1946) wrote of pursuing the scientific study of “remaking both human nature and human social life” (27). Pinker says this thinking was guided by the belief that innatist theories were essentially pessimistic and would only lead to racism or devalue the good intentions of social programs (28).

Pinker also shows how the doctrine of the Ghost in the Machine thrived in the social sciences throughout the twentieth century. He calls the Ghost in the Machine the “ultimate liberator of human will” (28). If the mind and body are truly separable entities, all social problems can be reduced to the age-old adage of “mind over matter.” He cites anthropologist Loren Eiseley (1907-1977), who condemned Darwinist thinking as leaving humanity to the “blind control” of a deterministic world and thought that we were approaching an age in which the “biological extremists have crumbled away...the mind was now the arbiter of human destiny” (28). Pinker grants that many academics may not have actually believed in “a spook haunting the brain,” but the implication of thinking the psyche as something distinct from a physical system was to fall back into the faith or mystery of an entity in the “sublunary” world impacting the human predicament (30). Pinker’s Chapter 3 entitled “The Last Wall to Fall,” argues that the advent of cognitive science in the 1950s was the essential bridge linking biology and culture. The “Last Wall

to Fall” describes the academic climate of the late twentieth century to override the ‘Ghost in the Machine,’ or mind/body dichotomy. According to Pinker, this revolution has made all three traditional doctrines described above incompatible with the facts.

In this chapter Pinker describes three scientific bridges linking biology and culture: cognitive science, cognitive neuroscience, behavior genetics, and evolutionary psychology.

The advent of cognitive science is supported by many experiments and theories grounded in research. The first described by Pinker is the premise that “the mental world can be grounded in the physical world by the concepts of information, computation, and feedback” (31). He shows that these concepts are identifiable as physical operations”

Beliefs and memories are collections of information—like facts in a database, but residing in patterns of activity and structure in the brain. Thinking and planning are systematic transformations of these patterns, like the operation of a computer program. Wanting and trying are feedback loops, like the principle behind a thermostat: they receive information about the discrepancy between a goal and current state of the world, and then they execute operations that tend to reduce the difference. The mind is connected to the world by the sense organs, which transduce physical energy into data structures in the brain, and by motor programs, by which the brain controls the muscles. (32)

Pinker calls this the “computational theory of mind,” but disowns a strong “computer metaphor.” He says that mental processes can be “intelligent” in the sense that they can mirror the correct sequences to bring about what we call “rationality” (33).

Every aspect of mental processes is today studied in laboratories in a manner likened to “computational paraphernalia.” The mind is thought to utilize sophisticated “rules, strings, matrices, pointers, lists, files, trees, arrays, loops, propositions, and networks,” to handle certain problems. Human progress in computing is used in reverse to study how the mind is actually wired. Pinker reiterates his point that, while the human brain is much more sophisticated than any computer, “reasoning, imagination, and creativity are forms of information-processing” (34).

The idea that the mind is innately structured to handle information obviously shatters the concept of a blank slate. Pinker says, “The mind cannot be a blank slate, because blank slates don’t do anything” (34). He adds: “Something in the mind must be innate, if it is only the mechanisms that do the learning. Something has to see a world of objects rather than a kaleidoscope of shimmering pixels” (34). Even in Locke’s day Gottfried Wilhelm Leibniz (1646-1716) had argued against the blank slate, insisting that the “intellect” must be innate in order to decipher data. Even Thomas Hobbes had said that “reasoning is but reckoning,” a kind of processing. After Leibniz, Immanuel Kant (1724–1804), Johann Fichte (1762–1814), George William Frederick Hegel (1770-1831), Arthur Schopenhauer (1788–1860), F.H. Bradley (1846-1924), and Josiah Royce (1855-1916) contributed to undermine the philosophy of the blank slate.

The debate today is not whether the mind comes with certain innate structures, but how many (35). At one extreme, there are those who argue that most concepts are innate, including philosopher Jerry Fodor and linguist Noam Chomsky. At the other end are thinkers called “connectionists,” including D. E. Rumelhart, J. L. McClelland, and others, who say only that the mind comes equipped with basic machinery that must be trained to make sense of the world (35).

A third idea of the cognitive revolution described by Pinker is that “an infinite range of behavior can be generated by finite combinatorial programs in the mind” (36). He believes the most powerful proof of this is Noam Chomsky’s observation that all languages follow what he calls a “Universal Grammar” which obeys certain rules and patterns. The mind combines this grammar with thoughts and intentions to generate behavior (37).

This leads to an important observation with implications for the social sciences: “Universal mental mechanisms can underlie superficial variation across cultures” (37). The Universal Grammar described by Chomsky reveals that 95 percent of the world’s languages employ simple “switches” which order sentences in either one of two ways. The first order resembles English by placing the verb before the object (*drink beer*), with a preposition before the noun phrase (*from the bottle*). The other resembles Japanese by placing the object before the verb (*beer drink*) with a noun before the postposition, as opposed to preposition (*the bottle from*) (37). The universal similarity in the assembling of language suggests similarity in the innate circuitry of mental processing. The same is

true of the mechanisms that trigger the emotions, though the responses to certain stimuli will vary according to culture (39).

Pinker suggests that variation of familiar behaviors across cultures, such as marriage customs and food taboos, may be shallow when we consider the possibility of innate mechanisms of computation we all share: “People may dress differently, but they may all strive to flaunt their status via their appearance...all divide the world into an in-group and an out group...all explain certain events by invoking the existence of entities with minds that strive to bring about goals (39).

