The Chautauqua Journal

Volume 1 *Nature's Humans* Article 3

2016

The Chautauqua Journal, Complete Volume 1: Nature's Humans

The Chautauqua Journal

Volume 1

Nature's Humans

CONTENTS

ERIK LIDDELL

INTRODUCTION

After some delay owing to teaching and service obligations, it is with great pleasure that we present this inaugural volume of *The Chautauqua Journal* as a natural outgrowth of Eastern Kentucky University's interdisciplinary Chautauqua Lecture Series, which is now well into its second decade. We intend to continue to publish volumes of invited essays, articles and creative works in conjunction with the changing themes of the series. *The Chautauqua Journal*, like the series itself, is a collaborative effort, and special thanks go out to everyone involved with the series and everyone involved with the editing and preparation of the present volume.

Each year, the EKU Chautauqua Lecture Series, founded by Bruce MacLaren, later headed by Minh Nguyen, and now coordinated by the author, brings nationally and internationally renowned scholars, newsmakers, adventurers, and popular figures together with Eastern Kentucky University students, staff and faculty, and the broader community of Central Kentucky, in the exploration of a significant chosen theme approached from an interdisciplinary variety of perspectives. The lectures, which are always free and open to the public, are meant to stimulate intellectual curiosity and to challenge our assumptions and attitudes, for progressive ends and within the bounds of civil discourse. Each lecture or presentation concludes with an interactive question-and-answer session. Generally, lecturers attend smaller round-table discussions with students and faculty in the afternoon prior to the evening's presentation, and they often grant interviews for WEKU, the university's National Public Radio affiliate station. The theme of each annual lecture series is also the focus of a national juried art exhibition held at Eastern Kentucky University's Fred Parker Giles Gallery.

The papers gathered in this inaugural volume are drawn primarily from the 2010-2011 Lecture Series on the theme, "Nature's Humans." In addition to the philosophical essays, social commentaries, and scientific analyses that were originally presented as part of the series, we have included herein a selection of creative works (poems and stories) that complement the interpretive discussion of the art exhibition, which itself incorporates

images from the juried show; and we have included a chapter of selected photographs that stand on their own. Thus, this inaugural volume, true to the interdisciplinary spirit of EKU Chautauqua, contains a range of approaches to the question of the relation of human beings to nature.

Section One presents a variety of "Philosophical and Cultural Investigations," beginning with Peter Singer's consideration of "Ethics and Animals: Extending Ethics beyond Our Own Species." In this continuation of his seminal, in some sense now canonical work in the field, Singer challenges us to make decisions regarding our relations to animals (including especially what we eat and how our food is produced) that move beyond many long-held and deeply-ingrained prejudices of Western culture, that is, beyond "speciesism," and ultimately thereby beyond cruelty and suffering. Next, biologist Jonathan Balcombe invites us to reconsider the nature and significance of "animal sentience," through analyses of animal emotions, awareness, communication, and morality (pleasure and virtue in the animal world), in support of his proposal that we move beyond "intellicentrism" and, in light of the evidence he presents, that we responsibly adopt a vegetarian diet. Matthew Pianalto's ranging and subtle essay, "Ethics beyond Sentience," takes issue with Singer, Balcombe, and others who tend to prioritize "sentience" as the key to defining human relations to animals specifically and to natural phenomena generally. Finding this stance too limited, Pianalto seeks a broader, in many ways more intuitive and mystical, but also more exacting measure of the "universal respect" which we owe to all things as a result of our immersion in the mysterious experience of nature as a whole. Justin Smith's "Folk Ontology and the Moral Standing of Animals" continues the discussion of the relations of human beings to animals. After a critique of Lessing's analysis of the "use of animals in fables," Smith outlines his notion of "folk ontology" (related to pre-scientific, broadly shared cultural understandings) and discusses in compelling fashion the contrast between the tendency to "dehumanize" entire species on the one hand, and seeing *individual* animals on the other hand (note his discussion of elephants, especially) as "morally relevant beings, with the same rights that flow from this individual moral status that human beings are held to deserve." If Singer, Balcombe, Pianalto, and Smith all encourage us to transform our given attitudes and relationships with animals and the natural world, Robert P. George, in "Natural Law,

God, and Human Dignity," seeks to articulate and reassert the value of a more traditional approach to such questions, invoking Aristotle and Aquinas and emphasizing the priority of reason and freedom in the definition of both morality and human dignity.

The "Artistic Explorations" of "Nature's Humans" presented in Section Two take a variety of forms, starting with Esther Randall's both descriptive and analytical discussion of key works in the Chautauqua National Juried Art Exhibition. Randall's evocative and vivid prose enables readers to envision the works in question, and her keen sense of aesthetic symbolism, use of materials, and artistic logic helps us to appreciate the significance of these works in relation to the theme, as she identifies a series of interconnected "currents and motifs" that emerged from the show, including, especially, certain "metaphorically biomorphic forms, such as nature/human hybrids, humans in nature, and nature in humans." As complement to the exhibition, we present a number of literary works that expand our understanding of the human relation to natural phenomena in a variety of ways, written by a host of accomplished creative writers. These include personal, philosophical, political, and psychological poems by Harry Brown, Dorothy Moseley Sutton, Frank X. Walker and Young Smith; a Grand Canyon short story, "To the Bottom," by Julie Hensley; a haunting, idiosyncratic, postmodern, meditative essay about (among other things) the interpenetration of the psyche with the forces of nature, called "Wind, Water, Wall-Woman," by filmmaker, composer, and writer, Trinh T. Minh-ha; and, finally, photographs selected by Chris Jackson, and grouped under the title, "Nature's Humans: Presence, Absence, Transformation."

Section Three presents a set of essays, reports, and analyses under the heading, "Scientific Interventions," meant to emphasize the ways in which humans investigate and interact with nature, and intended in particular to accent the hope that we may move forward from the problems of the present in an informed manner to have a positive transformational impact on the planet, the biosphere, and all of its inhabitants. This section begins with a lesson about bias from the annals of natural history, in Lee Alan Dugatkin's account of "Thomas Jefferson versus Count Buffon: The Theory of New World Degeneracy." Dugatkin's fascinating reconstruction of the debate reveals the dogged and determined ways in which Jefferson, as statesman and scientist, with the aid of a certain prize specimen (a moose), sought to convince Buffon, the leading authority of

the day, that his influential theory—that the fauna of the Americas was inferior and "degenerate" by comparison to European species—was in fact incorrect. Next, in many ways reminiscent of Wordsworth's poem, "The World Is Too Much With Us" ("Getting and spending, we lay waste our powers;— / Little we see in Nature that is ours; / We have given our hearts away, a sordid boon!"), Carol Kaesuk Yoon exposes some of the distressing ways in which our contemporary *umwelt*—the "shared perceived world" that is ever-increasingly constituted by consumer habits and practices—distances us from nature and threatens to undermine what arguably used to be a more intuitive and intimate relation to the environment and the natural world surrounding us. Yoon hopes that, by reinforcing already changing attitudes, we might re-instill in the next generation something of a more authentic sensibility. In "The Bonobo Mirror Project," Laura Newhart works from an interest in existentialist philosophy—specifically Jean Paul Sartre's approach to the problem of the existence of other minds—to establish a framework for observations in the field, in order to determine "whether human visitors to the bonobo exhibit at the Cincinnati Zoo provide behavioral evidence that they recognize they are in the presence of another mind," and in this way adding incrementally to the still developing discourse about the question of primate consciousness. The last two authors present surveys of specific ways in which human beings have begun to respond to particular challenges and crises—in the food supply, and in the planet's dangerously increasing levels of carbon—and ways in which positive trends can be capitalized upon and continued for the benefit of both humanity and the planet. Lisa Markowitz outlines many recent innovations and creative solutions, in the United States and elsewhere, to various problems of food insecurity, distribution, production, and quality; in these responses, which are admittedly still partial and in some sense fledgling, Markowitz nevertheless sees certain 'seeds of renewal.' Finally, in "Avoiding Extinction," Gabriela Chichilnisky, who was one of the prime movers behind the Kyoto Protocol, continues to think big about what is perhaps the planet's most profound long-term concern: climate change and its potential consequences for human life. After presenting an alarming assessment of the current global situation (which has only grown more serious in the interim), Chichilnisky moves on to detail what she argues is a "realistic plan that involves market solutions in both industrial and developing nations [and that simultaneously

resolves] the problems of economic development and climate change and help[s] overcome the global wealth divide." Chichilnisky's analysis reminds us that the solutions to problems that might at first seem overwhelming and insurmountable are actually within our grasp—if we think globally and act progressively together as a species, as "Nature's Humans."

CONTRIBUTORS

JONATHAN BALCOMBE is a biologist, Director of Animal Sentience with the Humane Society Institute for Science and Policy, and the author of *What A Fish Knows: The Inner Lives of our Underwater Cousins*, as well as *Second Nature: The Inner Lives of Animals*, and three other books of natural science.

HARRY BROWN is Foundation Professor Emeritus of English at Eastern Kentucky University, and the author of *In Some Households the King is Soul* and many other books of poetry.

GRACIELA CHICHILNISKY is Professor of Economics and of Statistics, and Director of the Columbia Consortium for Risk Management at Columbia University.

LEE ALAN DUGATKIN is Professor and University Scholar in the Department of Biology at The University of Louisville, and the author of *Jefferson and the Giant Moose*, *The Altruism Equation*, and other books on the evolution of social behavior and natural science.

ROBERT GEORGE is McCormick Professor of Jurisprudence at Princeton University, and the author of *Conscience and Its Enemies*, *In Defense of Natural Law*, and many other books on philosophy and jurisprudence.

JULIE HENSLEY is Associate Professor in the Department of English and Theatre at Eastern Kentucky University, and the author of *Landfall: A Ring of Stories*.

CHRIS JACKSON is Art Director at Bullhorn Creative.

ERIK LIDDELL is Associate Professor of Languages, Cultures and Humanities, Faculty Fellow in the Honors Program, and Coordinator of the Chautauqua Lecture Series at Eastern Kentucky University.

LISA B. MARKOWITZ is Associate Professor of Anthropology at the University of Louisville.

TRINH T. MINH-HA is Professor of Rhetoric and Gender and Women's Studies at the University of California at Berkeley, and the author of *Lovecidal: Walking with the Disappeared, D-Passage,* and *Elsewhere, Within Here: Immigration, Refugeeism and the Boundary Event*.

LAURA NEWHART is Associate Professor and former Chair of Philosophy and Religion at Eastern Kentucky University.

MINH NGUYEN is Professor of Philosophy and Religion, Director of the Asian Studies Program, and former Coordinator of the Chautauqua Lecture Series at Eastern Kentucky University.

MATTHEW PIANALTO is Associate Professor of Philosophy and Religion at Eastern Kentucky University, and the author of *On Patience: Reclaiming a Foundational Virtue*.

ESTHER E. RANDALL is Director of the Fred Parker Giles Art Gallery, and Professor of Art and Design at Eastern Kentucky University.

PETER SINGER is Ira W. DeCamp Professor of Bioethics at Princeton University, a Laureate Professor at the Centre for Applied Philosophy and Public Ethics at the University of Melbourne, and the author of *Ethics in the Real World: 82 Brief Essays on Things That Matter* plus many other books on ethics and animals.

JUSTIN E. H. SMITH is University Professor of the History and Philosophy of Science at the Université Paris Diderot—Paris VII, and the author of *Nature, Human Nature, and Human Difference* and *The Philosopher: A History in Six Types*.

YOUNG SMITH is Associate Professor of English at Eastern Kentucky University, and the author of *In a City You Will Never Visit*.

DOROTHY MOSELEY SUTTON is Professor of English at Eastern Kentucky University, and the author of *Modern Odyssey*, *Backing into Mountains*, and *Startling Art: Darwin and Matisse*.

FRANK X WALKER is a former Kentucky Poet Laureate, and the author of *Affrilachia* and *Turn Me Loose: The Unghosting of Medgar Evars*, among other collections of poems.

CAROL KAESUK YOON is an ecologist and evolutionary biologist, a writer for the New York Times, and the author of *Naming Nature: The Clash between Instinct and Science*.

SECTION ONE

PHILOSOPHICAL AND CULTURAL INVESTIGATIONS

PETER SINGER

ETHICS AND ANIMALS: EXTENDING ETHICS BEYOND OUR OWN SPECIES.[1]

Introduction

It is commonly held that ethics is about how we ought to treat other human beings. On this view, how we ought to treat animals is not properly part of ethics, or at best, if the treatment of animals is included within ethics at all, then animals have a second-class moral status. We have the right to use them as we see fit, to satisfy our needs and desires without regard to their interests, as long as we do not engage in gratuitous cruelty.

In the pages that follow, I shall argue that this standard view of our moral responsibilities to animals is indefensible. In order to act ethically towards animals, we need to change both our attitudes to animals, and the way in which we treat them and make use of them. First, however, it will be helpful to see from where our current attitudes to animals have come.

The Western Tradition

Western attitudes to nature grew out of a blend of those of the Hebrew people, as represented in the early books of the Bible, and the philosophy of ancient Greece, particularly that of Aristotle. In contrast to some other ancient traditions, for example those of India, both the Hebrew and the Greek traditions put humans at the centre of the moral universe. Indeed, for much of the Western tradition, humans are not merely of central moral significance, they constitute the entirety of the morally significant features of this world.

The biblical story of creation in *Genesis*, makes very clear the Hebrew view of the special place of human beings in the divine plan:

[1] This essay draws on work published previously in *Practical Ethics* and elsewhere.

> And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the earth, and over every creeping thing that creepeth upon the earth.
>
> So God created man in his own image, in the image of God created he him; male and female created he them.
>
> And God blessed them, and God said upon them, Be fruitful, and multiply, and replenish the earth, and subdue it; and have dominion over the fish of the sea and over the fowl of the air, and over every living thing that moveth upon the earth.

After the flood there is a repetition of the grant of dominion in more ominous language:

> And the fear of you and the dread of you shall be upon every beast of the earth, and upon every fowl of the air, upon all that moveth upon the earth, and upon all the fishes of the sea; into your hands are they delivered.

The implication is clear: to act in a way that causes fear and dread to everything that moves on the earth is not improper; it is, in fact, in accordance with a God-given decree.

The most influential early Christian thinkers had no doubts about how man's dominion was to be understood. “Doth God care for oxen?” asked Paul, in the course of a discussion of an Old Testament command to rest one's ox on the Sabbath, but it was only a rhetorical question—he took it for granted that the answer must be negative, and the command was to be explained in terms of some benefit to humans. Augustine shared this line of thought. He explained the puzzling stories in the New Testament in which Jesus appears to show indifference to both trees and animals—fatally cursing a fig tree and causing a herd of pigs to drown—as intended to teach us that “to refrain from the killing of animals and the destroying of plants is the height of superstition.”

When Christianity prevailed in the Roman Empire, it absorbed elements of the ancient Greek attitude to the natural world. The Greek influence was entrenched in Christian philosophy by the greatest of the medieval scholastics, Thomas Aquinas, whose life work was the melding of Christian theology with the thought of Aristotle. Aristotle regarded

nature as a hierarchy in which those with less reasoning ability exist for the sake of those with more:

> Plants exist for the sake of animals, and brute beasts for the sake of man—domestic animals for his use and food, wild ones (or at any rate most of them) for food and other accessories of life, such as clothing and various tools.
>
> Since nature makes nothing purposeless or in vain, it is undeniably true that she has made all animals for the sake of man.

In his own major work, the *Summa Theologica*, Aquinas followed this passage from Aristotle almost word for word, adding that the position accords with God's command, as given in *Genesis*. In his classification of sins, Aquinas has room only for sins against God, ourselves, or our neighbours. There is no possibility of sinning against nonhuman animals, or against the natural world.

This was the thinking of mainstream Christianity for at least its first eighteen centuries. There were gentler spirits, certainly, like Basil, John Chrysostom and Francis of Assisi, but for most of Christian history they have had no significant impact on the dominant tradition.

Differences between humans and animals

That humans and animals are utterly different *kinds* of beings was unquestioned for most of the course of Western civilization. The basis of this assumption was undermined by Darwin's discovery of our origins and the associated decline in the credibility of the story of our divine creation in the image of God. Darwin himself argued that the difference between us and animals is one of degree, rather than of kind, a view that, even today, some find difficult to accept. They have searched for ways of drawing a line between humans and animals. To date, these boundaries have been short-lived. For instance, it used to be said that only humans used tools. Then it was observed that the Galapagos woodpecker used a cactus thorn to dig insects out of crevices in trees. Next it was suggested that even if other animals *used* tools, humans are the only animals who *make* tools. But Jane Goodall

found that chimpanzees in the jungles of Tanzania chewed up leaves to make a sponge for sopping up water, and trimmed the leaves from branches to make tools for catching insects. The use of language was another boundary line—but now chimpanzees, bonobos, gorillas, and orangutans have learnt to sign in the language used in America by people who are deaf, and parrots have learned to speak, and not merely to parrot, English.

Even if these attempts to draw the line between humans and animals had fitted the facts, they would still not carry the moral weight required to justify our treatment of animals. Even before Darwin, the English philosopher and reformer Jeremy Bentham had pointed out that the fact that an animal does not use language is no reason for ignoring its suffering, and nor is the fact that she does not use tools. The most important capacity we share with nonhuman animals is the capacity to suffer, and this means that they, like us, have interests. If we ignore or discount their interests, simply on the grounds that they are not members of our species, the logic of our position is similar to that of the most blatant racists or sexists who think that those who belong to their race or sex have superior moral status, simply in virtue of their race or sex, and irrespective of other characteristics or qualities. Although most humans may be superior in reasoning or other intellectual capacities to non-human animals, that is not enough to justify the line we draw between humans and animals. Some humans—infants, and those with severe intellectual disabilities—have intellectual capacities inferior to some animals, but we would, rightly, be shocked by anyone who proposed that we confine them in small cages and then slaughter them in order to eat them. The fact that we are prepared to do these things to nonhuman animals is therefore a sign of "speciesism."

Speciesism, and why it is wrong

"Speciesism" refers to an attitude of prejudice or bias against beings because of their species. The term is intended to suggest a parallel with other "isms" such as racism and sexism. Just as racists favor members of their own race over those of a different race, and as males favor members of their own sex over females, so speciesists typically favor members of their own species—that is, human beings—over members of other species, whether the others are chimpanzees, whales, dogs, pigs, or chickens.

For thousands of years racist and sexist ideologies have helped those with power to justify their domination and exploitation of other human beings, by presenting those others not only as different, but as inferior. It is sometimes difficult for members of a dominant group to see through their own ideology—that is, to see that it really is a self-serving prejudice, and not a reasonable, ethically justifiable, view. This is as true of speciesism today as it has been of racism and sexism.

All beings capable of feeling pain or of enjoying their lives have interests. The fact that a pig, for example, is not a member of our own species is no reason for disregarding the pig's interest in avoiding pain and discomfort. Yet we do that when we lock animals up in factory farms, sacrificing almost all of their interests in order to produce cheaper ham or pork. Similarly, we display speciesism if we carry out painful experiments on animals that we would never perform on human subjects who would suffer similarly.

It is important to distinguish speciesism, which relates to species membership in itself, from non-speciesist judgments people may have about the ethical significance of different characteristics or capacities that are typical of some species but not others. For instance, we may reasonably consider that premature death is especially tragic when it comes to beings who have a sense of their own existence over time, and have been forming plans for the future. The death of a being that lacks the self-consciousness required to form plans for the future can be seen as less tragic because it does not have this element of the thwarting of long-term desires. Although this position may lead us to consider the death of a typical human being as more serious than the death of any nonhuman animal, the view is not speciesist, since it makes no essential reference to the species of the beings involved. But if it is used to defend the conventional moral view that human life is *always* sacrosanct, and animal life *never* is, then it becomes speciesist. For it is evident that some humans—those with profound intellectual disability, for instance—have less self-awareness than animals such as chimpanzees. A nonspeciesist view of the wrongness of taking life must judge the value of the life of beings in accordance with their capacities as individuals, and not merely in terms of the species to which they belong.

In a world without speciesism, humans would not cause significant suffering to nonhuman animals in order to satisfy their own nonessential interests. This still leaves room for debate about exactly how humans should relate to animals, but it is at least clear that today's large-scale commercial farming of animals and routine use of animals in research and entertainment could not continue.

Speciesism in Practice

For most people in modern, urbanized societies, the principal form of contact with nonhuman animals is at meal times. The use of animals for food is probably the oldest and the most widespread form of animal use. Although it is only one of the many ways in which we misuse animals for our own ends, in terms of numbers, it dwarfs other areas like hunting, research using animals, and the use of animals in entertainment. There is also a sense in which raising animals for food is the most basic form of animal use, the foundation stone of an ethic that sees animals as things for us to use to meet our needs and interests. Hence it is on this use that I will focus here.

If animals count in their own right, our use of animals for food becomes questionable. Inuit living a traditional lifestyle in the far north where they must eat animals or starve can reasonably claim that their interest in surviving overrides that of the animals they kill. Most of us cannot defend our diet in this way. People living in industrialized societies can easily obtain an adequate diet without the use of animal flesh. Meat is not necessary for good health or longevity. Indeed, humans can live healthy lives without eating any animal products at all, although a vegan diet requires greater care, especially for young children, and a B12 vitamin supplement should be taken. Nor is animal production in industrialized societies an efficient way of producing food, since most of the animals consumed have been fattened on grains and other foods that we could have eaten directly. When we feed these grains to animals, only about one quarter—and in some cases, as little as one tenth—of the nutritional value remains as meat for human consumption. So, with the exception of animals raised entirely on grazing land unsuitable for crops, animals are eaten neither for health, nor to increase our food supply. Their flesh

is a luxury, consumed because people like its taste. (The livestock industry also contributes more to global warming than the entire transport sector.)

In considering the ethics of the use of animal products for human food in industrialized societies, we are considering a situation in which a relatively minor human interest must be balanced against the lives and welfare of the animals involved. If we reject speciesism, then we cannot allow the major interests of nonhuman animals to be sacrificed for minor interests of human beings.

The case against using animals for food is at its strongest when animals are made to lead miserable lives so that their flesh can be made available to humans at the lowest possible cost. Modern forms of intensive farming apply science and technology to the attitude that animals are objects for us to use. Competition in the marketplace forces meat producers to copy rivals who are prepared to cut costs by giving animals more miserable lives. In buying the meat, eggs, or milk produced in these ways, we tolerate methods of meat production that confine sentient animals in cramped, unsuitable conditions for the entire duration of their lives. They are treated like machines that convert fodder into flesh, and any innovation resulting in a higher 'conversion ratio' is liable to be adopted. As Ruth Harrison wrote in her pioneering work, *Animal Machines,* "cruelty is acknowledged only when profitability ceases." To avoid speciesism, we must stop these practices. Our custom is all the support that factory farmers need. The decision to cease giving them that support may be difficult, but it would also have been difficult for a white Southerner to go against the values of his community and free his slaves. Yet that would have been the right thing to do. If we do not change our dietary habits, how can we censure those slaveholders who would not change their own way of living?

These arguments apply to animals who have been reared in factory farms—which means that we should not eat chicken, pork, or veal, unless we know that the meat we are eating was not produced by factory farm methods. The same is true of beef that has come from cattle kept in crowded feedlots (as most beef does in the United States). Eggs come from hens kept in small wire cages, too small even to allow them to stretch their wings, unless the eggs are specifically sold as "cage-free" or "free range." (At the time of writing, Switzerland has banned the battery cage, and the European Union is in the

process of phasing it out. In the United States, California voted in 2008 to ban it, effective in 2015. A law passed in Michigan in 2009 requires battery cages to be phased out over ten years.) Dairy products also often come from cows confined to a barn, unable to go out to pasture. Moreover, to continue to give milk, dairy cows have to be made pregnant every year, and their calf then taken away from them shortly after birth, so we can have the milk. This causes distress to both the cow and the calf.

Concern about the suffering of animals in factory farms does not take us all the way to a vegan diet, since it is possible to buy animal products from animals allowed to graze outside. (When animal products are labeled 'organic' this should mean that the animals have access to the outdoors, but the interpretation of this rule is sometimes loose.) The lives of free-ranging animals are undoubtedly better than those of animals reared in factory farms. It is still doubtful if using them for food is compatible with giving equal consideration to their interests. One problem is, of course, that using them for food involves killing them (even laying hens and dairy cows are killed when their productivity starts to drop, which is long before their natural life-span), but even if we put this issue aside, there are also many other things done to animals in order to bring them cheaply to our dinner table. Castration, the separation of mother and young, the breaking up of herds, branding, transporting, slaughterhouse handling, and finally the moment of slaughter itself—all of these are likely to involve suffering and do not take the animals' interests into account. Perhaps animals can be reared on a small scale without suffering in these ways. Some farmers take pride in producing 'humanely raised' animal products, but the standards of what is regarded as 'humane' vary widely. While any shift towards more humane treatment of animals is welcome, it seems unlikely that these methods could produce the vast quantity of animal products now consumed by our large urban populations. At the very least, we would have to considerably reduce the amount of meat, eggs and dairy products that we consume. In any case, the important question is not whether animal products *could* be produced without suffering, but whether those we are considering buying *were* produced without suffering. Unless we can be confident that they were, the principle of equal consideration of interests implies that their production wrongly sacrificed important interests of the animals in order to satisfy less important interests of our own. To buy the results of this process of production is to support it, and

to encourage producers to continue to do it. Since those of us living in developed societies have a wide range of food choices, and do not need to eat these products, encouraging the continuation of a cruel system of producing animal products is wrong.

JONATHAN BALCOMBE

LESSONS FROM ANIMAL SENTIENCE: TOWARDS A NEW HUMANITY

Introduction – Moral Progress, and a Paradox

Many years before I became a professional biologist, as a boy of about 9, I used to explore the wet ditches on each side of the railroad tracks that bordered the lakes and bays at the summer camp I went to north of Toronto, Canada. I was drawn to the many frogs and dragonflies there, and if it was a particularly good day I'd find a garter snake. One day, a scruffy-looking man ambled along the tracks. In one hand he held a heavy cloth sack and a dipping net on the end of a pole. In the other he held a leopard frog. He asked me to hold the frog. I took the frog while he waded into the ditch to catch another one. I didn't know why he was catching frogs, but I didn't like their prospects. I was a compliant kid and it was against my nature to disobey a grown-up. But as I stood there looking at that frog, I saw things from the frog's perspective. A strong urge came over me to release that frog. So I did. The man returned. He was angry, and I learned some new swear words that day. My ears burned from the scolding. But I believed then, as I do now, that I did the right thing in letting that frog go.

The frogs in the man's sack may have been intended for fishing bait. Or perhaps they would end up in biology classrooms, where every year millions of impressionable youngsters are given a dead frog to dissect so they will see a frog's intestines and how the tongue extends, as well as feel the slickness of a gastrocnemius muscle. Those students also tacitly learn the oldest lesson in the book when it comes to our relationship to the animals: *they were put here for us, and we can do with them as we please.* This is what we may call the doctrine of *might-makes-right.* Might-makes-right is the rule of the bully in the children's sandbox who says: *I am the rightful owner of that toy dumptruck because I am bigger and smarter than you.* Might-makes-right takes what it can get. It doesn't pause to ask: *Hmmm, maybe that little fella has feelings, too.*

Humans have a rich legacy of *might-makes-right* thinking. Colonialism, slavery, the subjugation of women, and the denial of civil rights to African Americans are among

its more notable manifestations. One of the plainest moral objections to the might-makes-right way of thinking as a basis for treating others is that it is vulnerable to the intelligent alien scenario. If might-makes-right were valid, then we must concede that there would be nothing immoral about a "superior" race of aliens arriving to enslave, kill, and eat us.

Happily, humankind has made significant progress in relegating those wrongs to the history books. But today, there remains an enormous domain in which might-makes-right thinking continues to hold sway, and that is in our relationship to the other animals. Since the time humans developed the capacity to control animals, we have done so. Today, we kill over 100 million for recreational hunting and fishing, a similar number to satisfy our scientific curiosity, some 50 million for their fur, and tens of millions of cats and dogs because there are not enough homes for them. And of course, we kill enormous numbers of animals so that we may put them into our mouths. According to the Food and Agriculture Organization, humans kill somewhere in excess of fifty billion land animals yearly to eat them (FAO 2006), and it's a fair estimate that we kill a comparable number of fish. Paradoxically, while our knowledge and understanding of animals and their mental and emotional capacities are unprecedented, so is our exploitation of them. In 2010 humans will have killed more animals than in any other year in our history. There are two reasons for this: 1) globally, meat consumption by humans is rising, and 2) there are more mouths to feed due to a climbing human population.

So why do animals matter? The singular reason is that they are sentient. Animals, like us, have the capacity to feel pains and pleasures and to suffer. We may quibble about where we draw the line on sentience, and we may struggle to imagine what it is like to be a bat or a minnow; but there remains no reasonable scientific doubt that all members of the vertebrate subphylum, as a minimum, are equipped to experience good and bad feelings.

Intellicentrism

My aim in this essay, and in much of my writings on animals, is to make accessible emerging information about animal sentience that contradicts common assumptions about them. Perhaps the most destructive assumption of all stems from our *intellicentrism*—a

term I use to describe our focus on intelligence as the most important yardstick of an individual's worth. In his 1981 book, *The Mismeasure of Man*, American biologist Stephen Jay Gould documents the misuse of science by white Europeans to suggest that they had larger brains and were more intelligent than other races. This was used to justify the African slave trade and other human injustices. Another manifestation of intellicentrism is the flimsy notion that greater intelligence equates to greater sentience. There is no solid science to back up this claim, and it is a fairly intuitive idea that intelligence need not align smoothly with a capacity to feel pains and pleasures. It is also not a new idea. In the 18th Century, the British cleric and moral thinker Humphrey Primatt (1735-1779) said: "Superiority of rank or station exempts no creature from the sensibility of pain, nor does inferiority render the feelings thereof the less exquisite" (Primatt 1776). More recently, the contemporary British biologist John Webster put it bluntly: "People have assumed intelligence is linked to the ability to suffer, and that because animals have smaller brains they suffer less than humans. That is a pathetic piece of logic" (Webster 2006).

Showcasing Animal Sentience

Let me proceed to give just some of many examples of animal capacities that may surprise some readers. Most of these discoveries about intelligence, emotionality, awareness, communication, pleasure, and virtue are recent; and the reason for this is primarily that questions about animals' minds, feelings, and experiences were deemed taboo by prevailing scientific opinion during the first three-quarters of the 20th Century; it is only in the past 40 years or so that scientists have begun to delve seriously into these matters.

Intelligence

At the risk of subverting my earlier point on intellicentrism, let me start with a few examples of animals' cognitive abilities. The intent here is not to suggest they are as smart as we are (though in some realms, as you will see, they can be smarter), but rather

to emphasize that they too have minds, they think, and they use their intelligence to solve problems.

Perhaps the most striking example yet discovered about animal intelligence comes from our closest relative, the common chimpanzee. A group of captive chimps living in a stimulating indoor/outdoor facility in Japan was presented with a variety of puzzles to examine their cognitive skills. Among these puzzles is a game in which the numerals 1 to 9 flash briefly as a random array on a computer screen before being individually concealed by white rectangles. The chimpanzee's task is to point to each rectangle in the order of the numbers they replaced. If s/he gets all nine correct then a treat is dispensed beneath the screen, while a wrong answer yields no treat, with the result that the chimp is motivated to solve the puzzle correctly. If the numbers appear for just one second before being covered by rectangles, a young chimp will correctly solve the task virtually 100 percent of the time (Inoue & Matsuzawa 2007). Humans don't do nearly as well; we struggle to recall the first three or four numbers in succession. Chimps solve the task about 90 percent of the time if they are given just one-fifth of a second. When the British memory champion Ben Pridmore—who can remember the order of a shuffled deck of cards in 30 seconds—competed head-to-head against Ayumu, one of the more proficient of the young chimps, the chimp performed three times better (McRae 2008). The power of this example is that it illustrates a form of raw intelligence in which a non-human clearly outsmarts the human.

We tend to take a prejudiced view of animal intelligence. Chimpanzees were thought to have poor face recognition skills until someone decided to test them with chimpanzee faces instead of human faces, which we just assumed were more distinctive. Lo and behold, chimps have equivalent face recognition abilities when tested on their own kind (Parr & De Waal 1999). They also exceed us in recognizing upside-down faces, which likely relates to their penchant to playfully hang from branches. Another of our prejudices is toward animals we plan to eat. Perhaps it makes us feel less guilty about killing them if we believe that they are dim. But "farmed animals" have been studied quite extensively, and they show keen awareness and intelligence. Sheep, for instance, can remember the faces of fifty of their original flock-mates from photographs presented to them two years after they were moved to another flock (Kendrick et al. 2001). Sheep

also distinguish the face of a stressed (hungry) and a contented (satiated) sheep, preferring the latter (BBC 2004). Pigs are excellent problem-solvers (Broom et al. 2009); cattle have keen individual recognition skills (CIWF 2003); and chickens have a vocabulary of more than 30 calls (Collias 1987), including at least one that is sometimes used deceptively to manipulate others (Gyger & Marler 1988). The old tale that turkeys drown in the rain is a myth, and I have two words for anyone who thinks a tom turkey must be stupid for mounting and trying to mate with a stuffed model of a hen turkey: inflatable doll.

Emotionality

Charles Darwin provided a good introduction to animal emotions in his 1872 book, *The Expression of the Emotions in Man and Animals*, but another century passed before science took renewed interest in this topic. Anyone who has lived with dogs or cats probably doesn't need convincing that they are emotional, and their emotions may be more profoundly expressed than our own. Following a visit to the vet, one of my two cats, Mica, was so traumatized that he went on a hunger strike and wouldn't come downstairs for 40 hours. And he was not even the one who had gone! It was his sister, Megan. There are, of course, countless anecdotes of intense emotionality in our companion animals.

Scientific studies are revealing emotional capacities in animals that few would have believed a generation ago. A long term study of baboons in Botswana has shown, among many other findings, that females who lose an infant exhibit physiological and behavioral responses that mirror those of women who suffer the same loss (Engh et al. 2006). Glucocorticoid hormones—associated with grief—rise for a month or more in both species. Baboon mothers bereaving the loss of a child expand their social networks by spending more time grooming and receiving grooming among their friends. It is viewed by the researchers who have been observing these baboon communities for decades as a form of therapy that aids recovery from the emotional trauma of a mother's loss. It is a baboon's version of the social support we show to a grieving friend or relative.

In a study from Newcastle University in England, wild-caught European starlings were initially housed individually in basic cages with dowel perches and water bottles with food available except during the experimental sessions (Bateson & Matheson 2007). The birds were trained to forage by plucking the lids from dishes in which a mealworm had been placed and quickly learned that dishes with white lids contained tasty worms, whereas dishes with dark gray lids harbored unpalatable (quinine-flavored) worms. All soon ceased bothering to flip dark gray lids. Then some starlings were transferred to enriched aviaries with other birds, room to fly, branches, and water baths while the rest were moved to different basic cages identical to the ones in which they were initially housed. When the experimenters began presenting the starlings with ambiguous dishes—lids with lighter shades of gray—they found that only the enriched environment birds were likely to flip over these lids and sample the worm inside. When the enriched birds were placed in basic cages, they showed the most pessimistic response of all, while those who now enjoyed the enriched cages became more optimistic. The suggestion that confined birds become pessimistic reflects the common behavior of depressed humans who are much less likely to take a chance on an uncertain outcome.

Studies like those of baboons and starlings described above undermine a common assumption we make about animals: that they live only in the moment. Bereavement and pessimism/optimism are not fleeting emotions. They are long-term feelings of an individual who experiences life not as a series of snapshots but as a constantly unraveling tapestry of experiences.

Awareness

Awareness is another manifestation that an animal experiences life and is not merely alive. We know from watching them that animals take an interest in their surroundings and respond flexibly to changing situations. Studies show that rats have metacognition—that is, they know what they know and they are aware of being uncertain about something. In a game in which a correct answer yields a sizable food treat and an incorrect response yields nothing, rats will confidently choose the correct answer in a simple binary task, such as identifying the longer of two tones played in succession. But

if the two tones are of very similar duration, the rat is more likely to choose a default option—poking her nose into a cone to indicate that she isn't sure and would prefer to settle for a very small treat instead. This clever experimental set-up illustrates that metacognition extends to non-primates (Foote & Crystal 2007).

Studies of elephants illustrate another form of awareness: keeping mental tabs on the whereabouts of others. In one investigation, individual samples of female elephant urine mixed with earth were placed in the paths of 36 different elephant families and the reactions of the passing elephants observed. Elephants showed little interest if the urine sample was from an elephant outside their group, but stopped to reach with their trunk if the sample was from a family member. The response was noticeably heightened if the fresh urine was from a family member who was walking further behind. Urine from a family member who was far away and not in the herd also elicited a heightened response. The researchers described the elephants' reaction as one of "surprise" because it doesn't fit expectation to find fresh urine deposited by an individual who you know is walking behind you. Based on these observations, the team estimates that African elephants are able to keep tabs on at least 17 females and as many as 30 individuals of both sexes, at any given time (Bates et al. 2008).

A particularly advanced form of awareness is self-awareness. Until recently, only great apes, elephants and dolphins had passed the so-called "mirror-self-recognition test," in which an animal is presented with a mirror after a mark has been surreptitiously placed on its body such that it is only visible in the reflection. This test is considered a particularly stringent evaluation of self-awareness (i.e., passing the test is strong evidence of self-recognition, whereas failing it might not necessarily mean an absence of this form of awareness). In August 2008, a team of German researchers demonstrated mirror-self-recognition in a bird species. They secretly placed a colored adhesive dot on the throats of several magpies. On seeing their reflection in a mirror, some birds tried to remove the dot by scratching at it with their feet; others tried to pull it off with their beak. Black dots, which were camouflaged against the magpies' black neck feathers, were ignored. The magpie study is an important advance in what we know of the evolution of self-awareness because it shows this capacity has evolved separately in at least two separate lineages: the brains of birds and the brains of mammals. Lacking a neocortex—that

prominent, often convoluted part of the mammalian brain—birds' brains have instead undergone evolutionary development of the paleocortex. The previous meaning of "birdbrain" is being invalidated by scientists and replaced with a new definition to reflect their independently evolved mental capacities that rival those of mammals (Jarvis et al. 2005).

Communication

How animals communicate is another window into their inner lives. Northern Arizona University biology professor Con Slobodchikoff has studied prairie dogs for over 30 years, and befitting their social nature, he has found that prairie dogs have a sophisticated system of predator alerts. Their alarm calls convey specific information about an approaching foe including species, size, shape, color, and—I am not making this up—whether or not a gun has been carried. When hawks come into view, prairie dogs run to their burrow entrances and dive inside. If the enemy is a coyote, they remain above-ground, watching vigilantly from a burrow entrance; or if a dog, they may just stand erect where they are foraging. If presented with only recordings of an alarm call in the absence of any actual predator, the rodents respond in kind, demonstrating that they understand the meanings of these different calls. The alarm calls of prairie dogs vary somewhat with geographic locale, thereby demonstrating local dialects. For the man with gun alert, one member of the research team was visible to the prairie dogs. The animals sounded the alert for "man." Then between one and five minutes later, he fired a shotgun into the ground near the colony. This happened daily for five days. After a two day no-show, his reappearance without gun, elicited a distinctive call unlike that for his first appearance prior to the gun firings; instead of remaining alert outside the burrow, the animals changed their behavior by promptly disappearing into their burrows (Frederiksen & Slobodchikoff 1991).

Dolphins have signature whistles which function as individual identifiers similar to our names. Not only do dolphins utter their own whistles, they also utter the whistles of other individuals as a way of getting their attention. Wild bottlenose dolphins continue to respond appropriately to synthesized versions of their verbal signatures that have lost

their distinctive vocal character. Thus, they are cueing in on the phrase itself. Just as you recognize your name no matter who utters it, so do they. The research team concluded that dolphins are the only animals other than humans known (thus far) to transmit identity information independent of the caller's voice or location (Janik et al. 2006).

Or are they? Within a year of the publication of the dolphin paper, Spectacled Parrotlets were also reported to label family members by referring to them with different calls. Analyses showed high fidelity and reproducibility in calls made between pairs of individuals relative to other individuals, and birds were more responsive to recorded calls that had been uttered in their presence (i.e., presumably referencing the listener with his/her own "name") than to calls uttered in the presence of another family member (Wanker et al. 2005).

