A chimpanzee is captured in mid-air, leaping through the air above a grassy field. The chimpanzee's body is arched, and its arms are extended forward. Below the chimpanzee, several hands are raised in the air, suggesting a playful or celebratory interaction. The background is a soft-focus green field with some taller grasses in the foreground.

The Exultant Ark

A Pictorial Tour of Animal Pleasure

"It is rare to find a scientist writing with such delight about, of all things, joy in the animal world! I have rarely experienced such pleasure in reading a book." —JEFFREY MOUSSAIEFF MASSON, author of *When Elephants Weep*

Jonathan Balcombe

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A Pictorial Tour of Animal Pleasure

JONATHAN BALCOMBE



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To all the animals caught up in the joys and the travails of life.

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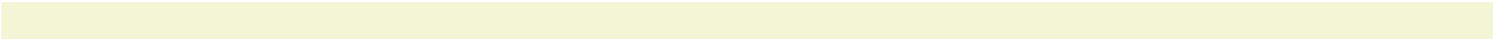


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INTRODUCTION

Each winter, throngs of crows gather at the shopping plaza near my home in suburban Maryland. These birds have a lust for life; on the most bitterly cold mornings, I walk briskly to the bus stop in multilayered winter clothing while the crows, garbed in the same outfits they wear in summer, flap about and cavort boisterously as if the chill were nothing. Some mornings two hundred or more of the lustrous black birds are drawn to the Dumpster at one end of the parking lot. They loiter there like spectators at a sporting event, keeping a close eye on the action taking place below. The boldest individuals venture into the Dumpster to explore and tug at promising morsels while others perch vigilantly along rooftops and the branches of naked trees nearby. Often an aerial chase ensues when a bird grabs a hunk of food in her bill and thus becomes the target of others. Sometimes ten or more birds take up the pursuit. Occasionally a ring-billed gull joins in. The target crow tries to elude the pack with dramatic swoops, rolling swerves, and straight sprints. These chases can last many minutes. Schooled in evolutionary biology, I had assumed such behavior was part of the earnest struggle of life. I figured that the pursuers were hungry and desperate for a piece of the spoils. But I've watched such chases through my binoculars, and I've noticed that sometimes the bird being pursued has no food in her bill. One chase lasted eleven minutes and was still going on when my bus arrived. I began to wonder if these aerial skirmishes could be a game.

If the crows are indeed playing a game, then perhaps enjoyment is their primary motivation. As we'll see in the first chapter, many animals engage in play. (For simplicity and convenience, I use the term *animal* to mean a creature other than the human animal.) There are good evolutionary reasons for play behavior, such as developing strength, practicing important survival skills, and learning the social rules of one's species. But animals do not study evolution, and it is not likely that crows consciously play for evolutionary benefit any more than we humans do. They play because it is fun. Understanding animal pleasure requires recognizing that animals feel things both physically and emotionally; they have wants and desires as well as simple biological needs.

Chances are that you have witnessed expressions of animal pleasure. If you've lived with

dogs or cats you may have noticed how most of them enjoy being stroked, scratched, or rubbed. Indeed, that we refer to them as pets attests to their love of touch as well as our pleasure in touching them. One of our cats, Megan, adores a belly rub, which she solicits by making a distinctive chirruping sound and flopping onto her side or back. It's a cat billboard that says: *Here is my belly. Please start rubbing.* How can one resist an invitation like that? As I rub, she stretches out to her full length, flopping from one side to the other and purring loudly. If I pick up the cat brush and thump it on the floor, Megan doesn't just walk over—she comes running. In the morning as I comb my hair, she hops up onto the vanity and waits expectantly for her turn.

Our nonhuman companions show a range of emotions and moods. When I was a boy, my family had a small mongrel dog named Begs. It was a treat to watch him after his bimonthly bath. He appeared to dislike the actual bathing process, looking forlorn and with his tail slack as squeegees oozed suds down his sides. But ten minutes later, after being rinsed and dried, he would explode with glee, sprinting about the house, veering in and out of rooms, and bouncing off laps and furniture. Perhaps he was celebrating liberation from the ordeal, or maybe he was simply feeling fantastic, as many of us do after a bath or shower.

These examples are anecdotes, which tend to be less convincing than carefully designed scientific studies that control variables and have repeated samples. An anecdote is a single, chance event. As such, it is more open to different interpretations and explanations. For instance, if someone observed one or two vervet monkeys making an unusual vocalization when an eagle flew overhead, followed by all the other vervet monkeys rushing to the lower branches of any available tree, they might suppose that vervet monkeys have a special call for an eagle predator. But perhaps the vervets were reacting only to the sight of the eagle and not to the calls. Or maybe they rushed to the tree because a vervet had seen a python in the grass, or because the call was made in response to the red shirt the human researcher happened to be wearing that day. These alternative explanations can be eliminated only by repeated observation, usually involving controlled experiments. If, for instance, the vervet monkeys are observed to make and respond to a similar call whenever an eagle flies by, then the case for its being a specific call denoting an eagle becomes stronger. But the best evidence comes from playing the monkeys a prerecorded call, which has been shown to cause vervet monkeys to make a dash for lower tree branches even when there is no eagle present. This experiment shows quite convincingly that the monkeys have a special call for *eagle*, or at least for *aerial predator*.¹

As yet, there are few scientific studies on animal pleasure. Some of these, however, are very good, and I mention them in the pages ahead. There are also solid arguments for animal pleasure, and plenty of observations to support them. But before I discuss these findings further, I would like to provide some background to the controversial nature of this important

topic and its neglect in the scientific community.