Another assumption underlying cognitive revolution is that “the mind is a complex system composed of many interacting parts” (39). Concepts like the “intellect,” or “understanding,” are now thought to be too general. The mind must not be thought of as “a homogeneous orb invested with unitary powers or across-the-board traits,” but rather as a “modular system” whose various modules handle trains of thought, development of skill, memory, controlling the body, and execution of certain rules (40). Interestingly, Pinker describes a struggle between modules “with different agendas and goals.” Again, Pinker says this view is actually more in line with the Judeo-Christian viewpoint (of a godly versus sinful nature) or Freudian conflicting desires, than with the doctrine of the pure Blank Slate.

Another theory of the cognitive revolution is that “humans behave flexibly *because* they are programmed: their minds are packed with combinatorial software that can generate an unlimited set of thoughts and behavior” (40). Pinker says that “each of us feels that there is a single ‘I’ in control. But that is an illusion that the brain works hard to

produce, like the impression that our visual fields are rich in detail from edge to edge” (43). In other words, our brains produce an “illusion of a unified self” (43). So what about free will? His answer: “The brain does have supervisory systems in the prefrontal lobes and anterior cingulate cortex, which can push the buttons of behavior and override habits and urges. But those systems are gadgets with specific quirks and limitations; they are not implementations of the rational free agent traditionally identified with the soul or self” (43). “Choice” appears to be a hit-and-miss process. He says that “the conscious mind—the self or soul—is a spin doctor, not the commander in chief” (43). He cites Freud, who wrote that humanity has had to confront our apparent smallness in the universe, our descent from apes, “and the discovery that often our conscious minds do not control how we act but merely tell us a story about our actions” (43).

The age-old concept of a duality of mind and body seems to have fallen by the wayside. “One can say that the information-processing activity of the brain *causes* the mind-or one can say that it *is* the mind, but in either case the evidence is overwhelming that every aspect of our mental lives depends entirely on physiological events in the tissues of the brain” (41).

Neuroscientists have shown that any altering of brain activity through accidents, chemicals or surgery may have a profound impact on cognition and self-perception. The classic example of railroad worker Phineas Gage is cited, whose personality was permanently changed when a spike was accidentally blasted through his ventromedial prefrontal cortex. This region of the brain affects reasoning about other people. Gage

survived the accident but had been turned “from courteous, responsible, and ambitious to rude, unreliable, and shiftless” (42).

Cognitive neuroscience has unveiled much about the physical functioning of the brain. Pinker says this knowledge also destroys the myth of the noble savage. He discusses the finding that damage to the frontal lobes can unleash aggressive attacks, suggesting that the potential for aggression is neurologically close at hand, and that certain mechanisms of the brain seem designed to unleash harmful behavior to others (44). Furthermore, the “gross features of the brain are almost certainly not sculpted by information coming in from the senses, which implies that differences in intelligence, scientific genius, sexual orientation, and impulsive violence are not entirely learned” (44).

The advent of behavioral genetics is described as the third bridge in the cognitive revolution linking biology and culture. Pinker says that “all the potential for thinking, learning, and feeling that distinguishes humans from other animals lies in the information contained in the DNA of the fertilized ovum” (45). He explains how genes not only organize the normal brain, but also how they identify the gamut of cognitive and emotional disorders, including “autism, dyslexia, language delay, language impairment, learning disability, left-handedness, major depressions, bipolar illness, obsessive-compulsive disorder, sexual orientation, and many other conditions that run in families, are more concordant in identical twins than in fraternal twins, are better predicted by people’s biological relatives than by their adoptive relatives, and are poorly predicted by any measurable feature of the environment” (46). In short, genetic variation helps explain

the range of mental variation and behavior in people. The most astounding examples involve studies of identical twins, whom, even when separated at birth resemble one another by many measures of behavior and intelligence (47).

According to Pinker, basic psychological traits “are the products of many genes with small effects that are modulated by the presence of other genes, rather than the product of a single gene with a large effect that shows up come what may” (48). He predicts that geneticists will eventually identify the genes that make us different from chimpanzees, and “infer which of them were subject to natural selection during the millions of years our ancestors evolved into humans, identify which combinations are associated with normal, abnormal, and exceptional mental abilities, and begin to trace the chain of causation in fetal development by which genes shape the brain systems that let us learn, feel, and act” (48). Pinker says the fear that genes affect the mind in every detail is unfounded, reminding us that behavioral geneticists “estimate that only about half of the variation in most psychological traits within a given environment correlates with the genes” (48). Much research remains to be done to fully understand the effect genes play in our concept of human nature (49). Suffice it to say that human awareness of DNA as the building blocks of life as we know it is yet another blow to the doctrines of the Blank Slate, Noble Savage, and Ghost in the Machine.

The last major bridge in the cognitive revolution is evolutionary psychology, which Pinker defines as “the study of the phylogenetic history and adaptive functions of the mind. It holds out the hope of understanding the design or purpose of the mind—not in some mystical sense or teleological sense, but in the sense of the simulacrum of

engineering that pervades the natural world” (51). To Pinker, thinking of the human brain as a product of engineering worked out through natural selection holds out the best hope of providing an understanding of the mind’s purpose (51).

