

**Thomas R. DeGregori.** *Origins of the Organic Agriculture Debate.* xviii + 211 pp., refs., index. Ames: Iowa State Press, 2004. \$56.99 (cloth).

This book combines a broad-brush inquiry into the history of ideas about modern science and technology with a critique of some popular views about how science informs the way in which we produce food. The author disputes the goals and premises held by environmentalists, antiglobalization forces, vegetarians, anti-genetically modified food activists, deep ecologists, and all forms of postmodernists. He argues that these movements and the ideas behind them, which he claims contain vestiges of outmoded vitalist thinking, are contrary to sound science and therefore irrational. Following the free-market cornucopians, most notably Julian Simon *et alia*, Thomas DeGregori rejects the fundamental idea behind sustainability: "I do not know of any idea more calculated to keep people impoverished than the idea that resources are natural, fixed, and finite" (p. xviii).

The book is directed at the so-called dogmas of the left. Included in DeGregori's critique of those dogmas are the following claims. (1) The antireductionists are mistaken about modern biology. Reductionism is not an incorrect rendering of modern science; moreover, it is responsible for scientific progress. (2) Human well-being is not well served by dwelling on the negative impacts of science and technology to the exclusion of its greater good to humanity. (3) There is no place for vitalism (or any of its variants, such as holism or organicism) in modern science. (4) Vegetarianism and organic agriculture are detrimental to achieving good nutrition and maximizing global food production.

In the spirit of full disclosure, I must admit to supporting some of the so-called dogmas of the left. Ironically, I found it refreshing to reexamine my views through the author's arguments and scientific interpretation.

The book's critique of reductionism is based primarily on an outmoded concept of vitalism. No doubt dated ideas of vitalism still persist in pseudoscientific circles; however, there is a strong scientific grounding for an antireductionist philosophy of science that does not depend on vitalism as DeGregori defines it. Although other forms of reductionism have been successful in some areas of science, in modern biology genes and chemicals cannot explain the higher organization of life forms. Whether we are referring to protein folding or to epigenetic phenotypic properties in identical twins, it is generally recognized that genetic reductionism fails. According to the author, one of the most common uses of "reductionist science" is that "science can allow us to explain the functioning of biological phenomena simply in terms of basic principles of biology, chemistry, and physics without a need for reference to any vital principles" (p. 33). If that's reductionism, then we (scientists) are all reductionists because we believe that physical phenomena can be explained by principles *within* science. But that is hardly worthy of debate, unless we take seriously the views of "intelligent design" or "creationist science."

The book offers some interesting insights about distinctions between natural and unnatural entities that are widely but uncritically held. For example, people choose to buy organic produce for a variety of reasons, not the least of which is that they believe they are getting a more natural product. The author contends that organic agriculture introduces pathogens and toxins from "organic pesticides" that make its products more dangerous than food grown in chemically intensive farms. The science behind the claim is not convincing, however.

Other arguments in the book will make some readers believe they have entered a contrarian world. For example, the author writes that the major beneficiaries of the Green Revolution have been among "the poorest and the most vulnerable of the world's population" (p. 105) and that a vegetarian lifestyle is neither the healthiest for consumers nor the most ecological. Finally, contrary to published government policies, DeGregori states that bioengineered foods "have to be tested in various ways for safety before being released" (p. 120).

The book is silent about factory farming and its contribution to the growth of antibiotic resistance, rising rates of diseases such as autism, where environment is suspected of playing a key role, the large field trials in the United Kingdom that show how some genetically modified crops damage biodiversity, and the voluminous body of literature on the human health effects of synthetic organic pesticides.

Somewhere between the romanticism of seventeenth-century farming and the modernism of chemically intensive agriculture, including monocultures of genetically modified crops, fish farms, and massive pig factories, there exists the right balance. For all its selective bias in the choice of evidence, *Origins of the Organic Agriculture Debate* is a book that, at the very least, forces us to look at those extremes.

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