

*Premodern Ecologies  
in the  
Modern Literary  
Imagination*



EDITED BY  
VIN NARDIZZI AND TIFFANY JO WERTH

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## Biodynamic Viticulture, Natural Wine, and the Premodern

FRANCES E. DOLAN

Wine is not just any beverage. The biblical figuration of wine as the “blood of the grape,” which remained common in the early modern period, both assumes that grape juice is analogous to and can even substitute for human blood, and erases the role of human intervention in turning juice into wine. Tobias Whitaker, author of *The Tree of Humane Life or Blood of the Grape*, published in 1654, argues that “wine, especially red wine, is halfe blood before it be received”; it is already, he explains, “sanguinified.”<sup>1</sup> The ancient idea that wine is born rather than made, and that it is human adjacent, persists in the widespread assertion that wine, unlike “other alcoholic drinks ... isn’t a manufactured product.”<sup>2</sup> Perhaps this is one reason that winemakers so often disguise or deny their interventions.

Global industrial winemaking proceeds on a large scale, achieving what is often called an “international” style of wine, which is predictable, stable, ready to drink but able to travel and keep well. At a smaller scale, however, the fundamentals of wine production are under some dispute. Many of the people who are most self-conscious and articulate about their winemaking practices today seek in the history of viticulture, particularly what some identify as the “premodern,” an inspiration and resource for addressing pressing practical, environmental, and aesthetic challenges in the present.<sup>3</sup> The “premodern” they revere precedes the use of chemical fertilizers, pesticides, fungicides, antibiotics,

... Site C Dam: How We Got Here and What You Need to Know”  
CBC News, last updated 17 December 2014 (10:36 a.m.), <http://www.cbc.ca/news/canada/british-columbia/site-c-dam-how-we-got-here-and-what-you-need-to-know-1.2874998>.  
39 Ibid.  
40 Ibid.



monocultures, and heavy machinery. It might, then, be more accurately called pre-industrial. What, then, distinguishes the premodern world we have supposedly lost? Many of those who look to this past claim that changes in viticulture disrupted a premodern communion between humans and the earth, a communion we must now recreate. Both a censure of the past and an attempt to recover it, this story oversimplifies the seventeenth century, defining it as bad to the extent that it is modern, but good to the extent that it is premodern. This popular story obscures the very in-between-ness that makes the seventeenth century in England and its colonies early modern, that is, sort of modern and sort of premodern. It also obscures the ways in which the present is even more indebted to the seventeenth century than we realize.

Winemakers' conviction that the past matters, but their confusion as to how, is an irresistible invitation to contemplate what early modernists know about our particular plot of the past, what we do not, and whether or how either knowing or not knowing could be useful. Since reverence for "the past" is often quite vague, as we will see, focusing on a specific time and place grants both traction and friction. But why choose seventeenth-century England? Even if that "there and then" has a certain claim as an influence on, if not an origin of, many North American attitudes, practices, and institutions, it does not leap to mind immediately when we think of wine. We tend to associate the United Kingdom now with beer rather than wine, largely because it remains a high-profile manufacturer and exporter of craft beer and ale. But as early as the fifteenth century, England influenced wine production as a market. Imported wine was widely available and regularly consumed. Yet it was also subject to heavy import taxes and the ravages of time and travel. As a consequence, seventeenth-century writers, as part of their wide-ranging experimentation and reflection on agricultural possibilities and quality-of-life upgrades, discussed winemaking as an English history to be reclaimed and a promising venture, in both England and Colonial Virginia. What's more, this is the very period, as we will see, that some agricultural visionaries today identify as a turning point from premodern to modern, a turn that, they claim, we need to reverse in order to move forward.

I will focus on two stages in the process from soil to glass: 1) farming practices, particularly biodynamics; and 2) winemaking, particularly the making of wines variously described as real, natural, naked, or authentic. Although the practitioners who interest me produce relatively small quantities of wine, they produce vats of self-justifying discourse.

