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why beautiful people have more daughters

From Dating, Shopping, and Praying to Going to War and Becoming a Billionaire—Two Evolutionary Psychologists Explain Why We Do What We Do

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Introduction

Human Nature "Я" Us

This book is about human nature. "Human nature" is one of those things that everybody knows and uses in their daily conversation, but that is difficult to define precisely. What *is* human nature?

The answer is both complex and remarkably simple. Every time we fall in love, every time we fight with our spouse, every time we enjoy watching our favorite TV show, every time we get scared walking at night in bad neighborhoods where tough young men loiter, every time we are upset about the influx of immigrants into our country, every time we go to church, we are–*in part*–behaving as a human animal with its own unique evolved nature–human nature.

This means two things. First, our thoughts, feelings, and behavior are produced not only by our individual experiences and environment in our own lifetime, but also by what happened to our ancestors millions of years ago. Our human nature is the cumulative product of the experiences of our ancestors in the past, and it affects how we think, feel, and behave today.

Second, because human nature is universal–sometimes shared by all humans, sometimes only shared by members of our own sex–our

thoughts, feelings, and behavior are shared, to a large extent, by all other humans on earth (or all other men or women). Despite the seemingly large cultural differences in various societies, our daily experiences are essentially the same as those of people from Aberdeen, Bombay, and Cairo, to Xian, Yukon, and Zanzibar.

Human behavior is a product *both* of our innate human nature *and* of our unique individual experiences and environment. Both are important influences on our thoughts, feelings, and behavior. In this book, we emphasize human nature to the near exclusion of experience and environment. But there is a very good reason for that.

The Forgotten Half of the Equation

Everyone agrees that experience and environment are both important influences on human behavior. Despite critics' claims to the contrary, there are no serious biological or genetic determinists in science.[1] There are a few genetic diseases, such as Huntington's disease, which are 100 percent determined by genes; if someone carries the affected gene, they will develop the disease no matter what their experiences or environment.[2] An individual's eye color and blood type are also 100 percent determined by genes. So these (and a few other) traits are entirely genetically determined. Otherwise, there are no human traits that are 100 percent determined by genes. Nor are there any serious scientists who think there are.

However, there are many social scientists, journalists, and others who believe that human traits and behavior are almost entirely determined by the environment.[3] As we will see in chapters 1 and 2, most social scientists tend to be *environmental determinists.* They believe that individual experiences and social environments *completely* determine human behavior, and there are no roles played by genetic and biological factors.

We emphasize biological influences on human behavior not because they are more important than environmental influences but because they need to be emphasized, for while no human behavior is 100 percent determined by the genes, *neither is any human behavior 100 percent determined by the environment.* The former is not controversial; everybody knows it. The latter is controversial, and not enough people know it. That is why we emphasize it in this book.

Evolutionary psychology is the new science of human nature and, together with behavior genetics, is currently the best theoretical perspective with which to understand the biological and evolutionary influences on human preferences, values, emotions, cognition, and behavior.[4] In this book, we try to introduce evolutionary psychology to a wider audience. While evolutionary psychology is sweeping the social and behavioral sciences, there have been relatively few *recent* popular introductions to the field.[5] Because there are a large number of fascinating studies published every year in evolutionary psychology, popular introductions must be updated every so often.

In doing so, we adopt a question-and-answer format. We try to use evolutionary psychology to address and explain typical experiences in our daily lives as well as events and problems in the larger society, because we believe insight from evolutionary psychology can shed new light on and provide novel solutions to some old problems. This is, if you will, an evolutionary psychology question-and-answer book.

We also want to demonstrate in this book that evolutionary psychology is not just about sex and mating. While there have been

many fascinating studies in evolutionary psychology about sex and human mating (and we will discuss them in chapter 3), we believe evolutionary psychology can explain much more about human behavior. In fact, we want to show that insight from evolutionary psychology is useful in explaining puzzles in *all* areas of human life. This is the reason we adopt the question-and-answer format and address many areas of human social life in this book.

Two Errors in Thinking That We Must Avoid

In any discussion of evolutionary psychology, it is very important to avoid two serious mistakes in thinking. They are called the naturalistic fallacy and the moralistic fallacy. The *naturalistic fallacy*, which was coined by the English philosopher George Edward Moore in the early twentieth century[6] though first identified much earlier by the Scottish philosopher David Hume,[7] is the leap from *is* to *ought*–that is, the tendency to believe that what is natural is good; that what is, ought to be. For example, one might commit the error of the naturalistic fallacy and say, "Because people *are* genetically different and endowed with different innate abilities and talents, they *ought* to be treated differently."

The *moralistic fallacy*, coined by the Harvard microbiologist Bernard Davis in the 1970s,[8] is the opposite of the naturalistic fallacy. It refers to the leap from *ought* to *is*, the claim that the way things should be is the way they are. This is the tendency to believe that what is good is natural; that what ought to be, is. For example, one might commit the error of the moralistic fallacy and say, "Because everybody *ought* to be treated equally, there *are* no innate genetic differences between people." The science writer Matt Ridley calls it *reverse naturalistic fallacy*.[9]

Both are errors in thinking, and they get in the way of progress in science in general, and in evolutionary psychology in particular. However, as Ridley astutely points out, political conservatives are more likely to commit the naturalistic fallacy ("Nature designed men to be competitive and women to be nurturing, so women ought to stay home to take care of their children and leave politics to men"), while political liberals are equally likely to commit the moralistic fallacy ("The Western liberal democratic principles hold that men and women ought to be treated equally, and therefore men and women are biologically identical and any study that demonstrates otherwise is *a priori* false"). Since academics, and social scientists in particular, are generally left-leaning liberals, the moralistic fallacy has been a much greater problem in academic discussions of evolutionary psychology than the naturalistic fallacy. Most academics are above committing the naturalistic fallacy, but they are not above committing the moralistic fallacy.

We will avoid both errors–both leaps of logic–in this book by never talking about what ought to be at all and only talking about what is. It is not possible to make either mistake if we never talk about *ought*. We will not draw moral conclusions from the empirical observations we describe in subsequent chapters, and we will not be guided in our observations by moral principles.

There are only two legitimate criteria by which you may evaluate scientific ideas and theories: logic and evidence. Accordingly, you may justifiably criticize evolutionary psychological theories (including those presented in this book) if they are logically inconsistent within themselves or if there is credible scientific evidence against them. As scientists, we will take all such criticisms seriously. However, it would hardly be appropriate to criticize scientific theories simply because their implications are immoral, ugly, contrary to our ideals, or offensive to some. We can tell you right now that the

implications of many of the ideas we present in this book (whether ours or someone else's) are indeed immoral, ugly, contrary to our ideals, or offensive to either men or women (or some other groups of people). However, we must state them as they are because, to the best of our scientific judgment, they are true. That does not mean that we endorse all possible consequences and implications of our observations or believe that they are somehow good, right, desirable, or justifiable.

Truth is the guiding principle in science, and it is the most important thing for scientists. We also believe that any solution to a social problem must start with the correct assessment of the problem itself and its possible causes. We can never devise a correct solution to a problem if we don't know what its ultimate causes are. So the true observations are important foundations of both basic science and social policy.

A Note about Stereotypes

It would be tempting to dismiss many of our observations (such as answers to questions like, "Why are there so many deadbeat dads but so few deadbeat moms?" or "Why are almost all violent criminals men?") as stereotypes. We plead guilty to the charge; many of our (and others') observations *are* stereotypes. But we suggest that you cannot dismiss an observation by calling it a stereotype, as if that suddenly makes it untrue and thus unworthy of discussion and explanation. In fact, the opposite is the case. *Many stereotypes are empirical generalizations with a statistical basis and thus on average tend to be true.* The only problem with stereotypes and empirical generalizations is that they are not always true for all individual cases.

