

Foreword

ANIMAL PASSIONS AND BEASTLY VIRTUES is a collection of essays by Marc Bekoff. It is a book for scientists and nonscientists alike. Academic readers will be intellectually stimulated by many of the discussions, and lay people will be fascinated and often inspired. The writing is clear, so even complex subjects can be readily understood by the general public.

The essays in this book cover many topics, and we are able to trace the gradual development of Marc's research and ideas over a thirty-year period. There are those detailing his work in the field of social play and the behavioral ecology of carnivores. Then his interest in the complex issues of animal cognition, emotions, and self-awareness grows stronger. Gradually more and more of his essays focus on moral issues as he discusses the ethics of animal experimentation and the social responsibility of scientists and science.

Marc's research has led, in some instances, to essays that discuss topics well outside the initial framework of the studies. Thus, his study of social play led him to speculate about the evolution of human behaviors that we describe as fairness, trust, and morality—he describes what seem to be precursors of these behaviors, describing them as “wild justice.” And his research into animal minds and emotions, to which he has dedicated much of his professional career, has provided him with a growing understanding of animals' capacity for suffering, so that he is able to write with authority against cruel and abusive exploitation of wild and captive animals.

Marc's concern for the destruction of the environment at human hands also is clearly outlined in some of these essays. He writes of the tightly woven tapestry of life on earth, of the close connections between all beings and wild ecosystems. He criticizes those who “redecorate” nature, altering the pattern of the wilderness, destroying habitats, moving or killing wildlife, for their own purposes.

Marc is an extraordinarily prolific writer. He has published books for scientists and for the lay public, and many of his articles have been written both for scientific journals and popular magazines. He has also worked to bring an understanding of animal behavior to children—recently through the Jane Goodall Institute's Roots & Shoots program, which encourages youth around the world to take compassionate and informed action to make the world a better place for animals, as well as for people and the environment. Marc has also worked with senior citizens and prisoners in the Roots & Shoots program.

Perhaps the most powerful essays are those which illustrate Marc's determination to be a voice for the voiceless. He is highly critical of the way animals are so often treated as though they were mere “things” rather than the

sentient beings that he—and I—know them to be. His concern, like mine, is for animals both in the wild and in captivity. Marc is not afraid of plunging into controversial topics, such as hunting, the abuse of animals in zoos and circuses, the ethics of animal medical experimentation, and the use of animals for education in schools and universities. These articles, which have been translated into many different languages, as have many of his books, provide information which has been used by others who are also fighting for animal welfare and animal rights around the world.

Marc has the courage of his convictions and is not afraid to speak out—even when his opinion runs directly contrary to that of most of his peers, even when his career could be at stake. When he criticized the reintroduction of Canadian lynx to poor habitat in Colorado (during which many died), the University of Colorado was asked to censure him—fortunately the university supported his right to freedom of speech. And he wrote passionate essays about the infamous dog lab that subjected hundreds of dogs to needless suffering at the university’s medical school, pointing out that similar labs had been discontinued in numerous prestigious medical schools with no ill effects on education. The dog lab was terminated in the spring of 2002.

Finally, Marc is an excellent spokesman for animals because he is not ashamed to admit his admiration and love for them. This shines through his writing, as does the sheer delight he finds in simply being with animals, and this will move and inspire many of his readers.

Marc has learned so much from watching animals and empathizing with them, and by publishing this collection of essays he hopes to share this knowledge with as many people as possible.

I will share *Animal Passions and Beastly Virtues* with colleagues and friends around the world.

Jane Goodall
Bournemouth, UK

Introduction

What Does It Feel Like to Be a Fox?

MY WONDERFUL PARENTS love to recall many stories about my life-long interest in animals. My father remembers, with a wide smile, that on a ski trip when I was six years old I asked him what a red fox was feeling as he merrily crossed our path as we traversed a frozen lake. When I recently visited my parents in Florida, my father reminded me that I was in awe of the magnificence of the fox's red coat and white-tipped tail and lost track of where I was skiing. And he well remembers that when I was four years old, I yelled at a man for yelling at his dog—and the man chased my father! These two events etched an indelible impression in my heart and in my head. I wanted to study animals when I grew up.

I've long been a recreational ethologist, and I've been fortunate enough to combine my long-time interest in animal behavior with my professional pursuits. My parents have told me that I always "minded animals," that I always wanted to know what they were thinking and feeling—"What is it like to be a dog or a cat or a mouse or an ant?" and "What do they feel?" And to this day, learning about the behavior of animals—all animals—has been my passion. When I study coyotes, I am coyote, and when I study Steller's jays, I am jay. When I study dogs, I am dog. Although I choose not to experience first-hand the odors, the olfactory symphonies, that make up what Paul Auster refers to as a dog's "nasal paradise" in his book *Timbuktu*, I have moved "yellow snow" from place to place, much to the astonishment of other hikers.

GOOD FORTUNE

For more than three decades I have lived in the mountains outside Boulder, Colorado. I willingly share the surrounding land with many animal friends—coyotes, mountain lions, red foxes, porcupines, raccoons, black bears, chipmunks, squirrels, and a wide variety of birds, lizards, and insects, along with many dogs and cats. They have been my teachers and healers, and they keep me humble. They have made it clear to me that they were here first and that I am a transient on their turf. I have almost stumbled into mountain lions and have watched red foxes playing right in front of my office door. Adult bears

and their young have played outside my kitchen window. I feel very fortunate to have had these and other experiences, and if I need to make changes in how I live to accommodate my friends, it is just fine with me. I love to see them, smell them, listen to the cacophony of sounds they produce, and take them into my heart. The loss of any of these symbols of their presence would be a marked absence in my daily life.