The concept of natural selection seems to part radically from the Judeo-Christian concept of choosing between good and evil. Pinker says that “natural selection is the morally indifferent process in which the most effective replicators outreproduce the alternatives and come to prevail in a population” (53). It is important to recognize that many behaviors that helped us “adapt” in nature are not necessarily the ones that are “adaptive in everyday life” (53), i.e., “the mind is packed with cravings shaped by natural selection, not with a generic desire for personal well-being” (54).

Pinker asserts that “evolution is central to our understanding of life, including human life.” We must think of ourselves as outcomes of natural selection, the result of “inherited traits that allowed our ancestors to survive, find mates, and reproduce” (52). To Pinker, psychology has always recognized that the mind is engineered, either a product of “divine design or of natural selection” (52). He says that the reason evolution was slow to join psychology was that “folk intuitions about what is adaptive” were seen as good enough. Where the evolutionary perspective finds its niche in psychology is in questions about the faculties in the social realm (52). He writes, “In the game of evolution, is it better to be monogamous or polygamous? Gentle or aggressive? Cooperative or selfish? Indulgent with children or stern with them? Optimistic, pragmatic, or pessimistic?” (52). According to Pinker, questions like these may best be answered from an evolutionary perspective:

Evolutionary biologists tell us that it is a mistake to think of anything conducive to people's well-being—group cohesion, the avoidance of violence, monogamous pair bonding, aesthetic pleasure, self-esteem—as an “adaptation.” What is “adaptive” in everyday life is not necessarily an “adaptation” in the technical sense of being a trait that was favored by natural selection in a species' evolutionary history. Natural selection is the morally indifferent process in which the most effective replicators outreproduce the alternatives and come to prevail in a population. The selected genes will therefore be the “selfish” ones, in Richard Dawkins' metaphor—more accurately, the megalomaniacal ones, those that make the most copies of themselves. An adaptation is anything brought about by the genes that helps them fulfill this metaphorical obsession, whether or not it also fulfills human aspirations. And this is a strikingly different conception from our everyday intuitions about what our faculties were designed for. (53)

For example, an “eye for beauty” would evolve to “lock onto faces that show signs of health and fertility...to help the beholder find the fittest mate...emotions of sympathy, gratitude, guilt, and anger [would] allow people to benefit from cooperation...[while] a reputation for toughness and a thirst for revenge were the best defense against aggression” (53). He says that children acquire language instinctively, but written language is achieved only by great effort because it is a recent evolutionary human invention.

Evolutionary psychologists distinguish the “proximate” causes of behavior from the “ultimate.” Proximate causes make people act in the present, whereas ultimate causes refer to the “adaptive rationale that led the proximate cause to evolve” (54). He writes:

The distinction between proximate and ultimate causation is indispensable in understanding ourselves because it determines the answer to every question of the form “Why did that person act as he did?” Yet our actions can be puzzling, and “people often have desires that subvert their proximate well-being... They may covet their neighbor’s spouse, eat themselves into an early grave... [or] rev up their bodies in response to a stressor that they cannot fight or flee... These... suggest the mind is packed with cravings shaped by natural selection, not with a generic desire for personal well-being. (54)

The seemingly unlimited desires of man studied by anthropologists have led Donald Brown to formulate a list of traits common to all human societies he calls the “Universal People.” Pinker uses this list to reinforce his point that the mind “evolved with a universal complex design” (55). Several of Brown’s universals are provided in Appendix B.

Pinker says that the theory of evolution by natural selection is least conducive to the doctrine of the Noble Savage because the competition of the jungle characterized by scarce resources would tend to select out the so-called “noble guys” (55). Pinker believes that decades of research in anthropology show that Hobbes, not Rousseau, was essentially

right. The facts do not paint the remaining non-industrialized tribes of the world as peaceable, egalitarian, or nature-loving.

Even more damning is the evidence showing many pre-state societies with proportionately higher male deaths caused by war than in the U.S. and Europe in the twentieth century (56). Yet Pinker says that while our evolutionary past betrays the notion of a Noble Savage “there are good evolutionary reasons for the members of an intelligent species to try to live in peace” (58). He says, if “conflict is a human universal, so is conflict resolution.” We must acknowledge that the capacity to cooperate and coerce both reside in the natural circuitry of the human brain.

Recent Challenges: Blank Slate’s Last Stand

Pinker takes on contemporary challenges to the underlying premises of evolutionary psychology described above by Tooby and Cosmides in Chapter 5, entitled “The Slate’s Last Stand.” The first challenge resulted from the Human Genome Project, published in 2001, showing that geneticists estimated humans to have some 34,000 genes, far fewer than the earlier predicted estimate of 50,000-100,000. Some think the lower gene count is insufficient to “hardwire” innate tendencies into the human species; therefore, we must be more “plastic” than imagined by the determinists (74).

Pinker says that, “no one has the slightest idea how many genes it would take to build a system of hard-wired modules, or a general purpose learning program, or anything in between...”(76). The number of genes appears to matter less than “how each gene impinges on the activity of the other genes” (77). In understanding this complexity we have barely scraped the surface. The intricacy becomes staggering when you add to

the basic gene count all the combinations of active and inactive genes at work.

Furthermore, scientists do not yet understand the role played by 97 percent of the DNA that does not code for protein. This noncoding DNA “can have dramatic effects on the way that nearby genes are activated to make proteins. “Information in the billions of bases in the noncoding regions of the genome is part of the specification of a human being, above and beyond the information contained in the 34,000 genes” (78). In short, Pinker believes that the number of genes we have say virtually nothing about their ability to build a complex human nature.

