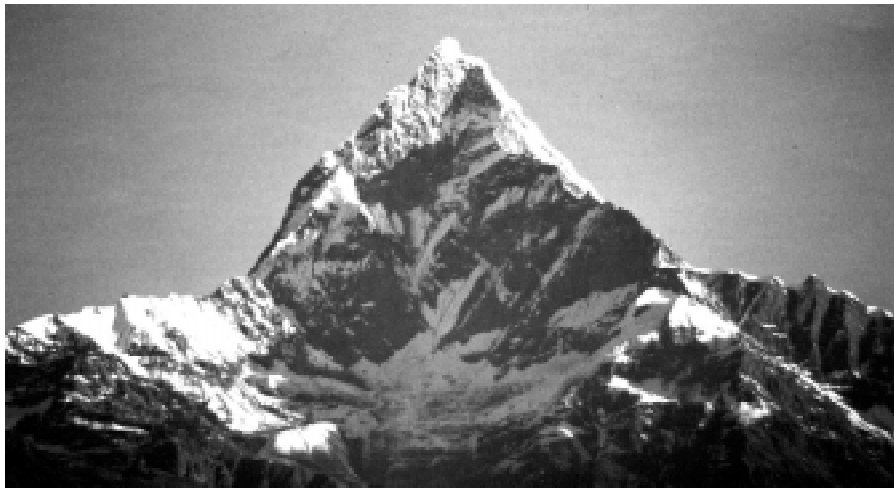


CHAPTER 1

Introduction: On Genes and Gurus



Machhapuchhre—the mountain that was never climbed.

The Price to Pay

Human beings appear to be the most adaptable species on earth: We are farmers, industrial workers, nomads, and professional golf players. We survive everywhere, from deserts to the frozen tundra, from mega-cities to solitary caves. We have even left our footprints on the moon. But are we really as adaptable and versatile as this suggests?

Certainly we can exist under the most difficult of situations, but survival does not necessarily imply that we can thrive under any and all circumstances. The question we should ask is: Are people happy? A closer look suggests that our present situation is far from ideal: Depression, anxiety, and other mental disorders have reached epidemic proportions. People suffer from eating disorders, obesity, and drug abuse; they have insomnia and evidence aberrant sexual habits. Societies are riddled with aggression and crime. Wars are on-going and result in the mass slaughter of our own species—one of the features distinguishing us from most non-human animals. Humans even commit suicide, which ranks among the ten leading causes of death in the United States. From a biological point of view suicide is a most bizarre act, and an obvious indicator of maladjustment.

Even those who appear to be healthy may not be happy. The absence of disease may not indicate well-being. Many people are lonely and bored, lacking purpose in life. Living becomes a daily routine, with tedious jobs of limited relevance, and mental isolation even when surrounded by a large crowd.

The lists of societal problems and disorders are sometimes described as “the diseases of civilization.” The point is that many, if not most, humans do not seem to be content, despite all the advantages of an industrialized society. The big question is, why?

Animals living under natural conditions do appear to be content, but various symptoms related to those described above are also observed in animals held in captivity. Household pets and animals in zoos or on farms

often exhibit behavioral disturbances, particularly those under the control of people who are not qualified to take care of them. For example, they perform stereotypical behavior, like striding back and forth at a particular location in the cage; in fact, similar repetitive behavior is common in a variety of human mental disorders. To my mind, the crux of the matter is that these animals are subjected to conditions that differ from those for which their genes have actually prepared them.¹

To some extent modern societies resemble a zoo, in that we are confined to conditions that are different from those for which we are biologically adapted. Given our current behavior, our “zookeepers,” that is to say, politicians and government officials, have every reason to be alarmed. If they were good managers, they would try to change our living conditions to better suit us. Just as it is possible to design zoological gardens where animals actually thrive, it is also possible to do something about human conditions. The key to success is to adjust the environment as far as possible to suit the biology of the species in question.