Pleasure

Possessing minds and emotions implies the capacity to like some things and to dislike others. Pain is not a controversial feeling in animals, and there are at least two dozen scholarly journals dedicated to the study of pain in humans and other animals. Oddly enough, however, science has taken very little interest in the study of pain's opposite: pleasure. There are no journals dedicated to the meaning and significance of good feelings in humans or other animals. Yet, as I explain in two books—*Pleasurable Kingdom: Animals and the Nature of Feeling Good* (Balcombe 2006) and *The Exultant Ark: A Pictorial Tour of Animal Pleasure* (Balcombe 2011)—pleasure plays as vital a role in animals' lives as it does in ours. In a carrot-and-stick world, pleasure is nature's carrot. It teaches sentient organisms what is good, and motivates them to pursue things (e.g., food, shelter, play, sex) that promote survival and procreation. We may view play as a frivolous activity, but it is an important survival tool, since it provides—especially for younger individuals—practice for important adult behaviors. Games of chase and wrestling are as important for prey as they are for predators, whose survival requires the ability to flee and escape, and to catch and subdue, respectively. Play also teaches key social behaviors, such as the ability to restrain oneself (one who plays too rough will soon have no playmate) and to read the intentions and the emotional tenor of another, as well

as other communication skills. But playing animals aren't thinking about Darwinian fitness or the survival imperative. Play is intrinsically rewarding, and they (like us) play because it is fun.

Fruit provides an excellent illustration of the pleasure built into animals' lives. Technically, fruit evolved as a means to move a plant's seeds away from the parent plant where they would otherwise have to compete for light, water and nutrients. Plants have evolved different ways to solve this evolutionary conundrum, including seeds that blow in the wind and others that stick to animals' fur or feathers (or our clothing) and that get re-deposited elsewhere when the host grooms, preens or plucks the offending hitchhiker off. Fruit, like burrs, coevolved with mobile organisms (animals) which act as seed transporters. In this instance, the relationship is mediated by rewards: bright colors, sweet smells, delicious tastes, and a big nutritional reward. The animal either carries the fruit away, or eats it on site, later depositing the seeds in a convenient package of fertilizer. In *The Botany of Desire*, author Michael Pollan (2001) describes the relationship between fruit and frugivores as a grand coevolutionary bargain struck between plants and animals.

Other sources of pleasure for animals include sex, touch, and possibly aesthetics. Animal sex is not always as perfunctory and passionless as it appears in textbooks and nature documentaries. Animals are, predictably, highly motivated to engage in sex when the time is right, but is that the only time? Seattle-based biologist Bruce Bagemihl (1999) set out to document non-procreative sex in animals and ended up with a 750 page book, titled *Biological Exuberance*, which describes countless examples of sexual behavior that is manifestly not going to result in the production of offspring: same-sex pairings, mating out of season, auto-erotica, and non-reproductive forms of penetrative behavior. Female orgasms are well-documented in many primate species, and bonobos (formerly called pygmy chimpanzees) use sex as a social lubricant, engaging in a wide array of sexual behaviors as a regular part of their daily activities.

We know that the touch of another can be relaxing, stimulating, and intensely pleasurable. Other animals use touch in a similar way. In some monkey societies, members spend a fifth of their waking time grooming each other. Grooming, like massage, releases endorphins into the bloodstream, which has a calming effect especially

on the recipient. The pleasure of touch appears to be at the root of cleaner-client relationships among reef fishes. Some species, like the cleaner wrasse, make a living by performing a cleaning service for other fishes, who actually line up to await their turn. The cleaner gets a meal by removing algae, parasites, and other material from the client's body. Clients cooperate fully, opening their mouths and their gill slits so that their business partner may gain access to these areas. And as a partnership built on trust between cooperating individuals who recognize and remember each other, clients don't eat their cleaners, even though they easily could. Occasionally, cleaners will overstep their bounds and take a nip from a client's fin. This may result in a chase or the end of the relationship. Other fishes monitor cleaner-client interactions and keep tabs on their performance, forming "image scores" upon which they base their selection of cleaners to service them. So complex are these associations that the term "Machiavellian intelligence" has been applied to them by one ethologist who studies them (Bshary 2006). Similar cooperative interactions have been observed between hippopotamuses, who spread their legs, splay their toes and open their huge mouths so that fishes of different species may perform their cleaning services. In Uganda, wild warthogs will flop down on their sides and lie blissfully still while a family of banded mongooses plucks over their skin. The cleaners get some nourishment and the host receives a spa service.

Can animals derive aesthetic pleasure? It's an interesting question that I hope scientists will address. Certainly, flowers and fruit were looking and smelling attractive long before humans walked the earth, and birds and fishes were sporting bright colors. It doesn't necessarily follow that the beholder appreciates their beauty, per se, but these characteristics evolved as attractants, "designed" to grab attention. To the extent that a ripe fruit signals an impending reward, its recognition by an animal who plans to eat it is at least accompanied by pleasurable feelings, so a positive association should be established. There are anecdotal accounts of chimpanzees gazing at sunsets and dancing around waterfalls. Perhaps these are elements of what we manifest as artistic appreciation.

Virtue

Virtue is an exciting frontier in the study of animals. Traditionally, virtue has been considered only the province of human beings. But it is now recognized that beneficence is widespread in animals. Social living demands it. An individual who is mean, unfair, greedy, and/or violent risks being shunned by the group and losing some of the attendant benefits of social living, such as collective vigilance against danger, information sharing, and partners for play, grooming, and mating. The ethologist Marc Bekoff is a pioneer in the study of animal virtue, and his book *Wild Justice: The Moral Lives of Animals*, co-authored with Jessica Pierce, is a rich compendium of examples of animals behaving beneficently, and why we should expect them to (Bekoff & Pierce 2009).

Despite our penchant for glamorizing predator-prey interactions and our tendency to focus on competition to the neglect of cooperation, most relationships in nature are positive, not negative. If you doubt this, go look in the mirror. There you will behold a hive of cooperation. Most of the cells you carry around with you each day are not you. They are bacteria and they are friends, not foes. These symbionts have dwelt within us for millennia. One of their chief benefits is in helping us to break down our food. Even those cells that contain our DNA are not entirely us. The mitochondria they contain—ubiquitous organelles that generate energy—contain their own DNA. According to the now widely accepted Endosymbiotic Theory, first proposed (and initially rejected) by American biologist Lynn Margulis, mitochondria possibly originated as parasites that insinuated themselves into animal cells and eventually became vital allies.

One theory for the origin of virtuous behavior is that it may have arisen from play. Play can be boisterous and may even cause injury, but it is intended to be mutually fun and beneficial. Effectively play involves care and restraint among the participants. Animals have clear signals that they intend to play. Careful video analysis of playing dogs and rats, for example, shows that they calibrate the intensity of their play to sustain the play mood (Pellis 2002). A larger participant, for instance, will allow a smaller and weaker partner to pin it down. In short, play has rules of engagement, which hints at the origins of right and wrong. Intriguing new studies show a monkey will share food with another who helped secure it from beyond their reach—passing morsels between the

wires separating their cages. Other studies show that two monkeys will happily accept slices of cucumber from a human researcher, but when one monkey begins to receive preferred grapes, the other no longer is content with cucumbers; s/he hands them back or tosses them aside and then holds out a hand for a grape (Brosnan & De Waal 2003). Similarly, two dogs will offer a paw to shake hands with a human thirty or more times in succession; but if only one of the dogs is receiving a treat each time she does a paw-shake, the other will only go about ten or twelve rounds before looking away and refusing to offer her paw (Range et al. 2009). These studies suggest an awareness of fairness. Such an interpretation may be debatable; but at the least, these animals object to unequal treatment for the same behavior.

Animal Nature and Human Nature, Resolving the Paradox

How should our new-found understanding of animal intelligence, emotionality, awareness, communication, pleasure, and virtue inform our evolving relationship to animals? Because they are sentient, autonomous individuals with feelings, experiences, and minds of their own, their lives have moral traction. Because they can feel pleasure, their lives have intrinsic value; that is, value to themselves regardless of any commercial or other utilitarian value we may place on them. But the current paradigm of our relationship to them is not informed by our modern understanding of animals' capacities. We continue to place them squarely outside the circle of our moral consideration. Currently, animals' legal place in human society is as the property of humans. Animals may be purchased, traded, enslaved, and killed for profit or pleasure. Depending on the arbitrary conventions of different societies or different elements of the same society, a cat may be a pet, a pest, or dinner.

Our humanity—that is, our moral awareness and capacity to do good—demands that this relationship change. It is imperative that it happen because the very values we hold as proper and civilized in our treatment of our fellow human beings are violated in the way we treat sentient animals. Sentience is the bedrock of ethics. The reason it is wrong to deliberately and maliciously cause another pain and suffering is because pain and suffering are fundamentally bad. As autonomous individuals who can feel pains and

pleasures, our fellow humans and the kinds of animals described in the previous section have a basic right to avoid gratuitous suffering and to pursue pleasure. One of the noblest traits of our human nature is our ability to recognize injustices and to correct them. We have shown this in our capability and our will to address the abhorrent practices of racism, colonialism, and sexism. The next step in our moral evolution is to address speciesism—the arbitrary and capricious discrimination against individuals based on species membership. Doing so is in our best interests as well as theirs. Violence is indivisible. When we commit violence towards animals, we are, in effect, committing violence against ourselves. Treating other sentient beings cruelly and with indifference impoverishes us and makes us callous toward the suffering of others, humans included. Similarly, kindness and compassion are not material things for which we have a limited capacity. One doesn't use up compassion and have no room for more. On the contrary, compassion and kindness are synergistic, self-reinforcing concepts. A world in which we treat all sentient beings with concern and respect will be a better world for everyone.

It is time to repudiate the bully in the children's sandbox. As American writer and naturalist Henry Beston said, "[Animals] are not brethren, they are not underlings: they are other nations, caught with ourselves in the net of life and time, fellow prisoners of the splendor and travail of the earth" (Beston 1928). The New Frontier isn't outer space; it is learning to coexist peacefully with other sentient beings.

The most profound, immediate step anyone can take for animals is to stop eating them. Period. Adopting a plant-based diet is the ultimate personal activism on behalf of animals. We achieve little for animals when we pontificate about their welfare between bites of a cheeseburger. If you purchase meat, fish, and/or dairy products, find out where they come from, learn what you are funding with your purchases, and make an informed decision based on conscience. Few of us would countenance what goes on these days in factory farms, slaughterhouses, and in the commercial fishing industry. A shift in human eating habits away from animal sources of protein and toward plant sources is at the heart of the change that must occur in the human-animal relationship. I urge you to take this step.

Works Cited

Bagemihl, B. 1999. *Biological Exuberance: Animal Homosexuality and Natural Diversity*. London: Profile Books.

Balcombe, J.P. 2006. *Pleasurable Kingdom: Animals and the Nature of Feeling Good*. New York: Palgrave Macmillan.

Balcombe, J.P. 2011. *The Exultant Ark: A Pictorial Tour of Animal Pleasure*. Berkeley, California: University of California Press.

Bates, L.A., Njiraini, N, Sayialel, K, Moss, C J, Poole, J, and Byrne, R W (2008). African elephants have expectations about the locations of out-of-sight family members. *Biology Letters.* Feb. 23. 4(1): 34-36.

Bateson, M., and Matheson, S.M. 2007. Performance on a categorization task suggests that removal of environmental enrichment induces 'pessimism' in captive European starling (*Sturnus vulgaris*). *Animal Welfare* 16S: 33-36.

Bekoff, M., and Pierce, J. 2009. *Wild Justice: The Moral Lives of Animals.* Chicago: University of Chicago Press.

Beston, H. 1971 (1928). *The Outermost House: A Year of Life on the Great Beach of Cape Cod*. New York: Ballantine Books.

BBC (British Broadcasting Corporation). 2004. Sheep like smiles say researchers. 11 June. Available online at: http://news.bbc.co.uk/2/hi/uk_news/england/cambridgeshire/3796017.stm

Broom, D.M., Sena, H., and Moynihan, K.L. 2009. Pigs learn what a mirror image represents and use it to obtain information. *Animal Behaviour* 78: 1037-1041.

Brosnan, S.F., and de Waal, F.B.M. 2003. Monkeys reject unequal pay. *Nature* 425: 297-299.

Bshary, R. 2006. Machiavellian intelligence in fishes. Pp. 223-242 in: Brown, C., Laland, K. and Krause, J. (Eds). *Fish Cognition and Behavior*. Oxford: Blackwell Publishing.

CIWF (Compassion in World Farming). 2003. *Stop—Look—Listen: Recognizing the Sentience of Farm Animals.* Hampshire, UK: CIWF Trust.

Collias, N.E. 1987. The vocal repertoire of the red junglefowl: A spectrographic classification and the code of communication. *The Condor* 89: 510-524.

Engh, A.L., Beehner, J.C., Bergman, T.J., Whitten, P.L., Hoffmeier, R.R., Seyfarth, R.M., and Cheney, D.L. 2006. Behavioral and hormonal responses to predation in female chacma baboons (*Papio hamadryas ursinus*). *Proc Biol Sci* 273: 707-712.

FAO (Food and Agriculture Organization of the United Nations). 2006. Livestock's long shadow: Environmental issues and options. Rome: FAO.

Foote, L.A., Crystal, J.D. 2007. Metacognition in the rat. *Current Biology* 17: 551-555.

Gyger, M., and Marler, P. 1988. Food calling in the domestic fowl, *Gallus gallus*: the role of external referents and deception. *Animal Behaviour* 36:358-365.

Frederiksen, J.K., and Slobodchikoff, C.N. 1991. Referential specificity in the alarm calls of the black-tailed prairie dog. *Ethology Ecology & Evolution* 19: 87-99.

Inoue, S., and Matsuzawa, T. 2007. Working memory of numerals in chimpanzees. Current Biology, 17: R1004–R1005.

Janik, V.M., Sayigh, L.S., and Wells, R.S. 2006. Signature whistle shape conveys identity information to bottlenose dolphins. *Proc Nat Acad Sci USA* 103: 8293-8297.

Jarvis, E.D., Güntürkün, O., Bruce, L., Csillag, A., Karten, H., Kuenzel, W., Medina, L., Paxinos, G., Perkel, D.J., Shimizu, T., Striedter, G., Wild, M., Ball, G.F., Dugas-Ford, J., Durand, S., Hough, G., Husband, S., Kubikova, L., Lee, D., Mello, C.V., Powers, A., Siang, C., Smulders, T.V., Wada, K., White, S.A., Yamamoto, K., Yu, J., Reiner, A., and Butler, A.B. 2005. Avian brains and a new understanding of vertebrate brain evolution. *Nature Reviews Neuroscience* 6: 151-9.

Kendrick, K.M., da Costa, A.P., Leigh, A.E., Hinton, M.R., and Peirce, J.W. 2001. Sheep don't forget a face. *Nature* 414: 165-166.

McRae, F. 2008. I'm the chimpion! Ape trounces the best of the human world in memory competition. *Daily Mail,* January 26.

Parr, L.A., and de Waal, F.B.M. 1999. Visual kin recognition in chimpanzees. *Nature* 399: 647.

Pellis, S. 2002. Keeping in touch: Play fighting and social knowledge. In Bekoff, M., Allen, C., and Burghardt, G.M. (Eds.) 2002. *The Cognitive Animal*. Cambridge, Mass: MIT Press.

Pollan, M. 2001. *The Botany of Desire: A plant's-eye view of the world*. Random House, NY.

Primatt, H. 1776. *A Dissertation on the Duty of Mercy and the Sin of Cruelty to Brute Animals*. London, digitized by Google.

Range, F., Horn, L., Viranyi, Z.S., and Huber, L. 2009. Effort and reward: Inequity aversion in domestic dogs? *PNAS* 106: 340-345.

Wanker, R., Sugama, Y., and Prinage, S. 2005. Vocal labeling of family members in spectacled parrotlets, *Forpus conspicillatus*. *Anim Behav* 70: 111-118.

Webster, J. 2006. Animal Sentience and Animal Welfare: What is it to them and what is it to us? *Applied Anim Behav Sci* 100: 1-3.

MATTHEW PIANALTO

ETHICS BEYOND SENTIENCE

To whom—or what—do we owe basic acknowledgment, respect, and consideration? To whom—or what—do we have those basic obligations? These are the questions I wish to probe in this essay. They are questions that can seem to require the drawing of lines, the identification of criteria that make some beings "morally considerable" while other beings do not warrant this kind of special moral attention. Such questions have received a great deal of attention from moral philosophers, and have generated many very different responses, ranging from views that regard human beings as sole possessors of this special property of moral considerability to views that attribute this feature to every corner of existence. Views of the latter sort will strike some as silly—overly romantic perhaps, and because of this, largely impractical. I am nevertheless often attracted to such views for the potential power they have to stimulate moral imagination.

Such views ask us to move beyond human-centered ways of thinking about ethics and obligations, to see our responsibilities extending beyond the effects of our actions on our fellow humans. Other ethical frameworks make similar demands, in particular the theories of animal welfare advocates such as Peter Singer, who shared his views at Eastern Kentucky University during the 2010-2011 Chautauqua Lecture Series.[2] However, there are crucial differences in the kind of outlook I favor and the approach advocated by Singer and others, such as Jonathan Balcombe (another speaker in the 2010-2011 series). For them, as Balcombe puts it, "Sentience is the bedrock of ethics." [3] That is, sentience—the ability to experience pain, pleasure, and perhaps other conscious states—is the fundamental feature that makes a being morally considerable. In summary, if a being can suffer, then it can be wronged, and we have obligations not to cause unnecessary suffering in any sentient being. As Singer points out, this has radical implications for many common practices, such as the intensive rearing and slaughter of animals for food. By contrast, the outlook I favor is in some ways even more radical than

[2] See Singer's essay in this volume, "Ethics and Animals: Extending Ethics beyond Our Species."
[3] See Balcombe's essay in this volume, "Lessons from Animal Sentience: Towards a New Humanity."

their approach—not because I am prepared to make even more radical practical demands than Singer, but rather because it requires, as I will suggest in the end, a certain resistance to the search for a final criterion of moral consideration. It requires us to keep our eyes open and our imaginations alive to new possibilities, different ways of thinking about our moral obligations which make no sense if we settle for the view that the possession of sentience is the basis of ethics and moral obligation. While sentience is a morally significant feature, it fails to capture everything of moral significance in *both* the human and the non-human world.

I. What about Little Brother?

In the chilling short story, "Little Brother," Mary Mann offers a glimpse of a poor family named Hodd. The mother has just given birth to her thirteenth child, stillborn. The narrator, coming to visit Mrs. Hodd and to bring flowers for the child's burial, asks Mrs. Hodd to see the child, and discovers that while the mother was confined to the bed, two of the other children had been playing dress up with the dead child.

> Evangeline and Randolph pushed their grubby fingers into the open mouth, and tried to force them into the sunken eyes, in order to raise the lids.
>
> "Wake up! Wake up, ikcle brudder!" they said.
>
> When I had rescued the desecrated body, and borne it to its poor bier in the mother's room, I spoke a word to Mrs. Hodd which she resented.
>
> "Time is long for sech little uns, when t' others 're at school and I'm laid by," she said. "Other folkes' child'en have a toy, now and then, to kape 'em out o' mischief. My little uns han't. He've kep' 'em quite [quiet] for hours, the po'r baby have; and I'll lay a crown they han't done no harm to their little brother."[4]

[4] In *The Oxford Book of English Short Stories*, ed. A.S. Byatt (New York: Oxford University Press, 2003), 96. The story was originally written in the 1890s.

One might well wonder what "word" the narrator might have spoken to Mrs. Hodd on this occasion. Would one say that what the children had done was *wrong*? That Mrs. Hodd, in allowing them to dress up little brother, had done something *wrong*? That basic term of moral evaluation, "wrong," seems a bit paltry here. Indeed, to be a witness to such a scene might well leave one speechless and inclined to agree with Cora Diamond's assessment of the story: "Moral thought gets no grip here."[5] No doubt something has gone wrong, but what has gone wrong is confounding, ghastly—something we might regard as unthinkable has come to pass, and we readers are thrust into the thinking of it.

Although Cora Diamond suggests that the horror depicted in "Little Brother" goes in some ways beyond the grip of ordinary moral concepts, it would seem strange to suggest that the story has *nothing* to do with morality and ethics (terms I will use interchangeably here). Even if it is paltry to say that playing dress-up with little brother is wrong, we might decrease that paltriness with an onslaught of emphatics: that it is *obviously*, *utterly*, *certainly*, *absolutely* (and so on) wrong. It's something that's *so* wrong that we would never even think that its wrongness needs mentioning. This is one way of articulating what it means to call such a horror *unthinkable*: it shouldn't even seem like an *option* that one might let the "little uns" keep quiet by playing with dead little brother.

But now we have to notice something strange about the alleged axiom that sentience is the foundation of ethics. Poor Mrs. Hodd is quite right to wager that the other children "han't done no harm to their little brother." Since little brother is dead, this is a bet she can't lose if sentience is the foundation of ethics. On that view, little brother *can't* be harmed, *because little brother isn't sentient*. No amount of poking or prodding can harm him now.

II. Beyond Sentience: Respect for the Dead

Peter Singer writes:

[5] Cora Diamond, "The Difficulty of Reality and the Difficulty of Philosophy," in Cavell et al., *Philosophy and Animal Life* (New York: Columbia University Press, 2008), 64.

> If a being suffers, there can be no moral justification for refusing to take that suffering into consideration. No matter what the nature of the being, the principle of equality requires that its suffering be counted equally with like suffering—in so far as rough comparisons can be made—of any other being. *If a being is not capable of suffering, or of experiencing enjoyment or happiness, there is nothing to be taken into account. This is why the limit of sentience… is the only defensible boundary of concern for the interests of others*.[6]

I am in general agreement with Singer's basic claims about the moral relevance of suffering, regardless of whether one is a human, a cow, or a bear, etc., and none of what I write here should be taken as a challenge to the moral relevance of suffering, in whomever it might occur. What concerns me, and what I find essentially indefensible, is the manner in which Singer *excludes from the field of moral consideration* those beings and matters which do not have some tidy localization in the experiences of a sentient being. Indeed, the final sentence of the passage quoted above suggests that morality is exclusively concerned with the drawing up of principles to guide our conduct as it affects *interests*. That is, for Singer (and others) the language of right and wrong maps onto the enhancement and frustration of sentient interests. Anything which lacks sentience can have no interests, and so cannot be wronged (or treated in ways that are morally right).

Some will challenge Singer's view on the grounds that having interests requires *more* than basic sentient capacities—it requires the possession of concepts (or language) or some other higher cognitive capacity.[7] But as I said above, I am in basic agreement with Singer that one needn't be an intellectual being in order to have interests; indeed, one needn't have the concept of an *interest*, or know what one's interests are, in order to have interests. In this respect, Jeremy Bentham was right to suggest that lacking the ability to talk or reason does not remove the significance of one's capacity for suffering.

---

[6] Peter Singer, "All Animals Are Equal," *Philosophical Exchange*, Vol. 1, No. 5 (1974), excerpt reprinted in Andrew Linzey and Paul Barry Clarke, eds., *Animal Rights: A Historical Anthology* (New York: Columbia University Press, 2004), 162-167. Emphasis added.

[7] See, for example, R.G. Frey, "Rights, Interests, Desires, and Beliefs," *American Philosophical Quarterly*, Vol. 16, No. 3, (1979), 233-239. Frey argues that animals cannot properly be said to have desires or beliefs because these require the possession of language.

Surely no one thinks it is less wrong to cause suffering in a mentally disabled human being than in a mentally mature human. In some contexts, we might even think that inflicting suffering on a mentally disabled person is *worse*, insofar as such treatment violates our sense that might does not make right, and that we have special ethical obligations to protect the weak from abuse.

My challenge to Singer, and to others who claim that the possession of sentience is what makes one a "morally considerable" being, goes in quite the opposite direction of those who would claim that sentience alone is not enough. Some would press this challenge by arguing that non-sentient beings can have interests, too; water, minerals, and sunlight are good for a plant, and so a plant has an interest in obtaining sufficient water, minerals, and sunlight. A plant's "best interests" would simply be those things that make life go best for the plant. Such a position, sufficiently worked out, would suggest that all living things have interests because all living things can either flourish or wither and perish. The upshot of such a view might be that all living things deserve some basic respect, an idea that is powerfully articulated in the writings of Albert Schweitzer.[8] Such an ethic raises innumerable practical questions that some will think are silly—how should we treat plants and the like?—but the basic idea seems clear enough: life, in all its forms, is an awesome thing, and something upon which we ought not to trample thoughtlessly. A plant surely feels no pain, but that doesn't remove my conviction that a person who smashes a plant for no good reason (except his or her own grim satisfaction) is doing something morally troubling.[9]

I said that some who wish to challenge the drawing of moral lines at the boundary of sentience—in the interest of casting a wider moral net—will take the approach above. I have only sketched such an approach because although I believe that any effort to expand our sense of respect—that is, to expand our sense of that which we can treat or

[8] See Albert Schweitzer, *The Philosophy of Civilization* (New York: Macmillan, 1959), esp. Part II: *Civilization and Ethics*, Ch. 26.; for a similar argument, see Kenneth Goodpaster, "On Being Morally Considerable," *Journal of Philosophy*, Vol. 75, No. 6 (1978), 308-325.

[9] Richard Sylvan's "last man" example asks us to meditate on the question of whether, were the human population to die off except for a lone remaining man, the "last man" would be doing anything wrong if he chose to lay waste to the environment, destroying everything that he could. Sylvan assumes that most of us would find this troubling. "Is There a Need for a New, an Environmental, Ethic?" in Andrew Light and Holmes Rolston III, *Environmental Ethics: An Anthology* (London: Blackwell, 2003), 47-52. (Originally published in 1973.)

fail to treat with respect—is headed in the right direction, I think that drawing a line at the boundary of life turns out to be just as arbitrary. To some, this will seem radical. (Indeed, many find the calls of Singer to include animals in the morally considerable community already too radical!) In response, I would suggest that an ethic of sentience, or even an ethic of reverence for life, draws the moral line too narrowly, and that these theories do so in a way that already conflicts with aspects of ordinary human morality.[10] We can see this problem clearly if we recall the dead child in Mann's "Little Brother"—the sentience and the life in that little body are gone, and so if our ethic demands consideration only for the sentient, or the living, then there is nothing left in little brother that demands consideration or respect.

Cultures have various ways of showing respect for the dead. In our culture, modes of respect for the dead make such things as eating them or throwing their corpses out on the compost heap seem utterly horrific. The specific modes of respect for the dead are to some extent conventional, and they depend upon various aspects of our myths and metaphysics. *We* don't believe that eating the dead counts as a way of respecting them in our society; we show the dead respect by giving them a burial or by cremating them. But here, we can recall Herodotus' tale, in his *Histories*, of the Callatians, who *did* eat their dead, and who regarded the prospect of cremating the dead as something so horrible that they would not do so in exchange for any amount of money or goods. Whatever our particular mode of respect, what are we to make of our outrage when our dead are not properly respected? What is the nature of the wrong that has occurred? Who has been harmed by failures of respect, by the desecration, say, of little brother's body?

One response is that the people who loved the now-dead person are harmed by the desecration of the corpse; the disrespectful treatment of that corpse distresses them. But *why* should anyone be distressed about what is done to a corpse? It doesn't feel anything, and it isn't alive. So what is it that *justifies* the distress of the living?

Another response is that the ill treatment of corpses is bad for (i.e. harms) those who do the desecrating. For example, one might argue that people who do certain things

[10] I do not mean here to suggest that there is a universal human morality, but rather that we can find instances in the many human moral systems of moral ideas that don't depend—and *needn't* depend—upon reference to the benefits and harms that accrue to sentient beings.

to corpses (disfigure them for sheer delight, etc.) will be more likely to do bad things to living persons as well. (Kant argued similarly that people should be kind to animals, not because kindness is morally owed to animals themselves, but only because "he who is cruel to animals becomes hard also in his dealings with men."[11]) This is an empirical claim that we could investigate. Suppose it turned out that people who disfigure corpses for fun are *not* more likely to do terrible things to living persons (or animals). Would that set our minds at ease? I suspect not, and this is because we think that the being which has been wronged is the corpse (or perhaps, the person who is now represented by the remaining corpse).

So we are left with the thought that if there is something wrong with desecrating corpses, it has something to do with the corpse itself—and not simply how this action makes others feel, or how this action affects those who perform it. That is, we seem left with the thought that corpses themselves are owed some kind of respect. And yet those committed to a picture on which a being can only be wronged if it can suffer (or, if it is alive) will not be able to countenance this claim. It might be suggested that the respect owed to a corpse is an extension of the respect owed to the individual who once inhabited (or was) that corpse. We could frame this in terms of a property relationship: the corpse is the property of the deceased, and so we should treat it the way the deceased person wanted their remains to be treated. Desecrating a corpse would then be a case of damaging someone else's possessions, and the disrespect done is to the owner of that property. But even this solution, which some might find attractive, leaves puzzles unsolved. A dead person cannot suffer (the fires of hell, perhaps, aside), and so cannot get upset if his or her wishes are not honored. Even if this works in some cases, it would not really work in the case of little brother, who presumably had no wishes about the treatment of his corpse, and for those who are indifferent about how their corpse is treated. Beyond that, I find the analogy between corpses and property troubling, for even if we say things like, "He's in heaven now," when we *look* at the corpse, we (or at least I) still also see the person in that motionless body. The person remains present in—or, we might say, *represented by*—his or her remains, is still there to be respected or

[11] Immanuel Kant, *Lectures on Ethics* [1780-1], trans. Louis Infield (New York: Harper and Row, 1963), 239-241.

disrespected, even if none of this can be experienced by the deceased. If being treated without respect is a way of being harmed, and the desecration of a corpse is disrespectful (say: it disrespects the memory of the deceased), then the dead can be harmed.

Enough of death and corpses. I began with this example in order to bring into focus the idea that duties of respect can be, and *are*, extended beyond the boundary of sentience (and of life). One might say that the dead are a special case, precisely because they used to be sentient. At this point, I might turn to non-sentient living beings such as plants, and show, on the basis of the earlier sketch offered above, that we can see them, too, as worthy of consideration and respect. But since I suggested that my case for consideration and respect goes beyond the boundaries of both sentience and life (at least as we normally think of life as an internal feature of a discrete organism), let me now turn to a different sort of example.

III. Thinking like a Mountain

Throughout the Appalachian region, coal companies are engaged in a mining process known as "mountaintop removal." Layers (seams) of coal are extracted by blasting away the surface of mountains, bulldozing the rubble out of the way, and then harvesting the exposed seams of coal. These mined areas are then "reclaimed" by restoring a layer of topsoil to the mined area and planting various trees and other vegetation so that, in time, the area will again look to the innocent eye to be a flourishing natural area. In some cases, species such as elk have been reintroduced into regions where populations had vanished, and these new animal populations (as well as the hunting industry they support) are thriving.

For some, successful reclamation absolves the coal companies of what would otherwise seem like a crime against nature. In invoking that idea of a crime against nature, I'm talking about not just the uprooted flora and fauna, but also the mountains themselves. Others feel that mountaintop removal is one of the worst expressions of anthropocentrism—the attitude that the earth and its bounty are ours for the taking, and that we may do to the natural world whatever we please. Some opponents of this human-centered ethic hold that no amount of reclamation can justify the leveling (viz. the

flattening) of a mountain. Robert Elliot, for example, has suggested that "faking nature" can never provide an adequate replacement for that which is destroyed by our extractive enterprises—even if, he argues, the "faked" nature appears to be identical to the original.[12]

The thought behind the reaction of those who are appalled by mountaintop removal is that there is something about the Appalachian Mountains that should stop us short of viewing them as mere resources to be blasted to bits and sifted for useful materials.[13] Those who have spent time in such regions will know for themselves the sort of feeling that underwrites this moment of pause. It is, among other things, the feeling of being in the presence of something larger than oneself, of being dwarfed by the vastness of the mountains, of the earth itself. This may leave us feeling astonished, awed, inspired, and perhaps humbled. All of these experiences renew us and (I believe) improve us. One might say that this shows that the mountains are as much a spiritual resource as they are a material resource.

I can imagine someone (perhaps myself in the appropriate frame of mind), in the midst of such an experience of the mountains, objecting to the characterization of the mountains as a "spiritual resource," not because this is false (anything we can incorporate into ourselves is a resource in some sense), but rather because it is misleading. For if the mountains supply various resources, then there is an open question about which resource use has priority over the others, and when values, potential uses, and various interests and needs all conflict, we must sometimes make compromises. The person who is in some way overwhelmed (or inspired or astonished or humbled) by a mountain may, under the influence of that experience, judge that the beauty and magnificence of the mountain is something that should not be compromised. One way of expressing that thought would be to say that we should preserve the mountains intact, not simply as a way of preserving a valuable (spiritual) resource, but because the mountains, in their magnificence and

[12] Robert Elliot, "Faking Nature," *Inquiry*, Vol. 25, No. 1 (1982), 81-93.
[13] There are several recent collections of writings by Appalachians who oppose mountaintop removal: Silas House and Jason Howard, eds., *Something's Rising: Appalachians Fighting Mountaintop Removal* (Lexington, KY: University Press of Kentucky, 2009); Jason Howard, ed., *We All Live Downstream: Writing about Mountaintop Removal* (Louisville, KY: Mote Books, 2009); Kristin Johannsen, Bobbie Ann Mason, and Mary Ann Taylor-Hall, eds., *Missing Mountains: We Went to the Mountaintop but It Wasn't There* (Nicholasville, KY: Wind, 2005).

beauty, command a kind of respect, or even reverence. I imagine that those who are deeply offended and pained by the fact of mountaintop removal feel that it is not possible for such a massive operation—which removes natural beauty along with the coal—to be reconciled with the thought that we should respect (or revere) the mountains.

A different approach involves a reconsideration of our concept of a *life*, and points toward a way of understanding the mountains themselves as living beings. In *A Sand County Almanac*, Aldo Leopold writes of the White Mountain in Arizona that, "On a fair morning the mountain invited you to get down and roll in its new grass and flowers (your less inhibited horse did just this if you failed to keep a tight rein)."[14] The suggestion that the mountain literally *invites* anything will strike many as anthropomorphic, but here I am interested in how we might think about the relationship between the mountain and "its new grass and flowers." We might think of these as the mountain's possessions, or we might think of them as the mountain's bodily features (the grass akin to the stubble on a man's chin). Either way, the relation between the mountain and the other living things that thrive upon on it—often woven into its earthiness—can be made to evoke an image of a living subject. This is not a life in the narrow sense of a discrete organism (perhaps individuated by metabolic processes or DNA), but if it is life that begets life, then there is something missing from the conception of a mountain as merely a big, dead rock.

In the chapter "Thinking like a Mountain," Leopold attributes knowledge and perspective to mountains: "Only the mountain has lived long enough to listen objectively to the howl of a wolf."[15] Leopold recounts the lessons learned in the middle of the 20th century, by those who (like Leopold) thought that killing wolves would increase deer populations in a manner beneficial to hunters. Instead, deer populations exploded, and then starved, leaving behind a diminished mountain landscape:

> …every edible bush and seedling browsed, first to anemic desuetude, and then to death… every edible tree defoliated to a height of a saddle-horn… In the end the starved bones of the hoped-for deer herd, dead of its own

[14] Aldo Leopold, *A Sand County Almanac* [1949] (New York: Ballantine Books, 1966), 133.
[15] Leopold, 137.

> too much, bleach with the bones of the dead sage, or molder under the high-lined junipers.
>
> I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer herd. (139-140)

Leopold speculates that the mountains have "long known" "Thoreau's dictum: In wildness is the salvation of the world." The wolf, the wild, is as essential as every other part of the system. This old knowledge of the mountains contrasts, of course, with human short- and near-sightedness, and the resulting hubris of our sense of control over nature. One can object that a mountain cannot literally know (or think) anything. I doubt that Leopold would be much impressed by such literal-mindedness, since he is inviting a more imaginative transaction between us and the mountains. To "think like a mountain" is to let the mountain teach us something. This is again to conceive of the mountain as the kind of subject—a teacher—to whom our respect, and attention, is due.

Against these ideas, we should acknowledge that not everyone has such reactions to nature, and one might thus conclude that the reactions and conceptualizations of mountain lovers and travelers are "subjective." Generally, when the term "subjective" is invoked in this way, one means that the subjective reaction lacks objective validity—that there is no "right way" to respond to the mountain (or a work of art)—and thus that one could not rationally criticize someone who failed to share that subjective reaction. This often means that labeling a response as subjective is a way of *dismissing* it. Another, related, term of dismissal is the description of a person's reaction or behavior as *sentimental*; the implicit charge is that the sentimental person's reaction or behavior fails to be clear-headed. (One might argue that it is sentimental, and also anthropomorphic, to regard the mountain as commanding respect: mountains don't give commands, or think, fear, or know.) The tough-minded coal executive, set on extracting the available coal, might thereby use the language of subjectivity (or sentimentality) to dismiss the protests of mountain lovers.

The problem with such a dismissal is that it presupposes that there is *a* right way—or perhaps only one way—to look at, and conceptualize, the mountain. However, I think there is a clear disanalogy between seeing the mountain as something warranting

respect and reverence and seeing the mountain as *merely* a resource. Recall again that not everyone experiences feelings of awe, reverence, or humility when facing the mountain. (Perhaps still fewer have the requisite imagination to "think like a mountain.") Such a person might say: "it's just a big rock." The person who does experience the mountain as something profound does not cease to see the mountain as "a big rock," but something is added—it no longer makes sense to say that it's *just* a big rock. It's tempting then to suggest that the person who sees the mountain as just a big rock is *missing something that can be seen (or experienced) about the mountain*. The person who stands in awe of the mountain need not be under the impression that there aren't useful seams of coal layered within it. Seeing the mountain as awesome, an object of reverence (and perhaps mystery), is simply incompatible with switching back to a perspective from which it is *really* just a big rock, *just* a useful resource—because one is now aware that there is more than one way to look at the mountain.

Seeing the mountain in these other ways is not simply a set of "subjectively" different ways of seeing the same thing; it is to see the mountain in ways that some are (unfortunately) *unable* to see it. Being blind to something's majesty or beauty (or wisdom) is not a sufficient reason for treating it otherwise (though it would no doubt explain why a person acts in particular ways); it would only be a sufficient reason if one could justify the absolute dismissal of the experiences of those who see the mountain as something worthy of respect or reverence. I have not tried to settle questions about what the "right" way is to understand, or "see," a mountain; beyond a certain point, what such questions presuppose might not make sense. One could see it as a natural beauty, a non-living, but still sacred object. One could see it as a living being, or a wellspring of life-potential. One could see it as a teacher. But it is decidedly not "*just* a big rock." I don't think we can dismiss the significance of any of these ways of seeing the mountain, just because they are each bound up with a sensibility which some people lack. This would be like dismissing the existence of harmonies because some people are tone-deaf.

If a mountain is sacred, then it can be desecrated—be it living or dead. If it is alive, it can be harmed—that is, have its life diminished. The poet Jim Wayne Miller described the mined Appalachians, from the perspective of his Appalachian everyman Brier, as "Cut up and bleeding… breathing hard, / in places torn and gouged beyond all

healing."[16] None of this requires anything like the concept of sentience that informs the slogan that sentience is the foundation of ethics. All of this, I submit, is nevertheless relevant to responsible moral reflection on our relations to the mountains.

I do not mean to insist that this discussion settles practical questions about mountaintop removal. My suggestion that a mountain is something to which we can intelligibly direct attitudes of respect, awe, and reverence is a point of departure rather than a point of conclusion. I cannot really insist upon more than that, without hypocrisy, since I, too, drive upon roads that have been cut through the mountains. Nevertheless, discussions about practices like mountaintop removal cannot be settled by merely pragmatic, expedient exhortations such as that "Coal Keeps the Lights On."[17] This is just a sly way of insisting that one shouldn't ask questions or re-examine one's current concepts, values, and practices.