A second contemporary challenge to the assumption that evolution is responsible for building human nature comes from the theory of connectionism, which states that “the brain is like the artificial neural networks simulated on computers to learn statistical patterns (78). According to this view, the mind is a “general-purpose learning device” of neural networks, which can be turned on to represent different concepts. “If neurons for ‘yellow,’ ‘flies’ and ‘sings’ are active, the network is thinking about a canary...” (79). Networks can supposedly overlap for more complex generalizing. According to Pinker, “the school of connectionism, like the school of associationism championed by Locke, Hume, and Mill, asserts that these generalizations are the crux of intelligence. If so, highly trained but otherwise generic neural networks can explain intelligence” (79).

Pinker thinks that connectionists networks are incapable of doing the things human brains can do, “like understanding a sentence or reasoning about living things” (79). Thinking as we know it requires “combinatorial minds that entertain propositions about what is true of what, and who did what to whom, when and where and why” (80).

He says that this requires more sophisticated mental architecture than the uniform tangle of neurons supplied by connectionist models.

Pinker describes five talents of the human mind that transcend generic connectionist networks. One is the ability to distinguish between a kind and an individual. Secondly, we have the talent of compositionality, meaning “the ability to entertain a new, complex thought that is not just the sum of the simple thoughts composing it but depends on their relationship” (80). Thirdly, we can quantify. A fourth talent he describes is recursion, the ability to hold thoughts surrounded by other thoughts. Finally, we can categorize our thoughts for clarity and precision. For example, we can “understand that Bob Dylan is a grandfather, even though he is not very grandfatherly” (80). In short, neural networks are too rigid; they cannot provide for special rules and variables. But rather than reject neural network modeling outright, Pinker believes they should be used to complement our complex human nature, and serve “as an important link in the long chain between biology and culture” (83).

A third recent challenge to a complex innate human nature is called plasticity, which gains support in neuroscience from observing how certain areas of the brain known to handle specific functions can be taken over by others. Speaking of the reallocation of brain tissue, Pinker writes that “we now know that with learning and practice some of their boundaries can move around. (This does not mean that the brain tissue literally grows or shrinks, only that if the cortex is probed with electrodes or monitored with a scanner, the boundary where one ability leaves off and the next one begins can shift)” (84). An example of this would be violinists who have been shown to

have an expanded region of cortex handling the fingers of the left hand. This observation has led some to think the mind is literally “molded” or “sculpted.”

Pinker shows that the primary sensory cortex is only one component of the mind. In other words, while certain areas of the brain may be described as “plastic,” they don’t operate the whole machine. Again, the human mind is characterized by a complex interaction of connected systems, not its outward appearance. He writes, “In an information-carrying medium, the content lies in combinatorial patterns among the elements—in the case of the brain, the details of the microcircuitry—and not in their physical appearance (89). While some believe that the idea of neural plasticity damages the case for innate evolutionary specializations in the brain, Pinker says that “most of the proposals of evolutionary psychology are about drives like fear, sex, love, and aggression, which reside largely in the subcortical circuitry. [Any sensible theory of] an innately shaped human ability would have to be implemented in a *network* of cortical and subcortical areas, not in a single patch of sensory cortex” (90).

Pinker is not saying that genes define all learning or neural activity in the development of the brain. To him, neural development should be framed as a problem of developmental biology. According to his view, the brain develops according to its genetic blueprint in conjunction with its environment (90). This is generally true of the development of the body. The genes interact in the womb to “shape itself into a working system” (90).

Pinker summarizes his thoughts on neuroplasticity when he writes that “The doctrine of extreme plasticity has used the plasticity discovered in the primary cortex as a

metaphor for what happens elsewhere in the brain...[This is] not a very good metaphor. If the plasticity of sensory cortex symbolized the plasticity of mental life as a whole, it should be easy to change what we don't like about ourselves or other people" (93). For example, Pinker shows how attempts to change the sexual orientation of gay men have mostly been futile. He says, "With a few dubious exceptions...the sexual orientation of gay men cannot be changed by experience. Some parts of the mind just aren't plastic, and no discoveries about how sensory cortex gets wired will change that fact" (94).

Pinker emphasizes the mind's ability to "reweight its inputs," for example, when a "brain area for an amputated or immobilized finger is taken over by an adjacent finger," the "taken-over cortex has not fundamentally changed" (95). This remarkable event shows that "neural plasticity is not a magical protean power of the brain but a set of tools that help turn megabytes of genome into terabytes of brain, that make sensory cortex dovetail with its input, and that implement the process called learning" (100). Finally, the three contemporary challenges to evolutionary psychology turn out not to be challenges at all; they merely complement the contention that human nature is complex. To Pinker, "brain systems show signs of innate specialization and cannot arbitrarily substitute for one another." (102).

Integration and Application

The framework of evolutionary psychology that describes a complex human nature may be used as a bridge to integrate the sciences with the traditional humanities: "History and culture, then, can be grounded in psychology, which can be grounded in computation, neuroscience, genetics, and evolution" (69). Pinker believes that this

“reductionism” should not be feared by the traditional humanities, but welcomed, since it doesn’t reduce everything to biology or culture.