In other words, I believe one important cause for the problems facing mankind is that we are losing sight of our biological inheritance: Our genes not only carry instructions for the development of arms and legs; they also contain a blueprint—though a less precise one—for our mental capacity. We should take a closer look at this blueprint, as I am convinced that knowledge about mankind’s biology will help us make better choices, both in our personal lives and in designing our societies. The principle is the same as the intuitive recognition that insights into the biology of dogs help owners offer proper care for their pets. Yes, we are versatile, but there is a price to be paid for stretching the limits.

The Biological Perspective

In this book I take a biological perspective on the quandaries of society and the happiness of its citizens. I believe that an understanding of how our bodies and minds are designed by our genes holds an untapped resource for improving our way of living. To be a Stone Age creature in a Jet Age zoo tends to cause problems—the “diseases of civilization” mentioned above. I believe that biology offers a possible cure. While I do not claim

that our Stone Age ancestors had a better life than what it is possible to achieve today, I do believe that there are things we can learn from our tribal past. It should be possible to construct a way of living that surpasses both ancestral tribal life and what most present people experience. This book is an attempt to tap that potential by looking into our genetic heritage, and I use the term *Darwinian Happiness* for the doctrine that underlies this attempt. (The concept will be presented in more detail in Chapter 3.)

Darwinian happiness does not hold the answer to all our problems. It is neither the sole principle to guide us in our quest for a good life, nor is it some magic formula. A biological perspective cannot offer a “do it yourself,” ten hints for instant happiness. Nevertheless, I believe that such a perspective holds promise for improving the living conditions of mankind, and that it is possible to extract from it specific advice, primarily by offering insight into how the human brain works. How great or small that benefit may prove to be is still too early to tell.

That Little Extra Something

We all rely on a pinkish-gray, jelly-like mass to run our lives. It operates by means of a dual mechanism involving electrical and chemical communication. We call that mass the brain, and it is our body’s greediest organ. Although the brain accounts for only two percent of our body weight, it receives 15 percent of our blood supply and consumes 25 percent of the oxygen carried by our blood. A newborn baby’s brain is even more voracious, demanding 60 percent of the energy the baby consumes.²

There is no doubt about it: The brain is in charge. True, the brain depends on the rest of the body, and it receives a lot of important input from all the other organs; yet, it is fair to say that these other organs, including the much-vaunted heart, have the emotional and intellectual power and significance of a potato.

True, the heart does create a rhythmical beat, a beat that soothes us and can change according to our state of mind. Without these prosaic properties, however, we would no more have put our heart on a pedestal than we would have placed our liver or kidneys there. The mammalian

brain, on the other hand, is the most fantastic miracle created by evolution, and we are equipped with the deluxe version. Or are we?

Technically, our brains are no more advanced than those of mice. The general design of a mouse brain is very similar to that of the human brain, and its functions are based on the same mechanisms. The largest mammals in fact have brains that are larger than ours, and a variety of animals have brains that exceed ours in their ability to accomplish a number of tasks. For example, bats can map their surroundings from sounds, dogs have a richer olfactory life, pigeons have keener vision, and who knows what goes on in the head of a dolphin. Although the differences in sensory functions are reflected in the design of the sensory organs, it is the corresponding sections of the brain that allow these animals to carry out such tasks.

Chimpanzees actually have brains that include most of the features associated with humans: They invent tools, and they acquire knowledge and hand it down from one generation to another—a property we generally refer to as culture.³ They even sport self-awareness. This can be demonstrated with the mirror test: A budgie or parakeet will look in a mirror because it desires company, while a chimpanzee demonstrates self-awareness by removing a speck of dust on his forehead. Without the realization that he is the one in the mirror, the chimpanzee would not have tried to remove it. He really knows who he is.⁴

Normal decency should prevent us from bragging about more than one particular feature of our brain: During the later part of our evolutionary history we evolved an unparalleled cognitive capacity. This singular aspect made us what we are today—the masters of thinking and talking. Evolution sometimes acts that way, producing minor improvements that may lead to drastic changes. The development of legs from the fins of fish allowed vertebrates to colonize land; thus legs changed the face of the Earth. That little extra something added to the human brain has had even more drastic consequences: It is altering the Earth at an unprecedented pace.

