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ARTICLES

Building a Sustainable Future for Animal Agriculture: An Environmental Virtue Ethic of Care Approach within the Philosophy of Technology

Raymond Anthony

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Abstract Agricultural technologies are non-neutral and ethical challenges are posed by these technologies themselves. The technologies we use or endorse are embedded with values and norms and reflect the shape of our moral character. They can literally make us better or worse consumers and/or people. Looking back, when the world's developed nations welcomed and steadily embraced industrialization as the dominant paradigm for agriculture a half century or so ago, they inadvertently championed a philosophy of technology that promotes an insular human-centricism, despite its laudable intent to ensure food security and advance human flourishing. The dominant philosophy of technology has also seeded particular ethical consequences that plague the well-being of human beings, the planet, and farmed animals. After revisiting some fundamental questions regarding the complex ways in which *technology as agent* shapes our lives and choices and relegates food and farmed constituents into technological artifacts or commodities, I argue that we should accord an environmental virtue ethic of care—understood as caretaking—a central place in developing a more conscientious philosophy of technology that aims at sustainability, fairness, and humaneness in animal agriculture. While technology shapes society, it also is socially shaped and an environmental virtue ethic of care (EVEC) as an alternative design philosophy has the tools to help us take a much overdue inventory of ourselves and our relationships with the nonhuman world. It can help us to expose the ways in which technology hinders critical reflection of its capacity to alter communities and values, to come to terms with why we may be, in general, disengaged from critical ethical analysis of contemporary agriculture and to consider the moral shape and trajectory and the sustainability of our food production systems going into the future. I end by outlining particular virtues associated with

R. Anthony (✉)
Department of Philosophy, University of Alaska Anchorage,
3211 Providence Drive, Anchorage, AK 99508, USA
e-mail: afrxa@uaa.alaska.edu

the ethic of care discussed here and consider some likely implications for consumers and industry technocrats as they relate to farming animals.

Keywords Ethic of care · Animal ethics · Philosophy of technology · Environmental virtue theory · Commodification

Introduction

In the wake of observations made by Latour (1991, 1992), technology is its own edifice or "parliament" that is comprised of artifacts, techniques, and technical capacities that forge human activities together. "Technology" does not merely refer to artifacts that have a functional purpose. Beyond the instrumentalist view, technology has the capacity to shape our moral horizons by posing inherent consequences for humanity. It is a "form of life" with its own agency, for it shapes, organizes, governs, enables, and limits patterns of human behavior. Furthermore, social critiques of contemporary philosophy of technology highlight the fact that technology as agent or "form of life" is value- and interest-laden and that it is not ethically neutral (Stump 2006). The meaning of technology is not fixed by technical imperatives or the parameters of the design but is essentially up for grabs. The view that technological advancement relies on the conservation of a particular social hierarchy is a myth. Instead, there is a kind of "ambivalence of technology" where social hierarchies are constantly being reproduced when new technologies permeate into the public arena (Feenberg 2003, p. 102). In a democracy, Feenberg urges that the public not leave technological affairs in the hands of "experts" or technocrats. Instead, engagement with technology should involve careful negotiation between technocrats and the public, in order that the technical design and parameters that will be integrated into the life experiences of individuals and communities reflect broader public values and not be dominated by the motives or values of an exclusive few. This form of democratization of technology can be somewhat informal and includes public involvement in technical change (Veak 2006).

These concerns regarding the shape of the modern technological edifice and the distribution of social power also cuts across the industrial food complex. In particular, there is steady interest in asking just how and to what extent the global food system as a modern technological edifice should be controlled or governed through wider public participation. Here, the search for a substantive theory or normative content, in the wake of ethical and political maladies and calamities in agriculture, is underway.

However, the arguments marshalled in favor of sustainable agri-food systems (in general) and of promoting animals' interests (in particular), by and large, are still usually discussed without reference to how we[1] engage with technology as a

[1] For the purpose of this essay, the "we" and "us" here represent consumers at large and agents of industry, i.e., corporate executives with decision-making authority, in particular. These groups reflect those in the food system that are in a position to influence structural transformation, following changes in philosophical orientation. While the attitudes of all people toward agricultural animals is not univocal, and that the relationship of a person to her food is unique, and the nature of food and culture of eating may

superstructure and how the dominant philosophy of technology currently motivates how we farm. A side concern is the extent to which technology and technological artifacts conceal the nature of our relationship to food and impede critical engagement in the ethical analysis of technology itself. A notable recent exception that casually alludes to the urgent need for ethical analysis of the relevance of technology and its impacts on agriculture is Thompson (2008). However, much of the contemporary and influential discussions in farmed animal welfare ethics have centered more narrowly on either:

a. Philosophical arguments concerning the moral status of animals and membership into the moral community (Singer 1990; Regan 1983, 1991; Midgley 1983; Nussbaum 2004), or
b. The science of animal welfare, and whether or not the adaptations possessed by farmed animals meet the demands of the production system and whether they are free from physiological, psychological, and physical harm or disease (Fraser 2001; Fraser and Weary 2004).

These discussions impact mainly personal choice decisions around consumption of animals and animal products, with some (see Rollin 1995; Berry 2009, 1996; Hunkel 2000), but little consideration of how specifically the "animals issue" is connected to and mediated by the shape of contemporary philosophy of technology and the latter's influence on how we take up the world.

My modest response to the abovementioned lacuna here is divided into two parts. In Part 1, I attempt to link critical reflections from Andrew Feenberg, Albert Borgmann, and Martin Heidegger on technology to the pervasive view today of farmed animals as mere resources or "commodities." Employing their analyses of our contemporary relationship with technology, I contend that appreciating the good of animals in their own right is obfuscated by the fact that food (production), under the industrial model (and propelled by the winds of the free market economy), has become a "device" and we are "seduced" or blinded by the "promise of technology."[2]

In Part 2, I suggest a virtues-motivated approach to technology as a poignant way to "turn" our philosophy of technology and encourage a shared form of institutional governance of the industrial food system. I will sketch briefly what amounts to four elements that comprise the institutional virtue ethic of care[3] approach. My proposal calls attention to *collective action* to be taken up by individuals with commitments

Footnote 1 continued
vary from country to country, there are some general descriptive claims that are characteristic of "consumers at large" who encounter animals primarily as food procured at stores and in restaurants. Interest in authors like Pollan (2006), and Singer and Mason (2006), and Bittman (2009) reflect a rise in readership in food matters from the consumer side in the production history of food and the social implications.