There are always individual exceptions to stereotypes. There are many dedicated fathers and female criminals, even though the generalizations are still true. The danger lies in applying the statistical generalizations to individual cases, which may or may not be exceptions.

Stereotypes have a bad name, but many of them may turn out to be true empirical generalizations that someone does not like or that are unkind or offensive to some groups. An observation, if true, becomes an empirical generalization until someone objects to it, and then it becomes a stereotype. For example, the statement "Men are taller than women" is an empirical generalization. It is in general true (and, by the way, there are evolutionary psychological explanations for this phenomenon[10]), but there are individual exceptions. There are many men who are shorter than the average woman, and there are many women who are taller than the average man, but these exceptions do not make the generalization untrue; in every human society, men on average are taller than women. Everybody knows this, but nobody calls it a stereotype because it is not unkind to anybody. Men in general like being taller than women, and women in general like being shorter than men.[11]

However, as soon as one turns this around and makes the slightly different, yet equally true, observation that "Women are fatter than men," it becomes a stereotype because nobody, least of all women, wants to be considered fat. But it is true nonetheless; women have a higher percentage of body fat than men throughout the life course (and there are evolutionary reasons why this is the case as well[12]). Once again, there are numerous individual exceptions, but the generalization still holds at the population level.

In this book, we will attempt to make and then explain observations and phenomena that the available scientific evidence indicates

are empirically true, even though there are individual exceptions and *regardless of whether they may seem unkind to some groups* (which they may in many cases). We draw no consequences or conclusions out of such observations; we are simply stating and explaining them. We will not commit either naturalistic or moralistic fallacy. Stereotypes and empirical generalizations are neither good nor bad, desirable nor undesirable, moral nor immoral. They just are.

Stereotypes also do not tell us how to behave or treat other people (or groups of people). Stereotypes are observations about the empirical world, not behavioral prescriptions. One may not infer how to treat people from empirical observations about them. Stereotypes tell us what groups of people tend to be or do in general; they do not tell us how we ought to treat them. Once again, there is no place for "ought" in science.

How to Use This Book

The book is organized so that after the introduction and two introductory chapters, readers may skip around and read whichever chapters and sections are of interest. Each chapter (and section within it) is designed to be self-contained for anyone who has read the introduction and the first two chapters. We introduce fundamental principles of evolutionary psychology in chapters 1 and 2. Chapters 3–8 cover different areas of everyday life (sex and mating, marriage, family, crime and violence, political and economic inequalities, and religion and conflict). In each we pose several questions readers may have wondered about in their own lives, and provide evolutionary psychological answers to them. We look ahead at the questions that still remain unanswered by evolutionary psychology in the conclusion.

All of our claims are fully referenced to scientific studies that provide supportive evidence. For endnotes that simply give citation information, we use the standard endnote reference numbers, for example.[1] References that give greater information not contained in the text have reference numbers with brackets, for example.[2]

1

What Is Evolutionary Psychology?

Evolutionary psychology is a new, emerging field. The first landmark studies in evolutionary psychology were published in the late 1980s,[1] and the birth of modern evolutionary psychology was marked in 1992 with the publication of the tome *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*,[2] which is often regarded as the bible of modern evolutionary psychology.[3] What was there before then? Before we tackle the question, "What is evolutionary psychology?" in this chapter, let's pause a moment to consider what theories and explanations were available to social scientists before its advent.

A Typical View from the Social Sciences

Most social scientists explain human behavior in a more or less typical fashion. The particular school of thought is called "the Standard

Social Science Model."[4] Because social scientists and their theories tend to have a lot of influence on the general public, the same view also characterizes how ordinary people account for human behavior in their everyday lives.

What exactly is the Standard Social Science Model? A set of related principles characterize its main tenets.

1. *Humans are exempt from biology.* Social scientists who subscribe to the Standard Social Science Model know that biology (and its branches, like zoology, ornithology, and entomology) can explain the behavior of all other species in nature. Yet they make an exception for humans as a sole species whose behavior is not explained by biological principles and theories. Human exceptionalism is the hallmark of the Standard Social Science Model. Many social scientists have averse reactions to biological explanations of human behavior.[5] This principle says that humans are exceptions in nature.

2. *Evolution stops at the neck.*[6] Social scientists in the Standard Social Science Model tradition, who do not believe in biological influences on human behavior and cognition, nonetheless acknowledge that human anatomy has been shaped by evolution. They recognize that human body parts, such as the fingers and the toes, are the way they are because of a long evolutionary process of natural and sexual selection. However, they contend that evolution has had no effect on the contents of the human brain and the human mind. This principle says that the brain is an exception in the human body.

3. *Human nature is tabula rasa (a blank slate).*[7] As a result of principle 2 above, social scientists in the Standard Social Science Model

tradition contend that humans are born with a mind like a blank slate. Once again, they recognize that all the other species have innate natures: dogs have an innate dog nature, which makes them behave more or less the same no matter where they live or what their individual life experiences have been, and cats have an innate cat nature, which similarly makes them behave the same but different from dogs. The same goes for all species in nature—*except for humans.* Humans do not have an innate nature, as they are born with minds that are blank slates. Principle 3, like principle 1, is an example of human exceptionalism.

4. *Human behavior is a product almost entirely of environment and socialization.* Since, according to the Standard Social Science Model, humans have no innate human nature that guides their behavior, the contents of human nature must be written after birth. The Standard Social Science Model contends that this occurs by a lifelong process of socialization (learning via instruction, imitation, copying, etc.) by the agents of socialization (parents, other family members, teachers, other adults in society, the media). Humans become the way they are because of socialization; socialization makes them human. In particular, men and women acquire their typical male and female behavior through gender socialization. This is why another name for the Standard Social Science Model is *environmentalism.* Most social scientists believe that the environment and life experiences almost entirely shape and determine human behavior.

Admittedly, this is a somewhat simplified version of the Standard Social Science Model, but it is not far off the mark. Not all social scientists agree with all of the four tenets, but most would agree with most of them to a large extent (and many agree with all).[8] Recent surveys of introductory textbooks in sociology and psychology

reveal very cursory (and often incorrect) discussions of human evolution and its effect on behavior.[9]

The Evolutionary Psychological Perspective[10]

Let us now look at the basic principles of evolutionary psychology. You could not possibly miss the sharp contrast between the Standard Social Science Model and evolutionary psychology.

As we said in the introduction, evolutionary psychology is the study of human nature. While the phrase "human nature" is used in common discourse to mean something essential but otherwise undefined about being human, it has a specific meaning in evolutionary psychology. It refers to a collection of components called *evolved psychological mechanisms* or *psychological adaptations* (these two terms are roughly synonymous). Human nature is the sum of such evolved psychological mechanisms, and evolutionary psychologists aim to discover more and more such psychological adaptations in humans. What, then, is an evolved psychological mechanism or psychological adaptation?

Evolved Psychological Mechanisms: What Human Nature Is Made Of

An adaptation is a product of evolution by natural and sexual selection,[11] and it allows an organism to solve particular problems.[12] Our body is full of adaptations. Our eye is an adaptation; it allows us to see, navigate efficiently and safely, find prey, and avoid predators. Our hand is an adaptation; it allows us to hold and manipulate objects efficiently, collect and eat food, throw objects, and use and manufacture tools. If you imagine what your life would be like

without an eye or a hand, you can begin to see the range of problems that these physical adaptations solve. Problems that adaptations allow us to solve are called adaptive problems. Adaptive problems are problems of survival and reproduction. Without solving adaptive problems, we will not be able to live long or reproduce successfully.