IV. Toward a More Universal Respect

An important point here is that there is nothing wild or radical about the idea of treating nature with respect. The idea that we should tread lightly upon the earth is not new. Nor is the thought that there are no *a priori* limits to what can be viewed under the aspect of the awesome, or astonishing, or beautiful. Seeing the world, or the various things within it, under these aspects *is* transformative—it is to have one's eyes opened to the wonderful mystery hiding just beneath the surface of even the most trivial things. Holmes Rolston III, for example, shows us a way of bringing even (mere?) dirt into such focus: "Earth is all dirt, we humans too rise up from the humus, and we find revealed what dirt can do

[16] "The Brier's Pictorial History of the Mountains," *The Brier Poems* (Frankfort, KY: Gnomon Press, 1997), 127. It is worth adding that while Miller (or, Brier) sees that the mountains are "in places torn and gouged beyond all healing," he adds that they are also "in others beautiful and blessed as ever."

[17] There are other concerns about coal-mining and coal-burning that go beyond the scope of my concern here, and obviously a serious discussion of continued mining must also take into account many other ecological considerations. These issues include not only the environmental impact of burning the mined coal, but also, and more immediately, the impact of mining and refining processes (such as the impoundment of coal slurry atop mine sites, and the effects of slurry runoff) on local environments and their inhabitants, both non-human and human. These concerns are explored in recent documentary films including *Coal Country* (2009) and *Sludge* (2005), which documents the coal sludge disaster—one of the largest ecological disasters in U.S. history—in Martin County, Kentucky, in 2000.

when it is self-organizing under suitable conditions. This is pretty spectacular dirt."[18] Practical concerns about energy, roads, development, and so forth need not be taken to be *at odds* with such attitudes of respect, reverence, and wonder. Rather, I believe it is possible for the practical to be infused with the mindfulness of these attitudes. Rather than drawing firm (and often arbitrary) lines that divide the sacred and the profane, or the morally considerable and the morally irrelevant, the infusing of our practical concerns with, for example, the attitude of respect simply involves *not* drawing fixed lines and thereby *not* excluding anything (or anyone) from basic moral consideration and concern.[19] Thomas Birch affirms this idea when he writes,

> From the historical perspective, we see that whenever we have closed off the question [of who or what deserves moral consideration] with the institution of some practical criterion, we have later found ourselves in error, and have had to open the question up again to reform our practices in a further attempt to make them ethical. The lesson of history is that we must open up the question of moral considerability and *keep it open, not* close it off again by instituting practices based on the latest, and no doubt mistaken, "final" criterion.[20]

If Birch's advice is sound (and our history of excluding others unfairly suggests that it is), then his remarks offer yet another reason for refusing to accept the claim that sentience is *the* foundation of ethics.

---

[18] Holmes Rolston III, "Value in Nature and the Nature of Value," in Robin Attfield and Andrew Belsey, eds., *Philosophy and the Natural Environment*, Royal Institute of Philosophy Supplement 36 (Cambridge: Cambridge University Press, 1993), 26-27. The recent documentary film, *Dirt! The Movie* (http://www.dirtthemovie.org/), wonderfully captures the ways in which many cultures celebrate the sacred (as well as the living) in dirt, which we all too easily think of as dead matter.

[19] A common objection here, meant to expose the sentimentality of the line of thought I'm offering, is that it neglects to address the existence of things like viruses, pests, and vermin, and we might add to that list things like garbage. The response to this sort of objection is that the call for a more universal respect and attentiveness is not meant to be incompatible with practical living (which may involve killing viruses, keeping pests out of the house, and taking out the garbage). Just as the imperative to "love one's enemy" is not a command to let one's enemies get away with anything, so, too, the call for the cultivation of universal respect is not a command to assimilate all things to a single category or to regard everything as an equal in every sense. (None of this requires that we fall into the latter sort of incoherence.)

[20] Thomas Birch, "Moral Considerability and Universal Consideration," *Environmental Ethics*, Vol. 15, No. 4 (1993), 321.

As I said above, none of this is to reject the moral relevance of sentience. Indeed, the fact that a being is sentient—that it is a living, experiencing being, capable of suffering and enjoyment—is a distinctive fact about that being to be considered when we reflect upon how we should relate to it. Showing sentient beings respect might indeed take different forms than the respect we might show to other beings. Furthermore, once we are in a position to acknowledge that moral considerability does not in every case *depend* upon sentience, we can part ways with this rather abstract concept and return to much more ordinary categories of thought, such of those of the *human* and of the *animal* and so on. For we relate to humans and animals, not as merely sentient beings, but as the specific kinds of beings they are. (Similarly, we relate to a mountain as a mountain, not as a non-sentient being.) Once we allow that respect can flow freely toward the various categories of life and nature, we don't particularly *need* the notion of sentience in order to expose the confusion of someone who dismisses ethical questions about our treatment of animals on the grounds that they are "just animals."[21] What becomes clear is that dismissing *anything* because it is "just" what it is involves an *un*just form of thought—a refusal to question one's own dogmas and preconceptions, to hear the voices and experiences of others, or to open oneself to new kinds of experience or ways of seeing. In the end, dismissals of this sort are not forms of thought at all—they are instead forms of thoughtlessness.[22]

I wish to draw a final connection between the ideas above and those of another speaker in the Fall 2010 EKU Chautauqua Lecture Series, the writer Mark St. Pierre.[23] As he explored the Lakota perspective on the proper relations of humans to the environment, St. Pierre described the Lakota view that the human soul has four parts, the fourth being a spiritual essence (the *Tun*) that resides in all living things. This essence is never destroyed, and thus persists even after the death of an organism, is returned to the earth, and absorbed into other living things. St. Pierre employed this idea to suggest that if Native Americans have inhabited all parts of North America for 30,000 years, then in all

[21] Cora Diamond powerfully explores similar ideas in her critique of Singer and Tom Regan in her, "Eating Meat and Eating People," *Philosophy*, Vol. 53, No. 206 (1978), 465-479.
[22] On thoughtlessness, see Jeremy Bendik-Keymer, "Species Extinction and the Vice of Thoughtlessness," *Journal of Agricultural and Environmental Ethics*, Vol. 23 (2010), 61-83.
[23] Mark St. Pierre, EKU Chautauqua Lecture, "Are We Frogs Drinking Up the Pond in Which We Live?", delivered November 18, 2010. DVD copy held in the EKU Libraries Special Collections and Archives.

likelihood, every person who lives upon, and is sustained by, the goods of North American soil has absorbed some part of this soul substance. In that sense, we are all (or have become), St. Pierre suggested, Native Americans. St. Pierre expressed a definite concern that these ideas would be dismissed as quaint, unscientific. Whatever their scientific merit, I do not find them quaint at all. Indeed, they capture a significance of the truth that, "you are dust and to dust you shall return," which is all too easily overlooked. The usual interpretation of this remark about dust is: be humble. But if Rolston is right that dirt (and so also dust) is amazing stuff, then the humbling perception of ourselves as being made of the same stuff as the dead, as the mountains, of all that is, can also be ennobling. Grasping those connections would be to see the world in a way such that everything—not merely the sentient things—commands a careful attention, consideration, and respect. Without a continually renewed effort to refine and deepen our own moral vision, to attend to mysterious experiences, and to reconsider the heretofore neglected or dismissed, we will simply go on, more or less thoughtlessly, and so more or less recklessly, with our business as usual.[24]

[24] Special thanks to Mike Austin and Duncan Richter for their comments on an early version of this essay.

JUSTIN E. H. SMITH

FOLK ONTOLOGY AND THE MORAL STANDING OF ANIMALS

G. E. Lessing, the great critic and philosopher of the German Enlightenment, noted in his 1759 essay, "On the Use of Animals in Fables," that "the great majority of fables feature animals, and still lesser creatures, as acting persons."[25] Lessing wanted to know what we could learn from this. My own view is that his conclusions are dead wrong, but that the question itself is one that it took a certain kind of genius to ask in the first place, and one that remains as urgent as ever to answer, not just for the sake of literary theory, but above all for the sake of our understanding of what animals are, and of the way our moral commitments to them flow from this understanding.

Lessing gives two primary reasons for the replacement of human beings by animals in fables. The first is that we all tend to recognize more readily the sort of character represented by an animal species than by a particular human being. If one were to relate the historical tale of Nero and Britannicus, for example, it was already quite likely in the 18th century—and is all the more so today—that most listeners will have no idea what these characters are meant to represent. But if a fable has as its primary function the imparting of some moral principle or other, as Lessing supposes, it is far better to replace Nero with a wolf, and Britannicus with a lamb. Everyone, we might suppose, down to the most ignorant yokel, knows what these creatures represent, and how they stand in relation to one another. If the purpose is to communicate a moral principle rather than a history lesson, why let background knowledge of individual human actors stand as a prerequisite? The wolf and the lamb require the least in the way of shared background knowledge, and they thus serve most directly the fable's function of universal moral edification.

Lessing adds another reason for the casting of animals in fables. He maintains that nothing gets in the way of the teaching of a moral lesson more so than the passions. He brings up the example from 2 Samuel 12 of the avaricious priest who wishes to take away

[25] G. E. Lessing, "Von dem Gebrauche der Thiere in der Fabel," in *Literaturtheoretische und ästhetische Schiften*, Stuttgart: Philipp Reclam, 1996, 43.

a poor man's only lamb. Lessing maintains that in this tale our passion of sympathy for the poor man is great, as is our passion of hatred for the priest. But if we substitute animals for the relevant actors, then, in so far as these creatures are 'lesser' than we are, the arousal of the passions in reading about them is thereby reduced, and we are better able to focus on the moral lesson at hand. "We sympathize with the lamb," Lessing writes, "but this sympathy is so weak that it has no noticeable impact upon our intuitive knowledge of the moral principle."[26]

I find the first argument interesting, and the second one deplorable. I also find that Lessing's engagement with the topic leaves a great many considerations completely unexplored.

The second argument seems to me patently false: even though we have strong species-based loyalties in our reasoned moral commitments, these loyalties are most likely to be suspended when, as in a fable, an anthropomorphized animal occupies a role that in another genre of story-telling would be held by a human being. The substitutability of an animal for a human in a fable brings with it, I think, the transferability of sympathy, as well as the other passions that some people, including Lessing, might ordinarily reserve, at least in their strongest form, for members of their own species.

Moreover, it is not clear to me that any anthropomorphization, or any prior commitment to what these days are called 'animal rights,' is necessary in order to feel intense sympathy across species boundaries. One could provide arguments as to why this is so: a utilitarian might say that with respect to suffering, animals have it just as bad as humans do; it is thus rational to wish to put a stop to their suffering, even if we do not ascribe a whole set of other human capacities to animals. But we do not need to resort to the traditional arsenal of philosophical arguments in order to note that it is simply not true that we sympathize less with animals than with humans. I recall here the Norwegian director Hans Petter Moland's 1995 film, *Zero Kelvin*, in which one explorer in Greenland shoots his rival in order to prevent the latter from torturing a sled dog. The audience cannot but feel that, under the circumstances, this was the right thing to do.

[26] Ibid., 47.

Does this feeling involve a weighing of the relative value of the life of a brutal man against that of a common husky? Does it involve the invocation of a calculus of worth at all? Of course not. It involves an abhorrence at the sight of suffering (of a dog, but species matters little here) and relief to see it come to an end.

The second argument is based on an unconvincing account of how the passions are roused in us. The first argument, for its part, holds that animals are substituted for humans in fables because their characters are easily remembered. This is true, but it raises more questions than it answers. On what basis do we attribute characters to animals in the first place? Are we simply reading off of them behavioral features that are phenomenally self-evident? Or are we projecting our own human values, or even narrow cultural values that other humans do not share, when we say, for example, that a fox is sly or an eagle is noble? (It has recently been discovered that lions are just as likely to scavenge as are hyenas. What is it that led us to suppose that the former creatures were brave hunters in the first place, and the latter undignified bottom feeders? Surely this has something to do with distinctly human standards of beauty.) Finally, at a more ontological level—where I would like to dwell for the bulk of this essay—how are we to account for the fact that an animal in a fable stands as a representative of an entire species, whereas a human being in a story is generally a unique individual? Fables tell of Mr. Fox or Brer Rabbit; but it would be a very peculiar sort of story that featured 'Mr. Man' as its protagonist.

This final question which I have raised points to what I would like to call the 'folk ontology' that underlies our moral commitments, or lack of them, to animals. I am using 'folk' here in the way that it has been used to describe, e.g., folk psychology, folk biology, or folk taxonomy: that is, the pre-scientific, generally unarticulated commitments people have passively, as members of a given culture, that correspond imperfectly to the ideas that science and philosophy mean to render explicit and to make precise.

Our folk ontology of animals remains rooted, I maintain, in the traditional culture of fables. It holds that an entire species of non-human animals has a status equivalent to that of an individual human being. Thus 'Fox' or 'Bear' can be the protagonist of an animal story, but only a particular Mr. or Mrs. So-and-So can play the lead role in a

human story. Human beings are unique, the folk theory goes, while members of any given animal species are interchangeable.

It should not be at all hard to see what moral consequences follow from this ontology. If an entire animal species is equivalent to a single human, then the murder of a human could not be equivalent to the slaughter of an animal; rather, the appropriate comparison in the animal realm to the murder of a human would be the utter driving to extinction of all members of a given animal kind. 'Meat' can't be 'murder,' as the song has it, since for every slaughtered bovine there are billions more still on the hoof. The *kind* lives on.

But even if we want to reserve the term 'murder' for the human species alone, surely the killing of a human being has more in common with the killing of an individual steer than with, say, the extermination of the dodo bird or, God forbid, the Siberian tiger. It is not, perhaps, that we do not recognize the greater semantic proximity of 'murder' to 'slaughter' than to 'extinction,' but simply that slaughter's semantic link to murder retains little of the latter's ethical charge. What matters for the sort of being that can be slaughtered but not murdered—i.e., any non-human animal—is that some quantity or other of such beings remain in existence. Perhaps counterintuitively, this is more rather than less the case in the era of environmentalism and conservation: there was a time not so long ago when driving menacing or pestilent animals to extinction was seen as having no moral down-side at all. While there is some definite progress in having overcome that primitive outlook, nonetheless for the most part conservationism has failed, or perhaps simply declined, to reject the folk ontology that attributes moral status to non-human animal species as a whole, but not to individual members of these species.

But let us try to remain neutral inquirers for at least a moment, and ask whether conservationists are justified in preserving this bit of traditional thinking about animals. Do animals in fact have moral status only as a group, but not as individuals?

At this point it is urgent to remark that 'animals' form no natural class of entities such that a single answer can be given to questions such as: What are our moral obligations to animals? Do animals have moral status? And so on. 'Animals'— as a class that includes all biological entities between human beings and plants on some imaginary

scale of being, all of which have some salient properties in common from which their moral status flows—simply do not exist. Elephants and fleas are both animals, but there is nothing that they have in common, but that elephants and humans, or for that matter fleas and fungi, do not have in common, that would warrant treating fleas and elephants alike in virtue of their shared status as 'animals.' Failure to make this point explicit has, I think, greatly hindered clarity of thinking in moral-philosophical reflection about animals: to speak about 'animals' might carve nature at its joints, to the extent that there are some real features that barnacles and deer have in common; but whatever these are, humans will have them too, and in any case these features (possession of a digestive tract, etc.), will be almost entirely irrelevant to any questions we might have about how we should behave toward this or that creature.

Both biology and common-sense observation reveal to us a vast diversity of capacities in the animal kingdom, such that any given discovery of, say, a chimpanzee's ability to exercise foresight in storing food, tells us absolutely nothing about whether 'animals' are capable of having a concept of the future. Yet sloppy science-journalists, and regrettably even some scientists, go on speaking about chimpanzee or elephant behavior as if it were the measure of animal potentiality in general. Individual animals are taken as representatives of their species; and species in turn are made to represent the entire kingdom! Good, sound science would have us going in just the opposite direction: not investigating the capacities of 'animals,' but rather investigating the range of capacities of different kinds of animal, and the range of capacities of individual members of these different kinds.

Here, then, ethics and science are very much out of step with one another. In no case is this clearer, perhaps, than in policies concerning the culling of elephant herds. Tim Flannery notes in a recent review that "elephants have been known to raid a shed filled with the body parts of slaughtered elephants, removing the feet and ears (which were destined to be turned into umbrella stands) and burying them."[27] This follows the various reports over the past decade of complicated premeditated raids by elephants on

[27] Tim Flannery, "Getting to Know Them," *The New York Review of Books*, April 29, 2010: http://www.nybooks.com/articles/archives/2010/apr/29/getting-to-know-them/ .

villages inhabited by humans who, often years before, had killed members of their elephant families.

In the *Politics* Aristotle says that hunting is a form of war, and the common wisdom has it that this is a war that has been decisively won by humans in the past few millennia. We have killed off the great majority of other megafauna species, and now the only creatures that pose any real threat to us are mosquito-sized and smaller. But elephants remind us that the war is still on in some spots. The particular expression of their violence can only lead one to conclude that 'war' is not an analogy here. In fact, what their behavior most resembles is that of besieged guerillas, who are ultimately doomed and have no real hope of winning against their enemy, and are fighting, whether they know it or not, precisely *because* they are doomed.

Some might of course feel emboldened in their dismissal of the moral status of elephants by the fact that they act with such violence. But the interesting thing about this violence is that it is a feature of their behavioral repertoire that can either be manifested, or not. The refusal to attribute a moral character to animal behavior in the history of philosophy has often been grounded in the belief that animal behavior simply flows from animal nature, that there is nothing an animal does that it could just as well not have done. But elephants, like people, appear much more likely to flip out when they or their loved ones have been messed with. Elephant attacks have nothing of the character of, say, shark attacks, which really do flow directly from the shark's nature. It is simply an ethological mistake to suppose that the elephant attack ought to be studied in more or less the same way as the shark attack, rather than, say, a guerilla attack in rural India.

Guerilla insurrection has as its root cause the inability of human beings to share land and resources; it is a problem of demography and geography. One way of solving this problem would be to cull human populations to the point where everyone could share resources to the satisfaction of all. But of course no one seriously considers this an option, since each individual human is supposed to have an irreducible moral status that precludes the possibility of treating them as anything other than, to speak with Kant, ends in themselves. Yet it remains a fringe view to suggest that elephant populations should not be culled for their own good.

Why is this? Again, it is not enough to say that if we *don't* cull them, then they are doomed, since evidently the same reasoning could not possibly be invoked with respect to any human population. Human beings as a species could very well be doomed, in fact, for reasons having much to do with overpopulation and competition for resources, but what righteous and decent people do nonetheless is to look for ways to save every last one of them, rather than just some of them. I want to know what it is that permits us to reason differently in the different cases, other than the fact that they are elephants, and we are human. This is true, but it's not an argument. Elephants, I believe, have done everything a creature could do short of transforming itself into a human being to demonstrate that they are worthy of treatment as *individually* morally relevant beings, with the same rights that flow from this individual moral status that human beings are held to deserve.

The one circumstance in which culling of human populations becomes possible (even if we still would not call it that), arises when a foreign ethnic group has been conceptualized in the way that animals are conceptualized in fables, not as irreducible individuals, but as, e.g., the Jap or the Hun. Some recent scholars have argued that human beings are innately disposed to cognize other racial groups by means of the same module responsible for folk-biological taxonomizing of animal species.[28] On this line of thinking, the default mode of cognition of Japanese people (for anyone who is not Japanese, that is), is as 'the Jap,' just as the default mode of cognition of foxes is through their imagined representative, 'Mr. Fox.' Now what moral universalism is supposed to do is to ensure that we not think in this way about the members of other human groups, while in contrast Roald Dahl's *Fantastic Mr. Fox* is still a harmless entertainment. But it is no secret that moral universalism can easily be suspended under circumstances of demographic and ecological competition (a competition conceptualized in recent centuries as 'political').

[28] See in particular Francisco Gil-White, "Are Ethnic Groups Biological 'Species' to the Human Brain?: Essentialism in our Cognition of Some Social Categories," *Current Anthropology* 42.4 (2001): 515-554; Gil-White, "The Cognition of Ethnicity: Native Category Systems under the Field Experimental Microscope," *Field Methods* 14, 2 (2002): 170-198; Edouard Machery and Luc Faucher, "Why Do We Think Racially? Culture, Evolution and Cognition," *Categorization in Cognitive Science*, eds. Henri Cohen & Claire Lefebvre, Amsterdam: Elsevier, 2005; Machery and Faucher, "Social Construction and the Concept of Race," *Philosophy of Science* 72 (2005): 1208-1219.

When this happens, does it not seem to be a *reversion* to a more basic way of cognizing, rather than a perversion of our natural or regular way?

More than one prominent theory of the origins of the religious life sees it as rooted in an attempt to absolve the guilt that arises from aggression and violence. We are religious because we are violent, and we are violent simply because it is in our natures. According to Walter Burkert in his influential work, *Homo Necans*, for most of human history social solidarity was achieved "through a sacred crime [hunting and war] with due reparation [the rituals associated with these]."[29] He argues that "[s]acrificial killing is the basic experience of the 'sacred.' *Homo religiosus* acts and attains self-awareness as *homo necans*. Indeed, this is what it means 'to act,' *rezein, operari* (whence 'sacrifice' is *Opfer* in German)—the name merely covers up the heart of the action with a euphemism."[30] In this respect, for Burkert those progressive social scientists are mistaken who "attempt to locate the roots of the evil" of violence while setting out from "short-sighted assumptions, as though the failure of our upbringing or the faulty development of a particular national tradition or economic system were to blame."[31]

I do not wish either to defend or to refute Burkert's specific thesis here. It is enough to draw inspiration from his suggestion that both war and hunting are part of the same complex of human behaviors, a complex that required the creation of a counter-complex, that of ritual, religion, and, eventually, morality, in order to repair for the transgression of the originating complex. If this is the case, then one thing that becomes clear is that there is a knowable mechanism at work in the periodic dehumanization of human groups, a dehumanization that functions almost as a precondition of being able to go to war against them. It is a dehumanization in the sense just considered, that from being a group of sundry irreducible individuals they are now conceived, in the way in which we regularly conceive animals, as interchangeable instances of the same kind. We might in this sense modify Aristotle's claim above by saying that war is a form of hunting, and that it is made possible by the rescinding of the irreducible moral status of

[29] Walter Burkert, *Homo Necans: The Anthropology of Ancient Greek Sacrificial Ritual and Myth*, trans. Peter Bing, Berkeley, University of California Press, 1983, xiv.
[30] Ibid., 3.
[31] Ibid., 1.

individual human beings, and its replacement with the default perspective humans take on animals: as Mr. Fox, or as Brer Rabbit, or 'that filthy varmint.' The rescinding of moral status is possible, indeed easy, along Burkert's lines, because the war/hunting complex comes first in the order of things, and the morality/religion complex was only erected subsequently in order to modulate or regulate an existence that is fundamentally defined by the first of these.

The idea of human rights that has emerged gradually over the past few centuries has been based on the very new idea that no one is just a 'Jap' or a 'Hun' or a 'Barbarian,' but rather every human being is an individual with an inherent irreducible value equal to that of every other human being. It is no longer possible to tell folk tales about 'the Jew,' though as recently as the Grimm Brothers' collection of German folk tales in the early 19th century we can still see a trace of this fable-ready generic character that Lessing, several decades earlier, thought best instantiated by animals.

The old folk-ontological conception of unfamiliar ethnic groups as consisting in interchangeable members lacking any individual character or moral status has today been largely overcome. With the exception of our comportment towards domestic animals, however, we have never so much as considered the need to rethink our folk-ontology of non-human animals, and to reevaluate the moral commitments that flow from it. Ethically speaking, the modern world has not moved beyond Aesop in the way it thinks about animals, even as science has revealed—and above all in the last decades—so very much about what we share emotionally and cognitively with a wide variety of non-human animals.

ROBERT P. GEORGE

NATURAL LAW, GOD, AND HUMAN DIGNITY

A natural law theory is a critical reflective account of the constitutive aspects of the well-being and fulfillment of human persons and the communities they form. Such a theory will propose to identify principles of right action—moral principles—specifying the first and most general principle of morality, namely, that one should choose to act in ways that are compatible with a will towards integral human fulfillment. Among these principles are respect for the rights people possess simply by virtue of their humanity—rights which, as a matter of justice, others are bound to respect, and governments are bound not only to respect but, to the extent possible, also to protect.

Natural law theorists of my ilk understand human fulfillment—the human good—as variegated. There are many irreducible dimensions of human well-being. This is not to deny that human nature is determinate. It is to affirm that our nature, though determinate, is complex. We are animals, but rational. Our integral good includes our bodily well-being, but also our intellectual, moral, and spiritual well-being. We are individuals, but friendship and sociability are constitutive aspects of our flourishing.

By reflecting on the basic goods of human nature, especially those most immediately pertaining to social and political life, natural law theorists propose to arrive at a sound understanding of principles of justice, including those principles we call human rights. In light of what I've already said about how natural law theorists understand human nature and the human good, it should be no surprise to learn that natural law theorists typically reject both strict individualism and collectivism. Individualism overlooks the intrinsic value of human sociability and tends mistakenly to view human beings atomistically. Collectivism compromises the dignity of human beings by tending to instrumentalize and subordinate them and their well-being to the interests of larger social units. Individualists and collectivists both have theories of justice and human rights, but they are, as I see it, highly unsatisfactory. They are rooted in important misunderstandings of human nature and the human good. Neither can do justice to the concept of a human *person*, that is, a rational animal who is a locus of intrinsic value

(and, as such, an *end-in-himself* who may never legitimately treat himself or be treated by others as a mere *means*), but whose well-being intrinsically includes relationships with others and membership in communities (beginning with the family) in which he or she has, as a matter of justice, both rights and responsibilities.

Human rights exist if it is the case that there are principles of practical reason directing us to act or abstain from acting in certain ways out of respect for the well-being and the dignity of persons whose legitimate interests may be affected by what we do. I certainly believe that there are such principles. They cannot be overridden by considerations of utility. At a very general level, they direct us, in Kant's phrase, to treat human beings always as ends and never as means only. When we begin to specify this general norm, we identify important negative duties, such as the duty to refrain from enslaving people. Although we need not put the matter in terms of "rights," it is perfectly reasonable, and I believe helpful, to speak of a *right* against being enslaved, and to speak of slavery as a violation of human *rights*. It is a right that people have, not by virtue of being members of a certain race, sex, class, or ethnic group, but simply by virtue of our humanity.[32] In that sense, it is a human right. But there are, in addition to negative duties and their corresponding rights, certain positive duties. And these, too, can be articulated and discussed in the language of rights, though here it is especially important that we be clear about by whom and how a given right is to be honored. Sometimes it is said, for example, that education or health care is a human right. It is certainly not unreasonable to speak this way; but much more needs to be said if it is to be a meaningful statement. Who is supposed to provide education or health care to whom? Why should those persons or institutions be the providers? What place should the provision of education or health care occupy on the list of social and political priorities? Is it better for education and health care to be provided by governments under socialized systems, or by private providers in markets? These questions go beyond the application of moral principles. They require

[32] By the phrase "our humanity," I refer more precisely to the nature of humans as rational beings. The nature of human beings is a rational nature. So in virtue of our human nature, we human beings possess a profound and inherent dignity. The same would be true, however, of beings other than humans whose nature is a rational nature, if indeed there are such beings. In the case of humans, even individuals who have not yet acquired the immediately exercisable capacities for conceptual thought and other rational acts, and even those who have temporarily or permanently lost them, and, indeed, even those who do not possess them, never possessed them, and (short of a miracle) never will possess them, possess a rational nature.

prudential judgment in light of the contingent circumstances people face in a given society at a given point in time. Often, there is not a single, uniquely correct answer. The answer to each question can lead to further questions; and the problems can be extremely complex, far more complex than the issue of slavery, where once a right has been identified its universality and the basic terms of its application are fairly clear. Everybody has a moral right not to be enslaved, and everybody an obligation as a matter of strict justice to refrain from enslaving others; governments have a moral obligation to respect and protect the right and, correspondingly, to enforce the obligation.[33]

What I've said so far will provide a pretty good idea of how I think we ought to go about identifying what are human rights. But in each case the argument must be made, and in many cases there are complexities to the argument. One basic human right that almost all natural law theorists would say belongs in the set is the right of an innocent person not to be directly killed or maimed. This is a right that is violated when someone makes the death or injury of another person the precise object of his action. It is this right that grounds the norm against targeting non-combatants, even in justified wars, and against abortion, euthanasia, the killing of hostages, and so forth. Of course, in the case of abortion, some people argue that human beings in the embryonic or fetal stages of development do not yet qualify as persons and so do not possess human rights; and in the case of euthanasia, some argue that permanently comatose or severely retarded or demented people do not (or no longer) qualify as rights-bearers. I think that these claims are mistaken, but I won't here go into my reasons for holding that the moral status of a human being does not depend on his or her age, size, stage of development, or condition of dependency. I've presented this argument in great detail in numerous places, including my book, *Embryo: A Defense of Human Life* (with Christopher Tollefsen). Here I will say

[33] Having said this, I do not want to suggest a sharper difference than can be justified between positive and negative rights. Even in the case of negative rights, it is sometimes relevant to ask how a right should be honored and who, if anyone, has particular responsibility for protecting it. Moreover, it can be the case that there is not a uniquely correct answer to questions about what place the protection of the right should occupy on the list of social priorities. Consider, for example, the right not to be subjected to assault or battery. While it is obvious that individuals have the obligation to respect this right, and equally obvious that governments have an obligation to protect persons within their jurisdiction from those who would violate it, different communities reasonably differ not only as to the means or mix of means that are used to protect persons from assault and battery, but also as to the level of resources they allocate to protect people against violations of the right. I am grateful to Allen Buchanan for this point.

only that people who do not share with me the conviction that human beings in early stages of development and in severely debilitated conditions are rights-bearers, may nevertheless agree that *whoever* qualifies as a person is protected by the norm against direct killing of the innocent.

The natural law understanding of human rights I am here sketching is connected with a particular account of human dignity. Under that account, the natural human capacities for reason and freedom are fundamental to the dignity of human beings—the dignity that is protected by human rights. The basic goods of human nature are the goods of a rational creature—a creature who, unless impaired or prevented from doing so, naturally develops and exercises capacities for deliberation, judgment, and choice. These capacities are God-like—albeit, of course, in a limited way. In fact, from the theological vantage point they constitute a certain sharing—limited, to be sure, but real—in divine power. This is what is meant, I believe, by the otherwise extraordinarily puzzling biblical teaching that man is made in the very image and likeness of God. But whether or not one recognizes biblical authority or believes in a personal God, it is true that human beings possess a power traditionally ascribed to divinity—namely, the power to be an uncaused cause. This is the power to envisage a possible state of affairs, to grasp the value of bringing it into being, and then to act by choice (and not merely by impulse or instinct) to bring it into being. That state of affairs may be anything from the development of an intellectual skill or the attainment of an item of knowledge, to the creation or critical appreciation of a work of art, to the establishment of marital communion. Its moral or cultural significance may be great or, far more commonly, comparatively minor. What matters for the point I am now making is that it is a product of human reason and freedom. It is the fruit of deliberation, judgment, and choice. We may, if we like, consider as a further matter whether beings capable of such powers could exist apart from a divine source and ground of their being. But I don't think it makes sense to deny that beings whose nature is to develop and exercise such powers are lacking in dignity and human rights and may therefore be treated as mere objects, instruments, or property.

Now, what about the authority for this view of human nature, the human good, human dignity, and human rights? Natural law theorists are interested in the intelligible *reasons* people have for their choices and actions. We are particularly interested in

reasons that can be identified without appeal to any authority apart from the authority of reason itself. This is not to deny that it is often reasonable to recognize and submit to religious or secular (e.g., legal) authority in deciding what to do and not do. Indeed, natural law theorists have made important contributions to understanding why and how people can sometimes be morally bound to submit to, and be guided in their actions by, authority of various types. Think, for example, of the work of Yves Simon[34] and John Finnis.[35] But even here, the special concern of natural law theorists is with the *reasons* people have for recognizing and honoring claims to authority. We do not simply appeal to authority to justify authority.

One might then ask whether human beings are in fact rational in anything more than an instrumental sense. Can we discern any intelligible reasons for human choices and actions? Everybody recognizes that some ends or purposes pursued through human action are intelligible at least insofar as they provide means to other ends. For example, people work to earn money, and their doing so is perfectly rational. Money is a valuable means to a great many important ends. No one doubts its instrumental value. The question is whether some ends or purposes are intelligible as providing *more than merely instrumental* reasons for acting. Are there intrinsic, as well as instrumental, goods? Skeptics deny that there are intelligible ends or purposes that make possible rationally *motivated* action. Natural law theorists, by contrast, hold that friendship, knowledge, critical aesthetic appreciation, and certain other ends or purposes are intrinsically valuable. They are intelligibly "choice worthy," not simply as means to other ends, but as ends-in-themselves. They cannot be reduced to, nor can their intelligible appeal be accounted for exclusively in terms of, emotion, feeling, desire, or other subrational motivating factors. These basic human goods are constitutive aspects of the well-being and fulfillment of human persons and the communities they form, and they thereby provide the foundations of moral judgments, including our judgments pertaining to justice and human rights.

[34] See Yves R. Simon, *A General Theory of Authority* (University of Notre Dame Press, 1962).
[35] See John Finnis, *Natural Law and Natural Rights* 59–127 (Oxford University Press, 1980).

Of course, there are plenty of people today who embrace philosophical or ideological doctrines that deny the human capacities I maintain are at the core of human dignity. They adopt a purely instrumental and essentially non-cognitivist view of practical reason (e.g., Hume's view that reason is nothing more than "the slave of the passions"[36]) and argue that the human experience of deliberation, judgment, and choice is illusory. The ends people pursue, they insist, are ultimately given by non-rational motivating factors, such as feeling, emotion, or desire. "The thoughts are to the desires," Hobbes has taught them to suppose, "as scouts and spies, to range abroad and find the way to the thing desired."[37] Truly rationally motivated action is impossible for creatures like us. There are no more-than-merely-instrumental reasons for action—no basic human goods. Now, if proponents of this non-cognitivist and subjectivist view of human action are right, then it seems to me that the entire business of ethics is a charade, and human dignity is a myth. But I don't think they are right. Indeed, I don't think that they can give any account of the norms of rationality to which they must appeal in making the case against reason and freedom that is consistent with the denial that people are capable of more-than-merely-instrumental rationality and true freedom of choice. I do not deny that emotion figures in human action—obviously it does, and on many occasions it (or other subrational factors) does the main work of motivation. But I maintain that people can have, and often do have, basic reasons for their actions—reasons provided by ends they understand as humanly fulfilling *and desire precisely as such*. These ends, too, figure in motivation.

Now, if I and other natural law theorists are correct in affirming that human reason can identify human rights as genuine grounds of obligation to others, how can we explain or understand widespread failures to recognize and respect human rights and other moral principles? As human beings, we are rational animals; but we are imperfectly rational. We are prone to making intellectual and moral mistakes and capable of behaving grossly unreasonably—especially when deflected by powerful emotions that run contrary to the demands of reasonableness. Even when following our consciences, as we are morally bound to do, we can go wrong. A conscientious judgment may nevertheless be

[36] David Hume, *A Treatise of Human Nature*, Bk. II, pt. III, § III, at 415 (Clarendon Press 1888) (1739).
[37] Thomas Hobbes, *Leviathan* 41 (Edwin Curley, ed., Hackett Publishing Company 1994) (1651).

erroneous. Of course, sometimes people fail to recognize and respect human rights because they have self-interested motives for doing so. In most cases of exploitation, for example, the fundamental failing is moral, not intellectual. In some cases, though, intellectual and moral failures are closely connected. Selfishness, prejudice, partisanship, vanity, avarice, lust, ill-will, and other moral delinquencies can, in ways that are sometimes quite subtle, impede sound ethical judgments, including judgments pertaining to human rights. Whole cultures or subcultures can be infected with moral failings that blind large numbers of people to truths about justice and human rights; and ideologies hostile to these truths will almost always be both causes and effects of these failings. Consider, for example, the case of slavery in the antebellum American south. The ideology of white supremacy was both a cause of many people's blindness to the wickedness slavery, and an effect of the exploitation and degradation of its victims.

Let us turn now to the question of God and religious faith in natural law theory. Most, but not all, natural law theorists are theists. They believe that the moral order, like every other order in human experience, is what it is because God creates and sustains it as such. In accounting for the intelligibility of the created order, they infer the existence of a free and creative intelligence—a personal God. Indeed, they typically argue that God's creative free choice provides the only ultimately satisfactory account of the existence of the intelligibilities humans grasp in every domain of inquiry.

Natural law theorists do not deny that God can reveal moral truths and most believe that God has chosen to reveal many such truths. However, natural law theorists also affirm that many moral truths, including some that are revealed, can also be grasped by ethical reflection apart from revelation. They assert, with St. Paul, that there is a law "written on the hearts" even of the Gentiles who did not know the Law of Moses—a law the knowledge of which is sufficient for moral accountability. So the basic norms against murder and theft, for example, though revealed in the Decalogue, are knowable even apart from God's special revelation.[38] The natural law can be known by us, and we can conform our conduct to its terms, by virtue of our natural human capacities for deliberation, judgment, and choice. The absence of a divine source of the natural law

[38] See St. Thomas Aquinas, *Summa Theologica* I–II, Q. 91, art. 2, Q. 100, art. 1, at 997.

would be a puzzling thing, just as the absence of a divine source of any and every other intelligible order in human experience would be a puzzling thing. An atheist's puzzlement might well cause him to re-consider the idea that there is no divine source of the order we perceive and understand in the universe. It is far less likely, I think, to cause someone to conclude that our perception is illusory or that our understanding is a sham, though that is certainly logically possible.

The question then arises: Can natural law—assuming that there truly are principles of natural law—provide common moral and even political grounds for people who do not agree on the existence or the nature of God and the role of God in human affairs? In my view, anybody who acknowledges the human capacities for reason and freedom has good grounds for affirming human dignity and basic human rights. These grounds remain in place whether or not one adverts to the question: "Is there a divine source of the moral order whose tenets we discern in inquiry regarding natural law and natural rights?" I happen to think that the answer to this question is "yes," and that we should be open to the possibility that God has revealed himself in ways that reinforce and supplement what can be known by unaided reason. But we do not need agreement on the answer, so long as we agree about the truths that give rise to the question, namely, that human beings, possessing the God-like (literally *awesome*) powers of reason and freedom, are bearers of a profound dignity that is protected by certain basic rights.

So, if there is a set of moral norms, including norms of justice and human rights, that can be known by rational inquiry, understanding, and judgment even apart from any special revelation, then these norms of natural law can provide the basis for a common understanding of human rights—an understanding that can be shared even in the absence of religious agreement. Of course, we should not expect consensus. There are moral skeptics who deny that there are moral truths. There are religious fideists who hold that moral truths cannot be known apart from God's special revelation. And even among those who believe in natural law, there will be differences of opinion about its precise content and implications for certain issues. So it is, I believe, our permanent condition to discuss and debate these issues, both as a matter of abstract philosophy and as a matter of practical politics.

It is sometimes regarded as an embarrassment to natural law thinking that some great ancient and medieval figures in the natural law tradition failed to recognize—and indeed have even denied—human rights that are affirmed by contemporary natural law theorists, and even regarded as fundamental. Consider, for example, the basic human right to religious liberty. This right was not widely acknowledged in the past, and was even denied by some prominent natural law theorists. As Professor Finnis has observed, they wrongly believed that a wide conception of liberty in matters of faith presupposed religious relativism or indifferentism, or entailed that religious vows were immoral or non-binding, or the comprehensive subservience of ecclesial communities to the state.[39] It is interesting that when the Catholic Church put itself on record firmly in support of the right to religious freedom in the document *Dignitatis Humanae* of the Second Vatican Council, it presented both a natural law argument and an argument from specifically theological sources. The natural law argument for religious liberty is founded on the obligation of each person to pursue the truth about religious matters and to live in conformity with his conscientious judgments.[40] This obligation is, in turn, rooted in the proposition that religion—considered as conscientious truth-seeking regarding the ultimate sources of meaning and value—is a crucial dimension of human well-being and fulfillment. It is among the basic human goods that provide rational motivation for our choosing. The right to religious liberty follows from the dignity of man as a conscientious truth-seeker.