[2] For a more detailed socio-historical account of this, kindly consult Coff's (2006).

[3] I am indebted to Haynes for pinpointing the different senses of ethics of care. Here, we can distinguish between an ethics of *caretaking* and one of *caregiving*. The latter is more appropriate to primary caregivers of animals like farmers and ranchers. In the case of institutional responsibility like stewardship of the food system, for example, consumers and industry agents, are tasked with inculcating virtues of caretaking to be expressed in the design, development, and maintenance of the industrial system. See Haynes's (2008).

to be virtuous consumers, and industry decision-makers who aspire to promote public-regarding concerns in the food system.

Part 1: Diagnosis and Conceptual Discussion

Revisiting Our Existing Philosophy of Technology

A central project among many recent scholars of technology concerned about its social and political aspects has been to debunk what is referred to as the essentialist paradigm in favor of alternative design philosophies. Andrew Feenberg (1999), for example, discourages adopting a view of technology as necessarily deterministic. Feenberg challenges the supposed autonomy of technology seemingly embedded in the process of technological development. Essentialism perpetuates the myth that technological development follows a single, fixed path of necessary stages, and that it is self-directing.

The apparent deterministic character of technology and our relationship with it in contemporary life, according to Feenberg, has taken hegemonic form. It is a deeply woven stitch of fabric of collective social life and dislodging it is no small feat. The technological hegemony of our day that Feenberg targets—the industrial paradigm—has a particular focus, namely, efficiency (1999). Contemporary society's "fetish" with efficiency serves "the promise of technology," i.e., the promotion of a culture of convenience. Convenience here amounts to the disburdenment from laborious engagement with the world so that we may concentrate on other seemingly more worthwhile matters (Borgmann 1984).

The success of the essentialist paradigm is contingent on the perpetuation of a particular distribution of socio-political power (Feenberg 1999). However, Feenberg argues that technology is a site of contestation of philosophical alternatives and the essentialism of the techno-political hierarchy in contemporary society is not inevitable. So while, technology is experienced as having its own agency, social institutions need not bend to the will of the apparent technical imperative. Technology is inherently social and political and depends on "users" (and not merely on designers) for its meaning and normative content. It is social through the purposes it serves, and the purposes should not be left only for a technical elite to design upstream, but must also correspond with the contexts or realities of the users downstream. The determination of what technology is and what it is not, is not only the responsibility of a select few. A technology that is sensitive to and erected on a plethora of considerations, interests, values, and functions is likely to be more sustainable by the very fact that it has stood the test of public scrutiny.

Philosophy of Technology and Industrial Agriculture

In the case of the industrial food complex, determination of the shape and ends of the system by a select few over a majority of others has left a sour taste among many consumers concerned about animal welfare issues, environmental ethics, and human rights. The imposition of intensification as the dominant technology for food

production in the twentieth and twenty first centuries is a casualty of the mindset of essentialism cum technological determinism. Social policies behind the "modernization" or transformation of WW2 industries and the food policies of the 1970s that advance a policy of "cheap and plentiful" as a limited understanding of food security[4] have borne out unwanted side effects in terms of moral and ecological costs (Ilea 2009).[5] Belief in the apparent technical imperative associated with the industrial paradigm has effectively frustrated the shared development of the potential meanings of technology related to food in favor of efficiency. This has led to numerous deleterious effects and growing public outcry that we see today in the form of counter-hegemonic food movements regarding the systemic smothering of a smorgasbord of "non-superficial values" (Beekman 2008, p. 67).

Drawing from Borgmann's (1984, 2006) work on the character of contemporary technology, we begin to see more clearly how this mode of food production to increase agricultural yield per unit input in the form of "intensification" or agricultural industrialization has not only influenced physical transformations of landscapes (such as designated land use), rural development, and migration patterns, but also has altered profoundly our relationship with technology and the nonhuman world.

For Borgmann, the aims of contemporary culture has evolved into one of convenience or as he concludes, "disburdenment." The central technological ingredient or artifact in our culture of convenience is the device. A device is something to be manipulated and controlled; an object or commodity subservient to human-determined intentionality. It is merely an object that is employed to bring about some human end in the most efficient way. A device disburdens us since it makes no demands on our skills and moral energies. We develop an aura of Teflon, where moral concerns of the day (that should require our attention) do not stick to us (especially if they do not impact us directly), but merely slide off as ethereal bumps in the road waiting to be ironed out by other/more devices. Devices are disposable, replaceable, and anonymous. They relegate the "unconscientious" to mere consumers of products who need not know anything about the inner workings of the devices themselves or their production histories. The device paradigm (and the ethos of disburdenment), which is the cornerstone of modern technology, perpetuates the widespread reproduction of artifacts that contribute to the idea that, ultimately, efficiency and convenience are sufficient for or (more strongly, synonymous with) human flourishing. This is a false conception that is notoriously dangerous to human freedom and is psychically or spiritually malnutritious.

[4] Communities enjoy food security in a thicker sense when its people, at all times, have access to nutritious, safe, personally acceptable, and culturally appropriate foods obtained through normal food distribution channels that is not the food bank or like avenues (Allen 1999). In terms of food democracy and hunger, Poppendieck (1997, p. 175) contends that, "If hunger and undernutrition are a function of people's lack of control over the food production and distribution system, then it is essential that empowerment strategies are developed in order to reassert ownership." See also Casey and Lugar (2008) and Pinstrup-Andersen and Sandoe (2007) for recent mitigation strategies to alleviate some of these concerns.

[5] For further discussion please see Food and Agriculture Organization of the United Nations (FAO) (2009) and Steinfeld et al. (2006).