Psychological adaptations are like these physical adaptations in our body, except they are in our brain. They allow us to solve some adaptive problems by predisposing or inclining us to think or feel in certain ways. Just like we see or manipulate objects without much conscious thought, psychological adaptations often operate behind and beneath our conscious thinking. All adaptations (physical and psychological) are also *domain-specific*; they operate and solve problems only within a narrow area of life. The eye allows us to see but not manipulate objects; the hand allows us to manipulate objects but not see them. What the eye can do, the hand cannot, and vice versa. This is true for evolved psychological mechanisms as well; they only operate and solve problems in a narrow range of life.

Our preference for sweets and fats is an example of an evolved psychological mechanism.[13] Throughout most of human evolutionary history, getting enough calories was a serious problem; malnutrition and starvation were common. In this environment, those who, for reasons of random genetic mutation, had a "taste" for sweets and fats, which contain higher calories, were better off physically than those who did not have such a taste. Those who had a sweet tooth therefore lived longer, led healthier lives, and produced more healthy offspring than those who did not. They in turn passed on their (genetically influenced) taste to their offspring, over many thousands of generations. In every generation, those with this taste out-reproduced those without it, generation after generation, until most of us living today have a strong preference for sweets and fats.

Male sexual jealousy is another example of an evolved psychological mechanism.[14] Because gestation in humans and most other mammalian species occurs inside the female body, males of these species (including men) can never be certain that they are the father of their mates' offspring, while females are always certain of their maternity. In other words, the possibility of unwittingly raising children who are not genetically their own exists only for men. The technical term for this is *cuckoldry.* A man is *cuckolded* when his wife has an affair with someone, has a child by the lover, but successfully passes the child off as the husband's. According to one estimate, about 13–20 percent of children in the contemporary United States and 9–17 percent in contemporary Germany are not the genetic offspring of the man whose name appears on the child's birth certificate.[15] Another study shows that about 10–14 percent of children in Mexico have legal fathers different from their genetic fathers.[16] Earlier estimates from the US, the UK, and France range around 10–30 percent of all children.[17] As anyone who's ever watched a daytime talk show knows, concerns about biological paternity are far from a remote theoretical possibility; in fact, anywhere from one out of ten to one out of three children are raised by men who are unrelated to them genetically.

In evolutionary terms, men who are cuckolded and invest their financial and emotional resources in the offspring of other men end up wasting these resources, as their genes will not be represented in the next generation. For this reason, men have a strong evolutionary reason to be sexually jealous, while women, whose maternity is always certain, do not. The same psychological mechanism of sexual jealousy often leads to men's attempts to guard their mates physically, in order to minimize the possibility of their mates' sexual contact with other men, sometimes with tragic consequences.[18]

While men and women present the same frequency and intensity of their jealousy in romantic relationships,[19] there are clear sex differences in what triggers jealousy. The evidence from surveys and from physiological studies conducted in different cultures indicates that men become jealous of their mates' *sexual infidelity* with other men, underlying their reproductive concern for cuckoldry. In contrast, women become jealous of their mates' *emotional involvement* with other women, because emotional involvement often leads to diversion of their mates' resources from them and their children to their romantic rivals.[20] While recent critics of evolutionary psychology have questioned these conclusions mostly on methodological grounds,[21] both strong evolutionary logic and a preponderance of empirical evidence support the clear sex differences in romantic jealousy described above.[22]

Hardwired, Not Hardheaded

Recall that evolved psychological mechanisms mostly operate behind and beneath conscious thinking. We do not consciously *choose* or *decide* to like sweets and fats. We like them but we do not know why; sweet and fatty foods just taste good to us. Similarly, we do not consciously *choose* or *decide* to feel jealous. We feel jealous under some circumstances, in response to certain predictable triggers, but we do not always know why. Evolutionary psychology contends that these evolved psychological mechanisms are behind most of our preferences, desires, and emotions, and they incline us to behave in certain ways. Evolutionary psychology explains human behavior in terms of the *interaction* between these evolved psychological mechanisms; the preferences, desires, and emotions that they produce in us; *and* the current environment in which they express themselves.

This is why both biology and environment are important components of any complete explanation for human behavior, even though, for reasons we noted in the introduction, we tend to emphasize the biological factors more in this book.

Evolutionary psychology is an application of evolutionary biology to human behavior. It is characterized by the following four principles, which form very clear contrasts to the four principles of the Standard Social Science Model, which we discussed above.

1. *People are animals.*[23] The first and most fundamental principle of evolutionary psychology is that there is nothing special about humans. They are just like all the other animal species. Now that does *not* mean that humans are not unique; they are. But then so are all other species. If humans are not unique, they would not be a separate species. The reason why human beings are a separate species is because no other species have exactly the set of characteristics that humans do. But the same thing can be said of chimpanzees, gorillas, dogs, cats, and giraffes. Humans are unique, but no more or no less so than fruit flies. Evolutionary psychology recognizes that the same biological laws of evolution apply to humans as they do to all other species. It therefore refutes the human exceptionalism of the Standard Social Science Model. In the words of the great sociobiologist Pierre L. van den Berghe, "certainly we are unique, but we are not unique in being unique. Every species is unique and *evolved* its uniqueness in adaptation to its environment."[24]

2. *There is nothing special about the human brain.* For evolutionary psychologists, the brain is just another body part, just like the hand, or the pancreas. Just as millions of years of evolution have gradually shaped the hand or the pancreas to perform certain functions, so has evolution shaped the human brain to perform its function,

which is solving adaptive problems to help humans survive and reproduce successfully. Evolutionary psychologists apply the same laws of evolution to the human brain as they do to any other part of the human body. Evolution does *not* stop at the neck; it goes all the way up.

3. *Human nature is innate.* Just as dogs are born with innate dog nature, and cats are born with innate cat nature, humans are born with innate human nature. This follows from principle 1 above. What is true of dogs and cats must also be true of humans. Socialization and learning are very important for humans, but humans are born with the capacity for cultural learning, which is innate. Culture and learning are part of the evolutionary design for humans. Socialization merely reiterates and reinforces what is already in our brain (like the sense of right and wrong). This principle of evolutionary psychology is in clear contrast to the blank slate ("tabula rasa") assumption of the Standard Social Science Model. In the memorable words of William D. Hamilton, who is often regarded as the greatest Darwinian since Darwin, "The *tabula* of human nature was never *rasa* and it is now being read."[25] Evolutionary psychology is devoted to reading the tabula of human nature.

4. *Human behavior is the product of both innate human nature and the environment.* Genes very seldom express themselves in a vacuum. Their expressions–how the genes translate into behavior–often depend on and are guided by the environment. The same genes can express themselves differently depending on the context. In this sense, both innate human nature, which the genes program, and the environment in which humans grow up are equally important determinants of behavior. Unlike those in the school of the Standard Social Science Model, evolutionary psychologists do not

believe that human behavior is 100 percent determined by either factor. As we mentioned in the introduction, however, we will mostly focus on innate human nature, because this is the forgotten side of the equation.

The Savanna Principle: Why Our Brains Are Stuck in the Stone Age

The second principle of evolutionary psychology discussed above–that there is nothing special about the human brain as a body part–leads to an important implication. Just as the basic shape and functions of the hand or the pancreas have not changed since the end of the Pleistocene Epoch ("the Ice Age") about ten thousand years ago, the basic functioning of the brain has not changed very much in the last ten thousand years. The human body (including the brain) evolved over millions of years in the African savanna and elsewhere on earth where humans lived during most of this time. This ancestral environment, where humans lived in small bands of 150 or so related individuals as hunter-gatherers, is called the environment of evolutionary adaptedness, or the ancestral environment.[26] It is to the ancestral environment that our body (including the brain) is adapted. Even though we live in the twenty-first century, we have a Stone Age brain (just like we have Stone Age hands and a Stone Age pancreas).