In it, they both celebrate themselves as innovators and self-consciously refer to past ideas and methods as inspiration.<sup>1</sup> I draw on three bodies of evidence: websites and tour scripts from biodynamic vineyards in Northern California; recent pitches for lower intervention or more natural winemaking; and printed how-to guides to agriculture and particularly viticulture from the seventeenth century. What is visible when we look at seventeenth-century England from my own here and now – twenty-first-century Northern California – and vice versa?

### Time

Wine is, in some ways, untimely matter, in Jonathan Gil Harris's resonant phrase.<sup>2</sup> The wine in a glass now seems recognizably the same beverage as that whose dried traces linger in ancient amphorae. Since wine is now identified both by its grape and by its time and place of origin – as has not always been the case – it encourages the sense that wine captures what Jeffrey Cohen here calls "eco-temps," the essence of the time/space/climate of its origin carried forward, ephemeral but enduring.<sup>3</sup> In the glass, it is hoped, we can taste those "eco-temps," and thereby inhabit another time and place, communing with other drinkers doing likewise. Molecular archaeologist Patrick McGovern, for instance, describes his history of the human "quest" for alcohol, including wine, as "uncorking the past," and drinking wine as "drinking history."<sup>4</sup>

But the value placed on wine as conduit across time and place has to ignore the way that wine's very dynamism makes it unpredictable and unstable: it opens up in a glass, it develops, but it also, disappointingly, fades or goes off. The notion that we can taste the past in a glass, and that drinking wine can connect us to our forebears, ignores all of the ways in which how wine is made and what wine is have changed – and that one of the most durable continuities about wine is its inscrutability. What connects us to wine drinkers in the past is how much we do not know about and cannot control what we are drinking.

The phylloxera epidemic of the 1860s arguably created an absolute divide between before and after. As is well known, phylloxera was a plague of mites that attacked vine roots. These mites came from the United States, spreading around the world with the fashion for gardening and the desire for exotic plant material. As David K. Coley reminds us here, contact can become contamination.<sup>5</sup> But the solution to this infestation ultimately came from the States as well, in the form of resistant root stock onto which preferred grape varieties could be grafted.



There are still some ungrafted vineyards today, but not many.<sup>9</sup> Inoculating Old World vines against a New World pest by creating hybrid vines worked, but it also undermined the distinction between old and new on which the world of fine wine still depends. As a result, that distinction is, at one level, a fiction. This crisis deeply distressed many wine drinkers who immediately claimed that the grapes never tasted the same, the wine was never the same. Their mournful conviction that something had been permanently lost persists in those who have never tasted a pre-*phylloxera* vintage. But it cannot be proved.

The *phylloxera* epidemic was just another crisis in a long process of transplantation. While the prestige of some European vineyards depends on the conviction that they are the perfect home for the grape vine, which cannot flourish just anywhere, that vine is not native to Europe. Vines appear to have been shipped for transplanting, for example, from the Levant to First Dynasty Egypt around 3000 BCE.<sup>10</sup> The history we can taste, then, is a history of movement and change. Outlandish experiments, like the English quest to create vineyards in England and Colonial Virginia, were, though short-term failures, not that different from the experiments that spread viticulture. Furthermore, as climate changes, what is possible in any given locale is changing, too.

The other chronological rupture in viticulture is one it shares with other forms of agriculture: the moment in the early twentieth century when an already industrialized farming system started to depend heavily on chemical fertilizers and pesticides. The industrialization of wine has only continued, of course, with new grape clones, new responses to new pests, new kinds of equipment – many of these “advances” pioneered at the University of California at Davis, where I teach. The farming and winemaking practices that interest me are allied against these supposed advances, attempting to recapture earlier ways of farming and a paradise lost – but not, they insist, irrecoverably so.