Part II of The Blank Slate is entitled “Fear and Loathing,” wherein Pinker says that intellectuals wedded to the doctrine of the Blank Slate fear their “progressive ideals” will be shattered if what neuroscientists and evolutionary psychologists say about the human mind is true. This would mean that human nature is not infinitely malleable. Pinker says that this fear has led to the politicization of science. For example, professors with a Marxist bent treat those who look at the mind from a biological context as reactionaries (106). Also cited is the reaction to Richard Herrnstein’s 1971 Atlantic Monthly article, “IQ,” in which he argued that social stratification will tend to polarize society based on talent rather than non-genetic factors, per se. This will in turn mean that the talented will tend to intermarry, resulting in a more genetically stratified society. This observation got Herrnstein labeled as a “fascist” and “racist,” accompanied by death threats and chanting mobs (107). Even more upsetting was E.O. Wilson’s Sociobiology (1975), which described the evolution of the moral sense and altruism as something contrary to our organic nature (111). Wilson’s work was a precursor to the current field of evolutionary psychology. Paleontologist Stephen Jay Gould and geneticist Richard Lewontin claimed the book promoted eugenics, Social Darwinism, and the status quo (109). In short, the work was labeled “reductionist” and “deterministic.” Pinker says this flack is much ado about nothing; it is incorrect to say that sociobiology is “deterministic.” A more precise term would be to say that humans display certain tendencies, such as aggressiveness, not that they must act in a certain way (112-13). In defending the

modern language of geneticists and evolutionary biologists he writes that “Some behavior must be affected by some genes, or we could never explain why lions act differently from lambs” (114).

While the political left remains wedded to the doctrine of the Blank Slate, people who hold to the Judeo-Christian tradition continue to cling to the idea of the Ghost in the Machine. Pinker says the evolution of the mind scares those who believe in the soul (128). “If humans are accidental products of the mutation and selection of chemical replicators, they worry, morality would have no foundation and we would be left mindlessly obeying biological urges,” which would undermine free will. Some Jews and Christians have countered with the idea of “Intelligent Design,” i.e., an attempt to deny the process of natural selection. Pinker says that this “ignores the overwhelming evidence that the process of evolution, far from being intelligent and purposeful, is wasteful and cruel” (130). Although he believes that those on the left and right need not fear the implications of evolutionary psychology (132), he fears the political left will be most effective in resisting it because they tend to dominate the sciences. In the long run, he thinks sociobiology tied to evolutionary psychology will become a mainstream “doctrine” or “trend” of the academy (135).

In Part III of the Blank Slate Pinker addresses the perceptions of those who think a belief in the blank slate is necessary to uphold morality, personal meaning, and the social value of equality. Instead, Pinker insists that we should recognize our similarities and differences for what they are and deal with them accordingly. He says that attributing our basic similarities to evolution and our differences to genetics, “has thrown far more

light on the psychological unity of humankind than on any differences” (142).

Interestingly, “All species harbor genetic variability, but *Homo sapiens* is among the less variable ones” (142), which he attributes to the sedentary life-style resulting from the development of agriculture that has tended to blend the gene pool (143). He calls the ‘races’ “large, partly inbred families” (144).

A scientific conception of human nature may best combat prejudice. Pinker says that we should recognize the difference between “innate variation and innate universals,” so that the traits we share can be used to shore up our defenses against prejudice. For example, “No one likes being enslaved. No one likes being humiliated. No one likes being treated unfairly; that is, according to traits that the person cannot control” (145). He says that we should abandon the notion that people have no inherent concerns, as if they could be conditioned.

As to innate differences, we shouldn’t be surprised that people are paid according to their productivity: “It is a brute fact that greater rewards will go to people with greater inborn talent if other people are willing to pay more for the fruits of those talents” (149). The market is where personal values cross; however, we might wish it were otherwise.

The notion that intelligence is “elitist,” or indicative of the capitalist mentality, is a pet peeve of the political left in the academy, which places a premium on egalitarian collectivism. Pinker says intelligence cannot be denied, but “the likelihood that inborn differences are one contributor to social status does not mean that it is the only contributor” (150). Other factors that may contribute to economic success include “sheer luck, inherited wealth, race and class prejudice, unequal opportunity (such as schooling

and connections) and cultural capital: habits and values that promote economic success. Acknowledging that talent matters does not mean that prejudice and unequal opportunity do not matter” (150).

If prejudice and unequal opportunity also contribute to economic success, may these be rectified through legislation? Pinker contrasts Social Darwinism with social welfare nets. People differ on “solutions” to inequality because they disagree about the consequences legislation is supposed to rectify. Pinker believes that “a nonblank slate means that a tradeoff between freedom and material equality is inherent to all political systems” (152).

In the 20th century two extreme views of human nature were played out in the forms of Nazism and Communism, both with dire consequences. According to Pinker, Nazi and Marxist ideologies drew from opposite biological and psychological theories. Nazism was a variant of Social Darwinism applied to groups (154), whereas Marxism was similar to empiricism but insisted that there was no innate structure to the mind. Both shared a “group-against-group” struggle ideology with different groups as the source of evil (157). Both were out to mold a novel kind of man. Pinker points out that these two extremes show that “mass murder can come from an anti-innatist [i.e., Communist] belief system as easily as from an innatist one [i.e., Nazi]” (156).

Pinker also destroys many other modern variants of thinking that denies human nature or confuses it with nature. These include the feminist belief that men want casual sex more than women (161); modern environmentalism, which supposes that whatever

happens in nature is good (162); or postmodernism, which supposes that exalted social engineers can construct ideal human environments out of nothing (170).