The evolved psychological mechanism produces adaptive behavior in the ancestral environment. Adaptive behavior is behavior that increases the chances of survival or reproductive success by solving the adaptive problems. Eating lots of sweet and fatty foods, which contain higher calories, is adaptive behavior that solves the adaptive problem of procuring sufficient food to survive. Becoming

jealous at the remotest possibility of a mate's sexual infidelity, and guarding that mate so that she could not have sexual contact with other men, is adaptive behavior that solves men's adaptive problem of paternity uncertainty.

Our hominid ancestors spent 99.9 percent of their evolutionary history as hunter-gatherers on the African savanna and elsewhere on earth. It was not until about ten thousand years ago, when the Agricultural Revolution happened, that our ancestors started planting and cultivating their food through agriculture and animal husbandry. Almost everything we see around us today–cities, nation-states, houses, roads, governments, writing, contraception, TVs, telephones, and computers–came about in the last ten thousand years. Recall that our entire body is adapted to the ancestral environment and that we have a Stone Age body (including the brain). That means that our body is not necessarily adapted for things that came about since the end of the Pleistocene Epoch about ten thousand years ago. Ten thousand years is a very short period of time on the evolutionary time scale; it is simply not enough time for our body to make changes to accommodate things that came about in the meantime, especially since the environment has been changing too rapidly relative to how slowly we mature and reproduce. (It takes humans about twenty years to mature and be ready to reproduce. And, remember, only twenty years ago, for most people outside of the military and scientific circles, there was no such thing as the Internet or cell phones.) In other words, we still have the same evolved psychological mechanisms that our ancestors possessed more than ten thousand years ago.

This observation leads to a new proposition in evolutionary psychology called the Savanna Principle,[27] which states that

The human brain has difficulty comprehending and dealing with entities and situations that did not exist in the ancestral environment.

One example of an entity that did not exist in the ancestral environment is TV or any other realistic images of other humans, such as photographs, videos, or films. The Savanna Principle would therefore predict that the human brain has difficulty comprehending and dealing with images shown on TV. This indeed appears to be the case.[28] A recent study shows that individuals who watch certain types of TV programs are more satisfied with their friendships, as if they had more friends or socialized with them more frequently. According to the Savanna Principle, this is probably because the human brain, adapted to the ancestral environment, has difficulty distinguishing between our real friends in the flesh and the characters we repeatedly see on TV. In the ancestral environment, any realistic images of other humans *were* other humans, and if you saw them repeatedly and they did not try to kill or harm you in any way, then more than likely they were your friends. Our Stone Age brain therefore assumes that the characters we repeatedly encounter on TV, very few of whom try to kill or harm us, are our real friends, and our satisfaction with friendships thereby increases by seeing them more frequently.

Maladaptive Adaptations

Take the example of our preference for sweets and fats as an evolved psychological mechanism. This psychological mechanism solved the adaptive problem of survival in the ancestral environment by allowing those who possessed it to live longer. Our preferred consumption of sweets and fats was therefore adaptive *in the ancestral environment.* However, we now live in an environment where sweets and fats are abundantly available in every checkout line in every supermarket, in every city, in every industrial society, twenty-four

hours a day, seven days a week. In other words, the original adaptive problem (malnutrition) no longer exists; very few people die of malnutrition in industrial societies. Yet we still possess the same psychological mechanism that compels us to consume sweets and fats. Because our environment is so vastly different from the ancestral environment, we now face a curious situation where those who behave according to the dictates of the evolved psychological mechanism are *worse off* in terms of survival. Obesity (to which overconsumption of sweets and fats leads) hinders survival. The Savanna Principle suggests that we continue to have (currently maladaptive) preferences for sweets and fats, and as a result become obese, because our brain cannot readily comprehend the supermarkets, the abundance of food in general, and indeed agriculture, none of which existed in the ancestral environment. Our brain still assumes we are hunter-gatherers with very precarious and unpredictable sources of food. If our brain truly comprehended supermarkets, we would not crave sweet and fatty foods.

Similarly, male sexual jealousy is another evolved psychological mechanism that hasn't quite caught up to modern times. It solved the adaptive problem of reproduction in the ancestral environment by allowing men who possessed it to maximize paternity certainty and minimize the possibility of cuckoldry. Sexual jealousy was therefore adaptive *in the ancestral environment.* However, sex and reproduction are often separated in the modern environment; many episodes of sex do not lead to reproduction. There is an abundance of reliable methods of birth control in industrial societies, and many women use the contraceptive pill. For these women, sexual infidelity does not lead to childbirth, and their mates will not have to waste their resources on someone else's children. Even if their mates cheated on them and got pregnant as a result, reliable paternity testing removes

any paternity uncertainty. In other words, the original adaptive problem (paternity uncertainty) is less of a threat to reproductive success; men today are much less likely to invest unwittingly in someone else's genetic children. Yet men still possess the same psychological mechanism that makes them jealous at the possibility of their mates' sexual infidelity and compels them to guard their mates to minimize the possibility of cuckoldry. *The fact that his adulterous wife was on the Pill at the time of her sexual infidelity offers very little consolation to a man.*

Further, once again because our current environment is so vastly different from the ancestral environment, we now face a curious situation where those who behave according to the dictates of the evolved psychological mechanism are often *worse off* in terms of reproductive success. Extreme forms of mate guarding, such as violence against mates or romantic rivals, are crimes in most industrial nations. Incarceration, and consequent physical separation from their mates, does everything to reduce the reproductive success of the men. Yet men continue to exhibit sexual jealousy, and many men engage in extreme forms of mate guarding and vigilance, including violence.[29] The Savanna Principle suggests that this is because their brains cannot truly comprehend effective birth control, written laws, the police, and the courts. If they did, they would not engage in extreme forms of mate guarding (such as violence) or any other criminal behavior for which they would likely go to jail.

We caution you that the Savanna Principle as stated above was proposed very recently (even though it is based on observations made earlier by pioneers of evolutionary psychology)[30] and is not yet part of the established literature of evolutionary psychology. Its implications have yet to be subjected to rigorous experimental testing. However, we refer to it throughout the rest of the book,

because we believe there is a kernel of truth to it and that it can explain a wide range of otherwise puzzling instances of human behavior.

Human Evolution Pretty Much Stopped about Ten Thousand Years Ago

The Savanna Principle points to a couple of very important–but often neglected–observations about human evolution: Evolution happens very gradually, and natural selection requires a stable, unchanging environment to which it can respond.

Evolution takes many *generations*, and so the speed of evolution of a species is relative to how long it takes for individuals of the species to mature sexually. Evolution happens faster for fast-maturing species and slower for slow-maturing species. Fruit flies are one of the fastest-maturing species in nature, and humans are one of the slowest. It takes only seven days for fruit flies to mature sexually under ideal conditions, whereas it takes fifteen to twenty years for humans. It means that there can be more than fifty generations of fruit flies in one year, before a human baby can even begin to walk. There are more than a thousand generations of fruit flies in one human generation (twenty years), for which humans need more than twenty thousand years. Evolution for fruit flies can happen pretty fast, which is precisely the reason why they are the favorite species for geneticists to study. Human evolution happens much, much more slowly. No human scientists can see it in action the way they can observe fruit fly evolution unfold in the lab.