This right, and other human rights, are denied and attacked today from various quarters, and in many parts of the world are routinely violated. The ideological justification for their denial and violation can be religious or secular. In some parts of the world, religious freedom and other basic human rights are denied in the name of theological truth. In other parts of the world, the threats are from secularist ideologies. Where secularist ideologies are liberal in form, it is often claims to an overarching right to autonomy that are asserted to justify choices, actions, and policies that natural law

[39] See John Finnis, *Moral Absolutes: Tradition, Revision, and Truth* 26 & n. 50 (Catholic University of America Press, 1991).
[40] Second Vatican Council, "Declaration on Religious Liberty: Dignitatis Humanae" § 2–3 (1965), reprinted in *Vatican Council II, The Conciliar and Post Conciliar Documents* 800–801 (Austin Flannery, O.P. ed. Liturgical Press, rev. ed. 1988).

theorists believe are unjust and undermine the common good. If the natural law view of these matters is correct, then it is moral failings conspiring with intellectual errors that sustain ideologies that compromise human rights. In a certain sense, the failings are at opposite poles. Yet, from a natural law vantage point partisans of the competing ideologies make valid criticisms of each other. Radical Islamists, for example, harshly condemn the decadent features of cultures in which an ideology of expressive and/or possessive individualism flourishes. On the other side, expressive individualists denounce the subjugation of women and the oppression of religious dissenters where fundamentalist Islam holds sway.

As natural law theorists see it, threats to human dignity and human rights exist because all of us, as human beings, are imperfectly reasonable and imperfectly moral. We can go off the rails. At the same time, hope exists because we really do possess the capacities for reasonableness and virtue; truth—including moral truth—is accessible to us and has its own splendor and powerful appeal. We will never, in this vale of tears, grasp the truth completely or in a way that is entirely free from errors. Nor will we fully live up to the moral truths we grasp. But just as we made progress by abolishing the evil of slavery, by ending legally sanctioned racial segregation in my own country and elsewhere, by recognizing the right to religious freedom, and by turning away from the eugenics policies once favored by so many respectable people, natural law theorists hope that we can make progress, and reverse declines, in other areas.

Of course, people who reject the natural law understanding of human dignity and human rights will differ from natural law theorists on questions of what constitutes progress and decline. From an Islamist point of view, the type of religious freedom defended by natural law theorists will be regarded as licensing heresy and religious irresponsibility. Natural law ideas will be seen as just a rhetorically toned down form of Western liberal secularism. By contrast, from a liberal secularist point of view, natural law ideas about abortion, sexuality, and other hot-button moral issues will be regarded as intolerant and oppressive—a philosophically gussied up form of religious fundamentalism. In the end, though, natural law ideas—like Islamist or liberal secularist ideas—will have to stand or fall on their merits. Anyone who wonders whether they are

sound or unsound will have to consider the arguments offered in their support and the counterarguments advanced by their critics.

Perhaps it goes without saying that there are competing accounts of natural law and natural rights among people who regard themselves as natural law theorists. I have in various writings associated myself with what is sometimes called, the "new natural law theory" of Germain Grisez and John Finnis. But whether there is anything much that is really *new* in our approach is questionable. The core of what Grisez, Finnis, and I say at the level of fundamental moral theory is present, at least implicitly, in the writings of Aristotle, Thomas Aquinas, and other ancient, medieval, and early modern thinkers. Some commentators have insisted that what we say is fundamentally new (and, from the point of view of our critics within the natural law camp, wrongheaded) because we are resolute about respecting the distinction between description and prescription and avoiding the fallacy (as we see it) of proposing to derive normative judgments from purely factual premises describing human nature. An example of the fallacy is the putative inference of the value of knowledge from the fact that human beings are naturally curious and desire to know. But here we are being faithful to the methodological insights and strictures of Aquinas. Contrary to what is sometimes supposed, he recognized that what would later come to be called "the naturalistic fallacy" is indeed a fallacy, and was stricter about avoiding it even than was David Hume, who is sometimes credited with "discovering" it.

If, standing on the shoulders of Aristotle and Aquinas, we have been able to contribute something significant to the tradition of natural law theorizing, it is founded on Professor Grisez's work showing how what he calls "modes of responsibility" follow as implications of the integral directiveness of the most basic principles of practical reason—principles that direct human action towards basic human goods and away from their privations. The modes of responsibility are intermediate in their generality between the first and most general principle of morality ("always choose in ways that are compatible with a will towards integral human fulfillment") and fully specified moral norms that govern particular choices. The modes include the Golden Rule of fairness and the Pauline Principle that evil may not be done, even for the sake of good. They begin to specify what it means to act (or to fail to act) in ways that are compatible with a will

towards the fulfillment of all human beings in all the respects in which human beings can flourish.

Our account of the modes of responsibility helps to make clear the ways that natural law theories are both like and unlike utilitarian (and other consequentialist) approaches to morality, on the one hand, and Kantian (or "deontological") approaches on the other. Like utilitarian approaches, and unlike Kantian ones, natural law theories are fundamentally concerned with human well-being and fulfillment and, indeed, take basic human goods as the starting points of ethical reflection. Unlike utilitarian approaches, however, they understand the basic forms of human good (as they figure in options for morally significant choosing) as incommensurable in ways that render senseless the utilitarian strategy of choosing the option that overall and in the long run promises to conduce to the net best proportion of benefit to harm (however "benefit" and "harm" may be understood and defined). Natural law theorists share with Kantians the rejection of aggregative accounts of morality that regard the achievement of sufficiently good consequences or the avoidance of sufficiently bad ones as justifying choices that would be excluded by application of moral principles in ordinary circumstances. Unlike Kantians, however, they do not believe that moral norms can be identified and justified apart from a consideration of the integral directiveness of the principles of practical reason directing human choice and action towards what is humanly fulfilling and away from what is contrary to human well-being. Natural law theorists do not believe in purely "deontological" moral norms. Practical reasoning is reasoning about *both* the "right" and the "good," and the two are connected. The content of the human good shapes moral norms inasmuch as such norms are entailments of the basic aspects of human well-being and fulfillment considered integrally.

Such a view presupposes, of course, the possibility of free choice—that is, choosing that is the pure product neither of external forces nor internal but subrational motivating factors, such as sheer desire. So a complete theory of natural law will include an account of principles of practical reason, including moral norms, as principles for the rational guidance of free choices, and a defense of free choice as a genuine possibility. This entails the rejection of strict rationalism, according to which all phenomena are viewed as caused. It understands human beings—some human beings, at least

sometimes—as causes of realities that they bring into existence *for reasons and by free choices*. On the natural-law account of human action, freedom and reason are mutually entailed. If people were not really free to choose among options—free in the sense that nothing but the choosing itself settles what option gets chosen—truly rationally motivated action would not be possible. Conversely, if rationally motivated action were not possible, the experience we have of freely choosing would be illusory.[41]

Another feature of the natural-law account of human action that is stressed by those of us who are regarded as "new" natural law theorists is the set of distinctions between various modes of voluntariness. We understand morality as fundamentally a matter of rectitude in willing. In sound moral judgments and upright choices and actions, the will of the agent is oriented positively towards the human good integrally conceived. In choosing and acting, one is not, of course, pursuing every human good—that is not possible—but one is pursuing at least one basic human good well; and if one is choosing and acting in a morally upright way, then one is respecting the other basic human goods. Yet is it not obvious that many upright choices—choices of good ends sought by morally good means—have some bad consequences? For example, do we not know with moral certainty that by constructing a system of highways on which drivers of automobiles are authorized to drive at a speed of, say, 65 miles per hour we are permitting a circumstance to exist in which several thousand people each year will be killed in driving accidents? Indeed, we do. But according to the natural-law understanding of human action, there is a real and sometimes morally critical distinction between *intending* harm to a basic human good (and thus to a person, since human goods are not mere abstractions, but are aspects of the well-being of flesh-and-blood human beings) and accepting foreseen harm as a *side effect* of an otherwise morally justified choice. One can intend harm in two different ways: as an end-in-itself or as a means to some other end. One intends harm as an end when, for example, one seeks to injure or kill someone out of hatred, anger, or some similarly powerful emotion. One intends harm as a means when, for example, one seeks to kill a person in order to recover on the victim's life insurance policy. The key thing to

[41] In defense of freedom of choice (or freedom of the will) as described here, see Joseph M. Boyle, Jr., Germain Grisez & Olaf Tollefsen, *Free Choice: A Self-Referential Argument* (University of Notre Dame Press, 1976).

see is that intending death (whether as end or means) is distinct from accepting death as a side effect (even if the side effect is clearly foreseen, as we foresee, for example, the deaths of motorists and passengers on the highways in ordinary accidents).[42]

Let me conclude with one more proposition stressed by natural law theorists, namely the fact (or in any event what we believe to be the fact) that by our choices and actions we not only alter states of affairs in the world external to us, but also at the same time determine and constitute ourselves—for better or worse—as persons with a certain character.[43] Recognition of this self-shaping or "intransitive" quality of morally significant choosing leads to a focus on virtues as habits born of upright choosing that orient and dispose us to further upright choosing—especially in the face of temptations to behave immorally. People sometimes ask: Is natural law about rules or virtues? The answer from the point of view of the "new natural law" theory is that it is about *both*. A complete theory of natural law identifies norms for distinguishing right from wrong as well as habits or traits of character whose cultivation disposes people to choose in conformity with the norms and thus compatibly with a what we might call, borrowing a phrase from Kant, a good will, viz., a will towards integral human fulfillment.

[42] Although the distinction between intending, on the one hand, and accepting bad side effects, on the other, is often pertinent to moral evaluation on a natural-law account, one should not suppose that it is impossible to violate moral norms in accepting side effects. On the contrary, one may behave *unjustly,* for example, in accepting bad side effects, even where one has not run afoul of the norm against intending, say, the death or injury of an innocent human being. See, e.g., R. George, *In Defense of Natural Law* (Oxford University Press, 2001) 106.

[43] See, e.g., Aristotle, *Nicomachean Ethics* 1113b 5–13.

SECTION TWO

ARTISTIC EXPLORATIONS

ESTHER E. RANDALL

NATURE'S HUMANS, THE NATIONAL JURIED ART EXHIBITION

Each year, the Giles Gallery at Eastern Kentucky University, in conjunction with the Chautauqua Lecture Series, mounts a juried art exhibition organized around that year's theme. Ann Tower of Ann Tower Gallery served as juror for the 2010-2011 show (January 24 through February 18, 2011), *Chautauqua National Juried Exhibition: Nature's Humans*. Both the selection of the artwork and the awarding of prizes were done through a blind process, meaning that the juror had no information about the individual artists or their background.

Figure 1. Isaac Powell. *Aboveboard.* Acrylic, oil, and graphite on paper. Two Dimensional Award.

Art exhibitions organized around a theme present special problems for artists. Their restrictive nature excludes many artists whose work does not fit comfortably within the context of the subject. Contemporary artists' penchant for self-expression is more than a myth: the discovery and development of subject is the raison d'être for most artists. Another issue is that a theme suited for lectures is not necessarily one that works well for the visual arts. The Chautauqua exhibition on *Space, Place and Life* (January 23 through February 29, 2008) provided subjects with which artists could readily connect, and was our largest show. On the other hand, the exhibition on *Compassion* (January 25 through February 21, 2007) did not elicit the same strong and wide response. In our ironic, postmodern age, such a topic could be read as sentimental, and that is anathema to many of today's artists. The *Chautauqua National Juried Exhibition: Nature's Humans* was notable for the artists who responded. Although we had entries from all around the nation, the award winners came from either Kentucky or the surrounding states, suggesting that perhaps the subject strongly resonated with artists within our region. The artworks exhibited were as varied as the topics of this year's lectures. The accepted pieces ranged from academic drawings of pregnant women to live silkworms housed in a silk and wire cages. Amazingly, as the show began to come together, currents and motifs began to emerge. Chief among them were metaphorically biomorphic forms, such as nature/human hybrids, humans in nature, and nature in humans.

Significant examples of the first category were the works of Cynthia Cusick (Irvine, KY) and Lori Phillips (Richmond, KY), who used an amalgam of plant and animal forms as a vehicle to examine relationships. Both artists used clay to construct fantastic shapes acting as metaphors for the connection between human experiences and the natural world. Lori Phillips's piece, *You're a Fool* (Figure 2), presented two polychromatic stoneware forms that at once looked like bizarre gourds, and yet were also reminiscent of bird shapes. The first projected a threatening presence with its erect posture, arching neck, and swelling "chest." It had menacing spikes clustered together at the point where one would look for a heart in a bird. The second form took on an almost cringing, supplicant pose. In its side was a nasty looking gash. Although the players in this little drama were surreal, their interaction—of aggression and passivity—was all too familiar.

Figure 2. Lori Phillips. *You're A Fool*. Stoneware.

Cynthia Cusick's (Irvine, KY) work projected a gentler mood. Her piece, *The Co-dependent Seeker* (Figure 3), featured a dark umber stoneware "pod" covered in fat, curling tendrils. This larger form cradled a smaller one, a glistening white "seed" of glazed porcelain. In her statement, Cusick wrote that she employed these contrasting shapes "to trigger introspection, and focus on maturation, sexuality, and intimacy by using seed-like forms and references. They contain relationships and contrasts, either within the piece or in relation to other pieces. These elements help identify change, often unrecognizable when it is happening. The process is often painful and a source of suffering, but then within that recognition of pain is the awareness that growth is taking place. Within that awareness, one can grasp a deeper sense of self." In the work of these artists (Cusick and Phillips), the human condition is addressed with distinctly non-human "actors" whose forms took on aspects of the natural world.

Figure 3. Cynthia Cusick. *The Co-dependent Seeker*. Stoneware, glazed porcelain.

Another artist who used other beings as stand-ins for humanity was Jennifer Reis (Morehead, KY). Her mixed media piece, *The Last (Church) Supper* (Figure 4), was a richly ornamented textile assemblage, constructed by using hand quilting and appliqué. She embellished the surface with acrylic painting on shrink plastic laminates, found objects, beads, and embroidery. The background was a deep forest green cloth studded with sparkling beadwork and adorned with gold and white flowers around its edge. The central figure was a chicken with a deer head crowned by an elaborate gold halo. Fluttering around him were four cherubs carrying garlands of flowers. Twelve haloed chickens flanked either side of the holy deer/chicken. In her statement, Reis explained that this work was "part of a series of works on the concept of an Appalachian 'pastoral'—combining images of Eastern Kentucky rural life within a religious context. Chickens are surrogates for humans, and the deer is the Christ figure. This piece refers to

the religious and animalistic content and imagery as metaphor as well as commentary on Appalachian life." Professor Reis received a Merit Award.

Figure 4. Jennifer Reis. *The Last Church Supper*. Embellished textile assemblage. Merit Award.

Other artists in this exhibit explored the relationship between nature and humanity by merging human forms with plant or animal parts in order to make autobiographical statements, to muse on human nature, or to explore man's relationship with nature. Merit Award recipient Alison Pack (Radford, VA) merged animal parts with human anatomy. In her exquisitely crafted piece, *Lady Bugs* (Figure 5), Pack made a witty observation that the artificial shape Victorian fashion imposed on women was analogous to insect anatomy. Using copper, silver, and acrylic paint, she constructed three small girdle forms with wasp waists, voluminous breastplates, extravagant collars (projecting from the rib area), and painted stripes circling the hips. The first ladybug had eight legs sprouting from around her waist and ending in hooks where the "girdle" ends. The second would have been more conservatively attired if it were not for the spikes or stingers protruding from her breasts in place of nipples. The third, and sweetest of the ladies, had six legs—reminiscent of a large bow—adorning her waist. A lovely little rose was pinned to the top of her left breastplate. This charming little trio projected a mood of good-humored

danger. In her statement, Pack drolly observed "these are beautiful creatures, the black widow, bee and butterfly, that would be potentially dangerous to mate with."

Figure 5. Alison Pack. *Lady Bugs*. Copper, sterling and fine silver, acrylic. Merit Award.

Taking an autobiographical approach in his woodcut, *Catch of the Day*, John W. Hilton (Kingsport, TN) combined the face of a man with the body of a fish. In *Ship of Fools* he reprised the fish body with man face motif, but transformed it into a boat. Its passengers were a rooster and pig with wings. Hilton explained in his statement, "I have always been fascinated with human/animal hybrids. It stems from my overactive, child-like imagination. Growing up, I would spend hours combining the characteristics of my favorite animals with myself and others, always searching to find something better and more unique. These images continue this journey. They represent narrative self-portraits in combination with fish, pigs, and roosters. Each animal references a specific point in the narrative without giving away too much detail. The animal, in this case a fish, is the vessel that carries, literally and metaphorically, the heart of the underlying message, which is personal triumph and tragedy, represented by the winged pig and rooster. It is the use of the human/animal hybrid that relates to this year's theme of Nature's Humans."

Travis Graves (Elizabethtown, TN) employed hybrids of human and natural forms to comment on the relationship of man to nature. Both of his pieces, *Action & Consequence* and *Sprout*, combined human hands with tree forms. The Three Dimensional Award winning piece, *Sprout* (Figure 6), was composed of a bronze hand whose fingers melded into twigs from a tree. In *Action & Consequence* (Figure 7), a single hand grasped a real juniper tree held upside down. Beneath its tip, a pair of hands, made from cast paper, were cupped together as dead needles sifted between them and formed a pile on the gallery floor. In his statement, Graves wrote, "The direction of my artwork is rooted in addressing notions of expectation and cultural attitudes as they define our relationship between nature/culture and society's dependence on nature. Often our attitudes and practices set us off balance with nature as we continue to indifferently stumble along with little regard for the resulting manipulation of natural materials as a metaphor for society's dependence on nature, and ultimately its influence over it. My choice of familiar materials and subjects, such as trees, plants and the landscape, clearly references the natural world while simultaneously invoking their cultural identity. In doing so, I look to point out the obvious, yet often ignored connections that exist between the natural world and the cultural attitudes and practices we project on it."

Figures 6 and 7. Travis Graves. *Sprout* (Three Dimensional Award), and *Action & Consequence*, detail. Bronze; Cast paper, juniper, needles.

The relationship between humanity and nature was also the subject for the work of Sheryl McRoberts (Plymouth, MN) and Darryl Halbrooks (Richmond, KY). Each of these artists' works was notable for the lack of humans in their respective pieces; rather, the impact of the man's actions upon Nature was explored.

Sheryl McRoberts' pen and ink drawing, *Abitibi on Rainy River IV* (Figure 8) establishes a still, meditative mood. It is an unusual work for today as the artist drew it as she sat on the banks of Rainy River, rather than working from photographs. As such, it projects an aura of quiet authenticity and authority. The drawing is a record of the interaction of a human with her environment in a specific place and point in time. As McRoberts stated, "This work is from a series of drawings begun as landscape studies. Pure landscape, however, rarely exists. My focus soon shifted to human artifact nested in the natural world. The most recent drawings deal with man's use of nature for survival or economic development. The focus is a paper mill in Northern Minnesota, built on Rainy River by Boise Cascade (American side) and Abitibi (Canadian Side). The more I drew the mill, the more the natural characteristics came in the cascade of buildings and the way the pipes and shafts unified the elements of the structures. Although there is no human presence in the work, I see the final function of this drawing as a portrait of humanity expressed in a time and place."

Figure 8. Sheryl McRoberts. *Abitibi on Rainy River IV*. Pen and ink drawing.

The benign image of humans as another of Nature's creatures that construct things, like bird nests or termite mounds, is sharply and wittily refuted by Darryl Halbrooks's mixed media piece, *Oil Spill 2* (Figure 9). With grim humor, Halbrooks

indicts humanity's reckless disregard for our environment, specifically the man-made disaster in the Gulf of Mexico. The scene is shown from a bird's view point, as an empty, small yellow boat is adrift in a sea of dark tarry sludge. A stream of sparkling green water bisects the viscous black expanse. The heartbreak of the scene is undercut by the playful use of media. Halbrooks, a Professor Emeritus in the EKU Department of Art and Design, is well known for his proclivity to experiment with materials. In an email to the author, he described his process: "The piece is a wooden panel, covered with painted polyurethane. Polyurethane is carved in the river area. Paper is inlaid in the carved area and covered with Plexiglas. The entire surface is inundated with a flood of polyester resin. What I like about the process is that I don't know exactly what I'm going to get, due to the natural flow and set-up properties of the resin. In certain areas it heats up more rapidly than in others, causing interesting color changes. Finally, the little boat is ceramic."

Figure 9. Darryl Halbrooks. *Oil Spill 2*. Plexiglas, fiberglass, ceramic, and paper on wood panel.

Another piece examining the impact humans have on nature was the sculpture, *Niche*, by Elizabeth Jinko Chong (Upatoi, GA). In this work, Chong constructed three structures of descending sizes of wire and silk organza. These became 'cocoons' for colonies of live silk worms. Over the duration of the show the caterpillars spun cocoons, and eventually emerged as moths. In her extensive statement, Chong explained that because humans have bred these insects for their own use, silkworms have evolved into beings that cannot survive without humans. The emerging moths are flightless, and the caterpillars have no immune systems. Therefore, although the Giles Gallery director and attendants consider themselves to have impeccable hygiene, special care had to be employed when feeding the caterpillars their daily meal of pureed mulberry leaves. It was a complex piece that elicited complex emotions. It was fun to watch the silkworms spin their cocoons and exciting to see beautiful white moths emerge. At the same time, one could not but feel guilty that their essence had been so thoroughly co-opted by humans. Yet silk is a wonderful material result.

Figure 10. Megan Coyle. *In The Woods*. Paper fragment collage.

The art in the *Nature's Humans Exhibition* reflected the conflicted and contradictory feelings humans have about nature. We love and hold nature in reverence, yet we use and abuse it continually for our own purposes. Nature serves as a vehicle for metaphors for our life and essential character, and so becomes a source of inspiration. Yet one thing we humans rarely acknowledge is that we are a part of nature …it is within us as beings. Two artists, Grace Benedict (Lafayette, IN) and Mel Keiser (Edinboro, PA), reminded us that our very biology roots us in nature. In her two elegantly beautiful drawings, *Break Open in Time* and *Lily* (executed in colored pencil and ink wash), Benedict depicted two women at different stages of pregnancy, as a means to make the indisputable connection between humans and other living things. In her statement, she wrote, "As humans, we are tied to nature—we are nature, and in this case, biologically with the advancing birth of a child. With incorporated and integrated studies of plant forms, the drawings express different stages of growth from the pod that springs the seeds which are planted, to the fullness of an open flower: symbolically, the actions of humans, as well as the fulfillment and continuation of life through birth." Keiser made a similar argument that biology reflects the nature within humans in her small oil paintings, *The Superstitions of the Tribe* and *Blue Lips, Blue Veins.* She explained, "These pieces deal with the human figure. They focus on skin, anatomy, and the elegance of human form. In each of these pieces, this attention to the construction of the human body attempts to depict something sacred and absolute; the natural design inherent in the human body. Thus, these works fall under the theme of the show, *Nature's Humans."*

The numerous and diverse attitudes expressed in the Nature's Humans Exhibition concerning the human relationship to Nature could be found bundled together in the painting, *Woman Traveling with a Bird* (Figure 11), by Brandon Smith (Richmond, KY), who was awarded the Purchase Prize. A large painting, it is filled with puzzles and contradictions. A woman is shown floating down a river. Her body is merely suggested beneath the water; only her head is above the surface. From her mouth extends a stick or a line up to a stationary black bird at rest on the top. The surrounding landscape is dark and indistinct; yet, it is yet richly beautiful in the deep colors used. The water of the river is a shimmering aqua. The painterly style used allows for no sharp edges or distinct forms, but shapes coalesce from the myriad of brushstrokes. The woman is in nature yet

her face is apart from it. Her relationship with the bird is ambiguous: is she being directed by the bird, or is she pulling it along? Nothing is absolute and nothing is certain.

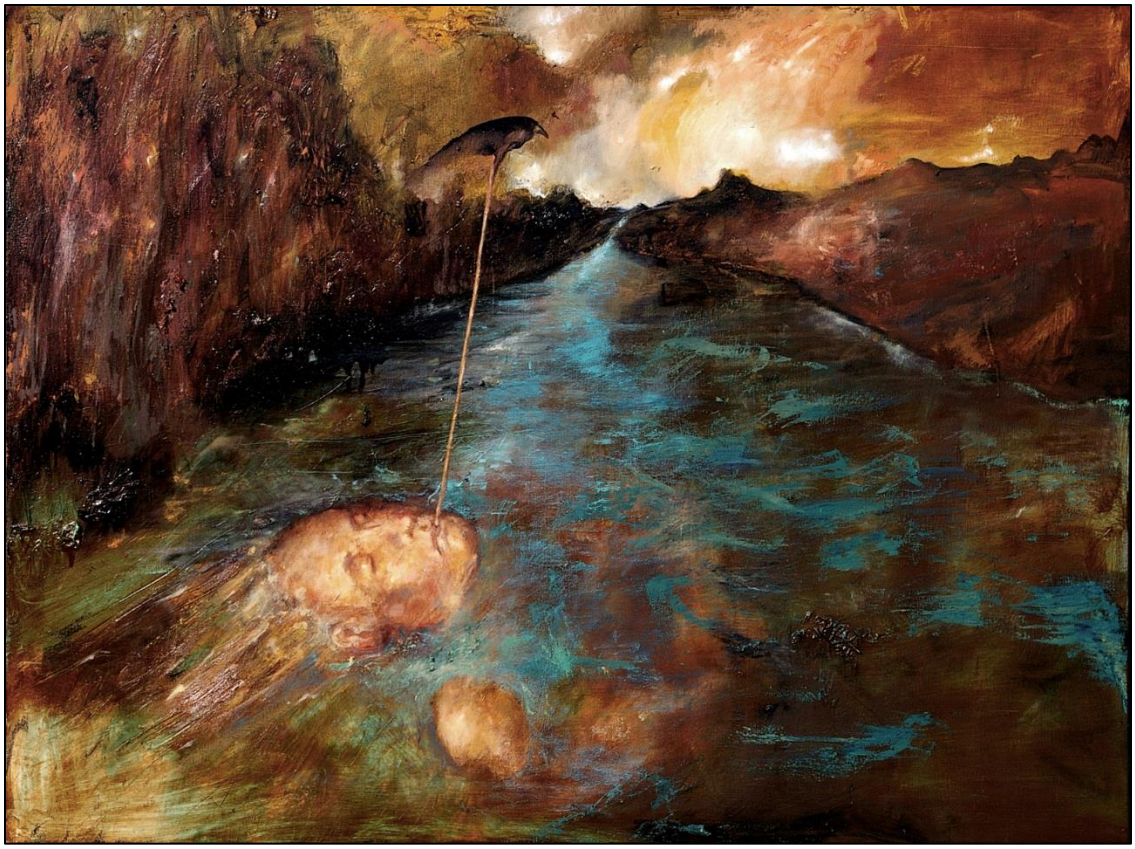


Figure 11. Brandon Smith. *Woman Traveling With Bird*. Oil on canvas. Purchase Prize.

This painting provides a powerful metaphor for the human relationship with nature: one that is contradictory and mysterious. Humans are a part of nature, but also stand outside of it. The relationship is variable and constantly shifting. Humans love Nature's other creatures enough to make a heroic effort to save a beached whale, yet they go home to eat poultry bred and raised in the most unnatural and inhumane conditions. Humans spill oil on Nature's oceans and she slaps back with a Tsunami. Nature awes humans with her beauty and majesty, and then Humans bulldoze her into submission to create a shopping mall. Humans love, honor, and abuse Nature: but she has the last word.

HARRY BROWN

SALUTATION

for Sue

A rare and common sight these January mornings,
say at ten or so after twelve or fourteen
the night before, is my small cow herd standing near the top
of the rise behind the barn looking every one southeast,
stock still as if exhumed statues awaiting the Rapture,
the only motion small, thin clouds drifting slowly up
from noses and mouths to quickly disappear in the bright, still quiet,
and steam slowly rising from frosted backs to dissolve
in the icy air while this motley congregation, half their bodies
spread in obeisance before old Helios,
warms.

I leave these winsome oblations
for private matins
before my kitchen Yotul.*

*Norwegian wood stove

SIGHTINGS; OR, MR. REDHEAD

for Jim

A shy and rare fellow, bolts when I come nearly near,
taking to the undulating road and hiding
his shocking top in flight; rather a quick distance
half disguises it, while in collusion a quarter moon
of wing and rump more bright and twice more spread than Mr. Red's
famous head upstages Helios, taking me
and pleasing yet teasing my soul with but at most ten
or twelve tantalizing seconds in air and eye.

This evening at seven near the back pasture pond
I watched Neighbor Redhead slightly flap in scalloping
steps from an old treated post (no supper here!)
to a pitted, doty ash fifty yards away,
his buffets fewer nowadays because of asphalt,
concrete, and legion burgeoning houses
supplanting ash and oak, and planted almost as close—
but not so friendly or tasty as the forest homes.

Because my neighbor is shy and his clan in some decline
I'm double blessed by these brief glimpses, and thrice tonight
for added blaze: the Missus joined her husband late
for a short dessert. She probably always accompanies
him on visits to our farm, but often comes
and goes unseen, for Neighbor Red is fully as jealous
as uxorious, and keeps his consort hid.

THE MAP; OR, PERHAPS

"The Truth must dazzle gradually. . ."
—E. Dickinson
"No, no; speak,
my heart tells me."
—Odysseus speaks to Eumaios and Philoitios
for Eve

Not go, gas, fast. That's not the way. Not this ubiquitous
St. Vitus's dance skewing light and life. Not 95
but wilderness without a trace where we must search
our way. Or the Mohave—there may be better till we can grow
our own still, sandy silence lit by the sun within.
But—who knows? Better perhaps is but fasting
for less is our best bounty, as wandering in quest
the straightest narrow course with East, not West, our true North.

In wilderness know by sun only—the little we glimpse
through leaves—or in desert by stars come night if it's dark enough.
We sometime need the leaves to shield against the blow,
sometime as friend to thwart too sudden, too easy seeing;
we need the night that makes us seek and wonder till it frames
the light.
Perhaps till later, perhaps till always.
When leaves but obfuscate
or night is naught but dark, navigate by heart.

DOROTHY MOSELEY SUTTON

ALASKA ON MY MIND

Silence so white I can't go back
to the Lower Forty-eight.
Everything seems so foolish there.

I choose instead to travel again
the long Haul Road from Fairbanks to
the Arctic Sea—July the one

summer month, ice cracking clean
as gunshots, nature at war. Ancient
water stratified, sediment

unsettled. Wind growls by turns
defiance and whimpering to be let in.
You appreciate what intervenes

to keep you warm. Sam wants to sell
the nuggets he has mined. How much,
I ask. How much you got, he responds.

Nothing I can imagine more fabulous
than what I see: ravens big as dogs,
the streams of the Koyukuk River brilliant

with blooming rocks—chartreuse, cerise,
crimson red. I tuck one into my knapsack.
The color dries and fades. Everything

begs to be left alone. To touch
the rock reduces truth to mere
words in a poem. What I like

about this place: that no doors slam,
but close quiet, serene,
in their own good time.

To My Mother For Loving The Rain
(for Mary Swope Moseley 1909-1993)

Thank you for loving the rain,
For calmly, serenely accepting the rain,
Searching out the benefits,
Never flinching at the threats
Of Superhuman light and noise.
Awed instead by mystery
Teaching us to have respect, not to be afraid
Of tater wagon over wooden bridge,
Rumbling noise the thunder made.
Not panicking us through cellar doors
To huddle in silence and wait out the storm,
Affirmation's firm foundation
Enabling us to climb above.
When thunderstorms struck, we raced for the porch,
Snuggled close in quilted comforters
Against the rain-cooled air,
A part *of* the rain, apart *from* the rain,
Kind to ourselves.
When rain set in and lasted day and night,
We retreated to the kitchen
For the needed warmth and light,
Kindling cookie warmth against the cold,
Drowning out the thunder of the storm
With comb and tissue paper song,
In tune with soothing messages
Tapped out by the rain on the roof.

* * *

When thunder faded distantly away (it always did)
We stripped to bare essentials, close to the rain
Exposing skins to an element
Primarily familiar,
Which never lost its touch, and
We never lost our feeling for,
Testing it in every fiber,
Tasting it on tip of tongue,
Leaping and reaching and marveling

At Easter egg colors arched in the sky,
Breathing in the honeysuckle,
It, too, reborn in the rain.

Enraptured by the unreal green
Ignoring thorn and briar sting
Or cuts by rocks that had not yet come round
(Except for an occasional crying out,
As if slapped into life again)
So totally immersed we were
In feeling rain-drenched grass
Against bare feet.

* * *

You admitted that sleet was trouble, misery,
Even death, but I heard you go
Back to the kitchen window
Heard you breathe an ecstatic *OH,*
Look at that cardinal against the snow.
Thank you for loving the rain.

We were nourished in rain,
Learned our lessons in rain.
Moved to laughter, moved to tears
Moved to grow through unfolding years
Not angry, not resentful, not afraid.
Wanting to be touched, embraced by tenderness
But always gently braced, in case,
Against the storm, able to insulate and isolate
With quilted comforts, to stay on safe porches
When lightning is rife
But also able to emerge from quilt cocoons,
To immerse, submerge ourselves, bold,
Able to breathe the ecstatic *OH*.
And when the inevitable cuts and bruises came,
To accept also the pain
As a small price to pay
For loving the rain.

FRANK X WALKER

BLACK BERRY

For Timothy Pigford

If Wendell Berry was black and planting
seeds, If Henry County was still in Virginia
or Carolina, his Mad Farmer's Manifesto
would have wrapped the good dishes
for the move, after he left the farm

Of course, being a real farmer poet
he would no more quit the land
than the land would quit him, at first

he'd hire himself out, sharecrop
somebody else's dreams, dig up their soil
and plant his own ambitions
deeper than the *cancer* of his skin

He'd water it with regret and longing
until it petaled and bloomed, yielding
a harvest of angry black letters and tears

If Wendell Berry was a mad black farmer
his grandson would be standing here
right now, telling you how the closest he
ever got to farming was the liberation garden
we planted on railroad property
and the bean that finally broke ground
in the chocolate milk carton in the fifth grade.

YOUNG SMITH

OCTOBER BURIAL

Fog wets the hillside and the minister's beard.
Among the restless mourners, the odors of coffee and wool.

The damp gravesoil lies covered with sheets of green velvet.
The polished lid of the coffin reflects the widow's veil.

In the distance, the limousine drivers discuss the World
Series. Birds light on gravestones and the crooked arm

of the backhoe, where men with shovels smoke quietly, awaiting
the family's departure, and then the tall undertaker's nod.

Drowned Man's Cross: Grande Isle, Louisiana

Out with a rod on the western end of the island, through a white evening
full of gulls and dark swarms of flies, I walk the jetty, over tumbled lengths
of shale, as a wind moves through the scrub oaks along the dunes,

then out toward the trawlers bending under their nets.
With each cast, I take another step out, trusting
the barnacles for traction down near the tideline,

where the breakers pull and foam among the rocks. Here I move
with the light among the last long shadows of the day—waiting only for the grip
and run of a redfish—until I find the drowned man's cross. It leans

on a wet space of sand among the stones, in a pickle
bucket full of brown cement. Two flat rods of iron joined
with welder's seams, and scratched in the surface

where they meet, the rusting letters of a name: *BERNARD*. Nothing else.
No date, no epitaph. Only this single word, left for those who knew it well enough
to understand its sorrows. Was it here that he lost his hold, on this banked

slab where I crouch, a foot above the mixing waves?
I can almost hear the gentle splash, see his eyes spark
in their first hard panic as he struggles to keep afloat.

I can smell the salt burning in his sinuses, see the gray film screening over
his stare as the oily water shuts around his life and stops
his lungs. But not, I suspect, the urge to shout, some last coughing plea

or promise—discovered only here, as he watched the bright
surface rising slowly overhead, until it left him at last—
dark, unwitnessed—in the muddy channel below.

I try to hear them now—those last failed words, caught in his chest
before his tongue could shape them into cries—but like his age or his surname,
these are secrets lost to strangers. And for a time, while around me,

the shadows pale at their edges, then lose themselves in wider
shapes of darkness, I am, like that cross, what the water
has made me: a rare still thing in this moving place.

Here There Was A Stool With A Crippled Leg

There are no ghosts in her house,
only the shadows of objects

removed by other tenants long ago.
Here there was a stool with a crippled leg.

Here a bookshelf filled with fat Russian novels.
Here an upright piano with wine-stained keys.

This furniture is gone, but its shapes continue—
like spots on the retina after glancing at the sun.

Though she can find no path from one door
to the next where the shades of their sofas

don't stand one within the other, of the former
tenants themselves, very little can be said:

The mirrors have gathered the stories of their eyes,
but the glass is too crowded to tell them clearly.

Yet, even now, among the wraiths of hat trees
and recliners, where the ashes of their voices

drift like smoke along the baseboards,
she can often feel their curses breathing

slowly in the corners—still alive
with a helpless longing to be heard.

EIGHTEEN SMALL REALIST STUDIES

1 – 3

—An old man eats cherries and smokes cigarettes at once, filling an ashtray with filters and stones.

—A juror in a motel room reads *Ecclesiastes*.

—A taxidermist sorts through a tray of glass eyes.

4 – 5

—A butcher washes blood from the hair on his knuckles.

—A policeman on horseback chews a yellow cigar.

6 – 8

—A professor gives up on her crossword puzzle, hides it in the wastebasket under her desk.

—An actress rehearses the lines of Ophelia.

—In his dark cell, a prisoner works long equations in his head.

9 – 10

— In a department store, a night watchmen fondles the breasts of a mannequin.

—A boxer studies his urine for traces of blood.

11 – 13

—At the insistence of his father, a young man shaves his beard, then weeps over the face he finds in the mirror.

—A painter scratches the pupil from an eye on her canvas.

—An undertaker brushes the hair of a corpse.

14 – 15

—A reporter confirms the names of children lost in a fire.

—A drunken widow cuts the tongues out of her dead husband's shoes.

16 – 18

—A bartender counts the moles on his customers' faces, writes down these numbers as his lottery picks.

—A sleepy child recites the names of the planets in Latin.

—An old woman with a lantern weeds her garden in the dark.

In The Suicide's Top Drawer

- thumbtacks
- shirtbuttons
- cigarette papers

- drycleaner's ticket
- daysleeper's mask

- sketch of a house on the back of a menu
- straight razor
- arrowheads
- Canadian dime

- handkerchiefs
- collar stays
- bone-handled penknife
- bar of soap from an airport motel

- hip flask
- brochure for a hunting lodge in Alaska
- whetstone
- splintered reed from a clarinet

- list of names under the heading *Customers' Children*
- list of addresses crossed through with red ink

- box of tie-pins
- box of electrical fuses
- book of trout flies
- deck of backbroken cards

- page filled with his signature in various styles
- page with columns of numbers (importance unknown)

- matchbooks
- shoehorn
- birthday card from a dentist
- photograph of a woman with snow in her hair

JULIE HENSLEY

AT THE BOTTOM

When they started into the canyon, it was so hot the Indians had stopped running the mule trains. A pile of backpacks sat in the dust, and next to them, beneath the shade of aluminum roofing, the animals stood, swishing their tails. Nearby, a man and his teenage son unloaded cases of soda from the back of an old van. He eyed Sam and Addie with suspicion, but he didn't say anything. Flies hovered everywhere, especially around the port-a-johns at the trail head.

The rest of their party had driven up the night before and started down before daybreak. There was Liz, who taught at the same elementary school as Addie, and Liz's husband Smitty. At the last minute, they had added Noah. He was Sam's college roommate, and his wife had left him three weeks before. As usual, Sam had been detained at work. A deadline had kept him up most of the night. They hadn't left the house until almost eight.

They paused a moment at the rim. The canyon looked faded and tired, nothing like the view from atop the Bright Angel trail. The walls weren't as steep here, and they lacked color. Everything looked chalky. It felt like the canyon though. It carried the same sound, or maybe it was a lack of sound. The air seemed to breathe out of the space in the same way. The trail was a white line cut first in a series of switch backs and then along a gradual decline, growing smaller and smaller. They couldn't see any other hikers.