Borgmann (1984) cautions further against being seduced by this "promise of technology." Heavy reliance on artifacts or devices comes at a cost for they can "conceal" aspects important to the very nature of our humanity and disengage us from a richer connection with our world. In bringing about only human ends, devices often conceal the manner in which they do so.

Writing a few decades earlier, Heidegger (1977) warns that the pursuit of convenience or disburdenment perpetuates a narcissistic ethos of self-importance, where unwitting human beings evolve into nothing more than shells, silhouettes, or technological artifacts themselves; caricatures like the very commodities sought to satisfy their own appetites. Deluded into thinking that we can fix our way out of any problem or social dilemma, we reproduce a culture of technological dependency. Here, and as a prelude to Borgmann, according to Heidegger, we run the risk of becoming somewhat mechanical or dispassionately automatonic in our behavioral repertoire, relying on devices as *the* way of confronting our existential condition and relating to the world—in a way where all of our relationships become grossly mediated by some technological artifact. More importantly, disburdenment as a feature of human flourishing or freedom is rather thin. Shackled to our gadgets and gizmos, we are not encouraged to look for resilience in other parts of our human constitution. At the end, we are left holding a bag of material objects that does not truly fill us up morally and psychically as human beings.

While there may be virtues connected with manipulating resources, Heidegger would chide an attitude of resourcism that is unrestrained and reductionistic, especially when we no longer engage with entities or "things" in their own right but merely appropriate them in order to dominate or exploit without limitation or without greater ethical discretion. Inadvertently summoning the controlling power of technology to dislodge us from responsibilities of care to those in our charge, the exalted view of our own specie's importance is not only cavalier but has assumed hegemonic stature in our time. This attitude of self-importance is what Heidegger calls on us to resist.

In chasing disburdenment for its own sake, we have inadvertently embraced a view of the human *being* as the human *doing*—mechanically consuming without reflecting on limits and harms inflicted on others. Heidegger, as John Stuart Mill before him would contend that we have failed to make improvements in the "art of living [well]" which we otherwise would embody if we promote a world largely free of human domination. According to Heidegger's (1977) analysis of technology, irreverant commodification of things into devices, such as sentient beings with ends of their own into mere artifacts by the present incarnation of industrial agriculture, can lead to a deep loss of a constitutive element of our humanity. Faithful but uncritical acceptance of the current rationalization and technical determinism of farmed animals as objects "standing in reserve" is a form of irreverance of "the other" that betrays a detached and exalted sense of self relative to the rest of the nonhuman world. The concealed natures of animals through the technical design and imperative of commodification has frustrated a natural proclivity to care for "the other." As is found in the Agarian Ideal, for example, closeness to farmed animals in distance and emotion contributed to the development of moral sentiments like sympathy and compassion and imposed necessary restrains on what could be

legitimately done to beings in our charge (Thompson 1993). The presence of farmed animals and farms in local communities helped to "gather" certain virtues of care, respect, and self-mastery.

In terms of the agri-food system, food production has become a veritable commodity-producing "black-box" for which many of us welcome and do so blindly under the cloak of food security and prosperity. The industrial agriculture complex asserts that the fundamental character of food is as technological artifact or device. Like other devices, it is infused with the pre-ordained imperative of contributing to the culture of convenience or disburdenment (I have in mind here agricultural policies that perpetuate the policy of "cheap and abundant"). Food production is reduced to appropriating a uniform commodity or an item of convenience (Thompson 2001, 2008). In our culture of convenience, food production is also socially disburdening, since the demand on our faculties is usually only downstream at the grocery store or at mealtime, where food is something consumed or enjoyed usually in a hurry or as a chore. Since we do not develop a relationship with the food that we eat, it remains alien, impersonal, and isolated. In Borgmann's sense, as a device, food produced in this manner is at once "opaque and incomprehensible." From Heidegger, it is without context and its historical narrative is an anonymous one, "gathering" no demand on us except as consumable artifact. The dominant meaning of food that is disclosed to consumers by the design features of industrial agriculture is a rather morally and culturally limited relationship *to* food as mere morsel.

Animals as Commodities[6]: Our Philosophy of Technology as Philosophy of Commodification

While animals have been bought and sold throughout history, ownership and production of farmed animals in the past was primarily for direct use and more important, they were raised in a manner that was consistent with their natures and adaptations.

Within the abovementioned design philosophy of contemporary agri-food, farmed animals matter only as products; they are but "devices" too or "commodities,"[7] waiting a human preordained end—a manipulated input waiting to be altered into a desired consumable form to a degree that was not witnessed during the agrarian economy. As artifacts or commodities, farmed animals are anonymous. They are "absent referents" (Adams 2000), conceptualized and experienced as facsimilies of actual "subjects-of-a-life" (Regan 1983). When conceived and experienced as units of production or commodities, and less as beings with moral status or a good of their own, farmed animals are easily forced into situations for which they lack the requisite adaptations in order to meet the demands of industry. Production practices that handle billions of these "absent referents" annually continue to "squeeze [these]

[6] My discussion here is inspired by Thompson's (2006).

[7] Commodities are objects or products routinely purchased and sold. The process of commodification transforms objects that may not have been purchased or sold before into something that is or it may increase the degree to which these objects are purchased and sold.

round pegs into square holes" (Rollin 1995). While we enjoy the benefits of disburdenment, farmed animals suffer a disproportionate amount of the costs as a result of our obliging technologies. That is to say, consumers have no real relationship with farmed pigs, chickens, and cows for they remain anonymous and thus, interestless—abstract cogs that are part of the "processed and supply" chain. As devices or commodities, farmed animals in their industrial circumstances further proliferate the ideas of human self-importance and separation from and dominance of the nonhuman world. Consumers and industry agents who are supportive of this technological system effectively become cogs themselves—punctuators and reproducers placed on a highly-mechanized mass production assembly line—growing (by proxy) market weight chickens in the dark in 49 days that cannot keep up with their weight due to rapid growth. Furthemore, this technological edifice keeps contracted farmers pegged down by debt and alienated from their animals.