Although I have always been interested in animal behavior, I have been formally studying animal behavior and behavioral ecology for the past thirty-odd years and love what I do. What an exciting and adventurous journey it has been! I work in beautiful environs, ponder fascinating questions about mysterious lives of magnificent animals, and gather data to answer them—and, of course, the answers generate many more questions. I have always been curious about a wide variety of questions, such as why dogs play the way they do and whether we can learn about fairness, forgiveness, trust, and morality—wild justice—by studying the details of how individuals “converse” during play and negotiate cooperative playful interactions; why dogs and other animals spend a good deal of time sniffing various parts of others’ bodies and odors that make me cringe; how or if animals know who they are; how animals communicate using sounds that I cannot hear; what the relative contributions of genes (nature) and the environment (nurture) are to various behavioral phenomena. I have also wondered if animals empathize with one another and how animals make complex and rapid choices on the run or on the fly in the amazingly diverse situations in which they find themselves.

This curiosity brought me to cognitive ethology, the comparative and evolutionary study of animal minds. My colleagues and I investigate questions such as “What is it like to be a dog?” “What do dogs know?” and “What do dogs feel?” I have also studied the nature of human-animal interactions with an eye toward understanding how our goodwill influences their well-being and how animals, in turn, influence our well-being. This collection of some of my essays, *Animal Passions and Beastly Virtues*, covers these and other areas of research. I believe that animals are our consummate companions, because they complete us. And as we learn more about the lives of other animals, we can increasingly appreciate their gifts and abilities and enjoy their presence, even when we think they are a nuisance.

During the past four decades, the study of animal behavior has burgeoned. People everywhere are interested in the behavior of animals, because knowledge about animals enriches their lives. There are many more professional journals in animal behavior and behavioral ecology now than thirty to forty years ago, and many universities offer undergraduate and advanced degrees in the behavioral sciences. The award-winning three-volume *Encyclopedia of Animal Behavior* that I edited contains more than three hundred essays written by colleagues throughout the world, and videos and movies about animals abound. Many people want to remain connected to or reconnect with animals. There is such widespread interest in the field of animal behavior because our brains are not much different from those of our ancestors, who were more connected to the

animals with whom they shared their habitats. Our “old brains” seem to drive us to keep in touch with animals and with nature in general. It is not natural for humans to be alienated from other beings, and it feels good to interact with them and to know that they are out there doing what comes naturally, even if one is isolated in a city or spends a lot of time in a windowless cubicle.

THE COMPARATIVE STUDY OF ANIMAL BEHAVIOR: ECOLOGICAL AND EVOLUTIONARY PERSPECTIVES

The field of animal behavior was given a big boost when, in 1973, a most exciting and thoroughly unexpected event occurred—Konrad Lorenz, Niko Tinbergen, and Karl von Frisch won the Nobel Prize for Physiology or Medicine for their pioneering work in animal behavior. Lorenz and others stressed that behavior is something that an animal “has,” as well as what he or she “does,” and is similar to an anatomical structure or organ on which natural selection can act. Winning the Nobel Prize was an amazing feat for researchers who studied such phenomena as imprinting in geese, homing in wasps, hunting by foxes, and dancing in bees, and some scientists who conducted biomedical research were miffed that such frivolous pursuits merited the most prestigious award, “the prize,” for scientific research. And these three men were having fun doing their groundbreaking research, and in many scientific circles this was not acceptable. Lorenz has been filmed donning a fox coat and hopping along the ground to see how geese would respond to him! I remember meeting Lorenz at an ethological conference held in Parma, Italy, and his passion and enthusiasm were incredibly contagious. For hours, he told stories of the animals with whom he had shared his life and never once repeated himself. He clearly loved what he did and loved his animal friends.

Another major figure in the study of animal behavior, Charles Darwin, emphasized that there is evolutionary *continuity* among different species, so it was unlikely, for example, that only humans used tools or had culture. Darwin’s ideas about evolutionary continuity—that behavioral, cognitive, emotional, and moral variations among different species are differences in *degree* rather than differences in *kind*—are often invoked in trying to answer questions about the evolution of various behavioral characteristics. On this view, there are shades of gray among different animals and between nonhumans and humans; the differences are not black and white, with no transitional stages or inexplicable jumps. Current work in evolutionary biology and anthropology suggests that linear scales of evolution in which there are large gaps between humans and at least some animals are simplistic views of the evolutionary process. We now know that individuals of many species use tools, have culture, are conscious and have a sense of self, can reason, can draw, can self-medicate, and show very complex patterns of communication that rival what we call “language.” So Darwin was correct. We can learn much about humans by studying the roots of human behavior in nonhumans, and often the differences are not as stark as we think they are. This is not to say that

humans are not unique, but rather to say that all animals are unique and that we can learn a lot by using what is called the *comparative method*, in which different species are studied with an eye (or nose or ear) toward learning about why they do the things they do in their own particular ways.

While a number of people contributed to the foundations of animal behavior, Charles Darwin's ideas were the most important contributions during the third quarter of the nineteenth century. He appears to be the first person to apply seriously the comparative evolutionary method to the study of behavior in his attempt to answer questions concerning the origin of emotional expression in people and animals.

My major research has focused on canids—members of the dog family—and birds. Some of these beings, especially social carnivores such as wolves, can tell us much about the evolution of human behavior. Most primatologists pay little attention to the comparative literature on behavior, cognition, and consciousness, but I recommend that they expand their horizons, for a primatocentric view does not account for the rich diversity of animal behavior that is played out throughout the animal kingdom. As the primatologist Benjamin Beck once correctly warned his colleagues, there are dangers in being narrowly “chimpancentric.”

In my own research on social behavior and behavioral ecology, I stress evolutionary, ecological, and developmental (ontogenetic) perspectives. I follow the lead of such classical ethologists as Lorenz and Tinbergen. I also try to understand individual differences within species and variations among species. Individual differences in behavior are exciting to study because variation provides information that highlights just how different from one another individuals, even closely related individuals, can be. Variation is not noise to be dispensed with.