At first it was so steep that neither of them said anything. They had to look down, watching their footing. At one point, Sam started to slide, sending a spray of pebbles across the trail.

It took more than an hour for them to reach the first plateau. It was easier going then, but hot. The trail veered in and out of a dry river bed. The sand was deep in places, and it seemed to hold on to the heat. Finally, they sat down on a flat boulder, partially shaded by rock and palo verde. They had frozen the water in their packs the night before,

and now it was melted but still cold. It was hard to stop drinking. They ate peanut butter and raisins rolled in soft tortillas.

Addie had a can of Coke and a pudding cup in her pack, kept cool by the melting ice. They were for Sam, surprises to keep him going. He looked like he was doing okay. His legs were stretched out in front of him, and he was leaning back into his pack. She had buzzed his hair tight for the trip, and he had a bandana wrapped around his head to keep his scalp from burning.

He smiled when he saw her watching him. “What?”

“You’re cute.” She leaned forward and kissed him. He tasted like salt. “I have a present for you.”

“Oh, yeah?” He looked suspicious. “What?”

“If you could have a either a Coke or a pudding right now, which would you want?”

Sam laughed. “Pudding,” he said. “Definitely pudding.”

He licked the top after he tore it off.

This month made five years they had been a couple. There had been some terrific fights in the beginning, but now they understood each other. A few weeks ago Liz had mentioned the possibility of Sam proposing on this trip. “It’s perfect,” she had said. “I mean, can you think of a more romantic backdrop than the Grand Canyon?” Addie had shrugged off the idea.

Now Sam had finished the pudding. He was trying to scrape the sides of the cup with his aluminum spork. “This thing doesn’t really work as a spoon or a fork.” He held it out for her to see. “It can’t save that much space.”

“Let’s get going.” Addie stood up and swung her pack over her shoulders. She held her hand out to pull Sam up.

He smiled up at her. “I want my Coke too.”

“Forget it,” she said. “I have to keep waving the carrot.”

Addie arrived at the campground ahead of Sam. She had to make her way down a steep incline, and she heard the waterfall long before she could see it. Only after she reached the bottom could she look up and see the power of the thing—water plummeting over a hundred foot cliff. Below, a pool spread out of the spray, a spectrum of cool turquoise. Tents were already staked along the stream, which was bordered by a thick grove of hardwoods. The water held onto its color, even as it wound through the campsites. The air was humid, and the light shone green through the canopy of cottonwoods and sycamores. Ferns and rushes curved out of the wide places where the course of the stream slowed. It was like no part of Arizona she had ever seen.

There were too many people for the small campground. Some sites were choked with groups of ten or fifteen, and some of the people—the girls, especially—seemed young with slender hips and high shrieks. As she walked through the sites, Addie scanned faces, looking for Liz.

When she paused to shift her pack, someone caught her eye. A woman with a shaved head and a swinging necklace made of bones and shells was watching her closely.

"Are you just getting here?"

Addie had to look around to make sure the woman was talking to her. She nodded. Three other women stood off to the side, cinching packs and gathering bits of debris off the ground.

"Do you want this site? We're heading out soon, but we're only willing to give it to someone who packed her own gear in." She leaned toward Addie, striking a conspiratorial pose. "So many of these jokers send their supplies in on the mules or, worse, helicopter them down."

Addie smiled. "Actually," she said, "I'm supposed to be meeting friends. I think they're further in. I guess…" She paused, choosing her words carefully. "I guess I got a late start."

One of the other women looked up then. "Did you do the hike down by yourself?"

"No," she said, after just a moment. "My boyfriend's behind me. He'll be here soon."

Later, when it was dark and the creek bed was thrumming, the murmurs of each campsite rising against the canyon walls, Addie retired the same time Liz did, even though she was still wide awake. The boys were just outside, passing around a joint and taking swigs of Jack Daniels, playing some card game she didn't understand. Every so often one of them would burst into laughter, masculine and staccato. Their voices were charged with drink, and she could hear Sam's above the others.

She removed her shirt and shorts and lay back on top of her sleeping bag. They had left the rain cover off, and she stared through the netting above her head. Outside were the sweep of flashlights and the blue glow of gas stoves, crickets and the steady coursing of water. But over all these loomed the walls of the canyon itself. It was like looking up from deep inside a well.

The next morning they all went swimming below the falls. They made their way through the campground early when the smell of coffee was thick. The people they passed had sleep-glazed eyes. Some carried spades and rolls of tissue into the screen of trees. The guys walked three abreast in front of the girls, so Addie could see the sprinkling of freckles shining across Sam's shoulders. Each step stirred grasshoppers from the undergrowth.

Liz was talking about her new sandals. Smitty had a pair too. "White water rafting shoes," she called them.

"Are you two planning on going rafting?" Addie asked.

"No, but you can run in them. That's the best part. They're sandals you can run in. Show them, honey," she yelled to Smitty, and he started to jog.

The pool was empty that early, just as they had hoped. A shelf of rock curved out over the water on one side, and they leaped off it. The water was very cold. Addie found Sam, and they clung to each other, slick limbed, bobbing together in the water. Around

them, the pool held color like a lake. Eventually the others climbed out, but Addie stayed. She dove down, trying to touch the bottom. Deep beneath the water was the steady rhythm of the falls hitting the surface. It sounded strangely like a pulse. She waited until her lungs began to burn before breaking for air.

When she surfaced, unfamiliar voices echoed across the water—a throng of new campers were already arriving, making their way down the switchbacks overhead.

Sam was lying with the others on the shore. She could see the four of them sprawled in a row. None of them had towels, but the rocks were warm and smooth. Liz and Smitty had removed their new sandals and laid them out in matching pairs. Liz was reading a novel, holding it out at a strange angle to block the sun.

Addie couldn't see their faces. It wasn't clear if the guys were talking or just lying there. Men were like that together. They didn't have to talk. Or they could talk about nothing—a game or the weather. Each could still know that the other was okay. Noah was twenty-seven, same as Sam and Addie. She couldn't imagine being divorced already.

For a while, she gave herself over to the water's gentle lift. The water was so cool, and it had a faintly sweet smell, almost like the creeks that came out of the mountains back East, a mineral scent. She finally climbed out when other swimmers arrived.

She sat down next to Sam and pulled her knees up to her chest. Sam stretched out his hand to cup her damp ankle, but he didn't say anything.

Liz put her book down. "We should have come in May," she said. "It wouldn't have been as hot, and we wouldn't have had to put up with all these kids."

Across the pool, another party was spreading their towels on the rocks. The girls, who wore stringy bikinis, immediately began rubbing their legs with oil. One of the guys tore open a bag of potato chips.

"Nice breakfast," Liz said. "I wonder if he knows he's got to pack all his trash out of here."

"Careful," Addie warned her. "Voices carry."

Liz laughed. “What? Are they going to come beat me up? This isn’t Club Med. Who wears a bathing suit like that backpacking?”

Now the guys sat up to have a look.

“I think it was a sensible decision,” Noah said.

Sam looked at Addie. “If you’d brought one that small I could have packed a spoon and a fork.”

As if on cue, the tallest of the girls stood up and bent to retrieve something from her bag. Her bikini was even smaller viewed from the back.

Smitty whistled long and low. “With a suit like that you could have brought a whole air mattress.”

“What’s wrong with my suit?” Addie was wearing a racing bathing suit, black with sturdy straps crossing in the middle of her back. It was two pieces, but only a narrow ribbon of skin showed at her midsection.

“Nothing,” Sam assured her, but his eyes never left the girls.

“Noah,” Smitty said, “You’re a free man. Go work some magic.”

“I wouldn’t know what to say to those girls.”

Liz snorted. “Tell them you’re old enough to buy beer.”

When they left the falls, the boys headed toward Supai, but the girls walked back to camp to start lunch. They didn’t want to go back to the Indian village. They had found it depressing when they passed through on the way in. The houses were just shacks, some with tar paper roofs. Pieces of warped cardboard patched broken windows. Most of the houses had tiny paddocks to house the mules that ran the pack trains.

In the center of the village was a store where campers had to stop to register and pay fees. A rock held the door open. Strips of cloudy plastic kept the air—chilled by a rattling window air conditioner—from escaping, but they let the flies inside.

The men were going back to the little store to buy chocolate because Liz had decided she wanted some. “Hershey’s special dark,” she’d instructed them. “Get the big kind, and hustle back so it doesn’t melt.”

The girls had just reached the springhouse when she said it.

“Do you think I might be pregnant?” Liz posed the question so casually. And as soon as she said it, she bent and took a long drink from the stream of water.

A pipe caught the water from its source in the rocks and brought it into the springhouse, where it spilled down to collect in a low trough.

Addie thrust one of her bottles into the stream. “What makes you ask that? Are you guys trying?”

“Well, not really. But we’re not *not* trying either.”

“What does that mean?”

“Well, you know how it took my sister so long to get pregnant? We decided I should go off the pill a few weeks ago.” She looked down as she spoke. “You know, clean my system out. We’ll probably start trying for real in a few months.”

Addie watched Liz give the top of her water bottle another twist. “Why didn’t you say anything?” she asked.

“I’ve hardly seen you all summer.” Finally, Liz met her gaze. “What? I’m telling you now.”

They fell into step again when they reached the main trail. After a few minutes Addie asked, “Do you want to be pregnant right now?”

“Sure,” Liz said, quietly. “We could make it work. We have the space now.”

“What makes you think you are?” she asked. “The fact you’re wanting chocolate?”

“Mostly.”

They were crossing the stream now, Liz in front, making their way carefully from one rock to another.

"I don't think that means anything," Addie told her. "I want chocolate every day."

Squirrels had broken into the tent. They had chewed little holes into the netting. A bag of gorp was torn open and scattered across the sleeping bags. Cupping her hands, Addie swept up the mess as best she could.

She thrust her hand into the side of Sam's pack. Her fingers, groping, first felt two power bars and then something else—a tiny wooden box. She pulled it out and set it in the palm of her hand. It was a reddish wood, sanded smooth, and inlaid with stone to create a design. The desert at night: a sliver of pearlized moon hanging above a shelf of rock. Addie's breath quickened behind her ribs. She knew she should put it back.

The ring was turquoise, but not the blue kind. It was pale green, roughly the size of her thumb nail. The silver holding the stone was carved into tiny, intricate rivulets. When she lifted it from the box, her throat caught. It was the color of the lichen that etched the limestone back in Virginia. Hiking to Bearfence Rocks the first time Sam came home with her for the holidays, she had told him how in Arizona she sometimes dreamed about it—that rush of green through winter hardwoods.

She returned it to the box. She arranged the power bars on top, just as they had been, and zipped everything up.

She didn't tell Liz, moments later, when the two of them bent over the picnic table to light their butane burners. Now she was carrying a secret. When she held up two soup mixes and said, "I wonder which Sam would want—split pea or hillbilly bean," the secret was there.

After lunch, when they all felt lazy and they sat around the table watching Noah practice card tricks, it was there. Sam caught her eye, and that secret grazed her insides like a passing fish.

There was a full moon over the canyon. It shed enough light—even through the ceiling of thick summer leaves—that it wasn't necessary to turn on headlamps. They sat around in a

circle, talking. Addie sipped wine from a plastic cup. The boys had brought the bottle back from the village that afternoon, but the wine had turned. Addie sipped it anyway.

Smitty said that with the moon so bright, the waterfall would be backlit and beautiful, and soon after, he and Liz slid off together through the trees. Addie leaned near Sam's ear. "We should go for a walk too." She could smell him—just him, not shampoo or cologne.

He stretched his arms over his head. "I'm tired," he said. "Aren't we supposed to try to make the Colorado tomorrow?"

"That's fourteen miles," Noah said.

"I'm still sore from the hike down. Aren't you tired?" Sam's fingers began kneading slow circles across Addie's lower back.

"Sure," she said. When they were alone together inside the tent, she slid out of her clothes and into the sleeping bag. They had a double sleeping bag, made from two custom bags zipped together.

Addie reached for him in the dark, and her hands found soft cotton. "Why are you wearing a T-shirt?" she whispered.

"We're outside. I don't want to be cold."

"It's ninety degrees," she said. "You're not going to get cold."

"You don't know that. So I want to wear a shirt. What's it matter?"

"I want to feel your chest."

"Well maybe I don't feel sexy," he said.

"Good God."

Noah snickered outside.

"Look," Sam said, "You know I don't like sleeping outdoors. I get tense. I feel like bugs are going to be crawling on me or something."

Addie rolled over and sighed.

"I'm trying," he said. "I'm having fun. I just want to wear my T-shirt. I just want to go to sleep."

When Sam's breathing settled into the shallow rhythm of sleep, Addie rose and put her clothes back on. She didn't cross the stream and pick up the trail. Instead she followed the cutbank above the campground. Overhead, the moon shone eerily blue, making the tree trunks seem pale and ghostly. Instead of scanning the ground, her eyes kept climbing. It was so different to be here in the belly of the canyon after always seeing it from above.

Three years before, when they had first driven the South Rim, Sam had told her that it made him feel small—all those layers of stone and color, the weight of time they represented.

"It's a little like making love to someone," he had said. And when pressed, he had added, "You have layers. Every time I'm with you, I have to work my way in."

"Physically or emotionally?" she had asked.

"Oh." He had shrugged. "I guess both."

Addie pulled herself onto a large outcropping of rock. A handful of campers were still awake. Lit flashlights made their tents into Japanese lanterns, points of color in a scene that everywhere else shone as silvery as the finish of an old movie. The rock beneath her still held the sun's warmth. Across the creek, the opposite wall rose spectrally out of the tree tops. She stared for a long time.

The next morning, Liz said she wasn't going to do the hike. They were sitting around the table eating instant oatmeal with dried fruit and blanched almonds. When she made the announcement, the guys looked at Smitty, assuming he was going to handle it, but he just stared into his bowl.

"Are you feeling sick?" Addie asked.

"It's not that." Liz glared at her. "I just don't want to go."

"Why?"

"Because it's fucking scary." She pointed northeast, deeper into the canyon. "A mile in that direction is the next descent. It's two hundred feet down a cliff face."

Noah looked confused. "I thought we didn't need rappelling gear."

"You don't," Smitty assured him. "They've carved steps and anchored rebar into the rock."

"Aren't you going to tell them about the signs?" Liz folded her arms across her chest. "They've got signs posted saying how many people have died there."

"Seriously?" Sam looked at Addie. "How many people?"

"What are you going to do all day?" Addie asked. "We won't be back until dark."

"I'll read my book," Liz said. "I'm not trying to stop the rest of you. I just don't want to go."

After a while, the rest of the group set off without her. Smitty and Noah walked in front, and Sam fell in behind them, but he hung back from the group. Addie matched his pace.

"What's up?" she finally asked.

"I don't know if I'm okay with this," he said.

"What are you talking about?"

He stopped walking then and glanced down the trail. Smitty and Noah were twenty yards ahead of them. "The climb." He touched her arm as he said it, his voice hushed. "We don't rock climb. If we get there and I don't like the look of it, I'm turning around."

"Are you serious?"

"Hell yes! I hope you will too"

"Oh my God."

"Addie," he said, "It's when people aren't comfortable to begin with that this kind of stuff gets really dangerous."

She took a deep breath and placed her hands on his shoulders. “Can you please just give it a chance, Sam?”

Moments later they were standing in a row looking over the edge. The stream that trickled through the campground cascaded two hundred feet here. A fine mist refracted the sunlight into a spectrum of color below them.

Smitty pointed to where, maybe thirty feet down, the trail suddenly ended. “Last year,” he told them, “Liz froze up right there. When it was time to hold onto the rebar and climb, she lost it. We had to turn back, but it took her nearly an hour to climb back up. She was a mess. I really thought she had talked herself into trying it again though. ”

“Well it’s pretty steep to do without gear,” Noah said.

“It’s the only way to the river,” Smitty said. “And look how secluded it is down there.”

The pool at the bottom was bigger than the one they had swam the day before. From there the stream flowed into another pool, and another, and another, as far as their eyes could travel into the canyon. Far off, two figures waded waist deep in the turquoise water, but they were the only other people.

“It’s beautiful,” Addie whispered. Sam didn’t say anything.

Smitty started down, then Noah. Addie looked at Sam. “Do you want me to go before you or after you?”

“I’ll go.”

At first the trail was nothing, less than nothing. They proceeded in a line down the steps the reservation had carved into the stone. The trail curved through a cave, where the surface of the stone was glazed from all the hands that had traced it.

“It gets slick over here,” Smitty called out when he reached the other side.

They followed him, and when they emerged into sunlight, the spray from the falls wet the rock and their skin, making everything slippery just as they had to begin the real descent. Sam reached for the rebar and swung himself onto the face of the cliff, and Addie followed. For a moment her foot slid over the rock as if it would just keep going,

but then she found a pocket, a dip in the rock. For several minutes she didn't move. Her fingers sweat around the rebar. Her chest hammered as if it wasn't the play of her pulse, but someone above her pounding on the rock. She had to remind herself to breathe.

She reached for the next loop of rebar, first with her left hand and then her right, but her feet struggled to find the next loop. They swung and scrambled. The course was made for someone taller. Her eyes held tight to the rock, and she progressed, slowly.

About half way down, she made her mistake. She knew better than to look down, but she let herself look up. Above her, the rocks were blackened and shiny from the spray. She could see the cliff from above, only now she could see herself in miniature, a stick figure clinging to the rock. Her stomach turned. Saliva gathered in the recesses of her mouth. She pressed her cheek against the damp rock and held her breath.

"Addie!" Sam's voice rose sharply up the cliff face. "Are you okay?"

She couldn't move, not even to shake her head.

"Hold tight. I'm coming back up."

Soon he was beneath her. There was his red bandana. "I'm here," he said. "I didn't realize you were having problems."

His fingers clasped her boot, and a pathetic noise escaped her throat.

"I'm just going to guide your foot down," he explained. "Trust me"—his mouth brushed her calf—"You can do this."

When they reached the bottom, she was crying. She couldn't stop crying.

"You're okay." Sam held her face in his hands. "You're fine," he said. "You did it."

She collapsed against him. He was sweaty. Smitty and Noah stood back, facing the water giving her time to get it together.

They smiled when she and Sam joined them. "You did it," Noah said.

But now something marked their smiles, a premonition of the hours ahead. They would be very careful with her, clasping their hands to give her a foot up when

bouldering was required, watching anxiously for her head to appear when she dove into a pool. The ring in Sam's daypack, nested in its beautiful wooden box, would not come out.

The guys kicked off their boots and headed into the water, but Addie held back. She had been relegated to girl.

They were tired and covered in dust when they returned to camp that night. Liz's nose was pink and shiny from lying in the sun, but she was herself again, quick to laugh. She had conned four beers off the kids at the neighboring campsite and placed them in the stream to keep them cold. Now she stood on the bank and fished them out. "Catch of the day," she said, handing them around.

"No thanks." Addie stripped off her clothes and waded into the stream.

"What's with her?" Liz asked. None of the guys answered. They gave her a look, a look that said, don't ask, we'll tell you later.

Addie sank to her knees and shut her eyes. Here the bed of the stream was soft with silt. She would have liked to take her bathing suit off, to feel nothing but water around her skin. When she opened her eyes, Sam was close by. He held a beer in one hand and a tiny bottle of trail soap in the other. She took a swig of beer. It tasted awful. It was cool, but like the wine the night before, it had muddled in the sun.

"You want me to lather you up?"

"No." Addie took the soap from him, and he waded back to the shore. The ascent had been easier, but he had talked her up, just as he had talked her down.

It was miserable soap. Biodegradable with a scent like the oil she had used to clean the saddles when she was a girl. She had to pour it over her head three times before she could work up a lather. She dug her nails into her scalp, feeling the grit caught in her hair. She was suddenly small and needy in a way that made her ache.

The next morning, the five of them made their way back to the Rim. They rose before daylight and packed in silence, shaking out their bedding and rolling up their tents in the eerie pre-dawn. Addie stayed close to Liz during the hike, even when the guys began to pull further and further ahead. Normally something inside would make her push to the front of the group, but that morning she sat on a retaining wall, waiting for Liz to catch her breath. She took long draws of water, which despite her filter, still tasted of silt.

At the top, they would pose together, handing their cameras off to a Supai man, whose wrinkled eyes would smile, black and wet-looking. But even when they cheered together and said, "Cheese!" part of Addie would still be back on the trail, watching as Sam, now a tiny figure, pressed up the switch backs for the final ascent. Perched far below, it was as if she was holding a kite—that stirring of panic at the tightening line, always the feeling it will snap.

TRINH T. MINH-HA

WIND, WATER, WALL-WOMAN

(Excerpts from *I-Blue*, a book in progress)[44]

The Wind

Once in a while, surreptitiously the Cry irrupts, bursting into light, giving life to what has gone dead and killing what is thought to be living. Whether it be scream, squeal or wail, the cut breeds form, which silence absorbs.

All sea outside inside. Immense, the ebb and flow; that interface between air, earth, water; or, spirit, breath and body. Immeasurable, boundlessly boundful, nonhuman within a human frame.

Froth, wind, the incessant rise and fall. How far can one dive, knowing not how to tread deep waters? Shore dwellers and swimmers putting their lives to the test in seawater have learnt to see an individual wave, isolating its pattern and components, whose complexities writing has eloquently preserved. To read and write a wave, it's difficult, it's feasible. But to listen to one, and one only? In so intense a din, nothing comes through without resonance. Only with ears shut wide does the sound of the single wave separated from the ones immediately preceding and following it manifest itself soundlessly. Majestically and spectrally, the vision of the singular fold and flow unwinds in slow motion as in a silent film. Yet, a wave is in itself a multiplicity. Tiny bits of water circling onto themselves, sweeping and swelling to indefinite sizes magically choreographed by the hand of the wind. All-activity, each waving appears as unique individual and disappears as no-individual in the silence of the communal ocean. One after the other they are seen dying, whitening to the cadence of winds and tides. Again and again the foam spreads while the lone break, the individuated shatter, goes unheard.

The rise is in the dying. When language recedes, words return looking strangely at writing and at she who writes.

Wind writing on sea skin. Sea tongues and unsolicited voices drift in and are driven out. When everything seems to decay and the remains are swept away, the wind rises again. Only it knows the waves, whence they come, where they are heading. One either follows, swims against their flow at one's own risk, or else floats empty. Undulating adrift. Tossed about in nothingness. Writ in the language of flotsam. The wind disturbs, sickens, harms, but also enlivens and endows writing circumstantially with an end and a purpose. A predominance of water and wind is known to produce a bitter medicinal taste. For divers who have taken the sea as their abode, the kiss of the waves tastes—not sweet nor even salty, but—fresh and bitter. At least, it is so remarked by those who happily offer their flesh to the erotic flogging of the sea on windy days. Wind, in the science of healing, solicits deep listening, as it is one of the essential constituents of the body and one of the basic causes of the entire spectrum of diseases. Not quite visible, perhaps, but wind movements and effects can be acutely seen, heard and smelled. Illnesses of the body, so the science warns, are no other than imbalances of the wind. Physicians diagnose them by reading or listening to the pulse, which seems to beat normally, but when pressure is applied to it, it symptomatically becomes empty like a balloon on the surface of water. The patient suffering from such a disease is said to suffer from delirium and unlocalised pain, marked by restlessness, insomnia, screaming, laughing, and senseless talk.

Overuse of body, speech and mind on an empty stomach, overexposure to breezes and draughts invites leakage and uncontrolled flows there where everything looks sane and rational. Delirium pervades the social field and is always at work in Day reality. The Tibetan medical system treats disordered wind by suggesting a diet that has soft and warm powers, therapy in which hot and oily fomentation is applied on "wind" points, and repose in a warm and dark place with a desired friend. Healing requires warmth-inducing

behavior as well as maintenance of the stomach's heat, if this bodily field is to be kept fertile. Warm and dark go together in creativity—the act of love (or lovemaking for those whose dying to the self leads to no hoarding of power). There are many ways to go warm, and hot refers here neither to the temperature nor to the spicy taste of the food, although these may be linked. Wise eating, wise food speaks to the qualities of digestion and the powers arising from it. Perhaps the mouth is the organ of thinking. The mouth at the intersection of eye and ear, or else the nose at the intersection of tongue and hand. All depends on the *di*-gestive and *trans*-forming process. There where it is located—at the hips and waist—physicians characterize the wind in its development as "lightness and mobility manifested by the mind when, out of ignorance, it desires and becomes attached to attractive objects."[45] A careful assemblage of apparent contradictions—*lightness, desire, mobility and attachment*—may lead to a halt or to the threshold of the word. Eros and logos, the malady grows with dispersion in acquisition (whether mental or material), and the inability to unmoor oneself or to free-flow bears many names, for these physicians of ancient ways have identified no less than sixty-three types of cold or wind diseases.

The Wave

The world is all sound, which makes the ground of silence dangerously suicidal. No doubt, the wind says it best when it comes to nothingness. The sight of a wave, a solitary wave leaping high in a white meadow with no ocean in view, is nothing strange. Senseless talk? In the realm of fore sound, hearing needs absorption. Isolation often means release from hierarchical and customary subordination. It is either equated with dissociation in destruction or exalted as the quintessence of the creative source. But the pearls here are all fakes, for defiance is still dependence and genuine silence does not

45 Dr. Pema Dorjee, with Elizabeth Richards, "Cures and Concepts of Tibetan Medicine," *Tibetan Medicine* (A publication by the Library of Tibetan Works and Archives), Series No. 2, 1981, 44.

necessarily come from elimination, exclusion or isolation. Tamed and dispossessed of its nightmarish power is the image of a tsunami—caught in its gigantic size on rice paper, on celluloid, or on colorful postcards—in the act of swallowing a miniscule boat, of soaring up above humble rooftops, of chasing mortals in their flight, and of blasting away whole villages. *One* of a kind against the commoners, or else, *One* on its own, unattached to the leveling waters of the world. The extra-ordinary in the *singular*, or simply, man at the mercy of nature's forces. What claims exceptionalness paradoxically turns out to be exceptionable. What becomes eagerly popularized would have to depend on the whims of the wind. Is the display of individual threat nothing but a need for a feeling of power? Or is it a wish to discharge what is assumed to be power? Perhaps, rather than waiting for the image to regain its real effect in dreams, one should simply accept the reality of encounters with wonder and let one's eyes meet, with neither fear nor rejection, the sight of a wave taking a stroll by itself, detached from its peers and consorts.

Alone is just as general as *Bread*, so a writer (Maurice Blanchot) notes, who finds rather comical the dilemma of a distress that writes well and moans: "I am alone." It is in a solitary condition, in deliriums and convulsions that new ideas and great men have, for some time now, conventionally thought to be born. Aloneness under the guise of solitude is easily tossed around in the narrow world of exceptions, and a grain of madness is commonly joined to originality when it comes to establishing innovators' credentials. Mystification chooses when to soak its geniuses *almost* wet in the shadows of insanity and when to flood them with the dry beam of super-clarity. He who writes (masterly) on madness, raves and stutters (admirably) *like* a madman, is often also he who confides, not quite to himself, but to the much-needed reader, that he is alone. The *lie*, whether partial or whole, depends on whether this not-quite solitude writes "well" across I, or whether it writes "in mediocrity" within an I, in which case it does not even *ring true*, unable as it is, to bear witness to its artifices.

Truth longs for the lie to disappear; it is, *in appearance*, the most enduring lie.

There's no one "mad" without others "sane." Nor is there a victim of loneliness without a lucid witness. Laughable and miserable, this delusion called desolation needs the Other's presence in order to take on meaning. No wonder, then, that one of the methods used in Japan to work with psychotic and neurotic subjects is to allow the person to be left alone and to live in isolation for three to six weeks, with all needs provided for, but with no doctors of any kind around. Half-mad; nearly; almost, but not quite. Alone, never alone, itself a multiplicity in language. Reading the "best" writings on madness and solitude often means engaging in a multiply haunted activity of *re-lire* (*re-lier*) and *dé-lire (dé-lier)*—of delirious re-reading and un-reading, or of indeterminate re-attaching and detaching. The more exact the words resorted to in order to cry out the loneliness, the greater the contradiction. The moment one puts it in writing one is already outside it, caught in the sanity of word arrangement and the collective babble of language.

No-mad solitude leaves the mind musing. What is it that makes the pain lie to itself? Often a reaction against normalcy with its rational institutions and mind-doctors, a work that capitalizes on madness tends also to capitalize on the anomaly of everyday reality. Banality and anonymity are no longer the order, but the disorder of the day. In a reverse economy of madness, one stops being insane when the world fully regains its sanity. Writing finds a way out (with poignancy and grace), by shifting the focus to *the madness of the day:* that queer, accurate encounter between the *every* day and the *other* night, in which the clarity of normal light exudes intractable insaneness. The darkest place is always right underneath the lamp, says a Chinese proverb. Blinded, one is driven to a revelation, not of the hidden, but of the obvious, the all-too-visible. Once the light is turned around and established dualities lose their pertinence, the need for solitude and madness can *detach* itself from its reactive anti-socialness (those who *dare* to be mad). The singular insanity being made manifest inside, the unseen madness of the world becomes disturbingly visible.

Silence is many-voiced.

Full lips in the morning mist. To such a single-to-myriad movement born in stillness, those hearing the traces of sea foam on warm sand with no thought clinging to their heart would go mad with joy. But in a room full of bawling winds and waters where landscape imitates mindscape, self-made knots can be so tortuous as to make it impossible to give ear to such a silent multiplicity. Listening to voices in the whirlwind, one sometimes only hears the barking of a not-so-solitary voice spewing forth venom, trying overtly to chastise those with whom it comes into contact, while covertly demanding from them unconditional love. Building its own decor in the unfolding drama of life, the voice also devises for itself the sole protagonist's role, being actor and reactor, observer observed, and victim of the times in which it lives. A time, it is thought, of *windsurfing*, when reacting to, riding with and adapting the motion of that gigantic wave are more appropriate than creating one—even a small one among others—to alter the course of events.

Catch the third wave, let the fourth go, for a new wave, and another again, has already begun to wash away all traces on the shore. Nobody listens today because nobody cares or knows how to, so goes the lament. The anguish and the craving to make a mark on one's contemporaries bleed out in the tone of the work, which blindly registers the individual's states of bitterness. A voice in the dark? No, a voice among voices in the whirlwind. A singular mark in the heart of globalization. Internal or external, the struggle is carried on in writing between T-terms: Time (The Times) or Tone? Neither or both, perhaps, for despite its familiar music across histories and cultures, every story of the wound is told as a unique story from one victim to another. In the archives of thoughts, deeds, and art, numerous were the individualities that tried to make a dent in the structure of the day, but were drowned out. It would be doing them injustice to think they failed because they weren't loud enough, when truly they were so enamored with their own thinking as to shut themselves up in their own noises.

When love goes dying and fascism finds its way back up…

Fall and rise. Rise toward the fall. There where L disappears, F is said to reappear in full glory. The amorous movement draws in and out in solitude. Traces left by the one are properly wiped out by the other, for the sake of sanity and sanitation. A line detached from a previous context of insanity continues here and now to speak out of the blue. Fissured and already non-original, it is meant to return and travel. No doubt a false move, a mad fever of emotional heights and subjectification has been driving love to its entombment. And since loners pining away for attachment to their own images are born as much from misery as from mastery, the forces of repression and of oppression continue to thrive under the cover of passion and separatism. The flame passes on, leaving behind graphics of the firewood consumed. Ever present is the threat of being muffled from the outset as a voice emerges and events are set into words. The sounds fervently emitted can be skillfully dulled or deadened through a comprehensive system, not necessarily of censorship, but of anticreative appropriation, expropriation, and mutilation in simulation. For some then, the time when love dies and fascism rises is dreadfully specific. . . The blame needs a traceable face within a named ethnicity. In the land of the free, suddenly, thousands disappear overnight, deported or detained without charge, for reasons of homeland security.

Again, the way of the wind emerges as pivotal to all relations of movement and repose. Its sounding power can make wonders happen, but only when the time and context are ripe: at dawn or sunset, when thresholds of colors imperceptibly slide into one another; or else, on a moonlit night when the mind clears and the body walks noiselessly. At the twilight of language, immediate change through cleansing and purifying is an illusion; only the intense affirmation of repetition in difference exposes death's and the World Order's conceit.

Wind Power

As an answer to Huang-di's question, "Why is it that the same illness having the same origin and manifesting itself at the same time can present itself in different clinical forms? Has the sky created wind to punish man?" Shaoyu remarked: "the wind does not take anyone as its target, but man, by his carelessness, let himself be caught by the wind."

The Wall

Endless attempts are made to drive Home away and to ban the Return. Yet everyone is said to carry a roof on the back and a room inside oneself. It is by one's ear that one is asked to prove this fact for, if one listens intensely—as did Kafka—when someone walks fast, say during nighttime, what one hears is "the rattling of a mirror not quite firmly fastened to the wall."[46] With the fragility of the reflective device comes the threat of alterity and multiplicity that lurks during quiet times behind the agony of clattering sounds caused by external movements. Bodies in collision, bodies shuffled away in haste, footsteps resounding in the empty night. Who are you, appearing in front of me? Seeking, shouting to the dark; then, walking behind, sitting by my side, lying across my path, breaking or laughing when I am mending and crying. What? …You mean that sound? So loud, I can't hear. No one can. And yet there it is, soundlessly present as stories and emotions rise from nowhere's depths to the surface. It's the silence of the voiceless thousands crowded within the building's walls, waiting in pitch dark to be lifted up to the sky, far from home. No, no light allowed in the ink of the night, for fear that bullets may have eyes, leaving their writing on the wall. What? …It says they dare step out of their shores and while fleeing, forget to weep, even soundlessly. Lips. Voices of exiles, refugees and emigrants recede in the distance and return loudly in waves nearby. Secrets buried deep in the opacity of matter may suddenly and uncontrollably speak, rising uninvited to the impassive surface of the wall.

[46] Franz Kafka, *The Blue Octavo Notebooks* (Cambridge, Mass.: Exact Change, 1991), 1.

Shhhhhhhh! Stop talking, or else.

Mouth lies. What terrifies is not always the act per se so much as its overblown projection: the numerous thoughts that wildly arise from one's own fears and insecurities—the evident, rather than the unknown. What one finds oneself so afraid of is the very stench of truth emanating from oneself: one's own elusive enemy. When terror awakens, the wall out of bounds loses its opacity. It lets one see what is not meant to be seen. From the outside in, the brick wall. From the inside out, the skin wall. (Or is it the other way around?) Both have innumerable ears and eyes, wide open or wide shut as circumstance requires. The ultra-thin film separating the two sides of one's intimate wall—the communal inner-outer sounding board—constantly threatens to disappear, leaving one *raw*. Sometimes, walls can become turning points. They stand out at once as screens and as doorways—the *impasse* (what materially prevents visibility) and the *passage* to an elsewhere (what lies on the other side of its material visibility).

A boundary event, the wall-no-wall draws into focus one's relationship to visibility and invisibility. It is a (non)corporeal reality whose opacity and bi-dimensionality are paradoxically indicative of an infinite non-place. The Great Wall of immortality; the wall of life built on innumerable deaths. Both door and doorway are nowhere to be seen. One goes on knocking in the dark but no One is there to answer. How utterly vain it is to try to break in there where one is already inside. How many have flung themselves into the abyss of the wall hoping for a breakthrough? The mystery is that of no secret. All is there, and one is said to be a sorry traveler in this noisy world if one knows not how to return to the stillness of the sea within oneself.

Once the flow is let out, it falls silent.…

When one enters the world of words with more in sight than the skill of joining sentences, the art of making verses, the ability to shape meanings, the goal to impart a message, or the quest for new concepts and ideas, one is bound to founder from shore to

shore, to experience instances of all white in the midst of radiant life, and to take a dive into the infinite realms of twilight gray….

Imperfectly hemmed with white, words swell and recede at their own pace. Some cling and stick to one's skin, others float in the room between floor and ceiling. Liquid as they all are, they evaporate and dry up. But sometimes, just as they seem to fade into white, they return wet again in a solitary sneeze. Something not being said is speaking silently, which demands and endures waiting. At the call of dusk, anger goes dying with the return of nightlight. Facing the wall in emptiness then has little to do with being walled in by emptiness. The gap between the two grows wider as *one* instant of true love, no matter how brief and fragile, is enough to inaugurate a taste for the infinite. Each syllable used to translate It, each sound breaking into light carries its wonders into the smallest details of daily life. There, amidst the sea, a woman stands. A single "w" holding up the sky while diving into the wreck of the infamous Wall. That non-place against which images, sounds and thoughts arise and vanish. A living surface-membrane; a target for the eye and a visual rupture; an earthwork, blind and blinding in its immovable and impenetrable (im)material appearance; a song of texture in its own right.

The Silence of the Sea

A drop yearns to find its way to the Ocean. Freed, water returns to water, again and again breaking through the individual container. Love urges her to enter the cold sea and fill herself to the brim with the chill of Freshness. Her body quivers with every wave movement. Who writes all that strange poetry of the senses? Woman and water give and receive in mutual resistance and surrender. There, soaking wet, she gulps down liquid and moon, drinking in the fresh, the salty, the bitter. In the ripple of the light, a sign, then a question now and then surfaces on the night page. Can a drop stay still in the Ocean? Yet despite the forceful beating and tossing of the waves, she stands still. Struggle and fall, she does, as she weeps and laughs her way up again, dripping in the iciness and standing

still. The Great woman Barrier. Her boundaries are her very access. Carrying the sea inside, she moves with the receding and the returning, letting the time of coming and going find its own rhythm. Letting the sea be deceptively defined by the horizon's flat line; letting the wind sweep wild through her liquid field; letting this body open a path that is no path in the briny water and walk its way back to the shore.

Now facing seaward, silent at the edge of land and water, she and the sea. The selfsame sea that calls everything unto Her is now gazing back at her gaze. Mystery arises as living starts asking questions about itself. The ever-changing surface of the sea inquires about its own unfathomable depths. And the answer? *Silence*: solid, empty, watchful and awake. The Answer closes in around the Question so as to preserve the latter, keeping it open, bottomless. In the encounter of woman and sea—so small and so vast, the infinite multiplicity of the singular—three worlds mingle on the page: the *ones* of desire, form and non-form.

Mute thunder. The sand delights to feel her bare feet. Time stands still. From the quietness, attention effortlessly arises. She is all ear, listening wide with no memory. Not a single sound in the night. There, unseen, silence appears. Unmistakable, unavoidable, saying nothing, wanting nothing, judging no one, bearing no grudge, it awaits, lurking, spreading, filling in every form, and catching one unawares—in the lips, in a stranger's eyes, in the heart of a gesture, in the very word used to name it. Unblinking, the world stares back at the empty surface of the mirror wall. The larger has suddenly entered the small; the ocean has slipped into the drop. Inside meets outside in the familiar everyday. The body, losing its boundary, slowly looks round and around, the way the earth turns on itself.

With the unexpected irruption of vastness, the feeling of having gone over the edge expands ever wider and yet, everything in the surrounding is in the same place. Words, rocks, stones, sand, shellfishes, seaweed, froth and foam: more vibrant than ever, each form fully alive and constantly in movement—in their places. Something big and

uncontainable has gotten into the room without warning. But the moon is still the same moon. Quietly, in small single steps, she reverts to her daily activities and pretends nothing has happened. Time returns to its usual pulsation…

Uncannily non-scalar, from end to end, …I start walking.