On closer inspection of the dominant philosophy of technology today, the process of commodification of animals can be analyzed in a twofold sense. Farmed animals experience both *institutional/structural* and *technological commodification* (Thompson 2006). In the case of institutional or systematic commodification, while there is no direct alteration to the physical nature of the object in question, our treatment of the object in question changes as a result of customs, laws, and practices around the commodity. According to Thompson, *institutional commodification* is facilitated through social practice around the commodity in question. Institutional commodification is made possible by the legitimization of farming practices that alienate animals from their sentient natures and by the ubiquity of corporate ownship of food commodities and by the fact that they have become tradeable objects as part of a constellation of billions of production units that are nondistinguishable from one another. With the advent of industrial and global agriculture, new actors have emerged in agri-food production, including animal agriculture. Corporate interests and agribusinesses currently dominate the political and economic "foodscape" and proliferate practices that conceal the nature of food production. As alluded to above, the corporate control of food production has spawned a culture of technicians dedicated to the single virtue of efficiency. The centralized and vertical power structure keeps consumers in the dark under the mystic of cheapness and abundance.

In the case of *technological commodification*, the animals themselves are materially transformed. The transformation of the cultural understanding of food into its elemental protein parts and the requirement that in many regions that food be served fast and is functional, not only produces the institutional commodification of animals described above. *Technological or material commodification* of animals (i.e., which species gets farmed and how they are raised) also occurs in order to meet economic expectations, farming practices, and processing related criteria like refrigeration and transportation. Farmed animals have been transformed, e.g., through genetic engineering of animals or bred to conform to the exigencies of CAFOs in various ways. The sheer magnitude of animals called into existence, raised and processed, and the manner in which we exchange them as a commodity has also greatly influenced our view of their moral status.

Institutional and technological commodification are animated by several mechanisms that heighten the general public's detachment from farmed animals—

alienation (from the subjecthood of animals), proprietorship (which precludes meaningful advocacy of animals by others), and uniformity or nondistinguishability.

Alienation

In descriptive terms, alienation of farmed animals involves the separation of the animals from its subjectivity when they are characterized or catalogued as *food*. In normative terms, alienation results in the loss of moral considerability of animals for their own sake and practically. It implies that animals do not (need to) show up on our moral radars as subjects needing our moral concern.

In terms of psychological alienation, since farmed animals (in general) are primarily experienced in their final form as prepackaged food or meals in boxes, as such, they do not exert moral concern but for when they are connected to human interests, like health (and thus instrumentally), for example. Furthermore, our fast food culture, and big scale agriculture encourages the alienation of animals into food units measurable in terms of protein count and calories. When animals are commodified as a good in this way, an attitude of respect that may have been previously associated with a richer and more complex relationship between farmer and her animal or consumer (as *local* consumer) and by her proxy, the local animal caregiver, evaporate. The current system conceals not only their natures as sentient beings with welfare interests, but our responsibillities to them as well. As per Borgmann and Heidegger's respective observations, blocked from the outside by the nature of the agricultural complexes or hidden from view, animals as devices are hardly seen as ends in themselves and thus are not easily integrated as fellow subjects that belong in the moral community as beings deserving or our direct moral respect and compassion.

Furthermore, according to Rollin (1995), modern farms conceived as technological systems exert behavioral demands on farmers to treat animals in a particular way. Under the guise of the technical imperative, concentrated animal feed operation systems and the requirement to maximize production can influence the alienability of animals when farmers, the primary caregivers of animals, are themselves stymied from expressing core farming practices. With very low profit per animal, farmers with the best virtues in hand are extremely constrained in the amount of resources that they can devote to each animal. "Good husbandry" as found in earlier agricultural traditions has given way to technological solutions to keep animals alive long enough to profit from them.

From a political sense, since farmed animals are concealed as artifacts that do not have welfare interests or a biography that matters morally, concepts like right to life, liberty, and capacity for autonomy are hard to forge and seem unnecessary. While animal agriculture has always been exploitative by nature, raising animals as context free beings in isolated, impersonal CAFOs, beyond the view of our collective backyards, have created a view of farmed animals as everywhere and anonymously equivalent. Farmed animals are placed into these facilities as alien objects—amorphous economic units—sprung upon a region and in no deeper way are connected to it or the community in which they appear, except as mere contributions to the economy. The technological alienation of animals is particularly

urgent, when we consider what modern molecular biotechnology can do to sequence parts of animals (e.g., DNA) and isolate that from the whole animal.

Proprietorship

The nature of modern agriculture erects a structure of proprietorship that conceals a historical reverance for farming, farmers, animals, and the land. Modern farming is predominately a business motivated by narrow values and not a "lifestyle" (Thompson, 2001). Industrial farms are owned and operated by large companies. Corporate executives, engineers, and shareholders live and work far away from the agricultural sites and this physical distance and conceptual detachment from the tradition of more wholesome food production eclipses any sense of responsibility towards local communities and its peoples. Those who make the decisions regarding the fate of farmed animals are not the same people who must live with them on a daily basis. It is a lesson that we have been slow to absorb. This point is reinforced by Schumacher (1973, pp. 33–34):

> It is… obvious that [people] organized in small units will take better care of their land or other natural resources than anonymous companies or megalomanic governments which pretend to themselves that the whole universe is their legitimate quarry.

According to Schumacher, farms that grow organically out of local communities raise animals that are "sited, owned, and operated" by local residents. They are not merely imposed "from outside." As an example of an alternative technological system, farmed animals under a "locally owned" scheme are present in our mind's eye; their biography matters due to their oganic connection to us and to the place where we reside together. They are experienced and valued as immediate members of our mixed communities. Their welfare is better as a function of husbandry values and practices (Rollin 1995) and they are more readily comprehended as beings that have moral standing and who require our moral and physical attention (Midgley 1983).

On the other hand, since farmed animals are mainly experienced as "livestock" today or as mere commodities and are the property of corporations or large agribusinesses (in general), advocacy of animals by others who may be looking in from without is by and large a moot point. Power structures that take the form of legal barriers and corporate regulations can accentuate institutional commodification and further cut off access to animals, both physically and morally, from those who may seek to be proponents of their well-being. Oprah Winfrey's lawsuit by the beef industry in 1998 to "Shut up and Eat Up," brought the fact to light that for many, farmed animals raised in corporate agriculture for their ownsake could not be everyone's business. There were laws, in this case, in the state of Colorado, that made it a crime to criticize the food production sector.