My approach is called the *comparative approach* to the study of behavior. I have done much interdisciplinary work with geneticists, anatomists, theologians, and philosophers. Scholars from different disciplines need to talk to one another and most importantly listen to one another. My work with Dale Jamieson, Colin Allen, Bernard Rollin, Gay Bradshaw, Lori Gruen, and Jane Goodall, with each of whom I have published papers and books, has been incredibly rewarding and prevented burnout. Each of these people, along with Laura Sewall, the ecopsychologist who wrote *Sight and Sensibility*, stimulated me in many ways and made my science better—I ask more questions and want more in return from my own efforts. Colin Allen, with whom I have done much collaborative work and cycled thousands of miles in the United States and abroad, is always there to pull in my reins and ask, “Do you *really* mean that?” or “What in the world are you trying to say?” Dale Jamieson patiently walked with me through oftentimes tortuous philosophical literature and remains a true friend, although I'd often ask him, “Do you all really spend time pondering this obvious fact?” Benjamin Beck always grounded me and made me appreciate just how dedicated are many people who work with captive animals. These were all very valuable lessons.

While we understand much about the lives of other animals, we need to fill enormous gaps in our knowledge before we can make any stubborn general claims about the evolution and development of most behavior patterns. Caution surely is the best road to take when offering generalizations, especially about complex behavior patterns, animal thinking, and animal emotions. Not only are there differences in behavior between species (called *interspecific variation*), but also there are marked individual differences within species (called *intraspecific variation*). These differences make for exciting and informative research concerning, for example, why wolves and dogs differ and why even littermates and siblings may differ from one another. Many of the coyotes I studied in the Grand Teton National Park in Wyoming lived in packs, but just down the road, coyotes lived either alone or as mated pairs. Thus, making general statements that the coyote behaves this way or that is very misleading, because “the” coyote does not really exist. The same is true for tool use in chimpanzees and orangutans. Not every great ape uses tools, and it is challenging to discover why this is so. Intraspecific variation in behavior has been observed in many animals, including insects. Lumping all members of a species into one category can be very misleading. A bee is not a bee is not a bee, just as a person is not a person is not a person. Humans and other animals are individuals.

I also work at many different levels of analysis. While much of my research is done at the microlevel (for example, analyzing, frame by frame, films of animals at play or animals looking out for potential predators), I am an interdisciplinary holist at heart. I prefer to tackle “big” questions. I also do not shy away from conducting detailed statistical analyses, but never do the animals I am studying get pushed aside as numbers, unnamed variables in an equation, or points on a graph. It is important that the “protective membrane of statistics,” as Mary Lou Randour calls it, not shield us from the worlds of other animals, their joys and pains, their wisdom, their uniqueness.

Another consistent thread in my research is that I have always been interested in individuals. Much of my research has been focused on understanding how individual differences in behavior arise during early development, and what they mean as youngsters get older and become independent. I am also interested in the evolution of behavioral variation—why there has been selection for behavioral variation and flexibility.

In addition to writing about science, animal behavior, evolution, and behavioral ecology, I trespass into other arenas. I have always been interested in matters of spirit and have had the good fortune to be involved in two exciting, challenging interdisciplinary programs—Science and the Spiritual Quest II (www.ssq.net), sponsored by the Center for Theology and the Natural Sciences in Berkeley, California; and the Dialogue on Science, Ethics, and Religion organized by the American Association for the Advancement of Science (AAAS), which also publishes *Science* magazine. At meetings of both these programs, participants speak freely about science (evolutionary biology,

anthropology, psychology), spirituality, theology, religion, and God, and much progress is made in addressing how science and religion can be reconciled.

AH, IT'S ONLY SCIENCE...

Although my training was strongly scientific, I never felt that science was the only valid approach to coming to terms with the world around me. My early scientific training as an undergraduate and a beginning graduate student was grounded in what the philosopher Bernard Rollin calls the “common sense of science,” in which science is viewed as a fact-gathering value-free activity. Assumptions that science is value free never sat well with me, for scientists are humans first and have individual agendas about everything. Furthermore, cut-and-dried normative science is just too confining. I did not worship science and always thought there was room for pluralism and holism.

I believe that the contributions of spiritual and religious perspectives to science are important in our coming to a fuller understanding of animal behavior, in particular the evolution of social morality. I also believe that if science and scientists choose to change their ways, the change will have to come from within the halls of science rather than from, for example, theology, although it will be obvious in many of the essays in this book that I believe interdisciplinary discussions and cooperation are essential for producing change. Indeed, the new field of neurotheology is growing among scholars interested in the biological bases of spirituality, meditation, and mystical and religious experiences. Nonetheless, the philosopher Holmes Rolston claims that “science cannot tell humans what they most need to know: the meaning of life and how to value it.” I agree. Science does not usually allow for expressions of sentimentality or spirituality. Unchecked, science could easily produce a soulless society and a loss of human dignity and free will. Questioning science and recognizing the limitations of scientism will make for better science by situating science in relation to fields of inquiry in which it is more acceptable to ponder questions about spirituality, soul, life, death, love, and God.

Having said all this, I want to stress that I am *not* a science basher and that I love what I do. “Ah, it’s only science” is not a pejorative phrase. Questioning science is not to be antiscience or a Luddite. I also believe that doing science should be fun and that enjoying science will make for better science. I hope that my enthusiasm for, and my love of, the study of animal behavior will be contagious, and this is among many of the reasons that I wrote this book. I am a biophilic who loves learning about other animals and nature.

ANIMAL BEHAVIOR AND ANIMAL WELL-BEING

My trek to the study of animal behavior—whole animals in the field—was not a direct one. When I reflect on my academic career, I realize that my parents were correct—I have always been interested in what animals know and

what they feel. I have always felt their joys, pains, and sorrows—I have always empathized with them and tried to place myself in their paws and hearts. I have always been suspicious of people who try to denature animal pain and suffering. Pain and suffering have evolved because they are adaptive responses to situations that are dangerous or life threatening. They are part of an animal's nature, and they influence how individuals interact in nature. To take the nature out of pain and suffering is bad biology.

