

The Future of Animal Farming: Renewing the Ancient Contract

Author: Clark, Judy MacArthur

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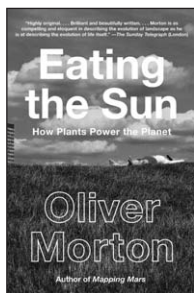
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admire the way that Morton manages to smuggle in so much hard science under this cloak of imagination. The overall effect of his zoom-lens approach from the human scale to the planetary scale and back again is to place plants center stage in our current predicament of climate change, and to offer a considered perspective on the seriousness of our plight, along with positive solutions that are within our grasp.



In summary, *Eating the Sun* is one of the most valuable yet readable scientific books that you are likely to encounter for a long time. I enjoyed it immensely and would recommend it to anyone interested in the central role that photosynthesis plays in the life of our planet.

ADRIAN SLATER

Adrian Slater (ads@dmu.ac.uk) is the clinical course coordinator at De Montfort University in Leicester, United Kingdom.

RETHINKING ANIMALS AND FOOD

The Future of Animal Farming: Renewing the Ancient Contract. Marian Stamp Dawkins and Roland Bonney, eds. Wiley, 2008. 256 pp., illus. \$32.50 (ISBN 9781405177825 paper).

For centuries, humans have domesticated animals. We have provided food, water, shelter, protection from predators, assistance with birthing, medicine, and other forms of support. In return, animals have provided us with many essential elements for our existence: warmth, companionship, food,

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clothing, power to plow and haul, transportation, and, ultimately, their lives. Indeed, the term “husbandry” is derived from the Old Norse words *hus* and *bond*, meaning that the animals were bonded to their households. The essence of husbandry was thus grounded in animal care. This is the basis of the “ancient contract” we have with domesticated animals, and, as part of that contract, it is important that animals experience good welfare throughout their lives and die humanely at the end of their lives.

This ancient contract is widely viewed as a sustainable relationship between man and animals. But in the historical scenario described above, animals often starved and suffered, as did their human companions, during harsh winters, droughts, and food shortages. Therefore, rather than reflecting on some imagined scenario of the past, it is more helpful to reconsider sustainability in relation to modern livestock production and to determine how welfare improvements to our current systems may be made—thus rewriting the ancient contract. This is the task that Marian Stamp Dawkins and Roland Bonney have attempted to address in *The Future of Animal Farming: Renewing the Ancient Contract*, which comprises 15 invited essays by redoubtable experts in their fields. Following a brief introduction by the editors, the first four essays attempt to provide the arguments for changing current farming methods. Bernie Rollin tackles the ethical basis with gusto, and Mary Midgley and Joyce D’Silva argue urgently against continued animal suffering.

The overriding driver of the book, however, is not poor animal husbandry but rather a lack of environmental sustainability—the hypothesis that we will run out of space, food, and water, and will become overcome by disease and pollution if we continue as at present. Kate Rawles pursues the case for connecting animal welfare and environmentalism, pointing out that the two issues have shared roots. Climate change is thus part of the justification for improved animal welfare. A discerning reader who critically explores the arguments may find some flaws, but Rawles

nonetheless makes her case for reconsidering how we raise our food.

The second part of the book tackles how to bring about change. The authors acknowledge that rewriting the ancient contract will require that farmers be able to stay in business. Thus good welfare must be a commercially viable goal, which means in turn that consumers must be able to have their expectations for animal welfare met through effective farm inspection and labeling. Major retailers (including supermarkets) play a key role here, and the drivers are well described in these chapters. Helen Browning also ably reminds readers of the important role that welfare must play in organic farming.

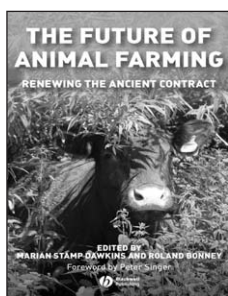
Consumers no longer need to make the blunt decision between eating or not eating animals; instead, they can make more subtle choices for welfare-friendly production systems.

In concluding, Dawkins and Bonney concede that they have not provided complete answers about the future of animal farming. However, they and their contributing authors have raised important questions and posed some challenges.

Perhaps the most important link in the food chain is the consumer. Through informed market choices, consumers will determine the desired quality of the food that they eat, and consumers will ultimately determine how we will deal with the environmental impacts of livestock production. Producers exist only to serve consumers. However, from a functional perspective, consumers are not only individual food-buying households but also—and more significantly—major food retailers and caterers who have their own commercial strategies. The engagement of producers in a powerful dialogue with all these consumers is absolutely essential. Consumers no longer need to make the blunt decision between eating or not eating animals; instead, they can make more subtle choices for welfare-friendly

production systems—and these choices must be based upon dialogue and information.

