Taking Animals Out of Our Food System: A Matter of Intergenerational Justice

by Jennifer Lamborn

What is a Moral Community and Who is in Yours?

When philosophers use the term "moral community," they are referring to those toward whom we believe we have ethical considerations or obligations. Put simply, when you consider yourself part of a moral community, you ask yourself "Is this right?" before you act because you care about whether your action will benefit or harm others whom you hold in moral regard.

People define moral communities in varying degrees of scope. There are some people who believe their ethical obligation is limited to themselves and to those who directly affect their wellbeing. Others believe that they need only consider the welfare of their family or community: human beings like themselves. Many, including environmentalists, take a broad or holistic view of their moral community and include all human beings, or all sentient creatures, or even all living beings and the ecosystems they inhabit.

When we think about environmentally "sustainable practices" or "sustainable agriculture," we consider the impact our current practices have on the stability, diversity, and integrity of our ecosystem presently *and into the future*. If our practices are sustainable, then we are not, in effect, stealing resources and opportunities from our contemporaries or from those people and other beings who will live in the future. When we consider our obligation to the future, then our moral community extends *in time* as well as in space and gives rise to the concept of "intergenerational justice," justice between generations or justice across time, which is inextricable from the concept of sustainability.

It might seem strange to include nonexistent people as members of our moral community, to see them as people we care about and toward whom we have ethical obligations. Yet, because they, too, are a part of this grand phenomenon of humanity, we may feel connected to them in a way comparable to how we may feel connected to our ancestors.

Eating for the Sake of Future People and Their World

Most co-op shoppers (and thoughtful people in general) are deeply concerned about climate change and try to reduce their carbon footprint[1] in various ways. Aside from traveling less, consuming fewer goods, and reducing waste, etc., it is common knowledge that our food choices have a profound impact on our carbon footprint. Here are a few rather alarming facts:

> *Livestock's Long Shadow*, a 2006 report from the United Nations Food and Agriculture Organization, found that **livestock are responsible for more greenhouse gas emissions than the entire transport sector** – all the cars, trucks, planes, and ships put together – and second only to the burning of fossil fuels to produce electricity.
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> Some people believe that eating locally produced food is the best way to make their diet sustainable. However, if they are eating meat, it isn't. **One study found that the average American would do more for the health of our biosphere by going vegetarian *just one day a week* than they would by eating an entirely local diet** (Singer).
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> Another study compares the climate impact of what we drive with what we eat: if you switch from a standard North American car to a fuel-efficient hybrid such as a Prius, you will save about one ton of carbon emissions per year. By comparison, if you switch from a standard American diet to a vegan diet, you will save *one and a half tons of carbon equivalent over a year (ibid)*.
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> In 2018, scientists behind the most comprehensive analysis to date of the damage of farming to the natural environment found that **avoiding meat and dairy** products is the **single biggest way to reduce one's damaging impact on the biosphere**. The research shows that without meat and dairy consumption, global farmland use could be reduced by more than 75% (Poore and Nemecek).

The Failure of Ethical Arguments and the Need for a Cultural Sea Change

Those who identify as vegetarians and vegans are typically motivated by two interrelated ethical concerns: the wellbeing of nonhuman animals and the health of the biosphere. And people who choose organic foods and strive to reduce their meat consumption ("flexitarians and reducetarians") also help alleviate climate change with their general sense that it's better to eat more plants.[2]

The scientific and ethical arguments for vegetarianism are hard to defeat, yet only ~5% of U.S. citizens identify as vegetarian, and just 22% of the global population identify as vegetarian.[3] Why is this the case? Bruce Friedrich, cofounder and executive director of The Good Food Institute[4], theorizes that people's food choices are most often based on quick, instinctive thinking rather than slow, conscious reasoning (Harris).[5] Cultural norms also play an important role in unconscious food choices as we learned during the height of the Covid pandemic with respect to masks and vaccines: many of us simply take our cues from others.

In most cultures, meat has been considered the food of the wealthy and is associated with higher social status. As the middle class grew in the U.S., so did meat consumption, and we see this pattern repeated in other countries. The Big Meat companies have exploited these cultural narratives to push their own profit-driven agendas through pervasive, compelling, and government-supported marketing. In sum, our cognitive and cultural constraints have functioned to *increase* rather than decrease meat consumption in the U.S. and worldwide. In fact, 2019 saw the highest global meat consumption per capita in history.