It was during a physiology class, when one of my professors proudly strolled into the laboratory and killed a rabbit using a rabbit punch (laughing as he did so), that my longtime interest in animal protection came to the fore. So it was not really surprising that I chose to leave this program, and then another at a prestigious graduate program in neurobiology and behavior at a major medical school, because I did not want to sacrifice dogs or cats as part of my education. I did some deep thinking and I discovered—really rediscovered—what I wanted to do. I wanted to study social behavior in animals and not, when I was done, have to dispose of (“sacrifice”) the animals, individuals with whom I had closely bonded and whom I had named. After moving to Washington University in St. Louis to work on my Ph.D. with the best mentor one could ever have, Michael W. Fox, I conducted research on captive animals, and I allowed mice and infant chickens to be killed by coyotes in staged encounters. I am deeply sorry and haunted by the knowledge that I did this sort of research and would never do it again. I cannot give back life to these mice and chickens, but I have anguished over their death at my hands.

MINDING ANIMALS AND DEEP ETHOLOGY

The phrase “minding animals” came to me on a hike with my companion dog, Jethro, and it means two things. “Minding animals” refers, first, to caring for other animal beings, respecting them for who they are, appreciating their worldviews, and wondering what and how they are feeling and why. The second meaning refers to our acknowledging that many animals have very active minds.

Minding animals led me to develop the term “deep ethology” to convey some of the same general ideas that underlie the deep ecology movement, in which it is stressed that people need to recognize not only that they are an integral part of nature, but also that they have unique responsibilities to nature. As a deep ethologist, following the tradition of ecopsychology, I, as the see-er, try to become the seen. I become coyote. I become penguin. I try to step into animals' sensory and locomotor worlds to discover what it might be like to be a given individual, how they sense their surroundings, and how they behave and move about in certain situations.

As big-brained and omnipresent mammals, we have enormous social responsibilities to conduct our studies in the most ethical manner, to share our information with nonscientists, and also to seek and to use nonscientists' input in trying to determine which questions are the most pressing in our pursuit of

knowledge. We also need to seek out the advice of those who hold other world-views, for example, that of indigenous people who have lived for eons in close association with wild animals and nature. All the many different ways of knowing should be considered. In the past, many Western scientists have marched into other countries, studied their exotic wildlife, and departed without consulting with the local people or giving much attention to local problems, such as the influence of grazing on agricultural fields in India or the effects of global warming on animal populations. This practice has changed greatly as Western scientists have incorporated local people into their work and have applied their findings to help solve local problems. Information on many aspects of animal behavior—movement patterns, social organization, and reproductive habits—is useful to people who are studying conservation biology and wildlife management, as well as to those who live alongside the animals under study. There is a very practical side to the heady study of animal behavior.

ANIMAL WELFARE AND ANIMAL RIGHTS

In some essays, I write about animal well-being using terms such as “animal welfare” and “animal rights,” terms that are not interchangeable. (Summaries of different philosophies about the general field of animal protection can be found in books by Michael W. Fox, Peter Singer, Tom Regan, and Gary Francione, among others.)

Many animals feel pain and suffer. Although some people believe that it is all right to cause animals pain if the research helps humans, others believe that human benefit does not excuse causing pain in animals. Some people think that animals do not deserve any consideration—at least, their actions strongly suggest that this is their stance.

People who believe that we are allowed to cause animals pain, but that we must be careful not to cause them excessive or unnecessary pain, argue that if we consider the animals’ welfare or well-being, we are doing all we need to do. These people are called *welfarists*. People who believe that it is wrong to cause animals any pain or suffering and that animals should not be eaten, held captive in zoos, or used in painful research, or in most or any research, are called *rightists*. They believe that animals have certain moral and legal rights that include the right not to be harmed.

Many people support a position called the *rights view*. According to the lawyer and animal-rights advocate Gary Francione, to say that an animal has a right to have an interest protected means that the animal has a claim, or entitlement, to have that interest protected even if it would benefit us to do otherwise. Humans have an obligation to honor that claim for voiceless animals, just as they do for young children and the mentally disabled. So if a dog has a right to be fed, you have an obligation to make sure she is fed. If a dog has a right to be fed, you are obligated not to do anything to interfere with feeding her. Likewise, if a dog has a right not to be subjected to unnecessary

suffering, you have an obligation not to do anything, such as research, that would cause her pain and suffering, even if the research would benefit humans.

Tom Regan, a professor of philosophy at North Carolina State University, is often called the “modern father of animal rights.” His book *The Case for Animal Rights*, published in 1983, attracted much attention to this concept. Advocates who believe that animals have rights stress that animals’ lives are valuable in and of themselves, not because of what animals can do for humans or because they look or behave like us. Animals are not property or things but, rather, living organisms, subjects of a life, who are worthy of our compassion, respect, friendship, and support. Rightists expand the range of animals to whom we grant certain rights. Thus, animals are not lesser or less valuable than humans. They are not property that can be abused or dominated.

In contrast, welfarists do not think that animals have rights. (Some welfarists do not think that humans have rights either.) Rather, they believe that while humans should not abuse or exploit animals, as long as we make the animals’ lives comfortable physically and psychologically, then we are taking care of them and respecting their welfare. Welfarists are concerned with the quality of animals’ lives. But welfarists do not believe that animals’ lives are valuable in and of themselves, that just because animals are alive, their lives are important.

Welfarists believe that if animals experience comfort, appear happy, experience some of life’s pleasures, and are free from prolonged or intense pain, fear, hunger, and other unpleasant states, then we are fulfilling our obligations to them. If individual animals show normal growth and reproduction and are free from disease, injury, malnutrition, and other types of suffering, they are doing well.