The second point is even more important: Natural selection under most circumstances requires a stable, unchanging environment for many, many generations. For example, if the climate is very cold

for centuries and millennia, then gradually individuals who have better resistance to cold will be favored by natural selection, and their neighbors who have less resistance to cold (who are more adapted to hot climates) will die out before they can leave many children. This will happen generation after generation, until one day all humans have great resistance to cold. A new trait—resistance to cold—has now evolved and become part of universal human nature. But this trait could not have evolved if the climate was cold for one century (only five human generations, albeit 5,200 fruit fly generations) and then hot for another century, only to be cold again in the third century. Natural selection would not know who (with which traits) to select.

Since the advent of agriculture about ten thousand years ago, and the birth of human civilization which followed, humans have not had a stable environment against which natural selection can operate. For example, a mere two centuries (ten generations) ago, the United States and the rest of the Western world were largely agrarian; most people were farmers. In the agrarian society, men achieved higher status by being the best farmers; those who possessed certain traits that made them good farmers had higher status and thus greater reproductive success than others who didn't possess such traits.

Then, only a century later, the United States and Europe were predominantly industrial societies; most men made their living working for factories. Traits that make men good factory workers (or, better yet, factory *owners*) may or may not be the same as the traits that make them good farmers. Certain traits—such as intelligence, diligence, and sociability—probably remain important,[31] but others—such as a feel for nature, the soil, and animals, and the ability to work outdoors or forecast weather—cease to be important, and other traits—such as punctuality, the ability to follow instructions,

a feel for machinery or mechanical aptitude, and the ability to work *indoors*—suddenly become important.

Now we are in a post-industrial society, where most people work neither as farmers nor factory workers but in the service industry. Computers and other electronic devices become important, and an entirely new set of traits is necessary to be successful. Bill Gates and Sir Richard Branson (and other successful men of today) may not have made particularly successful farmers or factory workers. All of these dramatic changes happened within ten generations, and there is no telling what the next century will bring and what traits will be necessary to be successful in the twenty-second century. We live in an unstable, ever-changing environment, and have done so for about ten thousand years.

For hundreds of thousands of years before that, our ancestors lived as hunter-gatherers on the African savanna, in a stable, unchanging environment to which natural selection could respond. That is why all humans today have traits that would have made them good hunter-gatherers in Africa—men's great spatiovisual skills, which allowed them to follow animals on a hunting trip for days and for miles without a map or a global satellite positioning device and return home safely; and women's great object location memory, which allowed them to remember where fruit trees and bushes were and return there every season to harvest, once again without maps or permanent landmarks.

For the last ten thousand years or so, however, our environment has been changing too rapidly for evolution to catch up. Evolution cannot work against moving targets. That's why humans have not evolved in any predictable direction since about ten thousand years ago. We hasten to add that certain features of our environment have remained the same—we have always had to get along with other humans, and we have always had to find and keep our mates—so

certain traits, like sociability or physical attractiveness, have always been favored by natural and sexual selection. But other features of our environment have changed too rapidly relative to our generation time, in a relatively random fashion—who could have predicted computers and the Internet a century ago?—so we have not been able to adapt and evolve against the constantly moving target of the environment.

2

Why Are Men and Women So Different?

Much of our discussion in the following chapters hinges on differences between men and women. Now *everyone knows* that men and women are different. On the whole, they want different things, they are good at different things, and they behave in different ways. While everybody may know *that* men and women are different, they may not know *why*. Or they may think they do, but they might be wrong.

The prevailing explanation in the Standard Social Science Model, popular among academic social scientists and the general population alike, is *gender socialization*. According to this explanation, men and women (and boys and girls) think and behave differently because they have been socialized differently by their culture and society. Recall that the Standard Social Science Model contends that human nature is a blank slate (principle 3). Male and female babies are born identical except for a few anatomical differences, *but these anatomical differences do not include the brain* (principle 2). Since the day of their birth, boys and girls are treated

differently and socialized either as boys or girls. Boys are encouraged to be aggressive and violent (by being given toy trucks and toy guns), while girls are taught to be caring and nurturing (by being given dolls and tea sets). Gender socialization permeates every aspect of culture and society (it is done not only by the parents but by educational, religious, political, and economic institutions and the media) and continues throughout the life course, and its effects are cumulative. By the time boys and girls grow up to be men and women, they think and behave differently because "society" expects them to, and the sex differences are apparently permanent. However, the Standard Social Science Model contends that if parents and "society" provide gender-neutral, androgynous socialization to children, then boys and girls will not behave differently, and men and women will be the same in their behavior, cognition, values, and preferences.

An overwhelming amount of evidence now available from science unambiguously demonstrates that this view is false. We will discuss only two recent studies here, and refer interested readers to more comprehensive reviews.[1]

Sex Differences Appear on the First Day of Life

University of Cambridge psychologist Simon Baron-Cohen and his associates have conducted a careful experiment with one-day-old babies.[2] They simultaneously presented a picture of a woman's face and a mechanical mobile to 102 newborn babies (44 boys and 58 girls, but the researchers themselves were blind to the sex of these babies until after the experiment was finished). They videotaped the babies to measure which object they paid more attention to. Their analysis showed that more boys preferred to look at the mechanical mobiles, and boys on average gazed at them longer. In

contrast, more girls preferred to look at the human face, and girls on average gazed at it longer. *Everybody knows* that boys and men tend to have greater interest in machines and other mechanical objects, and girls and women tend to be more social and express greater interest in relationships with others. If these sex differences are mostly the outcome of lifelong gender socialization, as the Standard Social Science Model claims, how can newborn babies who are just twenty-four hours old exhibit the same sex difference? Not even the most ardent supporters of the Standard Social Science Model would contend that twenty-four hours is enough for gender socialization.

Sex Differences Are Shared by Monkeys

In a very ingenious experiment, Gerianne M. Alexander and Melissa Hines gave two stereotypically masculine toys (a ball and a police car), two stereotypically feminine toys (a soft doll and a cooking pot), and two neutral toys (a picture book and a stuffed dog) to 44 male and 44 female vervet monkeys.[3] They then assessed the monkeys' preference for each toy by measuring how much time they spent with each. Their statistical analysis demonstrated that male vervet monkeys showed significantly greater interest in the masculine toys, and the female vervet monkeys showed significantly greater interest in the feminine toys. The two sexes did not differ in their preference for the neutral toys. Alexander and Hines' article contains pictures of a female vervet monkey examining the genital area of the doll in an attempt to determine whether it is male or female, as a girl might, and of a male vervet monkey pushing the police car back and forth, as a boy might. If children's toy preferences were largely formed by gender socialization, as the Standard Social Science Model claims, in which their parents give "gender-appropriate" toys to boys and girls, how can these male and female

vervet monkeys have the same preferences as boys and girls? They were never socialized by humans, and they had never seen these toys before in their lives.

As these two studies (and numerous others) show, the sex differences in behavior, cognition, values, and preferences are largely innate, universal across cultures; and, in many cases, constant across species.[4] If the sex differences were the result of social and cultural practices such as gender socialization, then they should by definition vary by culture and society. In fact, however, in every human society (and among many other species), males on average are more aggressive, violent, and competitive, and females on average are more social, caring, and nurturing. What is constant in every culture and society (sex differences in behavior) cannot be explained by what is variable across cultures and societies (cultural and social practices). A variable cannot explain a constant; only a constant can explain a constant.

A Consequence, Not a Cause

Rather than the results of lifelong gender socialization, sex differences in behavior, cognition, values, and preferences are part of innate and distinct male and female human natures; men and women are hardwired to be different. Male and female human brains are different, just like male and female reproductive organs are different. Gender socialization helps to accentuate, solidify, perpetuate, and strengthen the innate differences between men and women, but it does not *cause* or *create* such differences. In other words, *men and women are not different because they are socialized differently; they are socialized differently because they are different.* Gender socialization is not the cause of sex differences; it is their consequence.