Uniformity or Nondistinguishability

Goods are made uniform because the degree of commodity sameness is crucial to output maximization. Streamlining the product or commodity, treating one item as

equivalent or interchangeble with another contributes to institutional commodification. Here, animals as food are nondistinguishable from one another, both during the process of production and as final form. Through the process of uniformity, individual farmed animals are a dime a dozen, regarded as equivalent or a comparable substitute for a similar one. Again, the animality or subjective life of animals is overshadowed by its intended incarnation as mere morsel, interchangeable or nondistinguishable made available in order to fuel human appetite. Furthermore, from the technological side, the assembly line and automation format of food production hires unskilled and uninvested (often low paid, high turn over migrant) workers who may not be able to consider animals (namely, their welfare and dignity) as beings in their own right. In the US, for example, many of these workers are immigrants who may be in the country illegally or under precarious immigration circumstances. They are sometimes treated with disdain and disrespect and noticeably are fearful of lossing their jobs. Their circumstances dictate whether or not they are able to express sympathy and compassion towards farmed animals.

In précis, by taking up the nonhuman world as merely "available," we become callous and dislodged from the community of beings that make up the natural world. Standing apart and exalted, we have become, as a result of the philosophy of technology we have adopted, somewhat oblivious to the plight of another that rightfully deserves our attention and compassion. The philosophy of technology that we have adopted regarding food conceals the nature of animals and transforms them into mere commodities.

Part II: A Proposal

Animal production is a central dimension of sustainable food production and how we feed people. According to the FAO, currently, approximately 56 billion terrestrial animals are raised and slaughtered every year at the global level (FAO n.d.) for *us*, with a projection that worldwide farm animal production will double by 2050 (FAO 2006, p. 275). Furthermore, how we farm animals in the future has critical implications not only for animals themselves but for human food safety and security, human health and well-being, distribution of resources, and the environment (FAO 2008). It is critical that we reconsider our current philosophy of technology as a feature of our environmental ethic not only to address the animal issues discussed above, but for our own futures as well.

The project to reinstitute the subjectivity of animals as part of reinvigorating our moral relationship with food is not a process to eliminate use of animals entirely, but it is one that is concerned with restoring a respectful attitude towards them. Given the enormity and complexity of the circumstances in which animals are farmed, any such initiative must involve rethinking the governance structure of the food system as an integral part in this reformation. Governance here should be understood as "translation of collective moral intentions [that must meet appropriate moral standards], into effective and accountable institutional actions" (McDonald 2001, pp. 3–4). Alternative or counter-hegemonic forms of animal agriculture that are more humane, local, and sustainable push against the tide of controling elements of

the industrial food system. They reflect the desire for alternate philosophies of agriculture that promote increased decentralization. They also reflect mini-rebellions against surrogate decision-making by industry entities and government powers that have inadvertently ushered in an era of living with the technical/functional ideal of efficiency that is seemingly no longer without limitations and that uncritically put animals, the planet, and ourselves at risk.

Reconstituting Animal Subjectivity: Considering an Environmental Virtue Ethic of Care within the Philosophy of Technology

Two basic themes emerge from the Borgmannian and Heideggerian analyses above:

1. An attitudinal shift or reorientation in values[8] is necessary to overcome the view of "food as device" and to promote conscientious engagement in the food system;
2. Overcoming "concealment" associated with food production and the plight of farmed animals involves dismantling barriers that inhibit the capacity for virtuous caretaking of the food system.

The attitudinal shift involves the development of an alternative understanding of the ends of agriculture post-industrialization. What ethically minded people want to know is whether the burdens and benefits are equitably distributed and whether all of the relevant agents responsible in shaping the design of animal agriculture are motivated by non-superficial values (Beekman 2008). But how far is the public willing and capable to go to adopt an alternate design philosophy of technology for agriculture? This is not the place to have a thoroughgoing discussion of the ends[9] of agriculture but a few considerations in response to this question may be useful in highlighting the difficulties that lie ahead.

Revisiting Feenberg's observation that technology is the site of social struggle is key to the reformation process. When emphasis is finally diverted from the technical and economic imperative of efficiency under a reformed scheme, the choice between alternative philosophies of food production will ultimately depend on how well technological artifacts and the interests of the major actors in the food system dovetail with the values or visions from the various public groups that can and do exert influence on the design process. In the case of the US food system, for example, much of the policies of the 1970s still influence the design of the food system today and has led to numerous efforts by consumers to decentralize aspects of their food system. Citizen-consumer groups who seek a more humane and fair relationship with agricultural animals use a combination of various forms of protest

[8] Values are ideas that direct our actions and help us be good at being human. They give meaning to our lives and guide us to be the best we can.

[9] The ends of a sustainable animal agriculture may include items on the following (non-exhaustive) list. That animal husbandry: (a) involves facilities that are animal welfare and environmentally friendly; (b) Employs less fossil fuels and emit fewer GHGs, (c) involves farmers in decision-making regarding their animals and give them the resources to discharge caregiving responsibilities; (d) involves a scale down of the number of large farms and number of animals; (e) is more transparent to consumers; (f) promotes more local options; and (g) includes a view of food security that emphasizes assess to a wider range of cultural alternatives.

and legal action (e.g., note the recent political contestation related to state animal welfare proposition and legislation in California and Ohio, respectively) to push against what many consider an inferior industrial alternative. As a function of claiming their rights and responsibilities as active citizens in the food system concerned with basic issues like access to safe and nutritious foods in a culturally acceptable manner, these counter hegemony groups examine the exisiting institutions and processes and seek to redesign them to include fairer, more humane, and sustainable technological alternatives.

Since citizen-consumers have a right to participate in decisions that affect them in industrialized democracies, it seems central to bring into public choice the full variety of interests, ideas, and values on dilemmas that the public encounters and to defenestrate a governance scheme orchestrated and controlled by a limited few.[10] Here, industry and government agents bear the responsibility of sharing aspects of technological choice with the public so that public-regarding innovation in ways that are better for the environment, people, and animals can emerge and take hold.