This welfarist position also assumes that it is all right to use animals to meet human ends as long as certain safeguards are in place. They believe that the use of animals in experiments and the slaughtering of animals for human consumption are all right as long as these activities are conducted in a humane way. Welfarists do not want animals to suffer unnecessary pain, but they sometimes disagree among themselves about what pain is necessary and what humane care really amounts to. But welfarists agree that the pain and death animals experience is sometimes justified because of the benefits that humans derive. The ends, human benefits, justify the means, the use of animals even if they suffer, because their use is considered necessary for human benefit.

WHY CARE ABOUT OTHER ANIMALS AND BRING THEM INTO OUR HEARTS?

Why do people even care about other animals? As I argue in many of the essays in this volume, it is because they truly are consummate companions, even if we never meet them up close and personal. I argue that it makes us feel good to think about animals and to feel their presence, or to know that they are out there in nature even if we do not sense—see, hear, or smell—them,

because our old brains still keep us in touch with other animals and nature as a whole. Many of the books in this series published by Temple University Press show over and over again just how important animals are for our own well-being and how important our goodwill is for their well-being. And there are always lessons to be learned.

It is well known that dogs can help reduce stress in children and adults. Dreamworkers, an Atlanta-based therapy-animal group, cannot keep up with the demand for its animals by humans who need them. In fact, there is a reciprocal relationship. Touching and petting a dog can be calming, both for the human and for the dog. Marty Becker has written a wonderful book titled *The Healing Power of Pets* in which he shows how pets can keep people healthy and happy—they can help heal lonely people in nursing homes, hospitals, and schools. Many heartwarming stories about the importance of dogs to our own well-being are shared by Michelle Rivera in her book *Hospice Hounds*. And, in his book *Kindred Spirits: How the Remarkable Bond between Humans and Animals Can Change the Way We Live*, the holistic veterinarian Allen Schoen lists fourteen ways in which relationships between animal companions and humans can reduce stress. These include reducing blood pressure, increasing self-esteem in children and adolescents, increasing the survival rate of victims of heart attacks, improving the life of senior citizens, aiding in the development of humane attitudes in children, providing a sense of emotional stability for foster children, reducing the demand for physician's services for nonserious problems among Medicare enrollees, and reducing loneliness in preadolescents. Bringing pets to the workplace can reduce stress, improve job satisfaction, foster social interactions, and increase productivity.

Once, while I was visiting my parents in Florida, my father called his friend Ginger, whose husband had recently died, so that she could show me her new treasure, a teacup poodle, not surprisingly named Tiny, whom she carried inside her shirt. Ginger pampered and deeply loved Tiny, who pampered and deeply loved Ginger in return. She brought Ginger much joy in the absence of her husband. But the silly rules of the condominium complex imposed by the homeowners' association did not allow dogs on the premises. I can guarantee you that this wonderful small dog was much less a nuisance than most of Ginger's human neighbors. Yet Ginger had to move, because dogs were banned. What was very interesting to me was that my mother, who had been bitten by a dog when she was young and feared dogs throughout her life, and who at the time was unable to move on her own, also found Tiny to be a welcome and comforting friend. We were all afraid that my mother would become very upset as Tiny landed on her lap. But, to our pleasant surprise, she actually allowed Tiny to lie on her lap and smiled from ear to ear as Tiny burrowed into her blanket and her heart.

On another trip to visit my parents, I read about a homeless man named Jackie Tresize who had been mugged and beaten and whose best friend, a shih tzu named Champion, had disappeared while Jackie was recuperating. Of his canine friend, Jackie said: "He was my little family unit; he kept me from feel-

ing lonely. If I had my dog, I wouldn't want nothing else in life." In my home state, inmates at the Colorado Women's Correctional Facility get to care for and live with dogs who would have been "put to sleep" at the local animal shelter. The experience of walking the dogs, grooming them, and cleaning up after them is incredibly rewarding and beneficial to the dogs, the caretakers, and the prison staff. Prison warden Jim Abbott notes: "They have a terrific calming effect that is very therapeutic for both inmates and staff—in a tense situation they divert it." Says Stephanie Timothy, a caretaker of the rescued dog Charlie: "It helps you feel important that they give you the responsibility.... Just knowing [Charlie] is going to make somebody else as happy as he made me is worthwhile." For another caretaker, Mary Johnson, training Max taught her a trade she can pursue when she is released. And as I was writing this essay, I learned that a dog in Toronto, Canada, was responsible for stopping a man on a killing spree. The dog approached the man and started playing with him, and the man turned himself in to the local police!

The importance of companion animals also made its way into the U.S. Senate. In a landmark speech to the Senate about slaughterhouses, Senator Robert Byrd of West Virginia spoke about the importance of companion animals—our "unselfish friends"—for our well-being.

It's often claimed that because of dogs' long and close association with humans and the strong reciprocal bonds that readily form between these four-legged and us two-legged mammals, they are able to read our facial expressions, body language, gestures, and voices. We share a common language when it comes to many aspects of social communication, and dogs' ability to understand us seems to be a hard-wired instinct. I recently met Hogan, a malamute-German shepherd mutt, in Fort Lauderdale, Florida, and after his human companion told me Hogan was friendly, I did a quick play bow and wagged my head from side to side. Instantly, Hogan was all over me trying to play. He understood what the bow meant and shared my desire to play. I'm sure many of you have experienced similar instantaneous connections on innumerable occasions.