If gender socialization is not the cause of sex differences, then

what is? What is the constant that explains the universal sex differences? It turns out that two simple biological facts lead to a whole array of sex differences: anisogamy and the internal gestation of fertilized eggs within the female body. *Anisogamy* means that the female sex cell (egg) is larger in size and fewer in number than the male sex cell (sperm). (This, by the way, is the biological definition of male and female. The female of any sexually reproducing species is defined as the sex that produces the larger sex cell, and the male, by default, is the other sex.) Anisogamy means that the egg is biologically far more valuable than the sperm; in nature, the sperm is abundant (practically infinite) in supply and biologically less costly to produce than the eggs. A quick rule of thumb in biology, which can explain a lot of sex differences in many species, is: *Sperm is cheap.*

The *internal gestation* of fertilized eggs within the female body means, among other things, that the female can produce far fewer offspring than the male can. It takes a woman at least nine months, usually a few years, to produce one child (because a woman is usually infertile while she nurses her baby); it takes a man fifteen minutes. A woman can normally have at most twenty to twenty-five pregnancies in her entire lifetime, usually far less; there is no limit to the number of children men can potentially produce. The operative term here, of course, is *potentially.*

Anisogamy and the internal gestation within the female body combine to produce a very important consequence: sex difference in fitness variance. *Fitness variance* is the difference between the "winners" and the "losers" in the reproductive game–how much more reproductively successful the winners are compared to the losers. Because of anisogamy and internal gestation, men have much greater fitness variance than women. Men's greater fitness variance means two things. First, looking at the bottom of the distribution, far more men remain childless than women, whereas relatively fewer women

remain childless for life. So one consequence of greater fitness variance among men is that the *fitness floor* (the worst one can possibly do) is much lower for men than for women. The worst on average is much worse for men than for women.

Second, looking at the top of the distribution, a few men have a far larger number of children than any woman could possibly have. It is possible for some men to have dozens, hundreds, even thousands of children in their lifetimes, whereas a woman is limited to at most about twenty-five pregnancies in life. The other consequence of greater fitness variance among men is that the *fitness ceiling* (the best one can possibly do) is much higher for men than for women. The best is much better for men than for women. Fitness variance is the distance between the ceiling (the best) and the floor (the worst), so it is much greater for men than for women.

Even though anisogamy and the internal gestation within the female body makes greater fitness variance among men than among women *possible*, what actually produces it in reality is the fact that humans are naturally polygynous.[5] There is much confusion about terminology for different institutions of marriage, even among social scientists. *Monogamy* is the marriage of one man to one woman. *Polygyny* is the marriage of one man to more than one woman, while *polyandry* is the marriage of one woman to more than one man. *Polygamy* (although it is often used synonymously with polygyny in casual conversations) refers to both polygyny and polyandry. Because of its ambiguity, the word *polygamy* should not be used unless it specifically and simultaneously refers to both polygyny and polyandry.

Until very recently, humans were mildly polygynous throughout their evolutionary history.[6] Under polygyny, some men get more than their "fair share" of mates, leaving others with none. Thus, virtually all women, but not all men, get to reproduce, but those men who do, get to reproduce a large number of children. This is

why few women, but relatively more men, have zero children (complete reproductive failure).

The largest number of children that a woman has ever had is sixty-nine. The wife of an eighteenth-century Russian peasant, Feodor Vassilyev, had twenty-seven pregnancies in her life, including sixteen pairs of twins, seven sets of triplets, and four sets of quadruplets; amazingly, Mrs. Vassilyev never had any single births in her life! And all but two of her sixty-nine children survived to adulthood. In contrast, the largest number of children that a man has ever had is *at least* 1,042.[7] The last Sharifian emperor of Morocco, Moulay Ismail the Bloodthirsty, maintained a large harem, as many ancient rulers did,[8] and had at least 700 sons and 342 daughters. (The exact number of children that Moulay Ismail had in his lifetime is lost to history, however, because they stopped counting them after a while.)

Exactly how many children Moulay Ismail the Bloodthirsty and Mrs. Feodor Vassilyev had is not important. What's important is this: The largest number of children that a man can potentially have is *two orders of magnitude greater* than the potential number of children that a woman can have (thousands vs. tens), while many men, but few women, face a great chance of ending their lives as total reproductive losers (leaving no offspring).

Worth the Fight

As we will discuss repeatedly throughout this book, the greater fitness variance among men, rather than gender socialization, is the reason why men are much more aggressive, competitive, and violent than women. Men gain far more by competing with each other for access to mates, whereas the benefit of competition for women in reproductive terms is far less. If men compete successfully and gain

reproductive access to a large number of women, they can potentially have hundreds, if not thousands, of children; if they fail to compete successfully, they face a distinct possibility of having no children at all. So the difference between a potential reward for competition and the potential cost of not competing is tremendous; they might as well compete. The same difference for women is much smaller. If women compete successfully and gain reproductive access to a large number of men, they can realistically have twenty to twenty-five children at most (in the absence of multiple births, which is beyond their control); if they fail to compete successfully, they might only have one or two children. The potential benefit of competition does not justify the potential costs (injury or death). This is why women are on the whole not as aggressive, competitive, or violent as men.[9]

The much higher fitness ceiling for men than for women also means that women make a far greater investment into their children than men do. While *reproductive success* is equally important for men and women (as it is for all living creatures), *each child* is far more important to a woman (as it is to females of all mammalian species) than it is to a man (as it is to males of all mammalian species). Each child represents a much greater portion of a woman's lifetime reproductive potential than it does a man's. It represents perhaps one-twentieth of a woman's lifetime reproductive potential; it represents one one-thousandth of a man's. Anisogamy and internal gestation thus lead to a large number of sex differences in behavior that we will discuss in subsequent chapters.

Exception That Proves the Rule

One of the strongest pieces of evidence that anisogamy, the internal gestation, and the consequent greater fitness variance among men

than among women lead to the sex differences in behavior comes from the proverbial "exception that proves the rule." While males have a greater fitness ceiling than females in most species, there are a few exceptional species for which this is not true. Among some fish, frog, and bird species, the males carry the fertilized eggs during gestation, and as a result, the females have a higher fitness ceiling than males do. Females of these species can continue reproducing while the males are "pregnant" with the young. As predicted by evolutionary biology, among these species, females are more aggressive, competitive, and violent than males.[10] Among these species, the females compete fiercely with each other for sexual access to the coy males. These exceptions therefore prove the rule that it is the fitness variance that determines which sex is more competitive and aggressive.[11]

What about Culture? Is Anything Cultural?

Having read so far about how evolutionary psychology explains human behavior in terms of the interaction between evolved psychological mechanisms and the environment, you might be wondering, "Okay, that's fine and dandy. Our evolved mind does influence our behavior, as evolutionary psychologists say. But what about culture? Surely culture influences and molds human behavior through cultural socialization, as traditional sociologists say, even to a greater extent than our innate tendencies do."

Yes, culture and socialization do matter, to a certain extent. But the grave error of traditional sociologists and others under the influence of the Standard Social Science Model is to believe that human behavior is *infinitely* malleable, capable of being molded and shaped limitlessly in any way by cultural practices and socialization. Available evidence now shows that this view is false. Human behavior,

while malleable, is not *infinitely* malleable by culture, because culture is not infinitely variable. In fact, despite all the surface and minor differences, evolutionary psychologists have shown all human cultures to be more or less the same.