Clearly, this trend is not sustainable. The world population is projected to reach 8.5 billion by 2030, and to increase further to almost 10 billion people by 2050. If we are to meet the goals of the 2015 Paris Agreement on climate change, radical change in our food systems is urgent.[6] We can no longer rely on convincing individuals to change their eating habits through education and ethical arguments because, evidently, most people make their choices about food based simply on **cost, taste, and habit** rather than reasoned considerations.

It follows that if meaningful change doesn't arise from individual consumer choices, then it must come from the producers. Perhaps, eventually, the culture will change as technology and product availability change; we have seen cultural "paradigm shifts" before with the advent of the telescope, the steam engine, mass production of goods, and, most recently, digital technology. Likewise, our understanding of "farming" might be quite different in twenty years.

The Increasing Availability of Plant-based Meat Alternatives

Plant proteins have been available and prepared in delicious ways for thousands of years. Modern day vegetarians and vegans have long been familiar with tofu, tempeh, seitan, and legumes as protein-packed alternatives to meat.

At present, there is a remarkable proliferation of alternative "alt" proteins in mainstream food markets and restaurants; even fast-food chains now consistently include meat alternatives on their menus. Since 2015, the "plant-based" meat market has exploded, to which the popularity of the Impossible Burger and Beyond Meat attest. Yet these companies **do not target vegetarians**; rather, their products are designed to appeal to omnivores, especially reducetarians and flexitarians. For instance, the Impossible Burger "bleeds" when cooked, a feature that repulses many committed vegetarians (and really does seem impossible) but appeals to those who crave blood and meat. As this market expands, though, we should note that not all plant-based meat alternatives are equal.

Let's consider the Impossible Burger: it is a far cry from a "natural" food. The burger is manufactured with two different methods of genetically engineered (GE) soy products. First, rather than begin with organic soybeans, Impossible Foods uses less expensive, government-subsidized GE soybeans in the form of soy protein isolate and soy protein created in a process that strips soy of its beneficial isoflavones. Second, the magic ingredient that causes the Impossible Burger to "bleed" is **heme**, a molecule that contains iron and is naturally found in the blood of animals and in lower concentrations in some plants. Heme is what makes blood red and meat pink. Impossible Foods genetically engineers **heme** from soybeans and yeast in the following manner: the DNA from the heme-containing protein in the roots of soy plants (*leghemoglobin*) is extracted and inserted into a GE yeast, and then the yeast is fermented (like beer) and multiplies to produce heme (instead of beer). But what if the Impossible Burger were made from organic soybeans and organic yeast? Would the injection of soy DNA into yeast to make "plant blood" still be a dealbreaker? If omnivores were satisfied by a hypothetical organic Impossible Burger, it's *not* impossible that the benefits outweigh the harms.

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[1] A carbon footprint is the total amount of GHGs, including methane and CO2, generated by our actions.

[2] If, sadly enough, ethical considerations do not have traction for most people, vegetarian celebrities such as Serena and Venus Williams, Cory Booker, Paul McCartney, Russel Brand, and Joaquin Phoenix among others influence the growing belief that plant-based foods are fashionable and therefore "better."

[3] To be clear, out of this 22%, the majority are vegetarians out of necessity because they lack access to meat. There is a hopeful trend, however, in the U.S.: more Millennials and Gen Zs identify as vegetarian (7-8%) than Baby Boomers (~2%).

[4] The Good Food Institute website is an excellent resource if you want to learn more about plant-based and cultured meat.

[5] Here, Friedrich is following Daniel Kahneman's distinction between Systems 1 and Systems 2 thinking in the latter's 2011 book *Thinking, Fast and Slow*.

[6] The Paris Agreement is an international treaty on climate change, and its goal is to limit global warming to at least below 2°, preferably to 1.5° Celsius, compared to pre-industrial levels.

To be clear, not all plant-based meat alternatives contain GE ingredients. Look for the Non-GMO Project or the USDA Organic logo to identify non-GE products. The Abbot's Butcher brand plant-based chorizo and ground "beef" in our co-op's refrigerator case are non-GMO Project certified but not organic, and the Tofurky brand alt meat products you can find in our store are non-GMO and made with "organic ingredients whenever possible."

Meat Without Animals: A Biotech Food Revolution?