Why are dogs such good healers? Dogs—as well as cats, llamas, and dolphins—help treat humans suffering from terminal illnesses, interminable pain, and severe dementia by providing creature comfort. Caregivers and patients report that animals are "safe" and provide relaxation, friendship, and bundles of love to people in need. If we allow dogs into our lives, they readily ignite and awaken our senses, spirits, and souls. They, and many other animal beings, offer us raw, naked, unfiltered, and unconditional respect, humility, compassion, trust, and love. They are not social parasites who prey deceitfully and selfishly on our goodwill, as some popular writers want you to believe. Rather, as Michelle Rivera points out, dogs are true friends with whom we are tightly bonded and involved in a sort of mutual admiration society. Dogs are intuitive therapists. They truly *want* to make us feel better, to heal us, and we are remiss for not allowing them to do so, to be our best friends. We are depriving them of following their natural instincts. I imagine it is likely that as we allow dogs

to do what they do best, comforting us in difficult times, we will discover even more mutual benefits from their unconditional giving. I feel certain that the give-and-take that characterizes dog-human interactions will blossom into even more meaningful and deep interrelationships. Dogs and many other animals truly are consummate companions.

Of course, some people want to learn more about animals to make the case for human uniqueness, usually claiming that humans are “above” and “better than” other animals. But the more we study animals and the more we learn about “them” and “us,” the more often we discover there is no real dichotomy or nonnegotiable gap between animals and humans, because humans are, of course, animals. Rather, there is evolutionary *continuity*. Art, culture, language, and tool use and manufacture can no longer be used to separate “them” from “us.” Drawing lines between species in terms of cognitive skills or emotional capacities can be very misleading, especially when people take the view that nonhuman animals are “lower” or “less valuable” than “higher” animals, where “higher” usually means primates, nonhuman and human. In many ways, we are them and they are us.

It is essential to learn more and more about the lives of other animals because learning and knowledge lead to an understanding of animals as individuals and members of a given species, and understanding leads in turn to appreciation and respect for the awesome and mysterious animal beings with whom we share Earth. Comparative approaches to the study of other animals allow us to see how different species and individuals solve the myriad problems they face.

There is no doubt that we can learn much about humans by carefully studying our animal kin and also by listening to their stories. One reason for my fascination with the study of animal behavior (in particular, questions centering on animal cognition, animal emotions, animal morality, and human intrusion into the lives of other animals) is that I want to learn more about why both the similarities and differences between humans and other animals have evolved. The more we come to understand other animals, the more we will appreciate them as the amazing beings they are and the more we will also understand ourselves.

MINDING THE BLURRED BORDERS BETWEEN “ANIMALS” AND “HUMANS”

It is very clear that learning about other animal beings—how they spend their time, who they interact with, where they do what they do and how they do it, what their intellectual and cognitive abilities (cognitive ethology) are, and what their emotional lives are like—is essential for gaining a full appreciation of human spirituality and just what it is that is uniquely human. Researchers have now discovered that tool use, language use, self-consciousness, culture, art, and rationality no longer can reliably be used to draw species boundaries

that separate humans from other animals. That is, claims that only humans use tools and language, are conscious, are artists, have culture, or can reason are no longer defensible, given the enormous growth in our knowledge of our animal kin. But reflecting on one's own mortality seems to be uniquely human, as might be cooking food. (I sometimes wonder if, and worry that, sadism is a uniquely human characteristic.)

Primatologists have identified about forty different behavior patterns that show cultural variation in chimpanzees (tool use, grooming, patterns of courtship). Female killer whales are known to spend years showing their youngsters how to hunt elephant seals according to local custom. Researchers have compiled a list of almost twenty behavior patterns in whales and dolphins that are influenced by local tradition and show cultural variation. Frans de Waal, a primatologist at Emory University, tells a story of how enamored some art critics were of a painting, only to change their minds when they discovered that the artist was a chimpanzee. In the prestigious journal *Science*, researchers in Germany report that a dog named Rico has a vocabulary of about two hundred words and is able to figure out that an unfamiliar sound referred to an unfamiliar toy. Rico inferred the name of unfamiliar toys by exclusion learning and showed patterns of learning similar to those of young humans. The study of Rico reminded me of a paper published in the *Quarterly Review of Biology* in 1928 about the sensory capacities of dogs, especially a male called Fellow. What I love about this paper is the authors' claim that "much of what the average man 'knows' about his own dog, and about dogs in general is, of course, quite unknown to the animal psychologist." Best to keep an open mind. Just because other animals don't do something when we ask them to do it in certain experimental conditions, or just because we don't see other animals do something we would expect them to do based on our own expectations, doesn't mean that they can't do amazing things in other contexts.

ANIMALS AS "PERSONS": MY MOTHER, BEATRICE, AND MY DOG, JETHRO

Here is a personal story about my mother that raises many questions that I will consider throughout this book. Personhood is a topic that has been increasingly pursued by philosophers, legal scholars, and a handful of biologists. There are practical as well as theoretical—ivory-tower—issues at stake, for how we view animals, their moral and legal standing (Are they objects or property or beings?), often translates into how we treat them. Discussing the status of animals—whether nonhuman animals can be considered persons—compels us to consider what makes us human. The study of animal cognition and emotions is central to questions about personhood.

Once when I was visiting my parents, my father asked, "Marc, can you please wheel Mom into the kitchen and get her ready for dinner?" I answered, "Sure, Dad," and began the short trek. But the journey went well beyond the confines of my parents' home. It remains a difficult and multidimensional

pilgrimage for which there are not any road maps or dress rehearsals. I watched myself watching Mom. The role reversal was riveting; I had become my keeper's keeper. I kept wondering, "Where (and who) is the person I called 'Mom'?"

My mother, Beatrice Rose, whom I loved dearly, suffered major losses of locomotor, cognitive, and physiological functions. She did not know who I am and likely had lost some self-awareness and body awareness. She became, as the legal scholar Rebecca Dresser calls such humans, a "missing person." In a nutshell, my mother had lost her autonomy. She had little self-determination. Nevertheless, there is no doubt that others would still think of her as a person whose spirit and soul were very much alive and who was entitled to certain moral and legal standing. And in my view they should.