Nature's Humans: Presence, Absence, Transformation

Photography Selected by Chris Jackson

Janet Powell, *Reclaimed by Nature 5*

Phuong Phan, *Commuters*

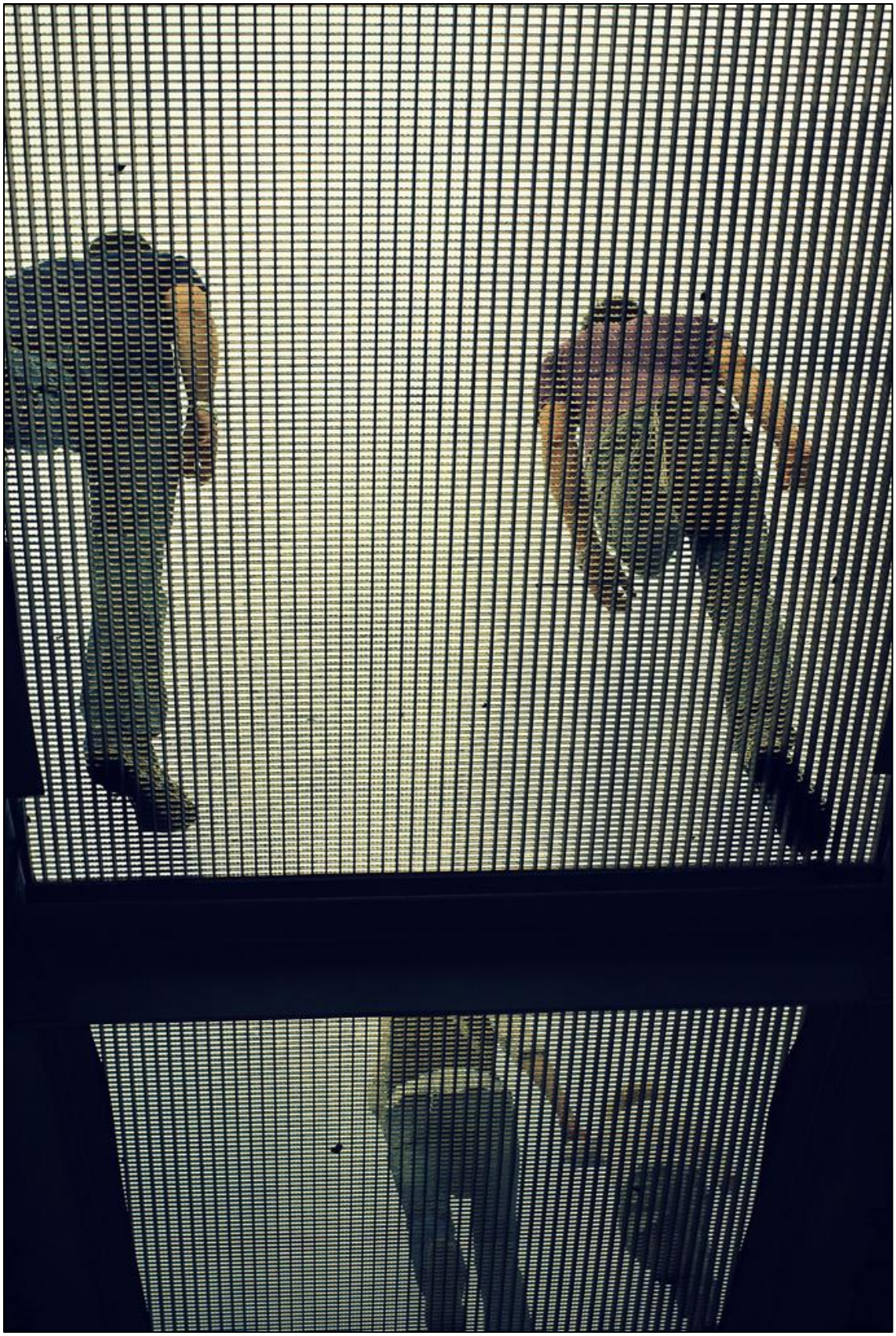
Bill Bodish, *Unoccupied*

Janet Powell, *Rhododendron*

Phuong Phan, *Falling*

Bill Bodish, *Balance Beam*

Cynthia Chang, *Untitled*



Bill Bodish, *Grate*

Phuong Phan, *Walking on Air*

SECTION THREE

SCIENTIFIC INTERVENTIONS

LEE ALAN DUGATKIN

THOMAS JEFFERSON VERSUS COUNT BUFFON: THE THEORY OF NEW WORLD DEGENERACY

On June 30, 1803, Thomas Jefferson presented Meriwether Lewis the orders for his mission with William Clark. The orders were written by Jefferson himself, and included instructions to measure:

> …the soil & face of the country, its growth & vegetable productions… the mineral productions of every kind... metals, limestone, pit coal, & saltpeter; salines & mineral waters... volcanic appearances... climate, as characterized by... the proportion of rainy, cloudy, & clear days, by lightning, hail, snow, ice, by the access & recess of frost, by the winds prevailing at different seasons, the dates at which particular plants put forth or lose their flower, or leaf, times of appearance of particular birds, reptiles or insects.[47]

Today, it is almost inconceivable that a politician, let alone the President of the United States, would be so versed in natural history that he or she would pen such orders. But Thomas Jefferson was more than interested in natural history—he was obsessed by it. He would often daydream of shedding the ball and chain of politics that weighed him down. Many days, he wanted nothing more than to escape "the boisterous ocean of political passions,"[48] and return to his home at Monticello and do what he loved to do best: science, including natural history. "Nature," Jefferson wrote a colleague, "intended me for the tranquil pursuits of science, rendering them my supreme delight."[49]

In this essay, I will focus on an amazing argument that Jefferson had with Georges-Louis LeClerc. LeClerc, better known by his title, The Comte de Buffon (Count Buffon), was the world's preeminent natural historian, and in the most sweeping encyclopedia of natural history ever written, he had claimed that all life in the colonies/fledgling United States was small, weak, and feeble—that life in America was

[47] Dated June 20, 1803; presented to Lewis, June 30, 1803.
[48] Jefferson to Pierre-Samuel DuPont, March 2, 1809.
[49] Ibid.

degenerate. As we shall see, Jefferson led the charge to show the world how and why Buffon's degeneracy hypothesis was misguided. The longest chapter of the only book Jefferson ever wrote is focused on this issue, and Jefferson even spent years trying to snag the perfect American animal specimen to send to Buffon to show him just how wrong he was. But we are getting ahead of our story.

Buffon's Theory

Georges-Louis LeClerc was an ambitious fellow. When he was only nineteen, he graduated law school in France and promptly decided against a profession in law, as his passion had turned to mathematics. In 1733, at age 26, he was inducted into The French Royal Academy of Sciences for his work on probability theory.[50] Seven years later, in 1739, he covertly campaigned for,[51] and received, the plum position for a natural philosopher/scientist in Europe. Largely based on his reputation as a thinker, his election to the Royal Society of London, and some botanical work he had done at the huge forest his family owned, Georges-Louis LeClerc was appointed Curator of the King's Cabinet of Natural History.

Buffon had assorted tasks he wanted to accomplish as curator, but one took precedence over all others. He would, he decided, write *the* definitive encyclopedia of natural history: what became known as *Histoire Naturelle: Générale et Particulière*—in English, *Natural History: General and Particular* (Figure 1). From 1749 until his death in 1788, Buffon would publish 36 volumes of *Natural History: General and Particular.*[52] Spread out over about 6000 pages, and interspersed with stunningly beautiful sketches of the animals he described,[53] the *Natural History: General and Particular* was a huge

[50] For his work on a game of chance called *Franc-carreau*.
[51] His covert campaign included such comments to his colleagues as: "Even though I would have more reasons to claim it than another, I would not dare ask for it…I will pray my friends to speak for me... one might realize that the intendancy of the Royal Botanical Gardens needs a young, active man who can brave the sun, who knows the plants and the way to multiply them, who is somewhat knowledgeable in all areas that are asked of him... it appears to be thus that I am what they are looking for." From *Buffon's Correspondence* by Henri Nadult de Buffon, Volume I, 41-2.
[52] Buffon was in charge of these 36 volumes (including seven "Supplements"). Eight volumes on fish and cetaceans were the written by Bernard Germain de Lacépède, but they are usually counted as part of *Natural History: General and Particular.*
[53] The art was drawn by Louis-Jean-Marie Daubenton.

success, and was translated into English, Dutch and German. It was the talk of the salons of Paris. Buffon became a national hero, and his popularity matched that of Voltaire and Rousseau; so much so that Louis XVI had a statue of Buffon cast and placed in front of the Royal Gardens.[54]

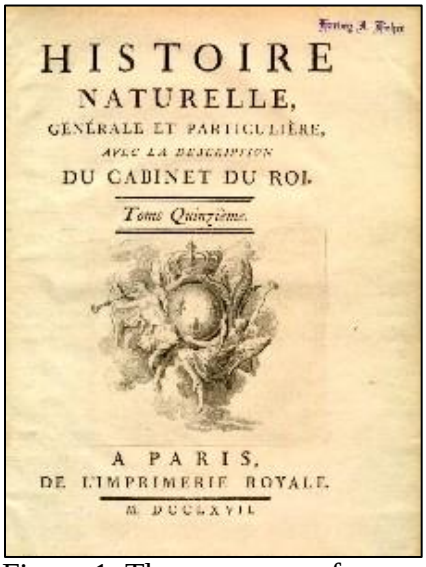


Figure 1. The cover page from an early volume of *Histoire Naturelle.*

It is in Volumes 9 and 14 of *Natural History: General and Particular* that Buffon lays out the theory of American degeneracy.[55] Compared to the Old World, animal life, the Count argued, was "shriveled and diminished"[56] in the New World (especially America). Evidence for this was everywhere, argued Buffon. Here are just a few of the many, many examples that the Count provides:

> Elephants belong to the Old World… it is unknown in America, nor is there any animal there that can be compared to it in size or figure. The same remark applies to the Rhinoceros… we have seen that the lion

[54] The statue is there to this day.
[55] Volume 9 contains "Dissertation on animals peculiar to the Old World," "Dissertation on animals peculiar to the New World," and "Dissertation on animals common to both continents." Volume 14 contains "Treatise of degeneration of animals."
[56] *Natural History*, IX, 103-104.

> exists not in America, …and we shall now find that the tiger and panther belong also to the old continent.[57]
>
> Animated nature, therefore is less active, less varied, and even less vigorous, for by the enumeration of the American animals we shall perceive, that not only the number of species is smaller, but that in general, they are inferior in size to those of the old continent.[58]
>
> The wolf and fox are common to both continents… but all of them are smaller than those of Europe, which is the case with every animal, whether native or transported.[59]
>
> …all the animals which have been transported from Europe having become less, and also those common to both continents being much smaller in America than those of Europe.[60]

Across Volumes 9 and 14 Buffon makes four sweeping claims about the degenerate nature of American life. First, animals found in both the New World and the Old World were smaller and feebler—degenerate—in the New World. Second, animals found *only* in the New World were degenerate compared to those found *only* in the Old World. Third, there were fewer species in the New World; and fourth, any attempt to domesticate animals (e.g., sheep, cows, dogs) in the New World would lead to degeneration of that species.

Buffon also had a theory for why degeneration occurred in New World animals. He argued that the New World was colder and more humid, and that this combination led to degeneracy. This is not as outrageous as it might appear. Cold weather *might* have led to smaller creatures. And the leading theory for disease in Buffon's day was that it was sometimes created and spread through the vapors that rose off still, tepid bodies of water (these vapors were part of the "miasma" that rose off water bodies and caused disease).

[57] *Natural History*, IX, 56-59.
[58] *Natural History*, IX, 86
[59] *Natural History*, IX, 100.
[60] *Natural History*, IX, 101-102; Barr 1792, VII, 38.

It was no coincidence that Buffon believed that cold and humidity were prevalent in the New World. Much of the information he had on America was from French travelers who had been there and then returned to Paris. These travelers tended to spend their time trapping furs in Canada (and what would become the Northern United States), where it was quite cold during the winter, or in the humid French-owned province that would one day be known as Louisiana.

Degeneracy, Buffon claimed, was not a problem unique to animals of the New World: its effects extended to Native Americans as well. They, too, were degenerate, Buffon pronounced:

> …a kind of weak automaton, incapable of improving or seconding her [Nature's] intentions. She treated them rather like a stepmother than a parent, by refusing them the invigorating sentiment of love, and the strong desire of multiplying their species. For, though the American savage be nearly of the same stature with men in polished societies; yet this is not a sufficient exception to the general contraction of animated Nature throughout the whole Continent. In the savage, the organs of generation are small and feeble. He has no hair, no beard, no ardour for the female… He has no vivacity, no activity of mind… He remains in stupid repose, on his limbs or couch, for whole days… They have been refused the most precious spark of Nature's fire: They have no ardour for women, and, of course, no love to mankind… Their love to parents and children is extremely weak. The bonds of the most intimate of all societies, that of the same family, are feeble; and one family has no attachment to another… Their heart is frozen, their society cold, and their empire cruel. They regard their females as servants destined to labour, or as beasts of burden, whom they load unmercifully with the produce of their hunting, and oblige, without pity or gratitude, to perform labours which often exceed their strength. They have few children, and pay little attention to them. They are indifferent, because they are weak…[61]

[61] *Natural History*, IX, 104-106.

What's more, Native Americans were not only degenerate, they were also in part responsible for New World degeneracy. Animals could do nothing to stop the pernicious effects of cold and humidity, Buffon argued, but Native Americans could have. They could have worked to drain the swamps, and made degeneracy a weaker force. But they didn't, and Buffon damned them for that. Still there was hope—at least for the future: "In several centuries," Buffon noted, "when the earth has been tilled, the forests cut down, the rivers controlled, and the waters contained, this same land will become the most fruitful, healthy, and rich of all, as it is seen to be already in the parts that man has cultivated…"[62]

The next volley in the degeneracy assault came from those who wanted to *extend* Buffon's theory. Yes, Abbé Cornelius de Pauw and Abbé Guillaume-Thomas Raynal agreed,[63] Buffon was correct that animals and Native Americans in the New World were degenerate, but it didn't stop there. Europeans who migrated to the New World would also degenerate, as would their offspring. And for the same reason that animals and Native Americans degenerate: cold and humidity. Raynal and de Pauw spared no punches. De Pauw's rants were first:

> The Europeans who pass into America degenerate, as do the animals: a proof that the climate is unfavorable to the improvement of either man or animal. The Creoles, descended from Europeans and born in America… have never produced a single book. This degradation of humanity must be imputed to the vitiated qualities of the air stagnated in their immense forests, and corrupted by noxious vapours from standing waters and uncultivated grounds.[64]

[62] *Natural History,* XV, 455-456.

[63] De Pauw 1768, *Recherches philosophiques sur les Américains, ou Mémoires intéressants. pour servir à l'Histoire de l'Espèce Humaine. Avec une Dissertation sur l'Amérique & les Américains*, Berlin; Raynal 1770, *Histoire philosophique et politique des établissements des Européens dans les Deux Indes*, Amsterdam.

[64] De Pauw 1806, *A General History of the American, or their Customs, Manners and Colour*, Rochdale: T. Wood, 17-18.

And that was tepid compared to Raynal (Figure 2), who claimed that degeneracy was so pernicious, and its effects so damning, that Americans must be "happy… with mediocrity," and that "one should not be surprised that America has yet to produce a good poet, a clever mathematician, a genius in even one art or science."[65]

Figure 2. Abbé Guillaume-Thomas Raynal, who extended the theory of degeneracy to Europeans who traveled to the New World.

The Response from North America

As might be expected, when the theory of New World degeneracy reached the shores of the Colonies/early United States, it was not well received. In a moment, we shall learn how Jefferson took the mantle and led the charge against this theory. But other Founding Fathers weighed in as well, albeit not nearly as deeply as Jefferson. John Adams thought the idea of New World degeneracy was no more than "despicable dreams."[66] James Madison noted that measurements which he himself had taken on American weasels (and which he then compared to the weasel's Old World counterparts) showed how misguided Buffon was. This data, Madison wrote to Jefferson, "certainly contradicts [Buffon's]

[65] Raynal 1770, VI, 376.
[66] Adams 1787, *A Defence of the Constitutions of Government of the United States of America*. London: C. Dilly.

assertion that of the animals common to the two continents, those of the new are in every instance smaller than those of the old."[67] Alexander Hamilton commented on degeneracy in the *Federalist Papers* (Number 11),[68] when he wrote that:

> Men admired as profound philosophers have, in direct terms, attributed to her inhabitants a physical superiority, and have gravely asserted that all animals, and with them the human species, degenerate in America—that even dogs cease to bark after having breathed a while in our atmosphere.[69]

Hamilton's reply to such "profound philosophers" was that New World degeneracy ideas were "arrogant pretensions," and that "it belongs to us to vindicate the honor of the human race, and to teach that assuming brother, moderation."[70]

Benjamin Franklin also weighed in on degeneracy theory. He invited the Abbé Raynal—of "America has yet to produce a good poet, a clever mathematician" infamy—to a party he held in Passy one day while he was in France:

> …one half [of the guests] were Americans, the other half French, and among the last was the Abbé. During the dinner he got on his favorite theory of the degeneracy of animals, and even of man, in America, and urged it with his usual eloquence. The Doctor at length noticing the accidental stature and position of his guests, at table, "Come," says he, "M. Abbé, let us try this question by the fact before us. We are here one half Americans, and one half French, and it happens that the Americans have placed themselves on one side of the table, and our French friends are on the other. Let both parties rise, and we will see on which side nature has degenerated." It happened that his American guests were Carmichael, Harmer, Humphreys, and others of the finest stature and

[67] James Madison to Thomas Jefferson, December 4, 1786.
[68] In *Federalist* Number 11, "The Utility of the Union in Respect to Commercial Relations."
[69] Ibid.
[70] Ibid.

> form; while those of the other side were remarkably diminutive, and the Abbé himself particularly, was a mere shrimp.[71]

Franklin, in his classic frontiersman-like demeanor, had made his point.

Jefferson takes the Helm

~"There is not a sprig of grass that shoots uninteresting to me."[72]

When Thomas Jefferson learned of the theory of New World degeneracy, he was outraged, and somewhat surprised. The surprise came because, on all other issues, Jefferson thought Buffon one of the great minds of the Enlightenment, referring to the Count as a "celebrated Zoologist, who has added and is still adding, so many precious things to the treasures of science."[73] Degeneracy was the exception.

The outrage was generated on my fronts. Jefferson was furious that the world's leading natural historian dared to make such sweeping, damning claims about life on an entire continent (actually two, for the theory applied to South America as well). What's more, Jefferson was not at all convinced that the data Buffon used to build his theory was reliable. Travelers' tales from Frenchmen who had been to the New World for business reasons seemed a shaky base from which to generate a theory. Jefferson wrote:

> It does not appear that Messrs. de Buffon and D'Aubenton [who did the sketches] have measured, weighed, or seen those of America… and …who were these travelers? Was natural history the object of their travels? Did they measure or weigh the animals they speak of? Or did they not judge of them by sight, or perhaps even from report only? Were they acquainted with the animals of their own country, with which they

[71] Letter from Jefferson to Robert Walsh, December 4, 1818. Carmichael, who was present at the dinner with Raynal, goes further, noting "in fact there was not one American present who could not have tost [sic] out of the windows any one or perhaps two of the rest of the company" (Letter from Carmichael to Jefferson, October 15, 1787).
[72] Thomas Jefferson to Martha Jefferson Randolph, December 23, 1790.
[73] Jefferson 1785, *Notes on the State of Virginia*, Penguin Press 1999 reprint, 68.

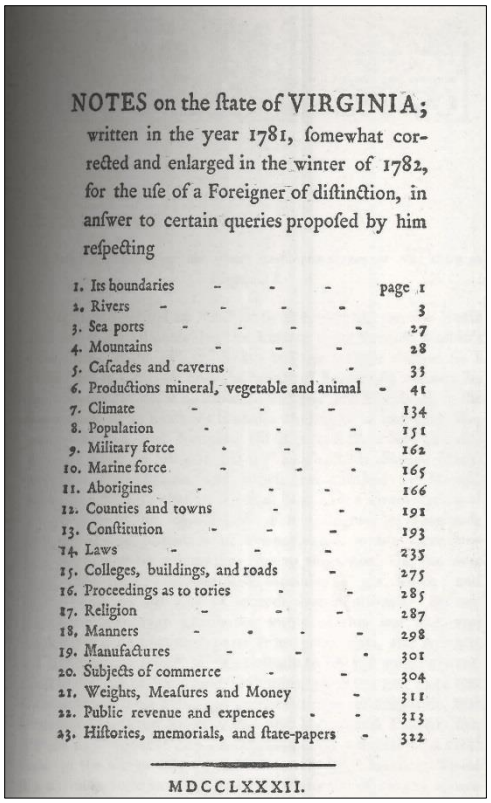
> undertake to compare them? Have they not been so ignorant as often to mistake the species?[74]

Jefferson staged a two-pronged assault on the theory of degeneracy. Stage one involved a book, and stage two involved a moose. The book, *Notes on the State of Virginia*, was ostensibly an overview of Jefferson's home state, where he served as governor from 1779-1781. But the longest chapter of the book, entitled "Production, mineral, vegetable and animal," was all about debunking the theory of New World degeneracy (Figure 3). Jefferson writes:

> …the opinion of a writer [Buffon], the most learned too of all others in the science of animal history, that in the new world… that nature is less active, less energetic on one side of the globe than she is on the other. As if both sides were not warmed by the same genial sun; as if a soil of the same chemical composition, was less capable of elaboration into animal nutriment; as if the fruits and grains from that soil and sun, yielded a less rich chyle, gave less extension to the solids and fluids of the body, or produced sooner in the cartilages, membranes, and fibres, that rigidity which restrains all further extension, and terminates animal growth. The truth is, that a Pigmy [sic] and a Patagonian, a Mouse and a Mammoth, derive their dimensions from the same nutritive juices.[75]

[74] *Notes on the State of Virginia*, 56.

[75] *Notes on the State of Virginia*, 48.



NOTES on the ſtate of VIRGINIA;
written in the year 1781, ſomewhat corrected and enlarged in the winter of 1782, for the uſe of a Foreigner of diſtinction, in anſwer to certain queries propoſed by him reſpecting

MDCCLXXXII.

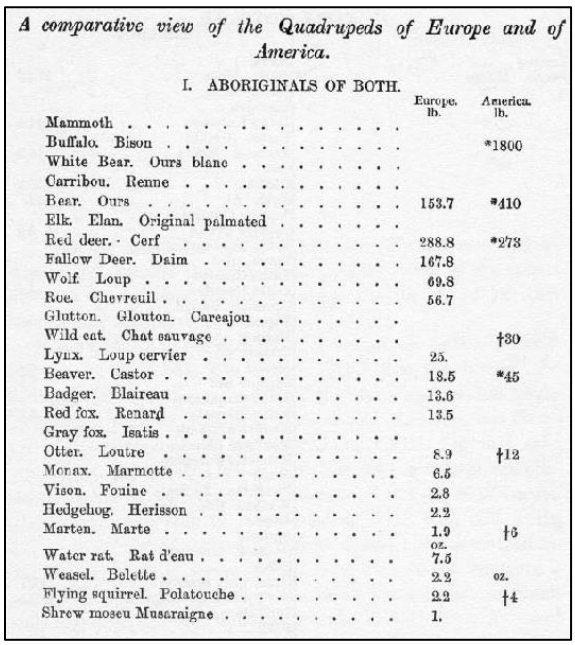
Figure 3. The table of contents of *Notes on the State of Virginia*. Chapter 6 is largely devoted to debunking the theory of New World degeneracy.

Jefferson ceded that climate *might* affect the size of animals, but he argues there is no evidence that it *does*. "It is the uniform effect of one and the same cause, whether acting on this or that side of the globe," Jefferson wrote, and "it would be erring therefore against that rule of philosophy, which teaches us to ascribe like effects to like causes, should we impute this diminution of size in America to any imbecility or want of uniformity in the operations of nature."[76]

Page after page of this chapter in *Notes on the State of Virginia* are full length tables of data that Jefferson presented contra to Buffon's claims of degeneracy (Figure 4). But conservative scientist that he was, when he spoke about this and related issues to

[76] *Notes on the State of Virginia*, 48.

friends, he noted that "More facts must be collected, and more time flow off, before the world will be ripe for decision. In the mean time, doubt is wisdom."[77]



A comparative view of the Quadrupeds of Europe and of America.

I. ABORIGINALS OF BOTH.

	Europe. lb.	America. lb.
Mammoth		
Buffalo. Bison		*1800
White Bear. Ours blanc		
Carribou. Renne		
Bear. Ours	153.7	*410
Elk. Elan. Original palmated		
Red deer. Cerf	288.8	*273
Fallow Deer. Daim	167.8	
Wolf. Loup	69.8	
Roe. Chevreuil	56.7	
Glutton. Glouton. Carcajou		
Wild cat. Chat sauvage		†30
Lynx. Loup cervier	25.	
Beaver. Castor	18.5	*45
Badger. Blaireau	13.6	
Red fox. Renard	13.5	
Gray fox. Isatis		
Otter. Loutre	8.9	†12
Monax. Marmotte	6.5	
Vison. Fouine	2.8	
Hedgehog. Herisson	2.2	
Marten. Marte	1.9	†6
Water rat. Rat d'eau	oz. 7.5	
Weasel. Belette	2.2	oz.
Flying squirrel. Polatouche	2.2	†4
Shrew mouse Musaraigne	1.	

Figure 4. One of the tables Jefferson used as evidence against the theory of New World degeneracy. In this table, he compares the size of (a small sample set of the) animals found in both the New World (in this case represented by America) and the Old World (represented by Europe), and finds no evidence that those in the latter are larger.

Notes on the State of Virginia was quite a popular book, but Jefferson understood that it was dry, and that to really make his point about degeneracy, he would need to do something more. He settled on this: he would have one of his friends get him a moose—preferably one that was between 7-10 feet tall—and then he would have it stuffed and sent to Buffon, who would have no choice but to admit that life in America was not small, weak and feeble.

The hunt for a moose involved many of Jefferson's friends, but soon settled on Jefferson's colleague, General John Sullivan. Sullivan, had been a representative at the Second Continental Congress, and he was Attorney General of New Hampshire when Jefferson approached him about obtaining a moose to use send to Buffon. Sullivan

[77] Thomas Jefferson to Marquis de Chastellux, June 7, 1785.

searched for the moose himself, and also sent out orders to some of his friends to look for the perfect animal for Jefferson. He kept Jefferson apprised on the search, and this piqued Jefferson's interest. "The readiness with which you undertook to endeavor to get for me the skin, the skeleton and the horns of the moose," Jefferson wrote his friend, "emboldens me to renew my application to you for those objects, which would be an acquisition here, *more precious than you can imagine*."[78]

In 1784, while the hunt for the moose was on, Jefferson was appointed minister plenipotentiary to France. When he arrived in Paris, he finally received an invitation to dine with the Count at Buffon's country residence. At the dinner, Jefferson told Buffon that the theory of New World degeneracy was simply wrong, and "that the [European] rein deer could walk under the belly of our moose." Buffon finally relented and agreed that he would "give up the question," *if* Jefferson could provide him with such a moose.[79]

Sullivan continued to write Jefferson of his hunt for the moose. And, at last during the winter of 1787, he found one, writing Jefferson that a team of a dozen men he had hired had the perfect animal, and that:

> every engine was set at work to preserve the bones and cleanse them from the remaining flesh. And to preserve the skins with hair on, with the hoofs on and bones of legs and thighs in skin without putrefaction… the skin [of the head] being whole and well dresst [sic] it may be drawn on at pleasure.[80]

The stuffed moose, after a number of false starts, finally arrived in Paris in early October 1787. Jefferson wanted to deliver it to Buffon in person, but the Count was too ill to receive visitors. Buffon's assistant nevertheless acknowledged receipt of the moose, and Jefferson noted in his diary that the moose had "convinced Mr. Buffon. He promised in his next volume to set these things right."[81] Jefferson took this to mean that Buffon

---

[78] Thomas Jefferson to John Sullivan, January 7, 1786. Italics added.

[79] Webster's recollection of Jefferson, from *The Papers of Daniel Webster*, Correspondence, Volume 1, 376-377.

[80] John Sullivan to Thomas Jefferson, April 16, 1787.

[81] Webster's recollection of Jefferson, from *The Papers of Daniel Webster, Correspondence*, Volume 1, 376-377.

would retract the theory of New World Degeneracy in the next volume of *Natural History: General and Particular.*

But there was to be no such next volume of *Natural History.* Soon after he received the moose, the Count died. There was no retraction. The theory of New World degeneracy can still be found in volumes 9 and 14 of *Natural History: General and Particular*. It is true that Jefferson knew that Buffon knew he was wrong, and this gave Jefferson some solace. But he feared that the theory of New World degeneracy would live on after the Count and weave its tentacles into the brains of many, and for a long time.

He was right. But that is another story.[82]

[82] Dugatkin 2009, *Mr. Jefferson and the Giant Moose*, University of Chicago Press.

LAURA NEWHART

THE BONOBO MIRROR PROJECT

I. Introduction

I undertook "The Bonobo Mirror Project" within the context of a graduate level course entitled *Primate Behavior and Conservation* that was jointly sponsored by Miami University of Ohio, the Cincinnati Zoo and Botanical Gardens, and Project Dragonfly. The goal of such "Zoo Expedition" courses is to promote inquiry-based learning, community involvement, and conservation. I found it both challenging and rewarding to combine my philosophical training with this very empirically based scientific method of inquiry. The empirical question that "The Bonobo Mirror Project" attempts to answer is: How does the ratio of positive to negative comments made by visitors to the indoor bonobo exhibit at the Cincinnati Zoo *about* the bonobos compare to the same ratio of positive to negative comments made directly *to* the bonobos? I interpret the results of my inquiry, and their moral significance, through the more subjective lens of Jean-Paul Sartre's solution to the traditional philosophical problem of the existence of other minds. Our beliefs about the existence of animal minds and their varying levels of complexity inform our moral judgments on the appropriate treatment and handling of these animals.

II. Positivism vs. Anthropomorphism

Whether we base our obligation to treat animals ethically on Singer's position that those animals are sentient, and hence able to feel pleasure and pain, or on Tom Regan's more rigorous requirement that those animals that deserve ethical treatment are subjects-of-a-life in the sense that they have beliefs, desires, memories, a sense of their own future, and a psychosocial identity over time, we still need to have knowledge concerning the contents of their consciousness, i.e., their inner subjective experience.

The search for this knowledge has typically resulted in a clash between two camps, i.e., the positivists, or those who are methodologically committed not to allow anything into their theories that cannot be verified through empirical observation by the

five physical senses, and the advocates of anthropomorphism, those who believe that we can draw conclusions about animal consciousness/subjectivity on the basis of similarities between their behavior and ours. On the positivist side, with the increased urgency of demands for the ethical treatment of animals, there has been increased research activity into the anatomy and physiology of animals, e.g., the structure of animal brains and nervous systems, the presence of endogenous opiates, whether their physiological responses are modified by analgesics, etc. There have also been more effective defenses and fine-tuning of anthropomorphism, including the claim by Bernard Rollin that if positivists are not willing to admit anything into their theories that can't be experienced by the senses, then in addition to the existence of animal minds, they must also give up the existence of human minds and the inter-subjective verification by observation upon which their method depends (137).

One seemingly effective fine-tuning of anthropomorphism has been proposed by Josephine Donovan. Drawing on literary theory and an ethics of care, in "Feminism and the Treatment of Animals: From Care to Dialogue," Donovan claims that we understand the inner states or contents of the consciousness of animals in the same way that we understand those of people, i.e., by reading their behavior as signifiers for these inner states. While it helps to have a general knowledge of the species to which the animal belongs and a certain familiarity with the individual animal we are "reading," we can draw conclusions about the subjective experiences of animals by way of arguments from analogy based on their similarities with humans. As Donovan states:

> If that dog is yelping, leaping about, licking an open cut, and since if I had an open wound I know I would similarly be (or feel like) crying and moving about anxiously because of the pain, I therefore conclude that the animal is experiencing the same kind of pain as I would and is expressing distress about it. (50)

Thus, according to Donovan, the question of whether we can understand what the behavior of animals means for their subjective conscious experience is a moot one. We do it successfully all the time. Is it possible that we might be wrong in our interpretations? Yes, but as Donovan reminds us, we can also be wrong in our

interpretations of human behavior. In such cases, an ethic of care advises that we improve the quality of our attention, where attention is seen as a disciplinary practice informed by "openness, receptivity, empathy, sensitivity, and imagination" (51).

III. The Problem of Other Minds and Sartre's Solution

As the criticism of positivism by Rollin noted above suggests, the problem of the existence of animal minds (or the content of animal consciousness) can be viewed as a subset of the traditional philosophical problem of the existence of other minds in general. Simply stated, we can (and perhaps should) doubt the existence of human minds with as little difficulty as we might doubt the existence of animal minds. The philosophical problem of the existence of other minds is usually stated in this way: I know that I have a mind because I have privileged access to the contents of my consciousness through introspection. I don't have that kind of privileged access to the contents of anyone else's consciousness. So, for all I know, everyone else could just be robots with disks implanted in the backs of their necks, programming them to act as if they have a mind like mine. For all I know, my mind could be the only one in existence.

In *Being and Nothingness*, French existentialist Jean Paul Sartre's magnum opus in which he describes in intricate detail the structures of human consciousness from a subjective phenomenological perspective, Sartre tells us that the traditional realist solution to the problem of other minds is to make a series of inductive inferences from my mind to my body to your body to your mind—in short, an argument from analogy based on physical similarities. I have a mind, and my body is like this. Your body is similar to mine, so you must have a mind like mine as well.

In *Being and Nothingness*, Sartre provides a more subjective and more immediate demonstration of the existence of other minds; and, in doing so he provides an alternative to both positivism and anthropomorphism. For Sartre, human relations are characterized by a battle to the death for subjectivity. Since Sartre believed we could not both be subjects at the same time, one party in a relationship will be the subject and the other will be the object, although there is the possibility that the two can switch places. Hence, Sartre's famous saying, "Hell is other people." Sartre believed that you can tell you're in

the presence of another mind (or subject) when you feel yourself being taken as an object in their consciousness; or, to use more of Sartre's terminology, when you feel your freedom or transcendence being "trumped," so to speak, by theirs. As Sartre describes it:

> It is in and through the revelation of my being-as-object for the Other that I must be able to apprehend the presence of his being-as-subject. For just as the Other is a probable object for me-as-subject, so I can discover myself in the process of becoming a probable object for only a certain subject… In a word, my apprehension of the Other in the world as *probably being a man* refers to my permanent possibility of *being-seen-by-him*; that is to the permanent possibility that a subject who sees me may be substituted for the object seen by me. "Being-seen-by-the-Other" is the *truth* of "seeing-the-Other." (256-257)

This experience of "seeing-the-Other" manifests itself as a sense of pride, possibly, but more often shame in the object that I am for the Other, which Sartre describes as "an immediate shudder which runs through me from head to foot without discursive preparation" (222). It is not the result of a tenuous string of inferences from my mind to my body to your body to your mind in the external world.

IV. The Mark Test

The impetus for "The Bonobo Mirror Project" was a paper by my colleague, Professor Robert Mitchell, entitled "Subjectivity and Self-Recognition in Animals." In the paper, Mitchell describes a particular example in which the debate between positivism and anthropomorphism implicitly plays itself out to the detriment of the goal of ascertaining the level of complexity of consciousness or subjectivity on the part of various animals. The example involves a mark test whereby individual animals have a visible mark placed on their face and then are put before a mirror. The animals are observed as to whether they make physical gestures in reference to the mark while looking in the mirror, thereby indicating the capacity for self-recognition, which is considered to be a necessary feature of higher levels of subjectivity. While the mark test was intended to be a more objective measure of self-recognition than mere descriptions or anecdotes of behavior indicating

self-recognition, it too fell prey to the variations of subjective interpretation as different researchers disagreed about which purportedly objective observations of behavior should count as evidence for passing the mark test, and hence for possessing the capacity for self-recognition.

The scientists were looking for a capacity that they hoped could be inter-subjectively verified through their own observations; however, they couldn't agree on what the behavior of the animals signified or meant for that capacity. Various researchers had different standards for the kinds and frequencies of behavior that would justify the conclusion that the animals recognized themselves in the mirror. Some studies required that the animal touch the marked area more than it did in a previous session in front of the mirror before the area was marked. Others required that the animal touch the marked area more often while looking in the mirror than when not looking in the mirror. Others still required that the animal touch the mark at least five times while looking in the mirror.

Mitchell quotes Swartz, Sarauw, & Evans:

> [I]f the question is "What is passing?" in relation to the mark test… [t]he easy answer is "touching the mark on the head while using the mirror to guide the hand to the mark." However, behavior is rarely as simple as that. (577)

As a demonstration of the difficulties encountered in the mark test, in this video ("Bonobo Self-Recognition In Camera Viewer"[83]) of a young bonobo looking into the picture viewer of a video camera it is difficult, if not impossible, to determine from its behavior whether the bonobo is actually recognizing itself in the viewer or not.

On the other hand, and more germane to Sartre's response to the problem of other minds, we might consider how comfortable we would feel hurling insults at this bonobo.

V. The Bonobo Mirror Project

[83] Published on YouTube: http://www.youtube.com/watch?v=JoKiTs67J4k

The *Primate Behavior and Conservation* course out of which "The Bonobo Mirror Project" arose relied on the QUEST method of inquiry which contains the following steps: 1) Question and observe 2) Uncover comparative questions 3) Explore predictions 4) Start action plan and gather data, and 5) Think hard about findings and share discoveries. I found the course both challenging and rewarding in terms of the opportunities it provided for me to bring philosophy together with this scientific method of inquiry. My goal for the project was to attempt to determine, drawing on Sartre's solution to the problem of other minds and using the Quest Inquiry Method, whether human visitors to the indoor bonobo exhibit at the Cincinnati Zoo provide behavioral evidence that they recognize that they are in the presence of another mind (or a higher level of consciousness or subjectivity).

A. Comparative Question and Prediction

My comparative question was: How does the relationship of positive to negative remarks *about* the bonobos at the indoor exhibit at the Cincinnati Zoo and Botanical Gardens compare to the relationship of positive to negative remarks made directly *to* the bonobos? I also took into account the factors of age and gender of the visitors. My prediction was that the ratio of positive to negative remarks made directly to the bonobos would be greater than the ratio of positive to negative remarks made about the bonobos. I also predicted that adults and women would make less negative remarks to the bonobos, and children and males would make more negative remarks to the bonobos, based on the different amounts and kinds of socialization experienced by the different groups. My assumption was that people would not make negative remarks directly to the bonobos as frequently as they made negative remarks about the bonobos to other people if they sensed that they were in the presence of another mind or subject, because to do so would bring them a feeling of shame for the objects that they would become in the consciousness of the bonobos-as-subjects.

My prediction that the ratio of positive to negative remarks by visitors to the bonobos would be higher than the ratio of positive to negative remarks about the bonobos, if correct, would lend support to the conclusion that human visitors do feel

some level of pride or shame before the bonobos, differentially reflected in their behavior toward them as compared to their remarks about them. This, based on Sartre's theory, would indicate that the visitors do discern the presence of a mind or sense of personhood, i.e., a relatively high level of complexity in terms of consciousness, on the part of the bonobos.

Angus Gemmell concludes "Gazing into the Bonobo Mirror," an essay on his journey to the bonobos in the Congo, as follows:

> After spending a week with the trackers, observing, absorbing, and filming bonobos, each of us was moved by the feeling of being watched curiously by another conscious being. When a bonobo is close and looks you in the eye, it's like holding a mirror up to humanity's collective past. (41)

It is my hope that this project will provide some small amount of evidence to support this conclusion.

B. Methods

I tested my hypothesis by engaging in three sessions of two hours each of continuous sampling of remarks made by visitors to the indoor bonobo exhibit on two consecutive weekends between 1:00 pm and 5:00 pm. A total of 100 visitors to the indoor bonobo exhibit were surveyed, and 96 remarks were recorded and categorized. I recorded the data collected on a generic behavior frequency data sheet with columns for the following categories: number of visitor, gender of visitor, age of visitor, positive and negative remarks, and key subject words. (Appendix 1)

One challenge that I ran into at this point was how to define positive and negative remarks in a way that would satisfy the scientific requirements of the method of inquiry, which favors facts over value judgments. Fortunately, I regularly teach *Practical Reasoning* (PHI 100), a course in informal logic, so I was able to produce objective definitions for positive and negative remarks:

A *positive remark* is defined as a remark containing words or phrases whose dictionary definition denotes a positive evaluative judgment, e.g., good, intelligent, cute,

etc. A *positive evaluative judgment* is defined as an indication that an individual or group of individuals meets certain specifiable standards.

