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Why do people eat (so much) meat?—And how can we eat (much) less?

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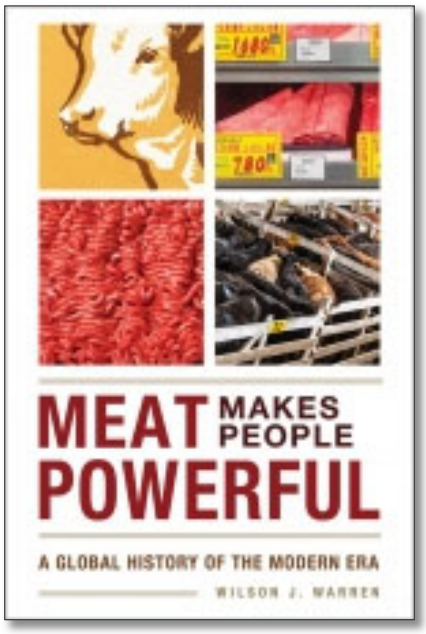

Review of *Meat Makes People Powerful: A Global History of the Modern Era*, by Wilson J. Warren. (2018). Published by the University of Iowa Press. Available as paperback and ebook; 264 pages. Publisher's website: https://www.uipress.uiowa.edu/books/9781609385552/meat-makes-people-powerful

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Humans eat a lot of meat! According to the Food and Agriculture Organization of the United Nations (FAO), the annual consumption of meat globally in 2013 was 106 lbs. (48 kg) per capita, up from 56 lbs. (25 kg) in 1961 (FAO, 2018). This amount is projected to increase by between 75% and 145% by 2050 (Godfray et al., 2018), due to the strong correlation between increasing per-capita gross domestic product (GDP) and increasing per-capita meat consumption (Tilman and Clark, 2014). And to provide this meat (along with other animal products), there are about 30 billion livestock animals in the world at any given time—four times the number of humans; over 160 billion livestock are slaughtered annually, half of these poultry (FAO, 2018). No wonder that meat's impact on our planet and our lives is so large.

The implied question permeating Wilson Warren's book is "Why do we eat so much meat?" The title suggests one answer—the belief that *Meat*

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Makes People Powerful—and the text makes clear that this is in terms of health, culture, and economics. The final chapters ask a further question—*How can we stop eating so much meat?* They describe the major role that meat is playing in anthropogenic climate change and environmental pollution in general, as well as in the current global noncommunicable disease pandemic. They also discuss the overwhelmingly negative effects of meat consumption on animal welfare and on social equity.

Warren's history of the rapid increase in meat production and consumption in the last two centuries provides an important historical context for exploring answers to these questions. Especially helpful is his comparison throughout of Western meat-culture countries, focusing on the U.S. and western Europe (and, secondarily, countries invaded and colonized by Europeans), with Eastern countries limited-meat-culture countries, focusing on Japan and China.

The book begins with a critique of the dominant explanation for food system change in terms of food regimes, à la Friedmann and McMichael (1989), because it is based on a too-simplistic economic determinism. Warren proposes instead that "political, scientific, and cultural factors well beyond economic issues" (p. 4) are needed to understand the changes in meat production and consumption in recent (19th–21st century) global history—both the rise in consumption and the current evidence of its negative roles in nutrition, the environment, society and animal welfare.

Despite this critique, Warren finds it useful to divide the book into three parts that roughly follow the three historical food regimes: part one, the 19th century (chapters 1–2), part two, the 19th to 20th centuries up to WWII (chapters 3–5), and part three, from WWII to the present (chapters 6–10). The first regime is characterized by Western countries importing grain and meat from their client states; the second regime is characterized by expanding world trade in feed grain and meat dominated by Western nations; the third is characterized by transnational corporations replacing states as the dominant players.

In part one, Warren describes the increasing production and consumption of meat in Western countries with existing meat cultures as a result of increased affluence, urbanization, transport, and refrigeration and freezing technologies. He argues that these developments allowed the "cultural proclivities" for meat-eating that had already existed in Europe for centuries to be more fully realized.