You may have already heard of "clean meat," "slaughter-free meat," "cultured or cultivated meat," or even "lab grown" or "in vitro" meat. These different labels all refer to the same product created in the new field of "cellular agriculture." Basically, cultivated meat is animal protein grown from animal cells in a bioreactor. At a molecular level, this product is **bioidentical to meat from animals—it is genuine animal meat!** The only difference is that it is grown in a vat rather than in a living animal. Such in vitro techniques have been standard practice for growing tissues for research and medical applications, and decades of development in stem cell biology[7] and tissue engineering have paved the way for cultivated meat production: the same biological processes that normally occur within an animal are coaxed to occur outside the animal. In the industry, this process is called *biomimicry*.

Genetic engineering is not required to produce lab-grown meat. The process entails a relatively painless biopsy taken from a live animal, and the cells are cultured in a bioreactor ("cultivator") in a nutritious serum to feed the cells and help them grow into muscle and fat. To produce structured and thick meat products, cells must be transferred to a scaffold that may be made of collagen, chitin, or cellulose. The process can take between two to eight weeks, depending on what kind of meat is being grown.

> While cultivated meat is a newcomer to the alt protein landscape, the idea of growing meat without the animal is not new. In a 1932 article for *Mechanics Illustrated*, titled "Fifty Years Hence," Winston Churchill wrote, "We shall escape the absurdity of growing a whole chicken in order to eat the breast or wing, by growing these parts separately under a suitable medium" (Eschner).

Cultivated meat is still in the research and development stage in the U.S., and there are logistical and cost problems to be solved. But, as of 2020, the first lab meat was sold in Singapore and is soon to be sold in Israel, two small countries seeking food sovereignty and security. There are over 100 startup cultivated meat and seafood companies (think: fish with no mercury) around the world and over one billion dollars invested in these companies at present. An optimistic estimate is that cultivated meat will be available for sale in the U.S. by the middle of the current decade. The CEO of Tyson Foods, one of the world's largest meat producers, has already invested in Memphis Meats, a cultured meat company, and Beyond Meat, the vegan, plant-based "meat" company. Hayes' vision is for Tyson to transition from a meat company to a *protein* company. Cargill is also on board. In an interview with *Bloomberg*, Hayes remarked, "If we can grow meat without an animal, why wouldn't we?" If Big Meat moves to the production of alt proteins, they can be expected to help transition the needed infrastructure and new jobs. (Oversight needed.)

An Interesting Dilemma

Many of us simply desire whole, minimally processed foods. We are justifiably wary of high-tech innovations in the food industry because, historically, many such innovations have been purely profit-driven and harmful to consumers' health and the health of the land. Is it ironic that we should look to technology to help solve our environmental crisis when it is industrial technology and the culture it has spawned that caused these problems in the first place?

As our home planet heats up and catches on fire, we are likely to find ourselves rethinking our relationship to food and to consumption in general. Collectively, our choices matter, and now we have more choices. Alt proteins are often highly processed foods, and some of them are genetically engineered, yet it takes nine calories of chicken feed to produce one calorie of meat, and chickens are the most "efficient" livestock. We simply do not have the carrying capacity to continue our present course. What would future people advise us to

Alt proteins (including bioidentical dairy and eggs) may not appeal to vegetarians, but for those who habitually eat meat, the increasing availability of clean, low-impact proteins may help us liberate animals from our food system, alleviate their vast and needless suffering, conserve clean water and land, and prevent future zoonotic pandemics. Perhaps practicality will lead to a new idealism: if alternative meat achieves cost and taste parity, and avoiding meat from live animals becomes the "new normal," we may become more receptive to the ethical reasons for doing so. Such a shift would signal revolutionary moral progress for our species.

But do we have a duty to promote the wellbeing of future people and future beings? Are we connected to these beings who do not yet exist? If we do not, then we simply live as if we were the last generation of people, and our moral community grows smaller in scope. Do we have a duty to promote the wellbeing of nonhuman animals? If we believe that they are here simply for our use, then our moral community shrinks further.

As we confront climate change and environmental degradation, can we also acknowledge the moral dimension of eating? Do we expand or shrink our moral community going forward?

Finally, the words of the German poet Hölderlin may give us hope: "In supreme danger, there lies the saving power."

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[7] Stem cells are the body's "raw materials" insofar as these are the cells from which all other specialized cells are generated. Under the right conditions-either in a living body or in a bioreactor—stem cells divide to form more cells called "daughter cells."