### Terroir

Nicholas Joly, a Loire winemaker, has created an association called the “Return to Terroir” to raise wine standards by recapturing a sense of place that is somehow located in the past. While the word *terroir* entered French via Latin in the Renaissance, it did not acquire the meanings it now has with relation to wine until the twentieth century. But in the early seventeenth century, Sir Hugh Plat defended the “race and delicacy” of his homemade wines, using “race” to describe something like what would later be called “terroir.”<sup>11</sup> The *OED* links this meaning of

race specific to wine – “the particular stock or breed of grape from which a wine is made; a particular class of wine; the characteristic flavour of this, supposedly influenced by the soil” (*OED* 8a) – to the more familiar meanings of “race” as a grouping of persons, plants, or animals. The *OED* lists the first appearance of the word with this meaning as 1520. This usage survives in the term “racy,” still used to describe wines. We can also find a negative notion of “terroir” in a Latin phrase from Virgil’s *Eclogues* to which seventeenth-century writers often return: *Non omnia fert omnia tellus* (every soil cannot bear all fruits).<sup>12</sup> Whether imagined as identity, limit, or opportunity, the concept of *terroir* assigns a kind of agency to place. As the term is now used with reference to wine, it asserts that one can taste the essence of a wine’s place of origin and can distinguish one place taste from another. At the simplest level, *terroir* would seem to refer explicitly to the soil and to manifest itself in taste descriptors such as flinty, chalky, earthy, or mineral as if there were some direct transfer from dirt to glass. But while one can measure sugar or Brix level, and thus the direct impact of temperature on grapes, or can gauge the impacts of irrigation practices, no one has yet pinned down exactly how soils register in wine flavours or textures. Nor is the idea of *terroir* restricted to soil constitution. Joly, for example, offers a rhapsodic and capacious explanation of *terroir*: “when a vine is situated where it can unfold its full potency as a highly atypical and self-willed vegetative being, it will imbue its fruit with a taste endowed by the place in which it grows. Simple enough? It weds the soil via its roots, uniting with it intimately, and receiving through its leaves all the climatic conditions specific to that area.”<sup>13</sup> Not simple, then.

The role of climate suggests how unstable a concept *terroir* is. Whether or not England’s ability to grow grapes changed in the Middle Ages has figured in recent discussions of what is now called the Little Ice Age (LIA), a marked drop in temperature from 1300 to 1850, which was particularly acute from the late sixteenth century to about 1660. One can find contemporary references to this climate phenomenon. For example, seventeenth-century herbalist John Parkinson argued that it had become more difficult to make good wine in England because “our years in these times do not fall out to be so kindly and hot, to ripen the grapes, to make anie good wine as formerly they have done.”<sup>14</sup> In Parkinson’s view, then, climate had disrupted a tradition going back to the Romans. Parkinson (and his contemporaries) had no explanations for a drop in temperatures, nor could they predict how or when the climate might change again. How, then, to return to making wine in England? Many blamed a loss of expertise and will, so as to insist that humans alone were

the problem and therefore could be the solution. What had been done, they insisted, could be done again.<sup>15</sup> So what we find when we look at seventeenth-century sources is a shared assumption that English wine production had declined and debate regarding why that happened and whether it could be reversed.

That debate continues. In a special issue of the *Journal of Interdisciplinary History* on the Little Ice Age, Morgan Kelly and Cormac O'Grada find "little sign that any such event occurred." According to them, the assertion that "late medieval England suffered the collapse of its grape cultivation and wine production due to cooling temperatures, is one of the most resonant pieces of evidence adduced for the LIA." They do not document this claim, citing discussions of climate trends in Burgundy rather than England, and ignoring contemporary sources. But English wine serves their purposes because it is a joke to begin with. They argue that there were never many vineyards in England and that the English simply did not try very hard to grow grapes because they could get wine they liked better cheaper from France.<sup>16</sup> At one level, this is of course true. Yet there were defences of English grape growing and winemaking, and they emphasized that English wine would be cheaper than imports, at least as good, and better suited to English constitutions. Whether there could or should be an English wine industry was an argument in the sixteenth and seventeenth centuries, not a foregone conclusion. For Kelly and O'Grada, disparaging English wine fosters the enterprise of disparaging climate change. In the same volume, Sam White opposes Kelly and O'Grada point by point, but he actually joins them in dismissing the significance of wine, arguing that "the entire issue is irrelevant, and their discussion is misleading. England was never known for its wine industry (although global warming could change that). The LIA is hardly necessary to explain its demise." We should note White's parenthetical acknowledgment that global warming is offering an assist to English winemaking. For White, wine in England is a "tangential matter" and "an easy target to avoid confronting the serious evidence."<sup>17</sup> I would counter that wine is one of the agricultural products through which both producers and consumers register (or must find inventive ways to evade registering) the impacts of climate change, then and now.