Granted, human activity influences the Earth more than the activities of any other animal, but this does not mean that we are fundamen-

tally different from them. It merely indicates that we are a particularly interesting biological phenomenon, but a noteworthy phenomenon nevertheless.

The brain is only an instrument and the body is actually no more than a frail wrapping. Both are products of a set of genes that exist for the simple purpose of reproducing themselves. In other words, the brain is not a computer that responds rationally to instructions; your genes “knew what they wanted” when they developed your brain. Genes did build versatility into the design, and as a consequence we can influence our actions by virtue of our free will. But most features of the brain serve the genes’ purposes more directly. Our emotions reflect such features. For instance, we fall in love because it is in the interest of our genes that we find a mate.

The human brain is not just a fantastic feat of biological engineering. When designing it, evolution included something more valuable than anything else in nature. The genes have bestowed upon us a most wonderful gift, a feature so precious, yet so mundane, that few people ever stop to think about it: Our genes offer us the prospect of happiness. This book is about how to take care of that present.

The Whispering Guru

Roughly speaking, you can consider your personality as consisting of three parts: The first part is the genetic influence common to all humans. Since this is the most important contribution, I would allocate to it three out of a total of five “units.” The second part (one unit) is the genetic influence peculiar to you. The final part (another unit) is how you are molded by the environment surrounding you.

Of the three parts, the first defines the limits of human behavior: We are simply not equipped to follow a scent like a dog, and we will never fly like a bird. The next two parts—how your specific environment interacts with the unique characteristics inherent in your genes—will mainly result in quantitative modifications. In other words, various aspects of a personality will predominate to a greater or lesser degree. For example, we all occasionally get angry, but some people hardly ever raise their voices, while others explode at the slightest provocation.

This book primarily deals with the first part, the one that defines human behavior in general.

The zoologist David Barash has dubbed the way our brain is designed by the genes to influence behavior as the “the whisperings within.”⁵ A knowledge of biology helps us understand the whisperings, and helps us recognize the forces involved in directing our thoughts, emotions, and actions. Biology opens up windows to our minds. What is more, I believe the acquisition of a knowledge of human biology can be compared to consulting a guru. Like the sages of India, this guru offers insight into the mysteries of life, as well as practical advice to guide you in your quest for contentment. As with any sage, not everything your internal guru whispers is worth listening to, but you should keep in mind that the guru is an expert on that gift of happiness the genes have bestowed upon us.

The guru does not offer fixed answers for behavior. Your acquired attributes, as well as the characteristics of the culture to which you belong, are equally important for the choices you make in life. Furthermore, the guru does not demand blind obedience, your conduct is your own choice—and your own responsibility. For example, in most cases the guru will tell you to be nice to others; fortunately for us, evolution has molded the human species into a social animal. Without our gregarious instincts, modern societies would be in much deeper trouble than they actually are. Accordingly, one of the messages from the guru is “Be nice to your comrades.” But even in situations where this message is not being conveyed, you may still choose to be nice. The advice of the guru is not always worth following, but it is well worth considering. This book is about how to decipher the whispering, and how to evaluate the hints.

My own, somewhat antiquated book on social convention states that a courteous human should behave like a well-groomed product of culture, having no functions in common with animals. The “whispering guru” is skeptical: Most categories of emotions *are* shared with animals. Social life would not just be boring if natural functions were excluded; it would hardly make any sense at all. We ought to accept the repertoire of feelings with which evolution has equipped the human species, rather than try to compete with robots.