A more recent trend has been to blame personally bad decisions on the providers of certain products. We read of people who blame their poor health on a company's poor advertising, such as with addiction to smoking, or massive consumption of fries and cheeseburgers. Or take those who attribute individual acts to stereotyped groups—"black rage." Still others claim they committed certain acts because of "rock lyrics" (178). There is a "confusion of explanation with exculpation," (179) he argues, but an explanation does not constitute exoneration. Pinker adheres to a long tradition in Western thought when he writes that, "most philosophers believe that unless a person was literally coerced (e.g., that is someone held a gun to his head), we should consider his actions to have been freely chosen, even if they were caused by events inside his skull" (180). We must apply punishment for behaviors we consider unacceptable, or else abandon the concept of responsibility (181). Pinker traces an erosion of personal responsibility to the 1954 Durham decision, which successfully argued the so-called "insanity defense" by reducing criminal acts to "excusable" products of "mental defects" (184).

Pinker believes that one of the biggest fears of a biological view of human nature is nihilism, that life would lack a higher purpose if existence were cast in material terms alone. He denies that such a view is inherently immoral, as well as the contention that religious views are necessarily more humane (187).

Indeed, what is important to evolutionary psychologists like Pinker is to recognize that the moral sense has emerged in our capacity to feel degrees of pleasure and pain.

This is the basis for viewing the moral sense as an alternative for traditional religious explanations. The moral sense, according to Pinker, allows us to “expand the circle,” of compassion, as it were, and apply reason in dealing cooperatively with our fellow humans. In contrast, he sees that religious beliefs are “divisive identity badges” based on an unseen authority (189). He then serves up the tired secular Nietzschean sentiment that the doctrine of the soul devalues the lives we live here and now. Could any hope of an afterlife really be that toxic? On the other hand, could a personal belief based on a strict mortality really make a strenuous achievement seem that worthwhile? These questions aside, Pinker suggests that the complexity of human nature makes us humans much more than “insignificant atoms”—if only we because we think we are (197).

This should be sufficient, in his mind, to combat relativism, which he sees as ultimately a product of the doctrine of the Blank Slate. In fact, the brain is a complex modular system, as described above. Life is not a relative thing; we have unlimited desires, the primary one of which is to survive. Our brains have evolved to contemplate themselves. Some yearn to understand the nature of things—something a bird’s cannot do, so far as we know. Relativism assumes that “the mind has no mechanism designed to contemplate reality,” and that “scientists, like lay people, are unequipped to grasp objective reality” (198). Pinker says these notions are false: “People in all cultures distinguish truth from falsity and inner mental life from overt reality, and try to deduce the presence of unobservable objects from the perceptible clues they leave behind” (201). He says that contrary to what relativists and postmodernists may believe, “stereotypes are in fact not inaccurate when assessed against objective benchmarks such as census figures

or the reports of stereotyped people themselves” (204). In discussing teachers’ perceptions of their students he writes: “Contrary to a common accusation, teachers’ impressions of their individual pupils are not contaminated by their stereotypes of race, gender, or socioeconomic status. The teachers’ impressions accurately reflect the pupil’s performance as measured by objective tests” (204). Stereotypes can certainly be dangerous when based on “hostile depictions,” but may also serve to “keep track of aspects of the world that are relevant to our long-term well-being” (205). Pinker’s greatest venom is reserved for the postmodernists: “The view that humans are passive receptacles of stereotypes, words, and images is condescending to ordinary people and gives unearned importance to the pretensions of cultural and academic elites” (218).

Pinker describes man as “a species that literally lives by ideas” (238). Herein lies his bridge to the humanities. In explaining the complex nature of the human mind in terms of evolutionary psychology, scholars and teachers of the humanities can enrich the discussion. This is particularly cogent when it comes to the enigma of free-will:

We have every reason to believe that consciousness and decision making arise from the electrochemical activity of neural networks in the brain. But how moving molecules should throw off subjective feelings as opposed to mere intelligent computations and how they bring about choices that we freely make (as opposed to behavior that is caused) remains enigmas to our Pleistocene psyches... Consciousness and free will seem to suffuse the neurobiological phenomena at every level and cannot be pinpointed to any combination or interaction among parts... For better or worse, our world

might always contain a wisp of mystery, and our descendants might endlessly ponder the age-old conundrums of religion and philosophy, which ultimately hinge on concepts of matter and mind. (240)

The great possibility that evolutionary psychology and the humanities are more destined to converge than to depart is discussed in Harold Fromm's Hudson Review article, titled "The New Darwinism in the Humanities," which discusses what appears to be a shift in Pinker's attitude towards the humanities alluded to above. For example, in How the Mind Works, he appears to treat music as merely a "pleasure technology," and of little importance compared to such faculties as language or vision (1). But later, in The Blank Slate, Pinker says that art is "deeply rooted in our mental faculties," which suggests that cultivating the arts is essential to be human.

Fromm discusses Joseph Carrol, an English professor at the University of Missouri, whom he describes as a "leading thinker among Darwinian humanists" (2), and shows that a synthesis of evolutionary psychology and the humanities is already taking place. Carrol's major work, Evolution and Literary Theory (1995), applies a Darwinian adaptationist perspective to the human experience of literature, which he calls "continuous with that of physics and chemistry" (3). He says that the wide sweep of the traditional humanities can be ultimately traced to the evolution of ideas that emerged from a complex brain.