Generally, the following criteria are used to designate a being as a person: being conscious of one's surroundings, being able to reason, experiencing emotions, having a sense of self, adjusting to changing situations, and performing cognitive and intellectual tasks. While many humans fulfill most if not all these criteria, there are humans who do not, notably young infants and seriously mentally challenged adults. But they are also rightfully considered persons.

Now what about my late companion dog Jethro? He was active, could feed and groom himself, and was very emotional. Jethro was as autonomous as a dog can be. Yet many people would not feel comfortable calling Jethro a person. This irreverence would be a prime example of just what is wrong with academic musings! Dolphins, elephants, and great apes, among other animals, might also warrant being called persons.

Why are there different attitudes toward my mother and Jethro? Why are some people, especially in Western cultures, hesitant to call chimpanzees, gorillas, dolphins, elephants, wolves, and dogs, for example, persons, even when they meet the criteria for personhood better than do some humans? Perhaps it is fear. Many people fear that elevating animal beings to persons would tarnish the notion of personhood. Some also fear that animals as persons would have the same legal and moral standing as humans and would be our equals.

While some may believe this whole exercise is shamefully crass, there are some very important issues at stake. Loving Jethro (and other animals) as much as I do does not mean I love my mother (or other humans) less. Granting Jethro and other animals personhood and attendant moral and legal standing does not lessen or take moral and legal standing away from humans.

Surely, Jethro went through life differently from most human (and other dog) beings, but this did not mean he didn't have any life at all. People vary greatly. There are countless different personalities, but the term *person* is broad enough to encompass and to celebrate this marvelous diversity.

Extending the definition of personhood to nonhumans would not degrade the notion of personhood but would require that animals be treated with the respect and compassion due them, that their interests in not suffering be given equal consideration with those of humans. I hope to convince you that little

is lost by calling some animals persons and allowing all human beings to be called persons as well.

UNDERSTANDING AND APPRECIATING THE WORLDS OF OTHER ANIMALS: THE IMPORTANCE OF CURIOSITY, OPEN-MINDEDNESS, PATIENCE, AND PERSEVERANCE

What we learn about other animals can improve their well-being and also ours. The information we gather about their cognitive skills, their levels of intelligence, and their emotional lives—their passionate nature—informs us that individuals of many species are not robots or automatons but, rather, thinking and feeling beings. If animals were merely robots, why would their behavior fascinate us, and why would we bond with them the way we do?

New studies are producing information that shows just how fascinating and complex animal behavior can be. Animals who seemed incapable of much thought have been shown to have remarkable cognitive skills. Who would have imagined that rats might dream about the mazes in which they ran the previous day; that bonobos can tell other bonobos where they have gone by leaving signs for their friends to follow; that chimpanzees are aware of what other chimpanzees know; that elephants can communicate with one another over distances of a hundred or more kilometers, as can whales; that honeybees can learn complex same-difference tasks and generalize learned responses to novel stimuli; or that a parrot can learn to differentiate among objects based on their shape, color, or texture? It's also been discovered that lonely sheep are happier and more comfortable when they are shown pictures of sheep family and friends. And Sissy, a female elephant, left her favorite tire as a tribute to her friend Tina after Tina suddenly died; Carol Buckley, the director of the Elephant Sanctuary in Tennessee, reported that Sissy stood for two days at Tina's grave and left behind her at the grave the tire that she had been carrying around as her security blanket.

Fish also show complex patterns of culture and social cognition, and recent research has shown that fish respond to the pain-reliever morphine and that pain-related behaviors are not simple reflexes. Domestic fowl can control how much sperm they produce depending on the promiscuity of a female. Chickens can recognize and remember more than a hundred other chickens in their social pecking order. Many individual nonhuman animals show distinct personalities and idiosyncratic quirks, just as humans do. There are extroverts, introverts, agreeable individuals, and neurotic animals. Shy laboratory rats might not live as long as more adventurous rats. And it is thought that the stress of living in a lab situation causes premature aging in rats. And there's more. Three years after chimpanzees performed a task that required them to count, they could remember how to count, and a seal showed that he could remember the concept of "sameness" after twelve years. Two elephants, Shirley and Jenni, remembered one another when they were inadvertently reunited after being apart for twenty years. Some animals might also be moral beings

(see this book's Part III). Given the linguistic abilities of Rico the dog, I don't think we're barking up the wrong tree when we ponder whether nonhuman animals can have a sense of right and wrong. And why do we think humans should be the measure of what is right and wrong, given what we're doing to other animals, other humans, and the environment?

On the lighter side, fish and snakes appear to communicate by flatulating. What a good and economical use of a natural bodily function! And animals are not immune from rare natural events. Captive hamadryas baboons have been observed to reduce their rates of locomotion and threat behavior during a solar eclipse. And howler monkeys showed a 42 percent decrease in population size, as well as major social disorganization, after Hurricane Iris destroyed the forest in which they lived in southern Belize in October 2001. The list of new and fascinating discoveries is endless.

I like to think of myself as a pluralist—remaining open to alternative views and accepting that there are many different ways to study animal behavior and to explain the behavior of our kin. Solid scientific data, stories, anecdotes, and myths and lore are all needed as we attempt to learn as much as we can about animal behavior. I like to think of the *s*'s that can drive research and explanations of behavior—science, social responsibility, statistics (“hard science”), stories, and skeptics. Hard data do not tell the only story, and in my view it is perfectly okay to be carefully anthropomorphic. In Part I, I discuss the charge of anthropomorphism that so often is used to derail the study of animal minds. And, of course, detailed descriptions of behavior patterns, careful observations, and ethically justified experiments that do not harm the animals in whom we are interested are all important components of a comprehensive approach to animal behavior. A number of my essays show that when we perform research that is invasive, we often are unable to answer the very questions in which we are interested. Often animals are stressed by our mere presence, so we cannot truly study their more natural patterns of behavior. I and my colleagues believe that this is a major problem that needs to be studied and understood so that the data we collect are as reliable as possible and the questions in which we are interested are answered with as little ambiguity as possible.