Soil might seem a simpler component of terroir than climate. But soil amendment, central to farming practices focused on terroir, approaches soil as a work in progress and as a living being that can be impoverished or enriched through human effort; it thus complicates what soil and place are and mean. If terroir is sometimes called "the magical property of somewhere-ness,"<sup>18</sup> that place magic can be worked and

amplified. For example, winemakers discuss a wine's "site expression" or, more evocatively, define terroir as "what the earth is saying to [and through] the grape." To whom is the grape speaking? Apparently, first the winemaker and then the drinker. Aggressive interventions will stifle the earth's voice: "The site-specific characteristics that lie at the heart of terroir seem to be expressed only where winemakers are able and willing to allow them," and "thus terroir is a partnership between the site and the winegrower."<sup>19</sup> The Bonny Doon website defines "essence of terroir" as "the shared intelligence of plant/soil/winegrower." In the word "winegrower," these promotional materials redress the lack in English of the French term *vigneron*, that is, someone who is both grape grower and winemaker. As one "winegrower" puts it, "the hand that controls the irrigation valve" should be "the hand that makes the wine."<sup>20</sup> Hank Beckmeyer of La Clarine Farm explains, "I have come to see that terroir is not a completely independent, location-based phenomenon. It relies on the farmer/winemaker/*vigneron* being part of the equation. It is the person who steers the terroir towards an expression."<sup>21</sup> Rejoining what had been put asunder, the term "winegrower" conjoins growing and making, concentrating authority in one person.

### Biodynamics

The mystical communion between winegrower and land is especially notable in biodynamic farming, based on the agriculture lectures delivered by Rudolf Steiner, also founder of the Waldorf Schools, in 1924.<sup>22</sup> The biodynamic approach has had its greatest impact on viticulture, largely because several prestigious vineyards in Burgundy went biodynamic, starting in the 1980s. There are now a handful of biodynamic vineyards in California and in Oregon as well.

Steiner's lectures engaged the past at two levels: he responded to the recent devastation of the First World War and reached behind that to a usable past that might be recovered from the wisdom and practices of the "old peasant almanacs" and the "simple" "peasant-farmers" whom he remembered from childhood and whose disappearance he lamented.<sup>23</sup> Biodynamic viticulture not only eliminates chemical fertilizers but also depends on integrated pest management and biodiverse planting to promote beneficial insects; recycling grey water and limiting irrigation; keeping farm animals; and hand harvesting clusters as they ripen rather than all at once. Overlapping with procedures at many organic vineyards, these strategies work to outwit the problems posed by the fact that vineyards are, by definition, monocultures. Planting the same crop, year

after year, winegrowers risk depleting soils and starving out pollinators. Proponents argue that biodynamic methods yield vines with longer productive lives (thirty to thirty-five years instead of twenty to twenty-five). Vineyards that have gone biodynamic are called “rescued,” emphasizing reclamation of what had been lost.<sup>24</sup> Above all, the goal of biodynamics is to “wake up the plants,” as one winery puts it, so that their personalities emerge and express themselves, and to intensify “site expression.”<sup>25</sup> Many wineries eschew certification as biodynamic by the Demeter Association in service of the winegrower’s volition. As the Bonny Doon website puts it, “Biodynamic seems to work best when it is voluntarily adopted, not something that is taken up coercively.”<sup>26</sup>