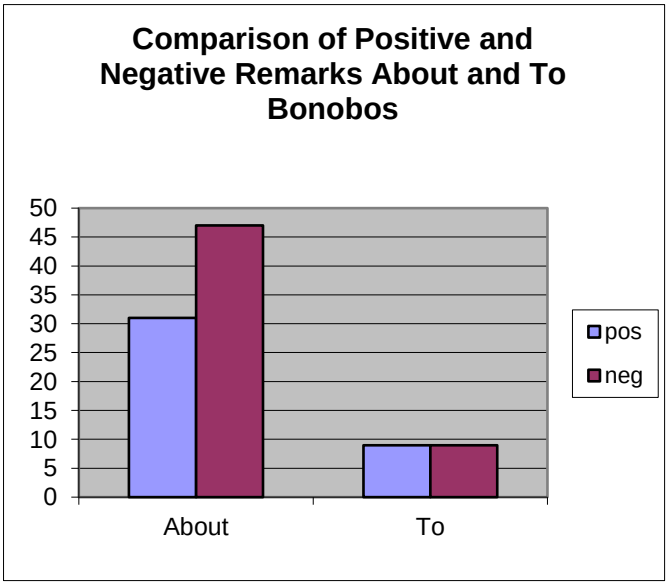
A *negative remark* is defined as a remark containing words or phrases whose dictionary definition denotes a negative evaluative judgment, e.g., bad, stupid, ugly, etc. A *negative evaluative judgment* is defined as an indication that an individual or group of individuals does not meet certain specifiable standards.

Remarks that were ambiguous due to tone of voice or context were omitted. A new remark was determined by a change of subject, a change of addressee, or (of course) a change of speaker.

C. Results and Consequences

Overall Results

The overall comparison of the ratio of positive to negative remarks about the bonobos to the ratio of positive to negative remarks to the bonobos reveals 31 positive remarks *about* the bonobos to 47 negative remarks *about* the bonobos and 9 positive remarks *to* the bonobos to 9 negative remarks *to* the bonobos.

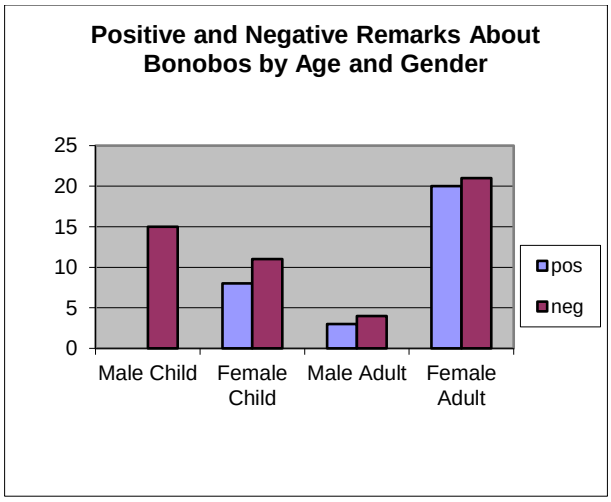


This result is in accordance with my prediction. However, the difference between the two does not appear to be as dramatic as I originally anticipated. It is important to note, however, that of the 9 negative remarks to the bonobos, 7 of them were actually commands that I interpreted as negative remarks because they implied that the bonobos *should* be doing something else. Examples of such commands include: "Be more photogenic," "Stand still for me," "Play some dodge ball," etc. One of the negative remarks was a negative evaluation of one of the bonobo's behavior when playing ball, "You missed it, buddy." Thus, only one of the negative remarks to the bonobos was actually a direct insult, i.e., "Boo, trailer trash, you're it."

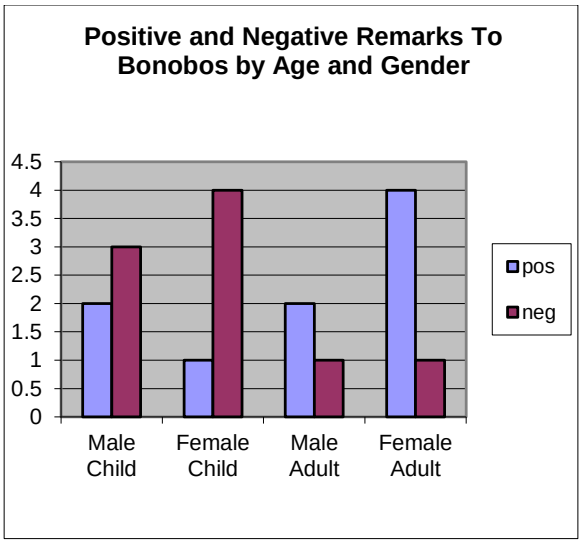
Some examples of positive remarks to the bonobos include: "Hey, cool bonobo!" "Hello, sweet guy," "I love you," and "Hey, buddy." The most common positive remarks about the bonobos concerned their cuteness and their similarity to humans. The most common negative remarks about the bonobos concerned the appearance of the female bonobo's behind, their grooming habits, and their behavior with their own excrement.

Results by Age and Gender

Categorizing the remarks by age and gender reveals that male children made 0 positive remarks about the bonobos and 15 negative remarks about the bonobos. I found this to be extremely surprising. Female children made 8 positive remarks about the bonobos and 11 negative remarks about the bonobos. Among adults, male adults made 3 positive remarks about the bonobos and 4 negative remarks about the bonobos. Female adults made 20 positive remarks about the bonobos and 21 negative remarks about the bonobos.



Female children made 1 positive remark to the bonobos and 4 negative remarks to the bonobos. This differs slightly from my prediction, as I would have thought that male children would make more negative remarks to the bonobos than female children. Among adults, my predictions about the differences between genders and between ages were more correct. Male adults made 3 positive remarks about the bonobos and 4 negative remarks about the bonobos. Male adults made 2 positive remarks to the bonobos and 1 negative remark to the bonobos. Female adults made 20 positive remarks about the bonobos and 21 negative remarks about the bonobos. Female adults made 4 positive remarks to the bonobos and 1 negative remark to the bonobos. This tracks along with my prediction that adults and women would make less negative remarks to the bonobos and children and males would make more negative remarks to the bonobos. However, my results also seem to indicate that the gender differences do not seem to take effect until the onset of adulthood.

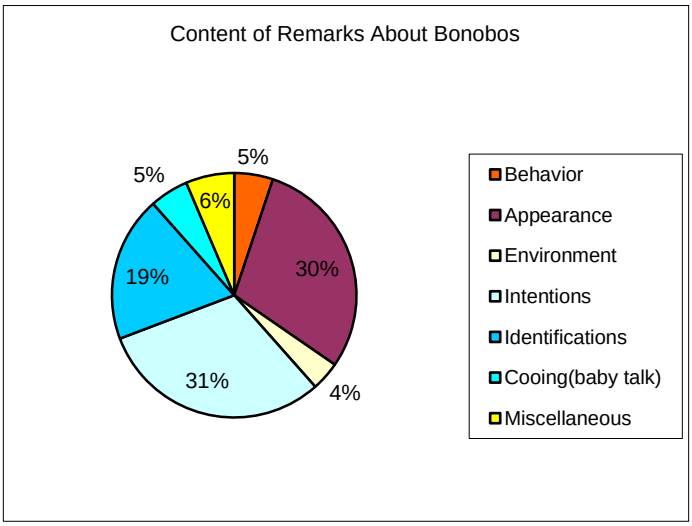


Results by Keyword

My data collection sheet includes a column for keywords in the remarks of the visitors surveyed. Throughout the course of data collection, I noticed a number of different kinds of remarks that occurred quite frequently. These remarks often could not be classified as positive or negative or as being about the bonobos or directed to them. They seem to occupy a territory in between. However, they occurred quite frequently and seem to indicate an awareness on the part of the speakers of a relatively complex level of consciousness or subjectivity in the bonobos, by way of self-recognition on the part of the visitors. These remarks include what I have labeled Intentions, Identifications, and Cooing/Baby Talk. Intentions are defined as an attributing of intentions to the bonobos either indirectly, for example, "Look, he's sleeping with his favorite ball"; or by putting words into the mouths of the bonobos, e.g., "He's saying, 'I'm sleepy. Give me a blanket'." Surprisingly, the attempt to put words in the bonobos' mouths occurred 6 times. This attempt along with the attempt to put thoughts in their heads and ascribe motives to their behavior occurred 24 times. Identifications are defined as remarks which either make a general claim of how the bonobos are like us, which is not surprising given that the signage at the exhibit reports that they share approximately 98% of our DNA, but also personal identifications, e.g., "I do that too, cuddle up and eat orange peels," or "He knows another monkey when he sees one," said by an older woman to a child.

Surprisingly, there were 7 such personal identifications. Cooing/Baby Talk is defined as remarks about the bonobos to other people but said in a cooing tone of voice meant for the bonobos, e.g., "Awww, look how cuuuuuuute he is," in a tone normally used to talk to/about human babies.

After the data collection process, I went through the keywords and categorized the comments in terms of the content of their keywords using the following categories: Behavior, Appearance, Environment, Intentions, Identifications, Cooing/Baby Talk, and Miscellaneous. Out of the 78 comments recorded about the bonobos: 4 were exclusively about their behavior with no intentions, identifications or cooing involved; 23 were about their physical appearance with no intentions, identifications, or cooing involved; 24 were about their intentions, 15 established identifications, and 4 involved baby talk/ cooing. There were 5 additional miscellaneous remarks.



Consequences

My results indicate that visitors to the indoor bonobo exhibit at the zoo make fewer negative remarks relative to positive remarks to the bonobos in comparison to the same relation of negative to positive remarks about the bonobos. Given the different kinds and amount of socialization on the part of males and females, and children and adults, respectively, it is to be expected that adult males will make more such negative remarks

to the bonobos than adult females and that children will make more such negative remarks than adults. While the sample size is too small to conclude that this study confirms these expectations, nothing in the results refutes them. Moreover, the content of more than half of the remarks also indicates a kind of self-recognition by the visitors in their perceptions of the bonobos. Taken together, if Sartre's theory concerning the role of shame in the recognition of other minds is right (and my application of this theory to the bonobos is valid), this data supports the conclusion that visitors to the bonobo exhibit do discern the existence of a more complex level of consciousness or subjectivity on the part of the bonobos.

However, these findings also open up a number of other questions that must be answered before this data could be used to support a more ethical approach to the treatment and handling of bonobos. Among these questions are the following: 1) Does the relative dearth of negative remarks in relation to positive remarks to the bonobos actually arise from the phenomenon of avoiding shame before the bonobos on the part of the visitors? As one means of answering this question we might also ask if the results concerning age and gender based on a relatively small sample in this study are supported by similar results from a more statistically significant sample. 2) How do the evaluative force and content of the remarks made about/to the bonobos compare to remarks made about/to other animals on exhibit at the zoo? And 3) How do the responses to the bonobos of zookeepers and those who work closely with the bonobos compare to those of visitors to the exhibit? These questions among others may serve as springboards for future investigative projects.

D. The Strangest Thing I Saw

Although it didn't fit into my data, I'd like to conclude with the strangest thing I saw during this study, which perhaps more than anything else convinces me that human visitors discern a high level of subjectivity on the part of the bonobos through a process of self-recognition. A middle-aged mother and teenage daughter were taunting the bonobos with Dots candy. The mother was banging the box of Dots on the window of the exhibit, bouncing up and down, and saying, "Look what I've got—yum, yum!" over and

over. The teenage daughter was holding an individual piece of candy up to the window. The female bonobo got so worked up at this bizarre display that she started jumping up and down, growling loudly, and putting her fists on top of her head as if to imitate pulling a top-knot pony tail which the mother was wearing in her hair.

Works Cited

Donovan, Josephine. "Feminism and the Treatment of Animals: From Care to Dialogue." *The Animal Ethics Reader*. 2nd ed. Ed. Susan J. Armstrong and Richard Botzler. London: Routledge, 2008. 47-54.

Gemmell, Angus. "Gazing into the Bonobo Mirror." *Australian Geographic* Oct.-Dec. 2007: 38-41. Print.

Mitchell, Robert. "Subjectivity and Self-recognition in Animals." *Handbook of Self and Identity*. Eds. M.R. Leary and J.P. Tangney. New York: Guilford Press, 2002. 567-593.

Rollin, Bernard E. "Animal Pain." *The Animal Ethics Reader*. 2nd ed. Ed. Susan J. Armstrong and Richard Botzler. London: Routledge, 2008. 135-140.

Sartre, Jean-Paul. *Being and Nothingness*. Trans. Helen Barnes. New York: Simon and Schuster, 1978.

Scott, Irena. "Bonobo Self Recognition in Camera Vierwe." YouTube, 05 Feb. 2007. Web. 14 Feb. 2011.

Appendix 1: Generic Behavior Frequency Data Sheet

Date: _____ Bonobo Mirror Project Time: _____

	A	B	C	D	E
1	Visitor #	Sex	Age	Remarks	Keywords
2	1				
3	2				
4	3				
5	4				
6	5				
7	6				
8	7				
9	8				
10	9				
11	10				
12	11				
13	12				
14	13				
15	14				
16	15				
17	16				
18	17				
19	18				
20	19				
21	20				
22	21				
23	22				
24	23				
25	24				
26	25				
27	26				
28	27				
29	28				
30	29				
31	30				
32	31				
33	32				
34	33				
35	34				
36	35				
37	36				
38	37				
39	38				
40	39				
41	40				
42	41				
43	42				
44	43				
45	44				
46	45				
47	46				
48	47				
49	48				
50	49				
51	50				

F = Female A = Adult
M = Male C = Child

A+ = positive remark about bonobo T+ = positive remark to bonobo
A- = negative remark about bonobo T- = negative remark to bonobo

CAROL KAESUK YOON

NAMING NATURE: THE CLASH BETWEEN INSTINCT AND SCIENCE

I was raised on the milk of science. Both my parents were working scientists. On rainy Saturdays I played with my father's laboratory mice on the living room floor or chatted with my mother as she tinkered in the federally funded laboratory they had set up in our basement. Before I hit puberty, before I knew the power of love or sex or good hair, I had become well versed in the power of various statistical techniques (chi-square was our family favorite). I married a scientist, most of my friends are scientists, I became one myself, and I've spent most of the last two decades writing for the *New York Times* about the amazing and wonderful new findings that scientists have come up with.

So, not surprisingly, when I set out some years ago to write a book about the ordering and naming of the living world, the practice known as taxonomy, I intended to write about how this work was carried out by the real experts: scientists. I took it as a given that any other ways that people might order life—in so far as they differed from science—were wrong. People, I knew, should defer always to science in the ordering and naming of life, as they typically do.

So imagine my surprise when I began to see that science was neither the best nor the only valid way to order and name the living world. Instead, I realized that the ordering and naming of life was and always had been, at its heart, something much more democratic, subversive to the dominion of science even, and much more interesting. Reclaiming the ordering and naming of life from science, I began to realize, might be the key to ending humanity's rapidly growing disconnection from the wild life all around us.

The trouble first began when I started looking into the ways in which other cultures ordered the living world, something with which I was, at the time, entirely unfamiliar. I had thought it might be amusing to include, along with scientific orderings of life, some of the curious orderings created by other people. I found it instantly intriguing to see just how confused—that is, how different from science—people were on the point of how to order life. There was an anthropological study that showed that some

New Guinea tribesmen, despite being excellent naturalists, classified a giant bird as a mammal. Another study described how Filipino headhunters appeared to conceive of orchids as human body parts, explaining to a bewildered anthropologist that here grow the thumbs, there the elbows.

But to my surprise, all was not disorder and chaos; quite the contrary. Not only did all peoples order life, but anthropologists, I soon realized, had found that, beneath the great variety in ordering and naming, there were deep undergirding similarities as well. That is, people around the world ordered the life around them in very similar, even stereotyped ways, regardless of where they lived, what language they spoke, or which animals and plants they were ordering. People, it turned out, unconsciously followed a strict set of rules, universally creating a hierarchical ordering of living things based on how living things appear, that is, on similarities and dissimilarities in how they look, smell, sound, and act—the same sort of taxonomy that professional scientific taxonomists have ever been after. The countless varieties of folk taxonomies were, at their base, variations on a single theme, being that same basic, effortlessly perceived natural order that people everywhere see.

Things got even more interesting when I learned that psychologists had been studying the ordering of life by children, including infants, for years. What they had shown quite clearly was that these youngsters were ordering the living world—and quite skillfully—even before they could walk or talk. Without realizing it, we actually expect everyone, babies included, to have a kind of savant-like fluency with the ordering of life. That is why we are not surprised at the very surprising fact that a toddler can recognize what the entity “dog” or “cat” is, after seeing just a few of the beasts. When you think about it, there are many kinds of dogs, in many shapes and sizes, and it is not that simple to describe how in a glance one can distinguish them from all the other furry four-legged creatures like cats, cows, or goats. Nor are we surprised that a child or anyone else can recognize a tiger, even if it is a strange albino white, even if it has mutated to have two heads or been mutilated to have only three legs. How do we know so much based on so very little? For we do know astonishingly much about the living world without effort or thought. Knowing what an organism is—in particular, where it lies in the great natural order—does indeed come surprisingly easily to all of us, so easily as to fit neatly into our

subconscious. And lastly, children appeared not only to be very adept at this but also to be drawn early and deeply to learning the ordering of life, the names and groupings and organization of living things.

Still other psychologists had actually identified groups of brain-damaged patients who suffered the unlikely illness of being unable to order and name living things. And oddly enough, many of these people have suffered damage in the same part of the brain, leading some scientists to hypothesize that there might be an actual place, a physical location in our gray matter where the ability to order and name the living world resides.

Taxonomy, the envisioning and perception of the natural order, it seemed, might be much more than what it has been reduced to today—an abstract laboratory science. The classification of the living world began to take on the look of something instinctual, something that, like hope, would spring eternal, in every newborn child. It might be one of the essential and, at least early in life, irrepressible functions of being a human being, of being alive.

There's a German word that I think captures this universal view of the living world, this perceived natural order that we all share. It is the *umwelt* (pronounced OOM-velt). Literally it means "the environment" or "the world around," but scientists studying animal behavior have used it to evoke something much more specific. For these biologists, the umwelt signifies the perceived world, the world sensed by an animal, a view idiosyncratic to each species, fueled by its particular sensory and cognitive powers and limited by its deficits. Most of us aren't familiar with the term, but we are more than familiar with the idea. We know that our dogs live in a universe painted not in colors, which they cannot see, but in smells. Bees, with their multifaceted eyes, see ultraviolet light that is invisible to the human eye. But not only dogs and bees have *umwelts,* all animals do, even humans. We might call it reality, but it is indeed an *umwelt,* an idiosyncratic sensory picture of the living world around us. And I believe it is the *umwelt*—this shared perceived world—that gives us our stereotyped, hard-wired way of perceiving the order in living things.

But the *umwelt* is more than just a facility for doing the science of taxonomy. For countless millennia, the *umwelt* was humanity's best and most intimate connection to

everything that lives. Yet, today, most of us have forgotten that a natural order even exists. Why? Because we modern-day citizens of the world have abandoned our *umwelt,* that ancient vision of an order of life, without even realizing it. We have something else to determine what our vision of life should be, what the reality of the living world is, something else to which we routinely hand over the power to say what is and is not. So what is it that now rules over our vision of life? Science.

Our deference to science and mistrust of ourselves is the reason for a number of phenomena, including the ever-increasing number of interpretive centers. We need to have life—the life right before our eyes—interpreted for us, because we have reached a point where we believe we really can't see, hear, or understand it by ourselves. In fact, we've reached a point in the process, the exact point where I was when I began my book (*Naming Nature*, published by W.W. Norton, 2009), where we don't even remember that there is any valid way, other than science, to determine what a living thing is or is not.

Most of us, whatever our profession, our class, our race, wherever we live, in cities or small towns, in long-inhabited rural countrysides or newly built suburban developments, are profoundly disconnected from the living world. Whatever language we speak, we have nearly lost the language of life. We are so unfamiliar with the ordering of life, so removed from it, that we have quite literally lost the words for the living world. We walk down the street past what many of us know no more specifically than "trees" and "bushes." "Flowers" bloom and "bugs" pester or frighten.

But if our modern *umwelt* is largely devoid of a vision of order in the living world, what exactly is in there? Here's a hint: What can we easily recognize? Of what can we order and name hundreds upon hundreds? For must of us, the answer is branded merchandise, all things buyable. I believe that the *umwelts* of most modern-day humans are, in fact, stuffed to the gills with various kinds of distinctive-looking, -smelling, -tasting, -sounding, and -feeling—that is, differently packaged, branded, and logo-covered—products.

Today, we effortlessly perceive an order among the many different kinds of human-made, purchasable items. Instead of sorting living things by size, shape, color, smell, and sound, we sort merchandise, obsessed and immersed as we are in a world of

products. And we end up armed with an excellent taxonomy of goods. That is why we are so masterful at sorting the Gulden's mustard from the Grey Poupon, the Ford from the BMW, the Adidas from the Nike, at a glance. Even when faced with products that are nearly identical in shape, in their packaging, like cereal, each in the same rectangular cardboard box, we prove ourselves to be phenomenally skilled at homing in on our favorites, on shelves stuffed with other similar boxes, quickly sorting through the many color schemes and logos to find the one we want.

Without even realizing it, we have traded a view of ourselves as living beings in a living world for a view of ourselves as consumers in a landscape of merchandise. We have unwittingly traded a facility with living things for a savantlike brand expertise, exchanging the language of the living world—the names of real plants and real animals—for a vocabulary of Tony the Tigers and Geico geckos. The world we live in, our simple reality, is the world of purchasable items. We have, without even trying, absolutely gotten what we've paid for. You might need a naturalist interpreter to help you make sense of things as you walk through the local forest, but you would never need such assistance when wandering through the mall.

Not surprisingly, we are also simultaneously trading the actual world of living things for a world filled instead with human-made products, with factories to build them, with stores to sell them, with homes to fill them with. While we've been busy shopping and the world's diversity of human-made things has been increasing, the world's wealth of living things has been dwindling.

So, here we sit, with our merchandise-clogged *umwelts,* smack dab in the middle of the sixth great mass extinction of life on earth. It is a die-off of species estimated to be more rapid than any ever seen in the history of the planet, one with the potential to be bigger and more powerful than the one that did in the dinosaurs and so many other forms of life now unknown. In North America, since the Pilgrims pulled up in the *Mayflower* and disembarked into a New World, more than 600 kinds of living things are known to have gone extinct, and likely many more that no one even knows about. We ran off the passenger pigeon, the Eastern elk, the Texas red wolf, the Badlands bighorn sheep, the sea mink, the heath hen, the Carolina parakeet, and the California grizzly, to name just a

few. Even though this happened in our backyards, it is hard to feel, let alone care about, these grand-scale losses when our perception of life has become so stymied, so stunted and numb.

There are so many reasons we've been able to reach this point, this biodiversity crisis, but more than one traces right back to the *umwelt.* Stuffed today as it is with logos, the *umwelt* has actually become part of the problem, one of the key engines driving a process of brand recognition, admiration, and accelerating acquisition of thing after thing. The *umwelt*, once the guardian of a vision of life, has been subverted to the point where it is actually helping to drive the conversion of what's left of the wild world into packages on the shelf at the minimall. But a mass extinction, in which so many species of things—blazing beacons, from gorgeous wildflowers to impressive carnivores—can disappear without anyone even noticing is about more than a misplaced desire for stuff. A mass extinction that worries us hardly at all is only possible because we have discarded the view of the living world we once regularly cherished, studied, and dwelt in.

There is good reason to hope that we can reclaim our *umwelt.* Life persists, exists, intrudes, exudes, creeps, and pokes up everywhere. And our *umwelt*—if given a break from priced and tagged items—is ours to use, to soak up a full, rich view of that living world. It may need a bit of retraining, off Gucci and Versace, off Macs and PCs, off Eddie Bauer and Banana Republic, Hummers and Fords and VW, and onto living things. We will need to learn enough to teach our babies better; but hope does and should spring eternal. We have another chance, another eager learner of living things each time a new little human appears, reliably keen to begin understanding the living world and feeding its hungry *umwelt.*

LISA B. MARKOWITZ

FORGING FRESH FOOD CHAINS IN THE AMERICAS

Introduction: Food Fears

In recent years, food has come to forefront of public attention and scrutiny, both because of the deep problems in the existing food system and the broad-based efforts to fix it. The U.S. food system is huge, technologically sophisticated, and it feeds hundreds of millions of people. But, paradoxically, it is the size, scale, and industrial complexity that have provoked many of the doubts, worries, and even fears that people have over food today, and that have inspired initiatives to reform, rebuild, and fundamentally reimagine our food system. People across the country and throughout the world are creating new ways of doing food through politics—in their communities, in churches, as part of grassroots organizations, and in their gardens. People are finding their own local and regional solutions, based on different cultural preferences, economic conditions, social structures, and environmental possibilities.

Indeed, one thing which makes food activism so compelling is this local and regional scale of effort mustered to confront problems with national and international causes and complexities. As the project leaders of the Worldwatch Institute 2011 State of the World Report note, we are globally connected when it comes to food and agriculture. We are all in this together: healthy rural economies and green cities are fundamental to global sustainability and climatic stability. Even if we in temperate North America try to eat locally, we rely on producers elsewhere for such essentials as coffee, chocolate, and fruit, to name a few favorite commodities. Farmers cultivating the fields of South America and Africa maintain a large part of world's biodiversity. Finally, as people of conscience, we cannot forget that close to a billion people in the world do not get enough food to eat (Halweil and Nierenberg 2011). But just as the problems are deeply, inextricably global, so are the flows of social solidarity and creativity. Accordingly, agrifood activism, as an eclectic cluster of social movements, benefits from global cross-fertilization of strategies, information, and inspiration.

In this essay, I highlight some of the exciting alternative food work currently taking place in the Americas. There is an impressive cornucopia of stories and examples. So, I should disclose here that the examples I include emerge from my own anthropological fieldwork. I have worked with small farmers and ranchers in Andean South America since the 1980s and, for the past decade or so, have been engaged in activist-research close to home in Louisville, Kentucky. While my work has allowed me to learn a lot about different foods and, as a child of the rust-belt suburbs, to reduce my ignorance of farming and ranching, as a cultural anthropologist what I find most compelling are the social arrangements—interpersonal, organizational, and political—and the social visions that give rise to the construction of alternatives to the food-business-as-usual.

To begin, I offer a quick overview of the problems that have led people here in the United States to characterize our food system as broken.

Going Without. The rising number of people who go without regular, assured access to food both astonishes and appalls. As of 2009, the last year for which data are available from the United States Department of Agriculture (USDA), over 50 million people were living in food insecure households, which means that they had to worry, at least some of the time, about, as my students put it, "where their next meal was coming from." That's 33 million adults (14.5 percent of all adults and 17.2 million children, which is 23.2 percent of all children). Think about it: Nearly a quarter of the kids in the United States lack regular, secure access to decent meals. Within this population, 17.7 million people not only worried about having food, but at times suffered reduced food intake—for example, skipping meals because there was only enough food for their children to eat.

Contaminated Supplies. Problems of contamination beset the food system, affecting everything from scallions and ground beef to peanut butter and eggs. When such food scares occur, it often takes weeks to identify the sources of contamination because of the sheer enormity of our food production and distribution system. In, for example, the 2006 case of the *escherichia coli*–carrying California spinach, investigators finally determined that the responsible facility was 1 of the 2 plants in the United States

that process 75 percent of the greens for our precut salads, or over 26 million servings of salad a week. As Michael Pollan, in the *New York Times Magazine*, put it, "[I]n effect we're washing the whole nation's salad in one big sink."

Miserable Meat. Reliance on raising and fattening livestock in confined animal feeding operations—feeding lots and huge poultry barns—has brought about environmental pollution and abuse of antibiotics and growth hormones. It is not only the animals that suffer in the "meatrix"; in 2005, Human Rights Watch called meatpacking the most dangerous factory job in America.

Faraway Food. Our food travels. It is estimated that the average plate of food puts on 1,500 miles (some estimates are as high as 2,300 miles). The long transport and cold-storage chain runs on fossil fuels and, as the spinach example indicates, can complicate efforts to maintain food safety. The travel itself and the exigencies of industrial-scale farming frequently result in the disappearance of flavor, and even nutrients, from fruits and vegetables.

Concentration and Consolidation. In general, fewer and fewer large firms control large horizontal and vertical swaths of the food system. This trend, most pronounced in the livestock and seed sectors, is also visible in food retail, as a dwindling number of supermarket chains control increasingly large segments of the market. And, sadly enough, this is also true in the organics sector. In consequence of this consolidation, a very few decision-makers hold enormous economic clout and influence over our food system.

Disappearing farmers. Related to increasing corporate control over the agrifood system is another trend: the disappearance of farms and farmers. Since the 1950s, farms, like food businesses, are fewer in number and larger in size. Farm loss contributes to a decline of small towns and economies and social hardships in rural America. Nonetheless, U.S. farm policy and major USDA financial support tilt toward large producers: as the Environmental Working Groups has documented, most farmers get no subsidies at all, while three quarters of subsidy payments (overwhelmingly in support of major commodity crops, like corn and soybeans) go to just 10 percent of all farmers.

To this handful of problems, can be added, at minimum, junk food, pesticides, eating disorders, obesity-related health problems, water pollution, food deserts, sinking water tables, transgenic crops, and the exploitation of farm workers.

* * *

One popular response to this set of food fears has been an interest in eating food raised locally by those endangered creatures: small farmers. This trend is perhaps most visible in the explosion of farmers' markets. Since 1994, when the USDA began its contemporary count of markets, the number has skyrocketed from 1,755 to 6,132 at the start of the 2011 growing season. A common complaint, one frequently voiced in the popular press as a critique of "affluent foodies," is that shopping in farmers' markets, and more generally, eating locally, is expensive, especially in light of the current recession. The critics have a point. Local foods do, generally, cost more than those found in supermarkets. This makes sense. Small and medium-sized family farms don't enjoy the advantages of Big Food: federal subsidies, large market share, and industrial scale economies of production. Paying farmers a fair price for the real cost of their food seems pretty expensive, at least in the short run.

Rectifying this tension—making good food accessible to everyone while ensuring that sustainable agriculture provides a sustainable livelihood—is the challenge at the heart of rebuilding our broken food system. So, what to do? Farmers' markets are a great starting place but they remain marginal in scope and dietary impact. In what ways can we scale up the meeting of eaters and producers so that everyone gets to eat good, fresh food? And more generally, how do we build food system linkages that improve the quality of peoples' lives in both rural and urban areas. Ultimately, how can we reconfigure the food system so that it contributes to the eradication of the conditions and inequalities that result in people eating badly or not at all? This is an ambitious agenda.

Farm Tours, North and South.

But, at this moment, we are not lacking for inspiration. There is a lot going on in the world of farm and food alternatives. In this brief reconnaissance, I recount the efforts of activists, farmers, entrepreneurs, and civic institutions in the Americas. My three North American snapshots show off the particular but complementary strategies for transforming the U.S. food system: reconnecting farm and city, greening and feeding urban centers, and renewing rural prosperity.

Louisville. As is appropriate for a Kentucky resident writing for a Kentucky-based publication, I begin with the local: an account from Louisville. Kentucky, thanks to the legacy of tobacco, has a lot of farms. According to the 2007 USDA Census of Agriculture, Kentucky has upwards of 85,000 farms, which places it fifth among all states. With the decline of tobacco, farmers have been experimenting with many different crops and seeking out and creating new local and regional markets. Much of the latter work has focused on building the connections between rural producers and urban consumer and, has been spearheaded in Louisville by the Kentucky Community Farm Alliance (CFA), a statewide grassroots organization that emerged during the Farm Crisis of the 1980s. Among CFA's many Louisville-based projects over the past decade has been the creation of Grasshoppers Distribution.

In 2005, farmers from around Kentucky came together to create a system that would market and distribute their locally produced meats, eggs, vegetables, fruits, and cheeses. The farmer business partners designed Grasshoppers as a kind of hub to get the products from a large number of small farmers, who may not be interested in marketing or have the time to sell at farmers' markets, to urban eaters. At the peak of the season, Grasshoppers buys food from about 70 farmers in Kentucky and southern Indiana (across the Ohio River from Louisville) and sells it to about 20 restaurants and shops. The company also operates a variant of community-supported agriculture in that it also sells subscriptions to boxes of produce, as well as optional eggs, meats, cheese, and mushrooms, all raised by local farmers. In 2010, Grasshoppers distributed these boxes to 600 households and looks to double that figure in coming years. They are also growing jobs and have tripled their staffing in the past few years.

Another model of food distribution in Louisville is New Roots, which is not a business but rather a nonprofit organization that runs on a very few grants and a lot of volunteer labor. New Roots, established in 2009, works with about 50 volunteers and in cooperation with 2 churches and 2 community centers. In collaboration with the community institution, New Roots sets up food buying groups, called Fresh Stops, in low-income neighborhoods. The idea again is that people subscribe to purchase a box of local food, but in this case for very low prices, since volunteers handle the procurement and delivery. In the summer of 2010, New Roots served 120 families. In addition to training neighborhood leaders on how to procure fresh regional food, and facilitating the study of food justice, it promotes education on gardening, cooking, and healthy eating. New Roots, although still small, has attracted a great deal of attention and support among activists and civic officials, and several community groups and churches are pursuing the creation of their own Fresh Stops. Although creating alternative forms of distribution has been a priority among Louisville activists, food work of all sorts in the city is expanding rapidly, marked by civic and grassroots networking and collaboration.

Milwaukee. Heading north, we find another cluster of urban initiatives—in this case, associated with one individual, Will Allen, the founder of Milwaukee's Growing Power, a recipient of a MacArthur Foundation genius award, and a pioneer in urban agriculture (UA). Although UA initially sounds like an oxymoron, it is the main food source for about 800 million people the world over.

Growing Power provides a model for farming the city—indeed, the center city—in a poor Milwaukee neighborhood. Allen's farming operation, growing since 1993, is an inspiration to other urban food activists, not least because it touches on so many parts of the food system. The two-acre Community Food Center, located in a former food desert, houses vegetables and fruits, perch and tilapia (in an aquaponics system Allen designed), chickens, turkeys, goats, ducks, and bees, for a total of 159 varieties of food (Bybee 2009). In 14 green houses, Growing Power produces about a quarter-million dollars' worth of food, and serves some 10,000 Milwaukee residents (Royte 2009). The food is distributed in several ways: an on-site retail shop, through schools and restaurants, at area farmers' markets, and by subscription plan, including inexpensive food boxes made available to hundreds of elderly in Milwaukee. Allen seems to take special pride in

Growing Power's prowess at dealing with waste (Royte 2009). They use red wiggler worms to speed the composting of more than 6 million pounds of food waste a year. The worms transform farm waste and remains from local food businesses, including brewery grains and coffee shop grounds, into 400,000 pounds of rich compost a year (Bybee 2009; Royce 2009).

As perhaps the leading urban agricultural project in the United States, Growing Power does more than raise food. For them, growing healthy food is part of a larger vision of bringing about social justice. The organization, which participates in national networks striving to end racism in the food system with its vision of food justice, has helped set up projects in five other poor communities, including Chicago, where Allen's daughter has taken the lead in the creation of a half-acre park in the heart of the city. Some 3,000 people from around the world participate annually in Growing Power-hosted training programs; the organization also works with schools and youth groups in Milwaukee to engage young people in gardening (Bybee 2009). Finally, in an area of high unemployment, Growing Power provides 30 to 50 jobs (Royte 2009). And, as the *Milwaukee Courier* reported in April of 2011, Growing Power was awarded a federal grant to construct hoop house gardens on vacant land, a project aimed at creating 150 new jobs for unemployed Milwaukeeans.

Hardwick, VT. The Northeast Kingdom of Vermont would appear to share little with inner-city Milwaukee, but there as well dedicated agrifood activists are lowering unemployment as they raise delicious food. The hardscrabble town of Hardwick was once prosperous, but the declines of granite quarrying and commercial dairying left this community depressed, with boarded storefronts, dilapidated buildings, and the lowest average income levels in the state. Today, however, Hardwick and its surrounding villages have become something of a laboratory for the ways agriculture and food can revitalize a community and regional economy. This laboratory now offers monthly public tours, and in July of 2010, I happily signed up.

One of our "guides," Tom Stearns, founder of the organic seed company High Mowing Seeds (itself a tour highlight), was asked "What happened here?" He explained that a lot of the groundwork had been laid 30 years before with the arrival of back-to-the-landers, interested in small-scale alternative agriculture and self-sufficiency. This was fertile, and cheap, ground for the initiatives of several young "agropreneurs," who over the past decade started up a wealth of agrifood enterprises—including raising organic greens, manufacturing tofu and soy milk, cultivating organic seeds, fermenting honey and berry wine, and aging locally crafted cheeses. They started having conversations and helping one another. Tom stressed, as did the other agropreneurs, the importance of this sharing and mutual assistance, and the presence of someone to give encouragement, advice, a reference, a kick in the butt, and "the sense that maybe you weren't crazy for taking risks."

They also loaned each other money and, as their conversations expanded, they leveraged nonprofit funding to create The Center for an Agricultural Economy (CAE). The farmers, activists, and businesspeople work with researchers and consultants from the University of Vermont to develop connections between farmers and processors and to expand the value-adding activities, which over the past 3 years have generated well over 100 new jobs. A particularly delectable example of community food solidarity is Claire's, a new Hardwick restaurant and gathering place capitalized with shares purchased by local residents, which showcases ingredients from nearby farms. Among the CAE's many activities is the construction of a community agricultural center, envisioned to serve the area and further agrifood endeavors and linkages and to foment wider public involvement. Here again, agricultural production provides the basis for economic renewal, accompanied by an emphasis on scaling up and reaching out through the food system.

Other examples of alternative agrifood innovations abound across the United States and Canada. However, I want to turn to initiatives in Latin America, where a quarter of the population lives on less than two dollars a day (IAASTD 2009, 2) and the challenges confronting producers are even more daunting. Rather than attempting to review the agricultural economy of the region (for this, a superb starting point is the *Latin American and Caribbean Report of the International Assessment of Agricultural Knowledge, Science and Technology for Development* [IAASTD] prepared by an international consortium of stakeholders and topical experts), I offer some illustrations of how people are responding to the complexities of their own political, economic, and environmental circumstances.

Cuba. The first case highlights a combination of vulnerability to external forces and the mustering of domestic assets. What is perhaps the classic example of urban food innovation comes from a very small country, albeit one that has loomed large in the world's political imagination. In the aftermath of the Cold War, Cuba lost its very favorable trade relations with the Soviet Union, which brought on a time of economic crisis, known as the Special Period. Cuban agriculture, which specialized in sugar, was very conventional in its reliance on such industrial inputs as chemical fertilizers, petroleum, heavy machinery, and so forth. It also relied on often-inefficient large state farms. With the collapse of the Eastern Bloc trade, Cuba lost half its ability to import oil, as well as half of its wheat and other grain imports, precipitating a food crisis. By the early 1990s, the national average daily caloric intake had fallen by 30 percent (IAASTD 2009, 53).

What the Cubans had going for them was a well-educated workforce, with good technicians and scientists. Mobilizing these assets, Cuban state agencies started developing an alternative agriculture, based on sustainable practices—low inputs, high diversification, the use of biofertilizers (like Will Allen, the Cubans excelled in vermiculture), and bringing back the use of draft animals. The government also promoted local production, especially urban agriculture. In consequence, by the mid-1990s there were over 26,600 popular garden parcels scattered throughout Havana, ranging in size from several acres to a few square meters of vacant lot to the "patio gardens" residents planted for their own use (French et al. 2010). For Havana, with its population of just

over 2 million, urban agriculture has been a source of jobs, income generation—especially for gardeners working on the larger plots—and important supplements to household diets. Today, urban agriculture provides as much as 70 percent of the fresh vegetables consumed in Havana (Altieri and Funes-Monzote 2012). The Cuban experience suggests the role that strong city and state governments can play in facilitating food system transformation.