The basic challenge due to the asymmetrical relationship between human beings and animals is how to go about reinstituting a sort of counter weight that mitigates the current tendency towards unlimited exploitation. How can the public and industry designers resist the compulsion for devices that promote the culture of disburdenment and that lead to concealment of and disengagement from food, more generally, and the plight of farmed animals, more specifically?

What is Environmental Virtue Ethics and its Viability as a Response to the Misgivings about our Current Philosophy of Technology?

The standard ways of critiquing the form of radical human-centricism outlined above employ categories from deontological ethics or consequentialism, for example. These approaches fail to deal adequately with the animals issues because they only offer band-aid solutions to symptomatic issues and side step the root concern: We need to change ourselves and the moral shape of our institutions and those who run them. Deontological and consequentialist philosophical animal ethics typically focus on "whether" type questions, i.e., whether animals should be members of the moral community, instead of "how to" questions of better ways to improve their lot (Fraser 1999). By focusing on how technology mediates our relationship with the other and the capacity of technology to shape or organize patterns of behavior we are not stymied by idle cogitations that end up in a stalemate over correct criteria for inclusion into the moral community and that may be divorced from the practical

[10] According to Feenberg (1999) when laypersons are excluded from asking questions and from the process of activively transforming technology and when our built environments and objects are limited to the purposes and context of an exclusive subset of designers, the users' reality is suppressed. Not only does this perpetuate the marginalization of interests that occurs already in the industrial food system but it exaccerbates the monoculture of interests, values, and meanings related to food. A system that germinates only one crop is not resilient and cannot stand up to perturbations or shocks that will no doubt occur. Lest we forget (and with an eye to our capacity to mitigate or adapt to these shocks), industrial agriculture represents but a limited subset of the overall possibilities for food production design. There is potential for profound transformation in the methods and end products of farming if the public is also invited to weigh in on the values that ought to motivate their food system.

business of appreciating the subtle and deeply entrenched impediments involved in raising animals well. In emphasizing "whether" type questions, we get the impression from these approaches associated with deontology and consequentialism that people in general are intentionally uncaring or disrespectful of animals' interests or that consumers do not want to be bothered by governance issues or be more involved in the shaping of the food system. By considering the nature of technology and how it is controlled and governed (Winner 1986) and the virtues and values that motivate and lie within conventional animal agriculture, it soon becomes clear that the inertia in regard to farmed animal welfare is a result of consumers feeling impotent to act given the magnitude of the food system and of diffusion of responsibility to industry agents and government agents to do right by animals and those who farm them (Te Velde et al. 2002). Only by attending to the root concern will we be in better shape to respond effectively to the role technology plays in reinforcing the culture of disburdenment and/or disengagement that leads to seemingly unrestrained exploitative tendencies.

Environmental virtue ethics, whose central evaluative concepts are excellences of character, as has been discussed lately (Newton 2003; Sandler and Cafaro 2005), is a promising counterbalance to our existing philosophy of technology, since it advocates focusing on living well and cultivating character traits that contribute to flourishing for human beings and the nonhuman world alike. In promoting lives that are intentionally lived according to rational principles and moral sentiments like compassion and sympathy,[11] environmental virtue ethics emphasizes the development of personal as well as community based ethical standards within a parliament of open critique and constant evaluation. Pursuing the good is a dynamic enterprise and a central tenet of this ethic that involves taking ownership for choices that we make especially in the face of relationships that involve vulnerable or dependent others. Central here is the starting orientation that the self is bound to others both personally and through the various institutions that formalize and facilitate life. We are necessarily embedded within human and biocentric communities, i.e., interconnected to and dependent on others through practical and moral nexuses we ought not neglect nurturing.

Virtue ethics within the environmental framework is oriented towards seeing not only that human and nonhuman communities and individuals flourish. It also holds promise as a "turn" since it has the resources to tackle the fundamental question concerning our relationship to technology, i.e., the question of being—how should we live well with others? As indicated by Sandler (2007), a central advantage of the language of virtue and vice is its richness and depth in confronting the complexity and diversity of the relationships we have with the natural and built environments relative to, for example, the languages of deontological ethics or consequentialism. Environmental virtue ethics does not appeal to a one size fits all view. Instead it affords us a cluster of ingredients to respond to our ethical duties, and a dynamic way to discuss and assess a wide array of environmental issues. A virtues centered approach also implies a pluralistic response to environmental challenges. Here,

[11] Readers may be interested in a special volume of this *Journal* devoted to environmental virtue ethis. Please see 2010 *Volume 23, 1 and 2.* Guest editors for this volume are Philip Cafaro and Ronald Sandler.

different virtues may be called on in different contexts. The virtues to be inculcated by different agents in a particular case may not be equivalent (and may be role defined) in form and expression, and thus, the diversity of central virtues to draw from is itself a virtue in light of the different aspects of our ethical situations. For example, the responsibilities of corporate executives of large agribusinesses in contrast to producers and consumers of food may involve expression of virtues contingent on the nature of their influence on the food system. Through the lenses of virtue ethics, it is evident that there is an urgent need for steady, steadfast, and continuous commitment in order to reverse the cumulative effects of decades worth of being lulled by the promise of the industrial food system. Here, an environmental virtues approach can help us build communities and enlighten individuals to orient their lives towards a practicable and an effective environmental ethic. This is a core ingredient in shifting our cultural and philosophical relationship towards technology. Some of the virtues that Sandler mentions that are conducive to encouraging environmental sustainability include temperance, simplicity, humility (see also Cooper, 1998), attunement, responsiveness (as expressed through care and sensitivity), attentiveness, and farsightedness. Central ones for the purposes of this essay will be highlighted below.

Virtue Ethics and Agriculture: How Should We Proceed?