There Is Only One Human Culture

People—social scientists and laypersons alike—often speak of culture in the plural ("cultures") because they believe that there are many different cultures in the world. At one level, this is of course true; the American culture is different from the Chinese culture, both of which are different from the Egyptian culture, and so on. However, all the cultural differences are on the surface; deep down, at the most fundamental level, all human cultures are essentially the same.

To use a famous metaphor, coined by the cultural anthropologist Marvin Harris,[12] it is true that, at the surface level, people in some societies consume beef as food and worship pigs as sacred religious objects, while those in others consume pork as food and worship cows as sacred religious objects. So there is cultural variety at this concrete level. However, both beef and pork are animal proteins (as are dogs, whales, and monkeys), and both pigs and cows are animate objects (as are Buddha, Allah, and Jesus). And people in every human society consume animal proteins and worship animate objects. At this abstract level, there are no exceptions, and all human cultures are the same. There is no infinite variability in human culture, in the sense that there are no cultures in which people do not consume animal protein or worship animate objects.

To use another example, it is true that languages spoken in different cultures appear completely different, as anyone who ever tried to learn a foreign language knows. English is completely different from Chinese, neither of which is anything like Arabic. Despite these

"surface" differences, however, all natural human languages share what the linguist Noam Chomsky calls the "deep structure" of grammar.[13] In this sense, English and Chinese are essentially the same, in the sense that beef and pork are essentially the same.

You need proof? Any developmentally normal child can grow up to speak any natural human language. Regardless of what language their genetic parents spoke, all developmentally normal children are capable of growing up to be native speakers of English, Chinese, Arabic, or any natural human language. In fact, when a group of children grow up together with no adults to teach them a language, they will invent their own natural human language with complete grammar. This does not mean, however, that the human capacity for language is infinitely malleable. Human children cannot grow up to speak non-natural languages like FORTRAN or symbolic logic, despite the fact that these are far more logical and easier to learn than any natural language (no irregular verbs, no exceptions to rules). Yes, a developmentally normal human child can grow up to speak any language, *as long as* the language is a product of human evolution, not a recent invention of computer scientists or logicians.[14]

Pierre van den Berghe, whom we encountered in the last chapter, again puts it best when he says, "Culture is the uniquely human way of adapting, but culture, too, evolved biologically."[15] Despite all the surface differences, there is only one human culture, because culture, like our body, is an adaptive product of human evolution. The human culture is a product of our genes, just like our hands and pancreas are.

Biologically, human beings are very weak and fragile; we do not have fangs to fight predators and catch prey or fur to protect us from extreme cold. Culture is the defense mechanism with which evolution equipped us to protect ourselves, so that we can inherit and then pass on our knowledge of manufacturing weapons (to fight

predators and catch prey) or clothing and shelter (to protect us from extreme cold). *We don't need fangs or fur, because we have culture.* And just like–despite some minor individual differences–all tigers have more or less the same fangs and all polar bears have more or less the same fur, all human societies have more or less the same culture. Fangs are a universal trait of all tigers; fur is a universal trait of all polar bears; so culture is a universal trait of all human societies. Yes, culture is a cultural universal.

Three Examples of Exotic Culture That Never Was

The recent (and somewhat shameful) history of the social sciences is very instructive in this respect. It shows that every time there was news of a discovery of a new, exotic culture in a remote region of the world, completely different from the Western European culture, it turns out that the discovery was a hoax. Every time, it turns out that there are no human cultures that are radically and completely different from other cultures. We'll share three such examples.

Margaret Mead and the Samoa[16]

In 1923, Margaret Mead (1901–1978), one of the most celebrated anthropologists of all time, was an anthropology graduate student of Franz Boas at Columbia University. Boas was a Jewish refugee from Nazi Germany, and was therefore politically and personally motivated to prove wrong the Nazi policy of eugenics. While this is an admirable goal in and of itself, Boas unfortunately chose the wrong tactics to achieve it. He wanted to show that biology had nothing to do with how humans behave, and that environment–culture–determines human behavior entirely. He was a strong proponent of *cultural determinism.*

In order to demonstrate that culture and socialization determine human behavior in its entirety, Boas gave his graduate students (including Mead) the impossible task of finding a human culture radically different from the Western culture, where people behave completely differently from Americans and Europeans. Margaret Mead was sent to Samoa with this mandate from Boas.

On August 31, 1925, Mead arrived in American Samoa to conduct her research. She was to spend six months doing her fieldwork. Unbeknownst to Boas, however, Mead was involved in another, secret research project, and spent almost all of her time in Samoa doing this other work. She was to leave Samoa in a month, and she had not done any of the fieldwork for Boas on the topic of cultural and behavioral variability to find evidence that Samoan behavior was completely different from American behavior. She decided to finish this work quickly by interviewing two young local women about the sexual behavior of adolescents in Samoa on March 13, 1926.

Mead knew that in the United States and the rest of the Western world, boys were sexually aggressive and actively pursued girls, while girls were sexually coy and waited to be asked out on dates by boys. "How different are things in Samoa? How are Samoan boys and girls when it comes to sex?" Mead asked her two young female informants, Fa'apua'a Fa'amu and Fofoa Poumele.

Fa'apua'a and Fofoa, just like young women everywhere, were quite embarrassed to talk about sex to a total stranger. So they decided to make a big joke about it out of sheer embarrassment. They told Mead the *opposite* of how things were in Samoa. They told her that boys were quite shy, and girls actively pursued boys sexually. It was a hoax, but in the minds of Fa'apua'a and Fofoa, the story that they were telling Mead was so outrageous and so obviously untrue that they couldn't believe anyone in her right mind would believe them.

Except that Mead did, for this was exactly the type of "evidence" that Boas had sent her to Samoa to gather. Here now was evidence that sexual behavior of adolescents could be completely different from (nay, the *opposite* of) how it is in the United States. So culture does completely determine human behavior after all! Mead was ecstatic. She left Samoa in April 1926 and published her "findings" in Samoa in a book called *Coming of Age in Samoa* in 1928. The book immediately became an international bestseller and later a classic in cultural anthropology, and, among other things, formed the foundation of modern feminism. Feminists pointed to the "evidence" in the book to support their claim that, given different "gender socialization," Western boys and girls could be completely different. Boys could be more like girls, and girls could be more like boys. So, in a sense, modern feminism was founded on the basis of a hoax.

More than sixty years later, on May 2, 1988, Fa'apua'a, who was then 86 years old, told a Samoan government official (who happened to be the son of Fofoa, who passed away in 1936) that everything she and her friend Fofoa told Margaret Mead about the sexual behavior of Samoan boys and girls on that fateful night of March 13, 1926, was untrue. It was a hoax. As it turns out, overwhelming ethnographic evidence by now shows that Samoan adolescents are no different from adolescents anywhere else in the world. Boys are sexually aggressive and active, and girls are sexually coy and shy.

The Gentle Tasaday

In 1968, biosocial anthropologist Napoleon Chagnon published the first edition of the anthropology classic *Yanomamö: The Fierce People.*[17] In the book, Chagnon describes the life of a tribe of South American Indians called the Yanomamö, living in the jungles of Brazil and Venezuela. The Yanomamö are so fierce and warlike that

a third of adult males (and 7 percent of adult females) die in their constant battle. They are thought to be the fiercest people on earth.

Now that the Yanomamö were known to the world through Chagnon's work, the cultural determinists—the intellectual descendants of Franz Boas—had a task at hand. If human culture and behavior were infinitely variable, then there must exist the opposite of the Yanomamö somewhere on earth. If there were "the fiercest people on earth," then there must also be "the gentlest people on earth." Merely three years later, the cultural determinists got their wish.