In contrast, the adherence to Buddhism and Shinto restricted meat consumption in Japan, with the Emperor Tenmu banning beef, horse, and chicken consumption in the 7th century CE. With rising European influence beginning in the 17th century, Western values were embraced, and meat came to be considered necessary for becoming a modern society and for good nutrition. Buddhist beliefs seem to have been co-opted, as temples became frequently located at slaughterhouses to allow ceremonies for the souls of dead animals and for the safety of their slaughterers.

Part two describes the increasing scientific and government support for meat before WWII. Science's main role in promoting meat was to argue for its "foundational role in human diets" (p. 49), especially in providing protein. In Germany, Carl von Voit established the "Voit standard" for protein requirement at 4.2 oz. (118 g) per day (about twice what is now considered optimal), with 50% as animal protein—although we now know animal protein not required. In the U.S., Wilbur Atwater, the experimental nutritionist and inventor of the respiration calorimeter, helped shape federal nutrition policy, especially through his quantification of diet to make feeding the poor "cheaper and easier" via less expensive (salted, canned) meat. There was pushback, however, from those who saw this as elitist and anti-worker, including labor leader Eugene Debs.

In Japan, meat became part of official navy rations as a way to counter beriberi caused by vitamin B1 (thiamine) deficiency. The medical community and government also promoted increased meat consumption to improve the health and strength of the Japanese people, which they believed was needed to avoid racial extermination.

In part three, Warren focuses on the period following WWII to the present, coinciding with the third (neoliberal) food regime characterized by the World Trade Organization (WTO) and "free trade." This food regime is dominated by transnational corporations that have decimated small-

scale agriculture in countries like Mexico and have seen the U.S. become the dominant feed exporter, instead of the Global South. There have also been major changes in the types of meat consumed. Consumption of poultry meat increased after WWII, as chicken was transformed by public and private research and businesses into "industrial (or technological) chicken" (p. 110). This transformation began in the U.S. and has spread to much of the rest of the world. There also has been a shift of beef from prestige to convenience food, while total consumption has decreased.

Warren also describes the social inequity of the meat system, which is part of a larger food system and social problem. There has traditionally been prejudice again meat workers, and state support in the post–WWII era has not prevented their further marginalization, especially in countries like the U.S., where meat workers have become mostly poorly paid immigrants.

The recent history of meat is increasingly driven by the growing awareness of its negative effects on the environment, human health, animal welfare, and social injustice (Godfray et al., 2018). Warren describes some of these negative effects, including water and air contamination and greenhouse gas emissions from livestock production, and infectious and noncommunicable diseases from meat consumption. Reducing the role of meat in our world has become an existential issue. For example, it is becoming clear that to avoid climate change catastrophe, greatly reduced animal food consumption must be part of our mitigation strategy (Bajželj et al., 2014, Springmann et al., 2018, Willett et al., 2019), and the rise in overweight and obesity, and associated pandemic of diet-related noncommunicable diseases like diabetes, liver disease, heart disease, has huge social and economic costs (Bloom et al., 2011).

Warren closes by briefly describing various movements to limit meat consumption, including vegetarianism and veganism, as well as efforts to make meat production more sustainable. But the main contribution of *Meat Makes Us Powerful* is the needed insight it provides into the political, economic, and social forces that have shaped the rise of meat consumption—forces that now can help inform how meat consumption might be drastically reduced.

If, as Warren argues, political, scientific and cultural, in addition to economic forces were the key drivers in the rise of meat consumption, how could these same forces serve to do the opposite? There is clearly a role for the state to play in terms of taxes and regulation. The state should also provide education about the negative effects of meat and the positive effects of substituting plant foods, which could contribute to cultural change. If personal economic and supply limitations were a major a constraint to meat consumption in the West before the 19th century, could new awareness of global limits to sustainable consumption be a force for reduced consumption? A major obstacle, however, is the economic power of the food industry, which controls so much of our food environment and food information and has a corrupting influence on science (Nestle, 2018). Can our current understanding of meat's impact on society give new power to arguments from Eastern traditions that call for reduced animal consumption on cultural, religious, and ethical grounds, as well as arguments from Western societies, where leading thinkers have promoted reduced meat consumption for ethical, health, environmental, and social reasons at least since Pythagoras in ancient Greece (Stuart, 2008)?

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