I should first clarify my use of three related words that appear often in this book: *experience*, *feelings*, and *pleasure*. The verb *experience* means to observe and participate in an event. It implies that the animal who does it has conscious awareness and may anticipate future events and remember past ones. For example, some fishes monitor the behavior of others and selectively team up with more reliable and skilled individuals for foraging or predator inspection forays.² The ability to recognize other individuals and to discriminate among them based on past observations bespeaks a conscious experience of events, so I conclude that these fishes have some level of awareness. I believe that existing evidence, and common sense, supports the conclusion that all vertebrate animals are sentient—they can feel pain and pleasure—and have experiences, and I discuss this more below. Incidentally, in referring to a sentient animal, I prefer the subjective *who* to the objective *that* because we are talking about individual beings with unique identities.

When I refer to *feelings*, I'm making a general statement about an animal's physical or emotional state. In the physical domain, an animal may be hot or cold, tired or well rested. In the emotional domain, an animal may, for example, feel fear, excitement, boredom, or optimism. By *pleasure*, I mean any form of positive experience. Pleasure can be physical (the feel of air-conditioning on a hot day), psychological (pride at receiving an award), or both (the responses aroused by a kiss).

THE CONTROVERSY OVER ANIMAL FEELINGS

I argue throughout this book that pleasure is central to animal existence. Believe it or not, this is a controversial claim. There has been very little discussion of animal pleasure by biologists. Consult the index of an animal behavior textbook and you almost certainly will not find the word *pleasure*. Indeed, there is little serious discussion of pleasure in humans, let alone nonhumans. Pain, yes; pleasure, no. I know of twenty-three scholarly English-language journals dedicated to the study of pain. By contrast, with the exception of an obscure and now-defunct publication called the *Journal of Happiness Studies*, there are no counterparts devoted to exploring pleasure.

Why do we shun pleasure? Part of the reason is that science, by and large, has held and continues to hold a narrow perspective in its scholarly interpretation of animal existence. Published studies of animal behavior are presented almost exclusively in an ultimate, evolutionary context, without discussion of the animals' more proximate mental and emotional experiences. By *ultimate*, I mean the big-picture causes we may not be thinking about, like the

adaptive bases for play (such as developing physical strength and social skills); by *proximate*, I'm referring to a more immediate basis for our behavior, such as the desire for fun as a motivator for play. Scientists are more comfortable with ultimate explanations for behavior because these don't require ascribing to animals experiences that are very hard, if not impossible, to be certain of. For example, the researchers who conducted a study showing that Norway rats and golden hamsters preferred novel foods after several days of eating a single food concluded that the subjects wanted to avoid either becoming overdependent on a potentially short-lived food source or risking a micronutrient deficiency.³ If the scientists had also suggested that the rats and hamsters had grown tired of the same old fare and enjoyed something different, they might have compromised their chances of getting their paper published. Please note that these ultimate and proximate explanations are not in conflict. There is little doubt that rats, like humans, gain a nutritional benefit by varying their diets, but that doesn't preclude their enjoying it. On the contrary, the adaptive benefits of dietary variance have likely driven the evolution of an associated pleasure.

Scientists tend to shy away from making assumptions, and anthropomorphism—the attribution of human characteristics to nonhumans—is generally frowned upon. We inescapably anthropomorphize because we can't help it—we are anthropoid apes, and we cannot know absolutely what other animals are feeling. But we can make reasonable conjectures backed by good science. As Gordon Burghardt, an ethologist (one who studies animal behavior) at the University of Tennessee, explains, we can be “critically anthropomorphic” by having a firm knowledge of the life history, behavior, and ecology of the animals we study.⁴ Marc Bekoff, another ethologist, advocates for “biocentric anthropomorphism,” by which we try to consider the animal's point of view (hence *biocentric*) and not just our own, anthropocentric one.⁵ The key point here is that there is nothing wrong with interpreting animals' behavior in light of our own known experiences provided we are judicious about it. As we move further away from humans (the referent animal whose feelings we know from personal experience), we need to be more cautious. Because we diverged from chimpanzees more recently in evolutionary time than from chinchillas, we can be more confident in drawing parallels between a chimp's behavior and our own. In the face of current knowledge, it seems a bigger assumption that animals are unconscious and unfeeling than that they are sentient, emotional, and aware, and the primatologist Frans de Waal has proposed the term *anthropodenial* “for the *a priori* rejection of shared characteristics between humans and animals.”⁶