In the case of our relationship to agriculture, a virtues perspective can help us discern agriculture's role in forming both personal moral character and global citizenship, and in providing the basis for evaluating policies and transforming technologies. Systems of intensification, for example, would be justified only if they reinforce our role as stewards of the land and animals.[12]

In a traditional account of virtue, a good person strikes a mean position between tendencies of excess and deficiency and aims towards equilibrium after reflecting on and bringing to bear all the relevant facts germane to making an informed choice. Beyond personal morality, the traditional account also acknowledges that our tendencies and abilities to regulate behavior are reflections of the sociocultural and technical environments in which we live. Here, the articulation of ethical norms and standards is likely to call attention to the norms, practices, traditions, and institutions that are particularly characteristic of and valued by a community under question. A virtues approach challenges the public to create social environments that can give rise to exemplary conduct and encourages people to be poised to pursue a a more sustainable, humane, and just world. So, how should exemplary people act towards a fractured food system and a delinquent philosophy of technology that undermines the well-being of human beings and animals?

In order to address both institutional and technological commodification and concerns of alienation, proprietorship, and uniformity, I propose a virtue of care or

[12] The actual forms that a virtue perspective might take will be highly variable and will be dependent on local traditions and exemplary production histories. This can be seen as an invitation for citizen-consumers to be more active participants in any governance scheme for agriculture that emerges in their respective communities.

"caretaking" within the framework of an environmental virtue ethics (EVEC, hereafter).

As Thompson (2001, 1993) has written, agricultural ways of life have figured prominently in some of the most influential articulations of virtues and vices. Included here is Thomas Jefferson (see *Notes on the States of Virginia* (1781–1784). Jefferson's lauding of farmers reminds us how farming systems that are committed to citizenship virtues and community solidarity have had a profound influence on the strength of democracy in the US. As part of developing a deeper connection to the place where they live, today's consumers, like smallholding farmers before them, are bound by certain ethical values that they acquire in virtue of being beneficiaries of the industrial food system.

Specifying the Virtue of Caretaking

Environmental (and in this case agricultural) virtues are proper dispositions or character traits for human beings to have regarding their interactions and relationships with agriculture, farmed animals, and food, for that matter. Virtuous people in this case are disposed to respond to farmed animals in an excellent way and to resist reductionism of sentient beings into mere commodities or mere relative goods. Here, to care adequately for someone or something with whom we have a relationship or with whom we are situated is a quality of the morally good person or society. The ethic of care starts with an orientation of engagement with the concrete, the local, and the particular. Within this tradition, there are four key elements that provide a good starting point for developing a framework of caretaking that can serve as a counter weight to our existing philosophy of technology of disburdenment or disengagement that has concealed the plight of animals and our institutional responsibilities to them. They include (adapted from Joan Tronto 1993 and Simone Weil's work on "attentive love" in Little 1988):

- *Attentiveness* Which involves being cognizant of what's going on in food production and paying heed to the plight of animals and how our actions influence their welfare (and the capacity of those who care for them). In other words, attentiveness is a disposition to be mindful and an expression of how the world ought to be and what is good (as a reflection of our values). It chides being mechanical or rote or unthinking in our interactions with others who demand our moral sensitivity.
- *Responsibility* Which involves the recognition that there is a need to perform certain caretaking functions as a result of our consumerism of some needed or wanted product. The basis of this is found in gratitude to others and humility for being the recepient of goods produced for our benefit (typically something that we cannot produce ourselves). The desire to minimize the deleterious impacts of our behavior on others flows from our interdependency and indebtedness to the efforts of others to bring us a good.
- *Competence* Which involves discharging one's caring responsibilities in ways that actually bring about good welfare for the ones cared for. Here, along with being attentive to their roles as participants in the system, caretakers can also

appreciate the consequences of remote actions performed downstream to impact others that are part of the system.
- *Responsiveness* Which involves vigilance of the dependency and vulnerability of those in our charge or the system that we support, and being alert to the possibilities of negligence, abuse, or incompetence, and acting accordingly to rectify deficits.

Who needs to express these virtues?

Given the nature of the food system, the major actors to whom these virtues are addressed are consumers and industry agents with influence over the technical design, i.e., industry technocrats of the food system.

EVEC and Consumers

A values driven agri-food system is defined roughly as the vision of the good life with and for others through humane and fair food production practices. Currently, the public's lack of appreciation for both traditional and conventional production histories serves as a central barrier for engaging with food in more meaningful ways. By being more attentive to how our choices and obliging technologies may be oppressive to others, we can begin to rebuild the severed connection to food production and farmed animals. Recognizing technology's ability and tendency to shape human behavior and alter values in ways that conceal our responsibilities and the moral subjectivity of the "other" is a crucial first step in overcoming the ways in which technology contributes to somnabulism vis a vis food. Attentiveness or mindfulness can encourage more direct public participation in the food system. Attentive citizen-consumers are people who consider the ethical and social impacts of the animal products that they buy and act upon relevant information by buying animal friendly products. They "think before they buy," and not just about the effects on their finances, but on a whole host of environmental and social ones too. Attentive consumers would limit the likelihood that they would intentionally contribute to the suffering and injustice of others. They are self restrained and do not overconsume. More importantly, attentive consumers, as part of a collective voice, are also active and thus create meaning through choice that may reflect non-superficial values about food. They are also likely to resist unidimensional values embedded in the uncritical technical imperatives of the day.

Ethically minded consumers will likely confront their value commitments and the consequences of their actions from being wedded to the desire for disburdenment. For example, one urgent task for a public that is exposed to the current global food crisis is to weigh in on whether genetic engineering promotes a morally virtuous agriculture and food paradigm. Here, consumers must not only be competently informed about the issues but they bear the responsibility of expressing their values through their actions in political or economic forums where the shape of the technologies can be influenced.

In being responsive, consumers must own up to how they impact the plight of farmers and animals and their complicit behavior through the market economy. Successfully addressing the "animals issues" as a function of our relationship with

technology requires long term, sustainable changes in the way we choose to live. The animals issue is not only a challenge to our ethics, technology, and politics, but it also has the potential for improving the discourse about what we are doing to ourselves, and our futures if we continue to pursue mindlessly disburdenment from ethical life. While it is not an easy task and requires much dedication, virtuously minded consumers can reconstruct the links between food production and consumption on their own in local avenues. It is necessary, however, for citizen-consumers to partner with corporate designers and policy-makers if advances in a non-superficial values-based food production is to be realized.