In 1971, Manuel Elizalde, an official of the Marcos government in the Philippines, discovered an isolated tribe of twenty-six men, women, and children on the island of Mindanao. Called the Tasaday, they were said to lead a Stone Age life, without any knowledge of agriculture or even the existence of any other humans besides themselves. They had been completely cut off from the rest of the world for centuries. They were wearing leaves and living in a cave. Among other things, they were so peaceful (*so opposite of the Yanomamö*) that their language did not even contain any word for violence, conflict, or aggression. Two years later, a book describing their peaceful life was published with the predictable title *The Gentle Tasaday.*[18]

With the help of the Marcos government, Elizalde tightly controlled media and scientific access to the Tasaday for fifteen years. As a result, not much more was known about them, and what was known about them by the rest of the world was officially sanctioned by Elizalde. In 1986, the Marcos government collapsed and Elizalde fled the country to Costa Rica. When two journalists went to the site of original discovery of the Tasaday, they found the cave empty. They found the Tasaday in a nearby village, wearing T-shirts and blue jeans. Upon further questioning, two of the original twenty-six Tasaday admitted to pretending to be Stone Age people upon Elizalde's insistence. It turns out that Marcos had instructed Elizalde to

manufacture this band of peaceful Stone Age people in order to attract the world's attention to the Philippines but away from the brutal policies of his oppressive government. When a group of German journalists went to the cave a few days after the two original journalists uncovered the hoax, they discovered the Tasaday once again playing the parts of Stone Age people, pretending to live in a cave and wearing leaves *on top of their T-shirts and blue jeans.*

When one of us (Kanazawa) took his first sociology course in 1982, his instructor used the second edition, published in 1981, of the bestselling introductory sociology textbook *Sociology* by Ian Robertson. On page 57, there is a picture of the Tasaday, all peacefully and quietly sitting in their cave. The caption to the photograph reads, "The Tasaday, a recently discovered 'stone age' tribe in the Philippines, apparently do not have words in their language to express enmity or hatred. Competition, acquisitiveness, aggression, and greed are all unknown among these gentle people. The existence of societies like the Tasaday challenges Western assumptions about 'human nature.'" Five years later, Kanazawa taught his own introductory sociology course at the University of Washington for the first time and used the third edition of Robertson's still bestselling textbook, published in 1987–a year after the hoax had been uncovered. All references to the Tasaday had been deleted in the third edition.

Incredibly, anthropologists still debate the authenticity of the Tasaday even today,[19] but the majority of opinions appears to be that they were not a genuine Stone Age people. One thing is certain: A small tribe of twenty-six people could not have been completely isolated from the outside world for centuries because that would lead to massive inbreeding. And they also could not possibly have been so peaceful that their language lacked any word for conflict and competition. For better or worse, aggression and violence are part of male

human nature. It could be heightened, as among the Yanomamö, but it could not be completely erased from human nature.

The Native American Environmentalism[20]

Unlike the first two, our third and final example of an exotic culture that never was is something that is not yet widely known as false. It is commonly believed even today that, unlike the later European settlers to the American continents, Native Americans are protective of the environment. It is often said that Native Americans make every decision with the next seven generations in mind.

In 1854, the governor of the Washington Territory, on behalf of President Franklin Pierce, met with Chief Seattle, leader of the Duwamish Indians, and offered to buy Chief Seattle's land. This was Chief Seattle's response to the offer:

> How can you buy or sell the sky? The land? The idea is strange to us. . . . Every part of this earth is sacred to my people. Every shining pine needle, every sandy shore, every mist in the dark woods, every meadow, every humming insect. All are holy in the memory and experience of my people. . . . Will you teach your children what we have taught our children? That the earth is our mother? What befalls the earth befalls all the sons of earth. This we know: the earth does not belong to man, man belongs to the earth.

It's a beautiful speech. The only problem is that Chief Seattle never made it. The whole speech was written by a white screenwriter and professor of film, Ted Perry, for the 1971 ABC TV drama *Home.* It was fiction. This is the origin of the myth of Native American respect for the environment.

There is no contemporaneous record of what Chief Seattle actually said at the meeting with the governor in 1854, but according to one eyewitness account, made thirty years later, Chief Seattle thanked the governor for the President's generosity. He was very eager to do business with the President and sell his land to the US government.

The myth that Native Americans are protective of the environment was further fortified by the "Keep America Beautiful" series of public service announcements in 1971, the same year *Home* aired, with the unforgettable image of the "crying Indian." The Indian witnesses white people littering and polluting the environment, and quietly weeps for Mother Earth and the abuse that she must go through at the hands of white people. The message of the public service announcement was that we must all be as protective of the environment as the Native Americans were.

(After his death in 1999, it was revealed that Iron Eyes Cody, the man who played the "crying Indian" in the public service announcements in 1971 and subsequently made a career in Hollywood, portraying numerous Native American characters in movies and TV shows, was not Native American at all. He was born Espera Oscar DeCorti, a son of two *Italian* immigrants.)

Archaeological evidence shows that Native Americans were no more or no less protective of the environment than were any other groups on earth. A large majority of plant and animal species that ever existed on the American continents had been driven extinct by Native Americans long before Columbus set foot in the West Indies. Environmental protection is a luxury that became possible to Western societies only in the last several decades. Before industrialization and the current age of material abundance, all human groups had to exploit the environment to the maximum just to survive. No

one could afford to be environmentally conscious, and Native Americans were no exception.

The point of these examples of exotic culture that never was is to highlight the fact that all human cultures, however exotic and seemingly different on the surface, are essentially the same. There are no human cultures that are radically and completely different from any other, just like there are no human bodies that are radically and completely different from any other. Every time there appears to be a new discovery of an exotic culture that is different from all others, it turns out to be a hoax.

On to the Puzzles and Questions

Now that we have discussed the fundamentals of evolutionary psychology in the last two chapters, you should feel free to delve into the questions that we pose, and answers we suggest for them, in the substantive chapters (chapters 3–8). There is, of course, much more to evolutionary psychology than we discussed in chapters 1 and 2, and if you are interested, we suggest that you explore the books and articles that we recommend in footnote [10] in chapter 1. But our discussion in the last two chapters should be sufficient to inform the questions and answers anywhere in the next six chapters. So feel free to jump in, jump around, and explore the questions that most interest you. Enjoy!

There is no contemporaneous record of what Chief Seattle actually said at the meeting with the governor in 1854, but according to one eyewitness account, made thirty years later, Chief Seattle thanked the governor for the President's generosity. He was very eager to do business with the President and sell his land to the US government.

The myth that Native Americans are protective of the environment was further fortified by the "Keep America Beautiful" series of public service announcements in 1971, the same year *Home* aired, with the unforgettable image of the "crying Indian." The Indian witnesses white people littering and polluting the environment, and quietly weeps for Mother Earth and the abuse that she must go through at the hands of white people. The message of the public service announcement was that we must all be as protective of the environment as the Native Americans were.

(After his death in 1999, it was revealed that Iron Eyes Cody, the man who played the "crying Indian" in the public service announcements in 1971 and subsequently made a career in Hollywood, portraying numerous Native American characters in movies and TV shows, was not Native American at all. He was born Espera Oscar DeCorti, a son of two *Italian* immigrants.)

Archaeological evidence shows that Native Americans were no more or no less protective of the environment than were any other groups on earth. A large majority of plant and animal species that ever existed on the American continents had been driven extinct by Native Americans long before Columbus set foot in the West Indies. Environmental protection is a luxury that became possible to Western societies only in the last several decades. Before industrialization and the current age of material abundance, all human groups had to exploit the environment to the maximum just to survive. No

one could afford to be environmentally conscious, and Native Americans were no exception.

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