The study of animal experience has not always been neglected. In 1872 Charles Darwin devoted an entire book to the subject, *The Expression of the Emotions in Man and Animals*. He took a comparative approach, presenting observations and anecdotes to argue for the

emotional experiences of nonhumans based on correspondences between human and nonhuman subjects. Then, beginning early in the twentieth century, science fell under the spell of a way of thinking that rejected the study of animal experience. Bolstered in part by Ivan Pavlov's celebrated studies of conditioned reflexes in dogs, behaviorism emerged as the prevailing scientific paradigm. Its adherents hold that behavior can and should be studied without appeal to motives, intentions, or internal states—that is, to thoughts or feelings. This view held sway until the 1970s, when an American ethologist named Donald Griffin published *The Question of Animal Awareness* (1976), the first of three books and numerous articles he wrote on animal thinking and consciousness (see references). Having already codiscovered bats' echolocation (in 1938) and written several books, Griffin was a respected scientist, and today he is widely credited with making the study of animal cognition an active and respectable discipline.

Why has the scientific community taken so long to recognize our fellow animals as thinking, feeling beings? The main reason is that feelings are experienced privately, which makes them hard to test. The sensory experiences of an individual—including another human—cannot, literally, be felt by another. Furthermore, to the degree that animals use communication signals (sounds, smells, body language, facial expressions, etc.) in ways whose meaning we may not understand, and most notably because they don't use our highly developed linguistic channels, we are further disadvantaged in trying to interpret what and how they are feeling.

For instance, alternative hypotheses can be offered to explain the behavior of the crows I described above. One possibility is that their aerial chases involve the expression or establishment of a dominance hierarchy. Such hierarchies have been reported in crows; in a European study, male carrion crows tended to prevail over females, adults over juveniles, and larger over smaller individuals for access to a clumped food source (such as the Dumpster in my neighborhood).⁷ The question of whether the aerial chases I saw were displays of dominance could be tested (with difficulty) by marking birds so that individuals could be recognized. If chases corresponded to a hierarchical pattern, then the dominance hypothesis would gain support. If, however, there was little or no pattern to who chased whom, we might seek a different explanation.

Another possibility is that the crows are merely practicing the art of piracy—the behavior of wresting a tidbit from another by the use of force or intimidation. Gulls and frigatebirds are among the bird species best known for aerial piracy; they will pursue and harry another bird who is carrying food in an attempt to compel him or her to drop the prized object. If the crows are boning up on skills needed for effective piracy, then these chases qualify as play behavior. It should be noted that neither the dominance nor the piracy practice hypothesis precludes the possibility that the crows enjoy this activity. How they feel is very difficult to test

scientifically, but we can gain insight through study and observation. Animals are not closed books, and their feelings are not unsolvable mysteries. We can discover a great deal about animals' experiences by following, for instance, Charles Darwin's method in *The Expression of the Emotions in Man and Animals*. Many animals—particularly species that live in social groups—are very expressive. Provided we have a good basic knowledge of the ecology and behavioral repertoire of a particular species, we can learn from observing and studying its members.

Few scientists today are willing to deny that vertebrate animals are sentient—capable of feeling pains and pleasures—though there are legitimate discussions of where in the animal kingdom we ought to draw the line on what animals are and are not sentient (more on this below). The fortunate consequence of a more open-minded era is that science is applying more creative methods to the study of animal cognition, awareness, and emotion. Throughout this book I present examples of studies that scientists are now conducting to better understand what and how animals think, and their emotional feelings—particularly as they may relate to pleasurable experiences. Allowing animals to make choices among a series of putatively desirable options—say, types of food—is a useful tool for assessing what they like. We can also measure physiological changes, such as the release of endorphins and other pleasure-associated compounds from the brain or changes in heart rate or blood pressure. In all of these instances, the human response provides a helpful reference point, provided we bear in mind that our own preferences and reactions are not always reliable predictors of those of other species.

THE CASE FOR ANIMAL PLEASURE

For all of the progress made by science regarding animal feelings, the topic of pleasure remains nascent and largely neglected in scientific discourse. Until animal pleasure is widely and academically accepted, a detailed defense of its presence is warranted. Here, then, I present three primary arguments and hypotheses supporting the case that animals feel pleasure.

First, I propose that pleasure is adaptive. In a “carrot and stick” world, pleasure is nature's carrot. Pain discourages animals from doing things that risk harm or death, which are not good outcomes in the evolutionary stakes. Pleasure, on the other hand, is nature's way of improving survival and reproductive output. Pleasure evolves in sentient organisms as a consequence of behaviors (e.g., feeding, mating) that generate “good” outcomes (e.g., sustenance, offspring) and/or as a motivation to engage in these behaviors based on past