EVEC and Industry Technocrats

Consumers cannot reform the global industrial food system on their own. Partnership between policy-makers, industry agents, and consumers will be an integral part of any succeessful transformation. Institutions, including businesses, also have central roles to play in promoting these virtues. The food industry is in business for money and sometimes it is in their interest to slow down the roll out of a new innovation because producing the new products and technologies may undercut their own profits if they compete with current ones. However, companies have to realize that it is in their interest to move faster in the wake of social disquietude. Here, industry agents who have decision-making power in their capacity as designers or executives must step forward into their new roles as advocates of how to best produce food without compromising ethical integrity.[13] So how can we accelerate movement towards a sustainable animal agriculture in conjunction with public-regarding technological innovation?

As co-caretakers, industry agents should share aspects of technological choice with others in order to bring about public regarding innovation in ways that are better for the environment and address other public considerations. Industry agents, in exemplifying attentiveness, for example, will recognize that they have a significant role to play in reconnecting the severed link between the public and food production and in bringing about changes in animal welfare. Being mindful, they will realize that industry is taking too long to bring animal friendly technologies to market and that industry, under the status quo, cannot be left to its own devices when it comes to innovating for a more sustainable, humane, and fair animal agriculture. Partnership with government agencies must be stepped up so that businesses can share expertise and knowledge about innovations more openly and so that realistic targets, best practice policies, and regulation can be set.

In some estimates, it takes about 20–40 years for new innovation or technologies to get widespread use and this is too slow for the billions of animals that continue to live in inhumane conditions. In expressing responsibility as major actors in the system, industry designers will realize that it is important to find ways to speed up technological change and to promote opportunities for the public to exercise certain

[13] A delightful example is Stonyfield Farms, the number three yogurt company in America. Stonyfield marries well morals with economics and profitability. Their main business philosophy is not merely motivated by what their customers want but by the commitment of the proprietors to the idea that food reflects their values—for sustainability and respect for the land, animals, and consumer well-being.

democratic rights and to make it easier for producers and consumers to behave more ethically in the food system. Here, responsibility invites informational transparency so that the public and producers can determine the remote and proximate effects of their actions and make measured responses.

In removing barriers that hinder such participation, industry agents should attend to the way in which the image of food is portrayed and controlled and be open to considering what is wrong with the system from the user's end and not just throw high tech solutions to keep an unsustainable, unfair, and inhumane system afloat. Considering the four virtues in tandem, industry designers must create avenues for consumers to inquire and gather information about where their food comes from and the conditions under which it is produced. They must also learn more about the challenges facing farmers and contracted workers as well as their values. Being attentive and responsible in these ways will help to overcome the tendency to take for granted and in some cases commodify "farm workers". Partnerships are important to help combine goals of efficiency/profitability with improved outcomes for the environment, animals, workers, and the public.

These virtues are central for industry designers since they exercise discretion over how to innovate, what products to put out in the market, which technological innovations to and not to develop, how products are put together technologically, where to locate facilities, and how often to update plants and equipment, and more importantly, how to promote superior ways of melding business profitability and technological innovation with social and environmental stewardship. A virtuous industry agent in the present case is someone who considers the ethical and social dimensions in a climate of partnership. The ethic proposed here promotes continued critical engagement in the food system where it has been absent for far too long. By being attentive and responsive, and cultivating competence and responsibility, consumers and industry designers alike can resist the somnambulism that pervades our current relationship with food. These virtues can offer a viable way to break the stronghold of a unidimensional set of values that has, to date, had a disproportionate influence over the worldwide food system.

Lingering Concerns

Certainly, there is no guarantee that EVEC in the variant proposed here will produce the desired ends of a more respectful and sustainable animal agriculture. Arguably also, I have presented but one example of a virtue ethics approach that could work, but there are certainly other variants of virtue ethics that may hold a different attitude towards our relationship with animals and technology. In reply, the proof is ultimately in the pudding for sure. The important $64,000 question that continues to haunt many in the industrial world concerns the extent to which people are willing or able to unseat (and "reseed") the current technological food system with a different moral orientation that in the short run may be costly; a system that on the one hand has given them so much and on the other hand, beckons them to reflect on their self importance and responsibilities to the rest of the world. It is my view that grounding an alternative design philosophy for sustainable animal agriculture post industrialization in EVEC can help us feasibly meet the goals of sustainability and

encourage much needed engagement and willingness to shoulder the burden of said transformation. EVEC marries well with the desire for a larger share of a more common control of the food system. It offers an easy way to insert non-superficial values as central ingredients in order to bring about technological and cultural transformation in the present case.

Conclusion

Technology is an agent that conceals the nature of animals and transforms them into mere commodities; a process that prevent us from developing important skills and virtues of our human nature and from fully Being in the world. Our distorted view of farmed animals is associated with both *institutional* and *technological commodification* of farmed animals and re(produces) alienation, proprietorship, and uniformity that mask the subjectivity of animals and thus, dilute concerns for their welfare in their own right. Furthermore, the technical apparatus of intensification underscored by technological expediency has frustrated not only a more robust view of human flourishing but also wider aims of and balanced relationships we have historically shared with agriculture and food animal. The technologies we choose to use reflect the shape of our moral character and literally make us better or worse consumers, and or people in general. According to Heidegger, a new reconceptualizing and recontextualizing of Being (i.e., the what it is to be human) can be a "releasement toward our true nature," arguably as sympathetic or other-regarding beings not simply concerned with ourselves. Human beings, who are not ruled by technology or devices, and who do not depend on them or others to be surrogates for ethical deliberation and decision-making, are able to see clearly into the nature of things as they are in themselves and their proper relationship to them. They are free. Here, we do well to ponder the philosophical lamentations of EB White (1899–1985, in Carson 1962):

> I am pessimistic about the human race because it is too ingenious for its own good. Our approach to nature is to beat it into submission. We would stand a better chance of survival if we accommodated ourselves to this planet and viewed it appreciatively instead of skeptically and dictatorially.

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