This is the broad thesis of philosopher Daniel Dennett's latest work, titled Freedom Evolves (2003), in which he argues that "human cultures supported the evolution of minds powerful enough to capture the reasons for things and make them our

reasons...Our autonomy does not depend on anything like the miraculous suspension of causation but rather on the integrity of the processes of education and mutual sharing of knowledge” (287). The humanities is the storehouse of over two thousand years of ideas about the nature of man. Who can say what another two thousand years will do as the concepts of evolutionary psychology blend and/or replace those in the past? Most likely this synthesis has already begun.

Conclusion

Old ideas die hard, especially when they appear to threaten worldviews. Steven Pinker’s Blank Slate and evolutionary psychology in general is sure to stir controversy in the years to come, but one wonders what impact evolutionary psychology will have in the academy as well as on the wider public. In Chapter 7, “The Holy Trinity,” Pinker outlines the persistence of the three major doctrines in the academy and society at large.

Pinker calls those who defend the remnants of the doctrine of the Blank Slate “radical scientists” because they are also sympathetic to Marxism. These include the late paleontologist Stephen Jay Gould, geneticist Richard Lewontin, and neuroscientist Steven Rose, all of whom assign a minimal role to the genes on behavior and stress “the materialist doctrine that men are the products of circumstances and upbringing” (123). Pinker says that this thinking ignores what we now know about our psychological makeup, namely the human “capacity for language, our love of family, our sexual emotions, and so on” (123).

Stephen Jay Gould is also named as a prominent defender of the Noble Savage, who thought that if one were to acknowledge an aggressive tendency in human nature it

would somehow excuse people from moral responsibility. Pinker says we must confront the fact there is an aggressive tendency, and deal with it accordingly (126). We should not assume that a tendency towards aggression necessarily implies we are incapable of resisting it.

Pinker also shows that the doctrine of the Ghost in the Machine continues to influence thinking. In the academy, Lewtonin and Rose have substituted the original doctrine of the immaterial soul with the pronoun “we” that can supposedly fashion history by sheer willpower. Pinker says this doctrine of the Pronoun in the Machine “is consistent with their [Lewtonin’s and Rose’s] desire for radical political change and their hostility to ‘bourgeois’ democracy.” Pinker warns that “if the ‘we’ is an imperfect product of evolution—limited in knowledge and wisdom, tempted by status and power, and blinded by self-deception and delusions of moral superiority—then ‘we’ had better think twice before constructing all that history” (128).

However, the Ghost in the Machine is far more sacred to those on the political and religious right. As Pinker describes it, “Anyone that doesn’t believe in evolution is certainly not going to believe in the evolution of the mind, and anyone who believes in the immaterial soul is certainly not going to believe that thought and feeling consist of information processing in the tissues of the brain” (128). But Pinker does not demonstrate how adherence to evolutionary theory and the material information-processing of the brain negates such beliefs. For example, a religious person may believe in a God as the instigator of evolution and the material mind as the means by which this higher power is

perceived or imagined. Belief in the eternal soul applies to faith, something many hope for in the absence of physical certainty.

Pinker says that evolution and neuroscience undermine two important doctrines of the Ghost in the Machine. The first is that every living soul has value that exercises free will and responsibility (Pinker sides with individual responsibility). But, “if behavior is controlled instead by circuits in the brain that follow the laws of chemistry, choice and value would be myths and the possibility of moral responsibility would evaporate” (129). Whether or not one is religious, this observation would seem to require a humble reckoning. Regardless, people must get along with their lives *as if* they were in charge. Besides, Judeo-Christian teaching nowhere proclaims that people have complete free will.

Pinker says that the other doctrine challenged by the demise of the Ghost in the Machine is the notion that the soul enters the body at conception, thereby “defining who a person is with a right to life” (129). But if the self or soul is the result of neural activity that emerges in the developing brain of an embryo, it would appear that “ensoulment” is only a metaphor for the beginning of someone new. Arguably, the right to life is a social phenomena not confined to science.

While the basic doctrines described above will continue to run their course, evolutionary psychology continues to grow in the academy. Pinker is disappointed that “many equate evolutionary psychology with Social Darwinism, as if studying our roots were the same as justifying the station of the poor” (134). Pinker endeavors in the last part of The Blank Slate to debunk this misperception. For those who have delved into this

subject, it is no longer threatening, but a breath of fresh air. Pinker notes that in the study of animal behavior, no one talks about “selfish genes anymore, because the ideas are part and parcel of the science [animal psychology]: In the study of humans, there are major spheres of human experience—beauty, motherhood, kinship, morality, cooperation, sexuality, violence—in which evolutionary psychology provides the only coherent theory and has spawned vibrant new areas of empirical research” (135).

Pinker predicts the sciences of the mind, brain, genes, and evolution will continue to enrich our understanding of human nature. He devotes eight chapters as Part III of The Blank Slate to “Human Nature with a Human Face,” showing how “our moral sensibilities will adjust to the biological facts...and why a renewed conception of meaning and morality will survive the demise of the blank slate” (139). In a nutshell, he shows that innate differences between people obviously do not justify oppression or prejudice anymore than they ever have. Secondly, he argues if people are innately immoral it doesn’t necessarily imply that hope for improving the human condition must be scrapped. And lastly, the fact that we are products of biology does not mean free will should be taken lightly or that people shouldn’t be held responsible for their actions (139).