Plate 1. The great Buddha of Kamakura. For thousands of years people have sought the sages and gurus of the East for spiritual enlightenment. Some of the answers may be in our genes.

A Few Words on Terminology

A glossary at the end of this book explains the most important technical terms. These terms are printed in **bold** the first time they appear in the text, and the list is short. *Italics* are occasionally used to emphasize significant concepts that are not included in the Glossary.

The first question in science is whether or not a theory has explanatory power. The next question is whether the theory may benefit mankind. A variety of novel ideas have come out of the recent interest in understanding the human psyche in an evolutionary perspective—a disci-

pline I prefer to call **human behavioral biology**. I believe many of these theories comply with both questions. They are not just interesting but also have applied perspectives: They can be used to help the individual in his or her pursuit of happiness, and to create a better society. In this book I shall try to outline current knowledge, and suggest ways to exploit this knowledge.

The idea of listening to your internal “guru” certainly does not imply that you should yield to any desire or instinct. Neither do I claim that our common genetic inheritance ought to dictate political or personal decisions. Personal choices are nobody else’s business but your own, and choices regarding society should be best settled by political mechanisms. Human behavioral biology is only a tool that can help us make intelligent decisions.

To some people *sociobiology* is synonymous with the biological study of human behavior.⁶ For me the term “human behavioral biology” seems more useful because it does not appear to restrict itself to social interactions, but includes activities and emotions of single individuals, too. Other popular terms that stand for much the same are *evolutionary psychology*, *evolutionary anthropology*, and *human ethology*.⁷ The psychological perspective stresses the importance of cognitive processes—that is, thoughts, feelings, and other mental activity that does not necessarily lead to observable behavior. Anthropology, on the other hand, is primarily concerned with cultural issues, while ethology focuses more on overt behavior.

I view our mental capacity as part of our biology. Thus, human behavioral biology covers everything that involves our brain, from contemplating the meaning of life to muscle reflexes. The subject may be described as the study of the brain’s role in the biological **adaptation** of human beings.

An *innate* or *inherent tendency* means that your **genes** try to influence behavior in a certain direction. This is the whispering of the guru. It is important to note that the strength of that whispering can vary considerably from one individual to another. For example, most people experience a fear of falling when looking down from the top of a cliff, and the mes-

sage of caution helps you keep a safe distance from the edge. The fears of some people develop into phobias, while others are able to rationalize and suppress their anxiety. Yet, we all have a guru inside us whispering a warning when we approach the edge.

The main task of human behavioral biology is to describe how our inherent tendencies affect us.

Summary of Chapters to Follow

The following chapters expand on the approach outlined in this chapter.

In order to appreciate the remaining text, it is essential to have at least a rudimentary grasp of the principles guiding the evolutionary process; thus, Chapter 2 offers a brief introduction to the theory of evolution. In Chapter 3, I shall present a Darwinian approach to an evolutionary understanding of the concept of happiness. This is the pivotal theme of the book. In other words, I take a biological approach to the question of the quality of life. I believe our present knowledge of human behavioral biology is sufficient to extract meaningful suggestions. It should help us devise recommendations not only for alleviating diseases of civilization, but also for increasing pleasure, and for giving future generations a chance to live a good life.

Chapter 4 introduces additional background information relevant to the study of human behavioral biology. I have tried to reconstruct the evolution of key human features, and to discuss the types of information on which our knowledge of innate tendencies is based.

The remainder of the book describes various aspects of human behavioral biology, focusing on how the individual or society may relate to them. As a starting point, Chapter 5 describes the principles of brain function. The brain is the main organ of interest for any question related to Darwinian happiness. To understand how it ticks has a bearing on most of the issues raised in this book. Chapter 6 discusses some examples of how we can recruit the brain for our personal benefit.

In Chapter 7 I take a closer look at consciousness and free will as well as the annoyances and delights of emotions. A central question is to what extent we are in charge of our feelings.