In a perhaps surprising foreword, Peter Singer (renowned for his pivotal book *Animal Liberation*) acknowledges that while vegetarianism is on the rise in the developed world, the numbers of animals raised and killed for food are increasing. This raises a dilemma for the animal rights movement, which, he argues, can no longer confine itself to promoting veganism but also must engage in the debate about production systems that promote good welfare.



If there is such an enlightened animal rights movement, *The Future of Animal Farming* will give hope to it. But in a wider and more important sense, this book will encourage others who are directly involved in the production of animals for food, and those in the chain between producers and consumers, to think more critically about their practices and to explore options for better welfare within commercially viable systems. Finally, the book may persuade consumers to be more vocal in expressing their choices, and in demanding information to ensure that those choices are informed ones.

JUDY MACARTHUR CLARK
Judy MacArthur Clark (judy@solomon-foundation.org) is affiliated with the Solomon Foundation, a nonprofit organization that works to promote the welfare of animals used in science and technology. She is past-president of the UK Royal College of Veterinary Surgeons and the International Association of Colleges of Laboratory Animal Medicine,

and was chair of the Farm Animal Welfare Council from 1999 to 2004, advising the UK government on welfare issues in food production.

ACCELERATING A SILVICULTURAL METAMORPHOSIS?

A Critique of Silviculture: Managing for Complexity. Klaus J. Puettmann, Christian Messier, and K. David Coates. Island Press, 2008. 206 pp., illus. \$30.00 (ISBN 9781597261463 paper).

Hooray for *A Critique of Silviculture: Managing for Complexity!* This short, readable, affordable book, by Klaus Puettmann, David Coates, and Christian Messier, attempts to push along a nascent yet growing transformation—in fact, a paradigm shift—of the art, science, and practice of silviculture. Given that forests cover one-third of the terrestrial globe and play critical roles in the earth system, terrestrial biomes, and human economy, it is imperative that we constantly improve our approach to the science and practice of forest management (one simple definition of silviculture). By dint of its many excellent features—historical overview, sturdy and straightforward architecture, conceptual synthesis, and cultural challenge—this book should become an important contribution to the literature in applied ecology.

The authors are eminently qualified to tell this story. All three work at the nexus of forestry and ecology, and bring considerable experience and expertise to their discussion of silviculture. Puettmann is a professor at Oregon State University, Coates is a research silviculturalist with the Ministry of Forests and Range in British Columbia, and Messier is a professor at the University of Québec at Montréal. All three are acknowledged international leaders in the field.

The book offers a critical examination of the limits of basic silvicultural assumptions and practices of yesterday and today, in light of changing societal

expectations for forests and of evolving thinking about systems ecology. It then lays out a proposal for a new framework. The authors provide a synopsis of how silviculture focuses on commercially important tree species, using an agriculturally based conceptual model and spatial framework—the stand—that emphasizes managing for uniformity. The authors contend that such an approach is no longer the best way forward, if it ever was. They argue that the uniformity promoted by traditional silviculture does not effectively deliver the broader ranges of outputs desired (and perhaps necessary) today, nor does it enhance the resilience of forests to the broader array of tomorrow's challenges. The desired outputs go well beyond timber production to include the diversity of structure, function, and composition of all biotic elements of forest ecosystems, and the provisioning of ecosystem services (including climate regulation). Climate change, fragmentation, invasive and invigorated native pests and diseases, and altered disturbance regimes are among the broad range of challenges (against which enhanced resilience will be a key). The authors posit that forests are “perfect examples of complex adaptive systems,” and as a result, forestry—specifically silviculture—will be more effective if it adopts key concepts of complexity science, a notion almost 180 degrees from the goal of traditional silviculture, which is to eliminate complexity in order to maximize economic production.

The story begins with an illuminating and entertaining history of the need for and the development, politics, and culture of silviculture from its origins until the 20th century. To my thinking, this is not just boilerplate background but a key piece—it shows that forests have for centuries been managed for an evolving galaxy of social and economic needs that shift in time and space with the evolution of human social, political, and economic systems. The book then focuses on the assumptions, approach, goals, and practice of silviculture, laying out what it does well, what it does poorly, and what is outside its scope. The authors identify what they view as

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