Peru. My next example is much more typical of Latin America during the past three decades, where, under the disastrous free-market experiment, the state as a social protagonist has largely been absent, leaving improvement in agrarian livelihoods largely to NGOs, individuals, and producer organizations. For many years I have worked in rural communities of Peru's southern Andean highlands. This story, however, opens in the country's capital, Lima, where a gastronomic boom is in full swing. Dubbed a new destination for culinary tourism, the city's restaurants have drawn acclaim (and customers) for introducing and integrating ingredients and cooking styles from the country's multiple agro-ecological zones, immigrant populations, and regional foodways. An important component of the new gastronomy is Andean foods, celebrated in a rediscovery and revalorization of what are colloquially known as the "Lost Crops of the Incas." The newfound popularity of such items as quinoa, native potatoes and tubers, and alpaca meat among affluent shoppers and diners not only counters historic, elite neglect or rejection of these items, but also presents significant market opportunities for small-holding, economically marginal highland producers. A broader demand for Andean foods can benefit producers and rural food elaborators who, by processing raw foods, add value to them and create manufacturing jobs. NGOs and other institutions have oriented efforts toward two linked markets for food products: the burgeoning tourist trade, and the national middle-class with its increasing discretionary income and heightened interest in eating well.

Initiatives toward expanding the scale and scope of the production and processing of indigenous food range from regions to the household level. On the former end is Papa Andina, a project sponsored by the International Potato Center and numerous institutional partners. More than 3,000 potato varieties are cultivated in Peru; however, most shoppers are familiar with no more than five varieties. Papa Andina seeks to preserve the

tremendous biodiversity of Andean potato cultivation by helping Andean farmers find new markets and better prices for their ancestral crops. The staff works collaboratively with producers in the central highlands, and with food processors and retailers, to identify market possibilities and develop products appropriate for upscale supermarkets. These have included bags of fresh potatoes and delicious native potato chips (which, it must be noted, are healthier than conventional ones: native chips absorb up to 25 percent less oil when fried and since they do not need to be peeled, they furnish more fiber and nutrients).

Other, much smaller-scale endeavors are found on the western slopes of the Andes. At an elevation of over 12,000 feet, above a river valley terraced with a patchwork of small plots, is the village of Tuti, where resident farmers have formed a quinoa producers' organization. (Quinoa, a native chenopod, is not only featured in Lima restaurants but has become a popular "alternative" grain in Europe and the United States). With the support of a large Peruvian NGO, the 60 active members are acquiring organic certification for their crops and hope to sell these collectively. But first they must locate or create markets. Exporters are interested; as the co-op president recounted, he got a call from a Lima buyer looking to purchase a ton or two a month. The problem, he ruefully explained, is that two tons is their total *annual* production. In this case, although the organic certification guarantees quality and also differentiates the product from other quinoa, the small co-op must hunt for appropriately sized domestic markets. As they search, they are developing new ways to add value to their quinoa, as well as barley and beans, by milling them for sale as flours and breakfast cereals.

Farther up the valley, alpacas are the primary source of farm livelihood. Alpaca meat is perhaps the poster child for disparaged "Indian" foods. Its consumption was considered "unimaginable" by most middle-class urbanites until the 1990s, and it remains scarce in urban markets. Currently, however, chefs seek fine loin cuts and steaks for fusion dishes and health-conscious upper-middle class shoppers regard it as an alternative to fattier red meats. In the provincial capital, the town of Chivay, a young butcher buys meat directly from local ranchers, and sells fine cuts to a few high-end restaurants in the southern city of Arequipa. He also specializes in the elaboration of alpaca cold cuts and sausages, a craft he is imparting to members of a dozen ranching families, who joined

forces initially to upgrade the quality of their pastures and who now sell about 150 kilograms of meet each week. Elaboration of the meat, both as coldcuts and the traditional jerky (the word "jerky" is in fact derived from the Quechua *ch'arki*) in solar dryers, supplied by an NGO, adds value and expands the pool of potential buyers. As these rural examples suggest, even before value can be added to foods, food products themselves must be valued by the wider Peruvian society. Thus, the producers and processors must develop markets as they develop products. Reminiscent of Hardwick, here again, local initiative and collaboration are crucial in efforts to engender rural prosperity.

Brazil. Brazil is huge, the fifth largest country and the eighth largest economy in the world. It is also one of the most unequal in terms of income distribution, and most Brazilians live in poverty. There, appropriately enough, the social movements to eradicate hunger and to create a more just society are themselves huge in scope.

In rural Brazil, where poverty and levels of illiteracy are highest, inequality is expressed in the control of land: three percent of land owners hold two thirds of the country's arable land (IAASTD 2009, 18). One response to this historically rooted problem of land tenure has been the creation of the *Movimento dos Trabalhadores Rurais Sem Terra*, the Movement of Landless Rural Workers (MST). The MST, the largest social movement in the Americas, has a strategy of forcing the government to enforce the law, inscribed in the Brazilian constitution, that land must serve a "social function." In short, the MST uses peaceful protest to occupy unused lands and establish farms on them. Since the early 1980s, MST actions have propelled state redistribution of about 20 million acres of cropland to some 350,000 families. The MST, which numbers 1.5 million members, and hundreds of thousands of supporters, has literally created 2,000 new farming settlements with schools and community centers—and many of these communities have set up different marketing coops and food-processing operations (ibid). In 2003, I was able to visit one such settlement in the state of Rio Grande do Sul, and was impressed by what the residents had accomplished in just a few years: acres of pasture and cultivated land surrounded an oval of snug cottages, which in turn rimmed a green with a school, playground, and social center. Landless people now have homes and

farms and participate in the regional economy. None of this has come easily—land occupations and the wait for legal titles can last for years—but the gains are real.

A second Brazilian example highlights urban activism and the leadership of elected officials. In 2009, the World Future Council presented its Future Policy award to Belo Horizonte. This city of 2.5 million people, the country's fourth largest, once had 11 percent of its population living in absolute poverty, and almost 20 percent of its children going hungry. Then in 1993, a newly elected administration declared food a right of citizenship. It created a Secretariat for Food Policy and Supply with a 20-person citizen council, and went to work designing and implementing a new food system. The aims were "to increase access to healthy food for all as measure of social justice" (Gopel 2009: 4).

The city developed a suite of innovations to assure everyone the right to food, especially by weaving together the interests of farmers and consumers. As Frances Moore Lappe and Ana Lappe (2002) chronicle, authorities offered local family farmers choice public market space in exchange for keeping prices low and setting up weekend stands in poor neighborhoods. Direct sales eliminated the intermediaries and their cut, and farmers also benefitted from higher volumes of sales. The city made sure to purchase food from nearby farmers for food assistance programs. One of these, directed to populations most vulnerable to food insecurity, offered free health assessments and food supplements to nursing mothers, children, and the elderly (Gopal 2009, 5). Another set of highlights in the reinvention of Belo Horizonte's food system were the Popular Restaurants, where good meals could be cheaply purchased—lunch, the main meal of the day, cost just 47 cents. These pleasant and universally accessible venues serve over 12,000 meals a day, mostly to poor people but also to students and professionals attracted by the high quality and low cost. Although the restaurants receive federal and municipal subsidies, their wide appeal removes the stigma of poverty (IAASTD 2009, 19). The complementary and mutually reinforcing initiatives span the food system from production to distribution to consumption to waste recycling. As a result, in Belo Horizonte hunger has almost been eliminated for the cost of less than 10 million dollars per year, just 2 percent of the city's annual budget (Gopal 2009).

* * *

This small tour of Latin America is meant to showcase innovative food work that has increased the number of small farms, eradicated hunger, widened and improved peoples' diets, generated income, and promoted and preserved biodiversity. The projects reflect, like most food practices, the realities of local culture, economics, and natural environment. Some efforts are strongly state supported, while others are carried out by social movements and initiatives of local government, as well as some NGOs, community groups, and by individual farmers or entrepreneurs. What's striking is that these agrifood initiatives have as outcomes and goals broad-based impacts, which, like the North American projects, counter the idea that eating well and locally is something elitist or impractical. Many of the projects are grounded in broad visions of social justice as well. The immediate emphasis may be on raising and expanding access to good food, hardly negligible ends in themselves, but for many participants, the work, cooperation, community building, and experimentation are all themselves something more: a means for building a healthier and more equitable society.

As I've tried to show, there is no one-size-fits-all-solution for fixing a broken food system. The wide range of problems inspires a wide range of responses: agrifood activists bring diverse, sometimes contending, agendas, understandings, and starting points to the table. At a local level, I've seen that effective collaboration takes time and involves listening, building relationships, and finding paths of complementary action. Facilitating such searches for viable local and regional strategies is the expanding toolkit for food system change created by the innovation and commitment of farmers, scientists, cooks, planners, and social movement activists across continents. Because the interconnections between environment, economy, and agriculture are global, it is heartening that the quest for solutions is as well. Just as we celebrate the diversity of food in the world, we can sample and savor the cornucopia of emergent and rediscovered social visions and arrangements that ultimately serve as the seeds for its renewal.

Works Cited

Altieri, Miguel and Fernando R. Funes-Monzote 2012. "The Paradox of Cuban Agriculture." *Monthly Review*. 63.8 January 2012. http://monthlyreview.org/2012/01/01/the-paradox-of-cuban-agriculture

Bybee, Roger 2009. "Growing Power in an Urban Food Desert: Will Allen is bringing farming and fresh foods back into city neighborhoods." *Yes Magazine*. February 13, 2009.

French, Charles, Mimi Becker and Bruce Lindsay 2010. "Havana's Changing Urban Agriculture Landscape: A Shift to the Right?" *Journal of Agriculture, Food Systems, and Community Development.* 1.2 Fall 2010. http://www.agdevjournal.com/volume-1-issue-2.html

Gopel, Maja 2009. *Celebrating the Belo Horizonte Food Security Programme*. Hamburg, Germany. World Future Council brochure.

Halweil, Brian and Danielle Nierenberg 2011. "Charting a New Path to Eliminating Hunger." In *State of the World: Innovations that Nourish the Planet*, 3-12. Washington, D.C.: Worldwatch Institute.

IAASTD (International Assessment of Agricultural Knowledge, Science and Technology for Development) 2009. "Agriculture in Latin America and the Caribbean: Context, Evolution and Current Situation." *Regional Report, Agriculture at a Crossroads*. Washington, D.C.: Island Press.

Lappe, Frances Moore and Anna Lappe 2002. *Hope's Edge: The Next Diet for a Small Planet*. New York: Tarcher/Putnam.

Royte, Elizabeth 2009. "Street Farmer." *New York Times Magazine*. July 5, 2009: MM22.

GRACIELA CHICHILNISKY

AVOIDING EXTINCTION

What Next?

For the first time ever, humans dominate Planet Earth. We are changing the basic metabolism of the planet: the composition of gases in the atmosphere and its bodies of water, and the complex web of species that makes life on Earth. What comes next?

The changes we are precipitating are fundamental and can lead to disruptions in climate and global warming. Signals abound: in the Southern hemisphere alpine glaciers and Antarctic ice sheets are melting; in the Northern hemisphere Alaska's permafrost is melting, sinking entire towns whose inhabitants are being relocated at a cost of $140,000 per person. Greenland's ice sheet is gone, creating hostile climate conditions for a number of species that are now close to extinction such as the polar bear. In Patagonia and the Alps we observe mountains without ice or glaciers, reducing the ability of these regions to store water needed for human consumption. In the Caribbean seas 50% of corals are already extinct. Desertification has overtaken 25% of China's land mass. Climatic instability has led to Australia's longest draught on record, followed by the worst floods in that continent's history. We observe disappearing summer ice in the Arctic Seas and soil erosion and storm surges in Alaska. Where is all of this coming from? The rapid industrialization of wealthy nations during the last century is responsible for most of the changes and for the risks they entail. Historically the industrialized nations in the Organization of Economic Cooperation and Development (OECD) originated 70% (now still 60%) of all global emissions of carbon, emissions that most scientists in the world, including those in the United Nations Intergovernmental Panel on Climate Change, believe to cause climate change. China's relentless industrial growth over the last two decades is a sign of things to come: it accelerates the risk of climate change and underscores the fact that in 20 or 30 years into the future most emissions could come from today's poor nations as they assume their turn to industrialize.

Water expands when it warms, and seas are rising all over the world. The rising waters will sink the 43 island states in the United Nations, which represent 23% of its vote. Most of them will disappear soon under the warming seas.

The world is aware of the connection that scientists postulate between climate change and the use of fossil energy. The largest segment of carbon emissions, 40-45% of all global emissions of CO2, originate in the world's power plant infrastructure, 87% of which are fossil fuel plants that produce the overwhelming majority of the world's electricity (IEA, 2012). This infrastructure represents US $55 trillion according to the International Energy Agency, about the size of the world's economic output. New forms of clean energy are emerging such as wind farms in Scotland and solar farms in Spain in an attempt to forestall carbon emissions. But the process is slow since the world's power plant infrastructure is comparable to the world's GDP, and changing this will take decades. This timeframe is too slow to avert the potential catastrophes that are anticipated in the next 10 – 20 years. What, then, is the solution?

Below we propose a realistic plan that involves market solutions in both industrial and developing nations, simultaneously resolving the problems of economic development and climate change and helping overcome the global wealth divide. But the climate change issue is just one of several environmental areas that are in crisis. Biodiversity is another: industrialization and climate warming threaten ecosystems. Endangered species include sea-mammals, birds such as cockatoos, polar bears, and marine life such as coral, sawfish, whales, sharks, dogfish, sea-turtles, skates, grouper, seals, rays, and bass; the survival even of primates, our cousins in evolution is at risk. Scientists say that we are in the midst of the 6th largest extinction of biodiversity in the history of Planet Earth, and the scope of extinction is so large that 75% of all known species are at risk. The UN Millennium Report documents rates of extinction 1,000 times higher than is found in fossil records. The current 6th largest extinction event follows the dinosaurs' extinction, which took place 65 million years ago. But today's extinction event is unique in that it is caused, created, by human activity. And it puts our own species at risk. 99.9% of all species that ever existed are now extinct. Are we to be next? Will humans survive? The issue now is how to avoid extinction.

Women, Energy and Survival

To avoid extinction we have to develop survival skills. A simple but somewhat unexpected experimental finding involves colonies of bacteria, microorganisms that are

the world's oldest living species. They have been around for billions of years and biologists agree that they have shaped the planet's geology and atmosphere to suit their needs. Bacteria are champions of survival. New findings show that *Escherichia Coli*—and most known bacteria colonies—when exposed to a pathogen or stressor such as antibiotics not only evolve to develop resistance but the evolved members produce specific resistance tools that they do not need in order to share with the rest of the (non-evolved) members of the colony (Youk and van Oudenaarden, 2010). In other words, when exposed to stress, mutant bacteria use some of their own energy, altruistically, to create a chemical called "*indole*" that protects non-mutants from the pathogen. This way the entire group survives. Bacteria—those champions of survival—have developed and mastered altruism for survival.

Human survival skills have focused so far on avoiding natural risks and confronting successfully the threats posed by other species that preyed on us, species that are dangerous to us. Altruism is often considered a weakness in human societies, a desirable trait rather than a survival skill. Yet altruism is a survival skill. Aggressive and individualistic behavior may have been a useful survival tool until now. The war society that humans have created has become an efficient killing machine. But things are changing and what used to be a strength can become a weakness. Survival is about protecting life not just about inducing death. Life is difficult to define, but we all agree that it is a phenomenon characterized by reproduction. To be alive means to be part of a time series of reproductive activities. Reproduction characterizes life. Destruction does not. Asteroids destroy very effectively, and so do volcanoes. But they are not alive, because they do not reproduce. We humans are alive because we do. And reproduction fundamentally requires altruism rather than dominance and aggression. We must donate our energy and even our bodily resources and substance to be able to reproduce, sometimes at the cost of our own.

In our male-dominated society the essence of life is viewed differently, mostly as the ability to conquer, dominate and kill. Men think of life skills as those skills that allow them to win the battle for survival. War is an example. Ask any man what characterizes life. A common male answer would be "the survival of the fittest" and "dog eats dog." This is a typical male view of life. It may be so because the evolutionary role that males

originally had in human societies, a role that is now somewhat outdated. The great British author and social commentator Jonathan Swift once suggested, as a 'modest proposal' to the problem of poverty in Ireland, that humans should eat their own children (Swift, 1729). This helps to illustrate a point I want to make. If the essence of life was the survival of the fittest, then humans would eat their children who are totally powerless at birth—nothing is less fit than newborn infants. Why don't we follow Swift's 'modest proposal'? Why not eat our own children?

Because no species that ate its children would survive—it may not even get started as a species. Survival depends crucially on reproduction and this means protecting the weakest of all—the small children. This is quite different from the blanket policy of survival of the fittest, which are the adult members of the species. Indeed, I venture to say that survival is more than anything about altruism and cooperation, and about the protection of the weakest. It is not about 'dog eat dog'; it is not about dominance and survival of the fittest. The precise features of this point can be disputed, but the general drift of the argument—that our male-dominated society is more aggressive and violent than would be desirable and gives relative little importance to nurturing and altruism—is not. The recent Newtown tragedy in Connecticut made this clear.[84] Women understand this because their evolutionary role is to protect the weakest of all—namely the children at birth. Many men miss this important aspect of survival because their evolutionary role appears to value physical strength more than anything else, a role that seems increasingly out of date.

It was fitting therefore that I was invited by EKU to address the issue of 'avoiding extinction' in March, which is Women's History Month. Women's History Month takes place in the midst of a male dominated world and a male dominated culture that is focused on violence, economic competition and wars of choice. Among the changes we need to avoid extinction, we need to assure a changing role for women such that the entire ethos of destruction and dominance that permeates much of our society is balanced

[84] In the USA, the Newtown incident in which 22 school children were tragically killed touched a raw nerve. Based on this, the Obama Administration attempted to decrease the availability of arms in an attempt to lessen the consequences of mindless violence.

out by a modicum of altruism, the care for each other, and the necessary nurturing and protection of the weakest. President Obama said as much in his acceptance speech for his second term.

It is true that there have been changes in the role of women, most of all their rapid entrance in the market for labor in industrial societies. But change has not been fast enough. Modern societies like the US have enormously high rates of abuse of women at home and elsewhere, both physical and economic abuse. The US has a 30% gender difference in salaries, which does not budge, even when comparing men and women of equal training, same age and experience. The gender inequality is prevailing, persistent and systematic. In any given society, there is a deep connection statistically between the amount of housework a woman does at home and the difference between male and female salaries in the economy as a whole. These are two different statistics that are apparently unrelated, but they are indeed related, because when women are overworked and underpaid at home this leads them to be overworked and underpaid in the marketplace (Chichilnisky, 2011). Gender inequality in salaries is in reality legally sanctioned—for example the US still does not have an Equal Pay Act. Unequal pay is legal in the USA. Why? Is there a reason to pay women less than men? If so, what is it?

The deepest suspicion created by sexism to explain the persistent unequal situation is based on a rationale of the "genetic inferiority" of women. Even a former president of the oldest University in the US, Harvard University, Larry Summers, presented this suspicion in public as a plausible hypothesis to explain one aspect of gender discrimination, the 30% difference in salaries between women and men in our economy. He was subsequently fired by the Harvard University faculty he served, but went on to become the lead economic advisor of President Obama. One wonders whether Mr. Summers would have been selected as an economic advisor of the President of the US—the first black president—if he had presented in public his suspicions about the genetic inferiority of blacks rather than of women. I venture to say that he may not have been selected by President Obama if he had said in public that blacks were genetically inferior. But saying this about women is acceptable, and indeed it was rewarded despite his unfortunate public statements. This was discouraging for some of us, but not for many

US men who secretly or openly believe that women are indeed genetically inferior to men.

Raising in public the hypothesis of the genetically inferiority of women is not an innocent remark. It is a way to justify a systematic way in which male dominated societies perpetrate economic and cultural abuse, violence against women, pornography, torture of women and rape, all of which represent a form of social control and intimidation, and ultimately reveals a deep social instinct against the altruism, protection of the weak and reproductive sensibility that women bring to society and that is a necessary precondition for the survival of our species. Until we change the current male dominated culture of abuse and violence against women, which is so well known that it has been taken up explicitly by lawmakers in the US Congress and Senate; until we revolt against the seeming ubiquity of electronic games that the US Supreme Court found acceptable for children in their 2011 decision, games involving the systematic torture and killing of women as entertainment; and until we develop altruism and nurturing as efficient survival skills, our society will not be well prepared to avoid extinction.

Survival in poor nations depends critically on the availability of energy, and women are often the providers of energy in fetching wood and dung for heat and cooking, water and food for human consumption. Clean energy is needed to replace the role of women as beasts of burden in many poor nations.

Avoiding Extinction

The future of humankind may be played out in the rest of this 21st Century. We face energy limits confronting enormous global needs now and in the future. The overuse of natural resources continues to be a clash of civilizations: it is a North/South impasse in using the world's resources. The North includes the rich nations that inhabit mostly the Northern hemisphere of planet, about 20% of the world's population that consume most of its natural resources. The South represents the poor nations, about 80% of the world's population, who consume the rest. We will examine the market's role in creating the problem and in finding a solution. We will also examine the critical role of women, the recent global financial crisis and what lessons we have learned for the future.

Financial & Environmental Crisis

While we continue to try to climb up from the depths of a global financial crisis that started in 2007, the world knows that the game is not over. In the Eurozone it could all re-start next year. The recent downgrading of the US as a debtor nation for the first time in its history underscores these points. Yet within a historical context, the financial crisis takes a second place to the global threat to human survival that is developing in front of our eyes. We are in the midst of a global environmental crisis that started with the dawn of industrialization and was exacerbated by the Bretton Woods institutions that emerged after WWII to provide a financial infrastructure for international markets and to expand the role of markets across the world. Financial markets are implicated both in the financial crisis and in the environmental crisis, which are essentially two aspects of the same problem.

The popular media provides simple examples. In *The Times* article, "Marine Life Is Facing Mass Extinction," we read:

> The effects of overfishing, pollution and climate change are far worse than we thought." The assessment of the International Program on the State of the Oceans (IPSO) suggests that a "deadly trio" of factors—climate change, pollution and overfishing—are acting together in ways that exacerbate individual impacts, and that "the heath of the oceans is deteriorating far more rapidly than expected. Scientists predict that marine life could be on the brink of mass extinction. (Tuesday, June 21, 2011)

Observe that *all three causes* of extinction just mentioned—overfishing, pollution and climate change—are attributable to the industrialized world which consumes the majority of the marine life used as sea food, generates over 60% of the global emissions of carbon dioxide and uses 70% of the world's energy, all of this while housing only 20% of the world's population. Industrialization is at work in the impending destruction and mass extinction in the earth's seas, the origin of life as we know it.

The complexity of the problem is baffling scientists. Normally the Earth self-regulates, but now we are tying the Earth's hands, preventing it from self-regulating and therefore rescuing itself from the problem that industrialization has created. There is no quick fix. The standard way that the planet regulates carbon, by sucking carbon from the atmosphere to maintain a balance, is by using its vegetation mass in land and seas, which breathes CO2 and emits oxygen. Animals—humans included—do exactly the opposite, breathing oxygen and emit CO2. In balance, the two sets of species—vegetation mass and animals—maintain a stable mix of CO2 and oxygen. Since CO2 in the atmosphere regulates its temperature, we had a stable climate. But the enormous use of energy by industrial societies is tipping the scales, preventing the planet from readjusting. On the same date, *The Times* finds that planting trees cannot really help[85] as their growth and carbon uptake are too slow, as explained in a recent Canadian report.[86]

Observe that it is not the developing nations with 80% of the world's population that are causing this problem. Over 70% of the energy used in the world today is used by 20% of the world population that lives in industrial nations, who emit 60% of the CO2. These are the same industrial nations that created the Bretton Woods Institutions in 1945, which globalized financial markets, and that consumed since then the overwhelming majority of all the Earth's resources (Chichilnisky 1995, 1998).

The financial crisis and the environmental crisis are two sides of the same coin: they are at the foundation of the current model of economic growth in industrial nations with its voracious use of the Earth's resources. Both require a new model of economic growth. This opinion is shared by a recently created international group, the G20, the first world leading group of nations that includes developing countries, which met in Pittsburgh, PA, on September 24 – 25, 2009. Their Leader's Statement declares:

[85] "Planting trees does little to reduce global warming" (*The Times*, June 21, 2011, p. 17)

[86] "Even if we were to plant trees in all the planet's arable land—an impossible scenario with the global population expected to rise to 9 billion this century—it would cancel out less than 10 percent of the warming predicted for this century from continuing to burn fossil fuels" (*The Times*, June 21, 2011).

> As we commit to implement a new, sustainable growth model, we should encourage work on measurement methods so as to better take into account the social and environmental dimensions of economic development…
>
> Modernizing the international financial institutions and global development architecture is essential to our efforts to promote global financial stability, foster sustainable development, and lift the lives of the poorest…
>
> Increasing clean and renewable energy supplies, improving energy efficiency, and promoting conservation are critical steps to protect our environment, promote sustainable growth and address the threat of climate change. Accelerated adoption of economically sound clean and renewable energy technology and energy efficiency measures diversifies our energy supplies and strengthens our energy security.
>
> We share the overarching goal to promote a broader prosperity for our people through balanced growth within and across nations; through coherent economic, social, and environmental strategies; and through robust financial systems and effective international collaboration…
>
> We have a responsibility to secure our future through sustainable consumption, production and use of resources that conserve our environment and address the challenge of climate change.

The G20 nations know the problems we face, but they don't know the solutions. For this, read on.

Green Capitalism

The task in front of us is nothing less than building a new foundation for the human future. In the midst of the 6th largest extinction on planet earth, facing potentially catastrophic climate change and extinction of marine life in the world's seas—the basis of life on Earth—we can fairly say that this qualifies as a global emergency. To find solutions we need to look closer at the root of the problem.

Bretton Woods: the World since WWII

A rapid expansion of international markets since WWII was led by the Bretton Woods Institutions and created an enormous consumption of resources. Industrialization is resource intensive, and was fueled by cheap resources from developing nations—forests, minerals, biodiversity. These resources were and continue to be exported at very low prices. As a result, poverty in resource-exporting nations grew to constitute a 'competitive advantage' in the form of cheap labor and cheap resources, an advantage that has exacerbated and amplified resource overconsumption in the rich nations. Resources were over-extracted in poor nations who were desperate for export revenues, and they were over-consumed in industrial nations, thus leading to an ever expanding Global Wealth Divide. Indeed globalization since WWII increased together with an increasing Global Wealth Divide between rich and the poor nations, the North and the South (Chichilnisky 1994). The difference in wealth between the industrial and the developing nations grew three fold over this period of record industrialization and globalization. The global financial system that was created by the Bretton Woods Institutions in 1945, which is tied up with the financial crisis of the day, created this massive overuse of resources. Global financial institutions are tied up with the global environmental problems we face, and with the global wealth divide between the North and the South (Chichilnisky 1994).

Energy use goes hand in hand with economic progress, and most of the energy used in the world today is fossil (87%). For this reason, economic growth remains closely tied with carbon emissions. Industrial nations consume about 70% of the world's energy, and the North-South wealth divide is inexorably connected to excessive carbon emissions that compromise the stability of the world's climate.

The same North-South Divide is the main stumbling block in the United Nations Climate Negotiations. In the Convention of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC), the leading problem is: Who should use the world resources? Who should decrease energy use and abate carbon emissions? The rich or the poor nations? (Chichilnisky and Heal 1994, Chichilnisky and Sheeran 2009)

It can be said that we are re-living last century's Cold War conflict, but this time it is a conflict between China and the USA (Chichilnisky, *Time Magazine* 2009). Each could destroy the world as they are the largest emitters. China and the US by themselves could change the world's climate. Each wants the other to reduce carbon emissions, namely "to disarm." This time the conflict is not between the USA and USSR—it is between the rich nations represented by the USA and the poor nations represented by China. The Gordian knot that must be cut is the link between natural resources, fossil energy and economic progress. Only clean energy can achieve this. But this requires changing a US $55 trillion power plant infrastructure that produce electrical power around the world; 87% of world's energy is driven by fossil fuels, and power plants produce 45% of the global carbon emissions (International Energy Agency 2012).

How can we make a swift transition to renewable energy?

The Carbon Market

Energy is the mother of all markets. Everything is made with energy. Our food, our homes and ours car, the toothpaste and the roads we use, the clothes we wear, the heating of our homes and offices, our medicines: everything. Changing the cost of energy, making dirty energy more expensive and undesirable and clean energy more profitable and desirable, changes everything. It makes the transition to clean energy possible. We have the technologies to produce clean energy, we just have to get the prices right. Is it possible to thus change the price of energy?

Yes, it is. Here is how. In 1997, after a long period of lobbying and design I wrote the structure of the carbon market into the Kyoto Protocol (Chichilnisky and Sheeran, 2009), which was voted by 160 nations and became international law in 2005. Today the Kyoto Protocol (KP) and its carbon market are been adopted as law by 195 nations, and four continents now have a Carbon Market. The carbon market changes the cost of energy the world over: it makes clean energy more profitable and desirable and dirty energy unprofitable. This changes all the prices of products and services in the world—since everything is made with energy—and it drives the economy to use cleaner rather than dirty energy sources. It is now more profitable and less costly to use clean energy

and to reduce emissions of carbon now. Through the carbon market, the nations who over-emit compensate those who under-emit, and throughout the entire KP process the world's emissions remain always under a fixed emissions limit documented in Annex 1 (nation by nation emissions limits for OECD nations). A 'carbon price' emerges from trading the 'carbon credits' or rights to emit, which represents the monetary value of the damage caused by each ton of CO2. This corrects what has been called "the biggest externality in the history of humankind" (Stern 2006).

The carbon market cuts the Gordian knot and makes change possible. It makes clean energy more profitable and dirty energy less profitable. It encourages economic growth without environmental destruction: it fosters green development. The carbon market itself costs next to nothing to run.

What is the status of the Carbon Market of the Kyoto Protocol today? In 2011, at the Durban UN Convention of the Parties COP17, it was agreed to continue the Kyoto Protocol provisions to 2015 and to enlarge them to include the whole world by 2020. The EU Emissions Trading System is trading $215 billion annually (World Bank 2005-2012), the carbon market's Clean Development Mechanism transferred $50 billion for clean energy projects to developing nations and there are mandatory carbon markets today in four continents, including Australia, Europe, Asia (Japan, China, India) and the Americas. The US already has already a mandatory carbon market in California since 2012; there is a carbon market for 10 Northeastern US States, called RGGI, and 22 other States are planning to create a Carbon Market of their own. Hundreds of cities and towns support the carbon market in the US.[87] The economic incentives of the Kyoto Protocol's

[87] In the fall of 2007, the US Supreme Court agreed that Federal government and the EPA can enforce carbon emissions limits without requiring Congressional approval, a decision that was tested and succeeded on March 27 2012 when the EPA established emissions limits for power plants in the US. Every effort to deem this regulation illegal by Republican representatives has failed so far. It is generally accepted that global businesses (for example the automobile industry) will benefit from KP's guidelines, and could suffer economic losses without the benefit of KP economic incentives at home. This is because the automobile industry is global, and cars that do not sell in other OECD nations create huge losses and lead to bankruptcies. Since all OECD nations are buying carbon efficient cars, because they ratified the KP, the US car industry is commercially isolated. For these reasons, in 2010 the EPA imposed automobile emission limits (36.7 miles per gallon), an efficiency requirement that was increased further by the Obama administration in 2011.

carbon market are enormous. China reportedly created 1 million new jobs and became the world's main exporter of clean technology equipment (sun and wind) after ratifying the Kyoto Protocol in 2005, and it benefitted from US $30 billion from its carbon market and Clean Development Mechanism.

In the US, the 2012 emission limits placed by the EPA on newly built US power plants are likely to be extended to existing power plants, and this would mark the beginning of a Federal Carbon Market in the US. A similar sequence of events took place when the Sulphur Dioxide (SO2) market was created at the Chicago Board of Trade (CBOT) 20 years ago, considered a successful instrument in eradicating acid rain in USA. History is being written right now.

Green Markets—Transforming Capitalism in the 21st Century

What is a green market and why does it matter? A shining example of a green market is the Kyoto Protocol Carbon Market just discussed, introduced by the author. Another successful example is the SO2 Market in Chicago Board of Trade. This is quite different from the carbon market because SO2 concentration is not a "global commons" since it varies city by city while CO2 is the same uniformly all over the planet. There are more green markets in the works. Today the UN is exploring markets mechanisms for biodiversity and for watersheds proposed by the author (Chichilnisky 2012). As with the carbon market, these new markets would trade rights to use the global commons—the world's atmosphere, its bodies of water, its biodiversity—and therefore have a deep built-in link between efficiency and equity.

Efficiency with equity is what it's all about. They are really two sides of the coin. One is equity and the other is efficiency. Both matter. The carbon market provides efficiency with equity. How? Through its Clean Development Mechanism (CDM), the Kyoto Protocol provides a link between rich and poor nations since poor nations do not have emissions limits under the KP and therefore cannot trade in the carbon market. But developing nations still benefit from the CDM of the carbon market. How so?

Developing nations have benefitted from the Kyoto Protocol (KP): since 2005, when it became international law, its carbon market funded US $50 billion in clean

technology (CDM) projects in poor nations (World Bank 2005-2012). Its CDM projects have decreased so far the equivalent of over 30% of EU emissions. The CDM works as follows. Private clean technology projects in the soil of a developing nation—China, Brazil, India—that are proven to decrease the emissions of carbon below a given 'baseline' are awarded "carbon credits." These CDM carbon credits—by law—can be transformed into cash in the KP's carbon market. This is how the carbon market provided US $50 billion to developing nations since 2005 (World Bank 2005-2012).

Organizing Principles for Green Capitalism

Green capitalism is a way forward that is consistent with the evolution of existing institutions and curtails environmental degradation in industrial and developing nations. The basis was explained in Chichilnisky (2009, op. cit.). Here are three building blocks:

(i) Efficient US Carbon Negative Technologies,

(ii) The Kyoto Protocol carbon market and its CDM, and

(iii) Global Capital Markets.

(i) Carbon Negative Power Plants for developing nations

There is enough residual heat in a coal power plant that it can be used to capture twice as much CO2 as the plant emits, thus transforming the power plant into a 'carbon sink.' For example, a coal power plant that emits 1 million tons of CO2 per year can become a sink absorbing a net amount of 1 million tons of CO2 instead. This is a carbon negative technology. Carbon capture from air can be done anywhere and at any time, and so inexpensively that the CO2 can be sold for industrial uses or enhanced oil recovery, a profitable opportunity (see www.globalthermostat.com). Renewable (solar) technology can power the process of carbon capture. This can helps advance solar technology and make it more cost efficient. This means more energy and more jobs, and it also means economic growth in developing nations, all with less CO2 in the atmosphere.

(ii) The Kyoto Protocol Carbon Market

The role of the Kyoto Protocol Carbon Market and its CDM is critical, as it can provide needed funding and financial incentives—about $200 billion per year—for investment to build carbon negative power plants in developing nations in Latin America, Africa and Small Island States. The CDM can be used to provide "off takes," which are contracts that promise to buy the electricity that is provided by carbon negative power plants for a number of years and therefore unlock banking resources for the investment.

(iii) The Green Power Fund: A US $200 billion per year Private/Public Enterprise

The $200 billion per year Green Power Fund was named and proposed by the author in writing to the US Department of State in Copenhagen COP on December 15, 2009, and published by the author in the *Financial Times* in 2009. Two days later it was publicly offered by US Secretary of State Hillary Clinton in the global negotiations COP 15 and subsequently voted partially by the nations at COP 16 as the Green Climate Fund. It is making the rounds in the negotiations in its complete form, where it has received substantial support.

As already mentioned, existing technologies (www.globalthermostat.com) can efficiently and profitably transform coal power plants and solar thermal sources of energy in a way that *reduces* atmospheric carbon concentration. Investment is needed to build carbon negative power plants in developing nations and elsewhere, to renovate the US $55 trillion power plant industry infrastructure worldwide (IEA), which is 87% fossil fuels based today. What is required is about $200 billion a year for 15 years. This amount of money will go to investment-grade power plant builders (e.g., General Electric, SSE, Siemens, Linde, etc.) to build carbon negative power plants in developing nations, which is exactly what the carbon market is trading today per year (US $200 billion; see the World Bank's "State and Trends of the Carbon Market" 2010). Therefore the financial target proposed here is eminently achievable.

Blueprint for Sustainable Development

A blueprint emerges for Sustainable Development that is based on generally accepted aims:

1. Clean and Abundant Energy available worldwide
2. Sustainable growth in developing nations
3. Accelerating the transition to solar energy
4. Transforming fossil fuels into a clean alternative

Green Capitalism—Providing Traffic Lights for Human Survival

New types of markets are needed to transform capitalism by providing incentives that make green economic projects more profitable than their alternatives, fostering conservation of biodiversity, clean water, a safe atmosphere—and some of them already exist and are described above. Green markets change GDP by valuing the Global Commons (the atmosphere, biodiversity, clean water) and they also link equity with efficiency. Examples of green markets are:

1. Carbon Market—international law since 2005
2. SO2 Market in US—trading at the CBOT since 1991
3. Biodiversity Markets for Water—to emerge, proposed by the author for United Nations consideration (Chichilnisky 2012)

Green markets provide the missing signal of scarcity that is normally provided by market prices when a good or service becomes very scarce. Such signals are tantamount to Traffic Lights for Human Survival.

Summary: A Vision for Sustainable Development

Avoiding extinction is about the survival of the human species. Survival is not about violent competition and struggle; it is about life, not death. Energy is the single largest source of carbon emissions and clean energy is the key to sustainable development. The carbon market creates the value system and prices that makes the transition possible. Carbon negative power plants are the future of energy, replacing the role of women as beasts of burden in poor nations, and creating green markets that change our value systems and lead the way to Green Capitalism. Women are the stewards of new values and a new economic system—Green Capitalism—based on public goods rather than

increasing resource exploitation for private gain. They are key for sustainable development. The solutions proposed here can resolve the global climate negotiations and help overcome the global wealth divide, providing clean energy and economic growth for the North and the South that is harmonious with the Earth's resources, and that is focused on creating and nurturing life on Earth.

Works Cited

Arora, Vivek K., and Alvaro Montenegro (2011). "Small Temperature Benefits Provided By Realistic Afforestation Efforts." *Nature Geoscience* Vol. 4, 2011: 514–518.

Chichilnisky, G. (1994). "North-South Trade and the Global Environment." *American Economic Review* Vol. 84, No. 4, Sept. 1994: 851-874.

Chichilnisky, G. (1998). "The Economic Value of the Earth's Resources." *Trends in Ecology and Evolution* Vol. 11, Issue 3, March 1996: 135-140.

Chichilnisky, G. (1995). "Biodiversity as Knowledge." *Proceedings of the National Academy of Sciences*, 1995.

Chichilnisky, G. (2009). "Forward Trading: a proposal to End the Stalemate between the US and China on Climate Change." *Time Magazine* Special Issue of Heroes of the Environment. December 2009.

Chichilnisky, G. (2012) "The Missing Signal." Prepared for the Summit of Ministers of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). See www.chichilnisky.com.

Chichilnisky, G., and P. Eisenberger (2011). "Carbon Negative Power Plants." *CryoGas International*, May 2011: 36.

Chichilnisky, G., and G. M. Heal (1994). "Who Should Abate Carbon Emissions?: An International Perspective*." Economics Letters* Vol. 44, 1994.

Chichilnisky, G., and G. M. Heal, eds. (2000). *Environmental Markets: Equity and Efficiency*. Columbia University Press: New York, 2000.

Chichilnisky, G., and K. Sheeran (2009). *Saving Kyoto*. New Holland: London UK 2009.

International Energy Agency (2012). "Global Energy Sources by type of Power Plants, and Global Sources of CO2 emissions." www.IEA.com, 2012.

International Energy Agency (2012). "Electricity in a Climate Constrained World." *IEA Report*, 2012.

G20 Leaders' Statement from Meeting in Pittsburgh, USA, September 24 – 25, 2009: http://www.pittsburghsummit.gov/mediacenter/129639.htm.

Stern, N. *The Economics of Climate Change: The Stern Report*. Oxford UK, 2006.

Swift, Jonathan (1729). "A Modest Proposal for preventing the Children of Poor People in Ireland from Being a Burden on their Parents or Country, and for Making them Beneficial to the Publick." London UK, 1729.

The Times. "Marine Life Facing Mass Extinction." Tuesday, June 21, 2011.

World Bank (2005-2012). "State and Trends of the Carbon Market" 2005-2012. Washington, DC.

Youk, Hyun and Alexander van Oudenaarden (2010). "Microbiology: Altruistic Defense Needed for Survival." *Nature* Vol. 467, Issue 7311. September 2, 2010.