Evolutionary psychology is backed by solid research, whereas the doctrines of the Blank Slate, Noble Savage, and Ghost in the Machine have long relied to a large extent on wishful thinking. The first buttressed a secular faith in man’s ability to build heaven on Earth. But as Pinker points out, the doctrine “was eagerly filled by totalitarian regimes,” that committed some of the worst atrocities in history (421).

The doctrine of the Noble Savage, while seemingly benign, “invites contempt for the principles of democracy and of ‘government of laws and not of men’”(421). For this reason it falls short, knowing what we do about the desires of people to get something for nothing.

The doctrine of the Ghost in the Machine has come into the light through neuroscience. This does not mean that religious values or a rational sense of the “will” cannot be adjusted to fit the new science. Pinker says that “Acknowledging human nature does not mean overturning our personal worldviews, and I have nothing to suggest as a replacement if it did. It means only taking intellectual life out of its parallel universe and reuniting it with science and, when it is borne out by science, with common sense” (422).

Pinker’s suggestion to unite intellectual life with science may provide those holding certain worldviews an opportunity to consider the consequences of failing to unite the two. For example, intellectual honesty requires acknowledging discoveries in geology and anthropology, which are at odds with a literal interpretation of Creation described in the Bible. In addition, discoveries in neuroscience suggest that any concept of the mind or soul must incorporate the physical processes understood to give it life.

On the other hand, to unite science with intellectual life requires acknowledging that humans universally hold beliefs in the supernatural. There is something in the nature of man that longs for an “ultimate” explanation for the meaning of life. A philosophical or religious worldview may help us fight hopelessness and depression, conditions that weaken our desire to carry on. An evolutionary psychologist might argue that certain beliefs developed to help people “adapt” to the uncertainties of life. Pinker says that

“Religions have provided comfort, community, and moral guidance to countless people, and some biologists argue that a sophisticated deism, toward which many religions are evolving, can be made compatible with an evolutionary understanding of the mind and human nature” (187).

The challenge of evolutionary psychology to the humanities is to find ways to integrate a complex human nature into the discussion of what constitutes the humanities. In this way we may eventually speak of “evolutionary humanities” as a discipline that incorporates the sciences of human nature to help explain and appreciate the arts. As a discipline, evolutionary psychology seems to draw its inspiration from the challenge of unraveling the complexity of human instincts, whereas the humanities examine those aspects of culture humans “value.” The challenge of evolutionary psychology to the humanities is to consider that human instincts and values may be mutually supportive.

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APPENDICES

APPENDIX A

QUOTATIONS IN DEFENSE OF THE BLANK SLATE

QUOTATIONS IN DEFENSE OF THE BLANK SLATE¹⁰

Instincts do not create customs; customs create instincts, for the putative instincts of human beings are always learned and never native.

---Ellsworth Faris (1927)

Cultural phenomena...are in no respect hereditary but are characteristically and without exception acquired.

---George Murdock (1932)

Man has no nature; what he has is history.

---Jose Ortega y Gasset
(1935)

With the exception of the instinctoid reactions in infants to sudden withdrawals of support and to sudden loud noises, the human being is entirely instinctless...Man is man because he has no instincts, because everything he is and has become he has learned, acquired, from his culture, from the man-made part of the environment, from other human beings.

---Ashley Montagu (1973)

Most people are shaped to the form of their culture because of the malleability of their original endowment...The great mass of individuals take quite readily the form that is presented to them.

---Ruth Benedict (1934)

We are forced to conclude that human nature is almost unbelievably malleable, responding accurately and contrastingly to contrasting cultural conditions.

---Margaret Mead (1935)

Much of what is commonly called "human nature" is merely culture thrown against a screen of nerves, glands, sense organs, muscles, etc.

---Leslie White (1949)

Human nature is the rawest, most undifferentiated of raw material.

---Margaret Mead (1928)

Our ideas, our values, our acts, even our emotions, are like our nervous system itself, cultural products—products manufactured, indeed, out of tendencies, capabilities, and dispositions with which we are born, but manufactured nonetheless.

---Clifford Geertz (1973)

¹⁰ Steven Pinker, The Blank Slate, 24-26.

APPENDIX B

A PARTIAL LIST OF DONALD E. BROWN'S LIST OF HUMAN UNIVERSALS

A PARTIAL LIST OF DONALD E. BROWN'S LIST OF HUMAN UNIVERSALS¹¹

Affection expressed and felt
 Belief in supernatural/religion
 Beliefs about fortune and misfortune
 Conflict, consultation to deal with
 Conflict, means of dealing with
 Distinguishing right from wrong
 Economic inequalities
 Envy
 Facial expression of anger
 Facial expression of happiness
 Fear of death
 Females to do more direct childcare
 Food sharing
 Hope
 In-group distinguished from out-group(s)
 Law (rules of membership)
 Male and female and adult and child seen as having different natures
 Males more aggressive
 Males more prone to lethal violence
 Marriage
 Moral sentiments
 Murder proscribed
 Music
 Myths
 Overestimating objectivity of thought
 Private inner life
 Property
 Redress of wrongs
 Reciprocity (positive and negative)
 Resistance to abuse of power, to dominance
 Sanctions
 Sexual regulation
 Statuses, ascribed and achieved
 Sweets preferred
 Tabooed utterances
 Territoriality

¹¹ Steven Pinker, The Blank Slate, pp. 435-439.