Animals can do amazing things and accomplish incredible feats, but sometimes they do not do what we ask them to do. They have their own points of view, and on occasion they express them freely. An individual might not be motivated to do something because she is tired, not hungry or thirsty, or just wants to be left alone. It is also possible that we are not tuned in to the sensory worlds of the animals and that we are asking them to respond to a stimulus to which they are not sensitive—a sound that is outside their range of hearing, a color that they cannot see, or an odor that they cannot perceive. The sensory world of many animals is quite different among different species and also varies from our own.

Humans—researchers and nonresearchers alike—often try to package nature and to sanitize and to simplify, or denature, the behavior of other ani-

mals. Sometimes simple answers to complex questions suffice, and other times they do not. Experts can disagree, and this is good for science in general and for the study of animal behavior in particular. Disagreements fuel future research by curious minds. Just when we think we know all there is to know, we learn that this is not so. “I don’t know” is one of the best phrases a researcher can utter, because admitting that there are mysteries still to be uncovered and acknowledging disagreements can also fuel future inquiries. The Pulitzer Prize-winning poet Mary Oliver captured it best in her lines from “The Grave”: “A dog can never tell you what she knows from the smells of the world, but you know, watching her, that you know almost nothing.”

While there are many behavioral phenomena about which we know quite a lot—we can make very accurate and reliable predictions about what an individual is likely to do in a given situation—there are some areas in which we know next to nothing. The minds of other animals are private (as are human minds), and their sensory capacities often are very different from our own and each other’s. So even though we might know much, academically speaking, about the physiology and anatomy of a dog’s nose or of a bat’s ears, we still do not know with certainty, experientially, what it is like to be a dog or a bat. Wouldn’t it be nice to be a dog or a bat or a termite for a while? And, when, using mirrors, we study the concept of self-knowledge in animals, it is possible that even if we collect data that suggest that dogs do not have as high a degree of self-awareness as do chimpanzees because dogs, unlike chimpanzees, do not respond with self-directed movements when they look at their reflection in a mirror, it remains possible that dogs do have a high degree of self-awareness but that the use of a mirror does not tap into this ability. Perhaps assessing dogs’ responses to different odors, including their own, would yield different results. My own study of a dog’s response to his own and to other dogs’ “yellow snow” showed that this might be the case. We need to take into account how animals sense their worlds using different sensory modalities that are more or less important to them.

Along with unbridled curiosity, cleverness, and creativity, patience is a virtue when it comes to the study of animal behavior. I well remember many hours spent sitting cold and alone among 250,000 Adélie penguins at the Cape Crozier rookery in Antarctica just waiting for them to do something—anything—besides steal rocks from each other’s nests or sleep or stare at me trying to figure out who I was, a curious observer or a new land predator. I also recall falling asleep while waiting for a coyote to wake up and join other pack members who had decided to move to another area in which to hunt and frolic.

Patience is also needed in data analysis. Watching videos over and over and doing the appropriate statistical analyses can try anyone’s patience, but these activities are just as important and exciting as collecting reliable data. (Well, maybe they are not all that much fun, but they are essential.) And do not give up on some idea just because others think you are wrong. Sometimes you might be heading in the wrong direction, and sometimes you might not. Be

patient, and analyze the arguments of supporters and critics alike. If the late William D. Hamilton III had not been persistent in pursuing his revolutionary ideas about the evolution of social behavior via kin selection, the field of animal behavior would have suffered an enormous loss. Had Jane Goodall not insisted on naming the chimpanzees she studied at Gombe stream in Tanzania, there would have been a delay in our coming to recognize that individuals had distinct personalities. Goodall also was the first researcher to observe chimpanzees use blades of grass as tools to extract a termite meal from a hole, but many other researchers did not believe her until she showed them a video of the activity. Had I given up the study of social play, as some of my colleagues suggested I do when I was a graduate student, I would never have discovered over the next twenty-five years the important connections between social play and the evolution of fairness, trust, and morality. Years of detailed video analysis (which drove some students crazy), discussions with colleagues from different disciplines, and the belief that I was onto something big kept me going. Imagine if Charles Darwin had given in to his critics when he wrote about his theory of natural selection!

One important lesson that I emphasize in my classes is: *does not does not mean cannot*. Just because an animal does not do a particular task does not mean that he or she cannot do it. A wolf might choose not to chase an elk, but this does not mean he cannot do this. A robin might not learn to discriminate friend from foe, but this does not mean she cannot do this. We need to discover why this is so, why individuals often make the choices that they do—and among these choices is the choice not to do anything. Not to do something is to do something. Not to decide is to decide.

As Donna Haraway notes in her book *The Companion Species Manifesto*: “To do biology with any kind of fidelity, the practitioner *must* tell a story, *must* get the facts, and *must* have the heart to stay hungry for the truth and to abandon a favorite story, a favorite fact, shown to be somehow off the mark. The practitioner must also have the heart to stay with a story through thick and thin, to inherit its discordant resonances, to live its contradictions, when that story gets at a truth about life that matters.” I could not agree more with her sentiments.

It is important to note that there is ample evidence that compassion begets compassion and that cruelty begets cruelty. There is a close relationship between cruelty to animals and cruelty to humans. Developing an understanding of and a deep appreciation for animals is one way to begin the journey of making this a more compassionate world. In addition, one practical advantage of appreciating animals is that changes of heart might lead to less resistance to preserving critical habitat for many endangered animals whose existence on this earth is seriously imperiled. Habitat loss is considered by most conservation biologists to be the biggest threat to animal and plant biodiversity. Caring might indeed spill over into sharing.