Our brains are equipped with a variety of more or less distinct features, such as the capacity to learn a language, to coordinate limbs, and to experience love or hate. A comprehensive list of features should, among other things, include our complete repertoire of feelings, as exemplified by pain, hunger, delight, sorrow, and compassion. It is theoretically possible to compile a complete list of all the features required to perform as a human, although the task is difficult—for two reasons: First, they are difficult to categorize since the features to be described are often inter-related (such as our desires for love and sex); and second, we still lack a perfect understanding of the human repertoire.

This book does not attempt to cover all aspects of human behavior, but concentrates on the features where I believe the Darwinian perspective to be particularly valuable. Chapters 8 through 11 will therefore cover various aspects of human interactions. Elements such as the distress associated with freezing or hunger are less interesting: Their adaptive functions are obvious, and we intuitively know how to deal with these situations. On the other hand, our innate social tendencies are complex, not very well understood by the average person, and of the utmost importance for the quality of life. I believe most people will benefit from acquiring a biologically based understanding of attributes such as love, friendship, and hate.

Chapter 12 deals with the strange phenomenon of religiousness.

Chapters 13 and 14 discuss some features of the mind that presumably were not important in the evolution of mankind, but which have an innate component and have come to prominence in modern society: Chapter 13 deals with art and visual aesthetics; Chapter 14, with music. These features are included because they are interesting, and because I believe there is potential for increasing their value, and thus improving the quality of life through a deeper understanding of their innate components.

The final chapter offers visions of the future.

A different type of font style is used for supplementary text; that is to say, material that I believe will help the reader but that is not absolutely essential in order to follow the main theme of the book. Here the reader

will find more technical details, or a treatise of subjects that complement the remaining text.

Each chapter ends with a short section where I try to summarize the main purpose of the chapter.

Caution

When reading the text you may feel that I consider nature to be paramount, and nurture to be irrelevant. I would like to stress that this is not the case. It is simply that this book concentrates on the aspects of human behavior that involve the genes, for this is the constituent I wish to address and which I feel qualified to discuss.

The purpose of the book is to explain human behavioral biology, because I believe this science can help us make decisions, and thus improve the quality of our lives. The purpose is not to moralize, nor is it to tell the reader how to behave or what to do. Whatever messages your genes may whisper, or even cry out loud, there is nothing in biology that needs to stop you from using your measure of free will. There are no fixed answers to the many problems of life, and decisions should always be made by balancing the pros and cons.

This book is aimed at a general audience, but biologists and practitioners in mental health care or the social sciences may also find some of the observations worthy of reflection.

Our present knowledge offers only a simplified version of reality, and the content of this text is but a further simplification of our knowledge. Thus the reader should be aware that any description of human nature, whether by a biologist or a social scientist, will inevitably be colored by both personal views and particular scientific traditions. I am convinced that the main concepts I describe are correct, and I have tried to add qualifiers where appropriate, but at times I do try to paint pictures from fragmentary evidence. Furthermore, in cases where the scientific community adheres to more than one conflicting theory, I will tend to focus on the one I consider to be better, rather than trying to present them all. Also, in order to convey my message, it may be necessary to paint a pic-

ture more distinct than justified when taking the evidence at our disposal into account. And, finally, although I would claim that the advice I offer is based on science, it obviously falls outside the realms of descriptive science.

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In this introductory chapter I have attempted to give you a sense of what the book is about, and what you may expect to gain from reading it. The Oracle of Delphi bears the inscription “Know thyself.” I try to present you with one part of yourself—the influence on mentality and behavior exerted by our common genetic inheritance. Thus, it is more about mankind than about you personally, but I expect that much of what I write could apply, more or less, to you as well. In my mind, knowledge of our innate tendencies is definitely valuable regarding questions about how to shape a society and, I believe, also of value for the individual in his or her pursuit of happiness. We are designed with a propensity for contentment and joy. Knowing yourself, and understanding that propensity, should help you find it.