Through this voluntary process, the winegrower communes with the vineyard, conceived as a single organism. While some accounts of biodynamics imagine a vertical axis – drawing spirits down from above and up from below – many also, in their emphasis on terroir, thicken a parameter around a plot of land, fantasizing and mystifying absolute identification with and control over one’s property and product. Biodynamic growers argue that they come close to attaining a closed system with “no external inputs” and wine rather than waste as the only output.<sup>27</sup> Elsewhere, I link the fantasy of a closed system by which one consumes one’s own to composting, local food, cannibalism, and incest.<sup>28</sup> Here I want to emphasize the territorial and possessive aspects of terroir as a kind of “re-territorialization” in contrast to the deterritorialization that Ursula K. Heise (following Gilles Deleuze and Félix Guattari) advocates. It is hard to imagine a greater investment in what Heise critiques as “local rootedness” and the utopian celebration of a “sense of place” than one finds in biodynamics and its offshoots.<sup>29</sup> While I want to draw attention to this, I do not want to dismiss it too quickly. According to many advocates of what Wendell Berry calls “settling,” the farmer with an investment in her soil will husband it most effectively, investing in its future.<sup>30</sup> Resistance to factory farming and industrial winemaking is grounded in a sense of place, often overlapping with land ownership.

Biodynamic viticulture invokes the “premodern” to distinguish itself from organic farming and winemaking, almost as a kind of branding or niche marketing. This involves close attention to an astrological calendar and the use of compost boosters called “preparations.” Under ideal circumstances, these preparations use herbs grown on site and, often, ripened in animal parts, particularly buried in a cow’s horn (which Steiner emphasizes should be that of a lactating cow) or exposed to the air in a stag’s bladder (figure 5.1).<sup>31</sup>



Figure 5.1 Burying cowhorns for the winter. Photo courtesy of Summerhill Pyramid Winery.

The resulting concentrate is then laboriously and prayerfully stirred into water to activate and dilute it and sprayed on vines or on compost heaps where it may act as a microbial inoculation of the soil.<sup>32</sup> The preparations carry with them the essence not just of the plants and animals of which they are composed but of the farmer as well. Katherine Cole, in *Voodoo Vintners*, her account of biodynamic wineries in Oregon, explains that “The belief is that the preparations aren’t merely herbal treatments for plants; they’re carriers of the farmers’ intentions, which have been swirled into them through the powerful act of stirring. While it isn’t a requirement for [biodynamic] certification, intention is that little bit of witchcraft that separates the most committed practitioners from the unbelievers.”<sup>33</sup> This is simultaneously a kind of re-enchantment and, again, a recentring of the human. Joly makes this explicit: “By extending our knowledge, by giving back to the earth all its faculties through a respectful and artistic agriculture, the human being can come to play



his full role" – a role at the centre of the vineyard and universe.<sup>34</sup> As Randall Grahm of Bonny Doon Vineyards explains, "The Biodynamic proposition is really as much about transforming the farmer as it is the farm. A Biodynamic grower is linked to his farm in a much more intimate way."<sup>35</sup> While Hank Beckmeyer of La Clarine Farm has departed from biodynamics as too interventionist, he shares the androcentric and territorial investment of these other winemakers: "My soil is my soil, my terroir, and truly sustainable. And I am very much a part of it."<sup>36</sup> In Beckmeyer's formulation, a more sustainable viticulture requires both standing back from interventions and leaning in by taking possession of, even identifying with, his terroir.

Although biodynamics is curiously human-centred, it struggles to place its traditions in a human timeline. When is the time that must be recaptured? Who are the predecessors whose wisdom must be recovered and revalued? On their website, Quivira Vineyards used to specify the past it evokes as authorization for its "spiritual side" and contrast it to the modern:

The spiritual side of biodynamics includes making fertilizer preparations during certain moon phases, stirring in different directions at different times, applying the organic matter of cow horns in the vineyards, burying cow horns in our organic garden beds. Although these types of farming techniques have been around for centuries – from 15th century Italian farms to 17th century Native American garden plots – in these modern times it is harder to allow for the unexplained. Yet we see the results every day out in the vineyards, as vines strengthen and thrive using these techniques.<sup>37</sup>

The premodern is here a strangely specific yet hodgepodge past of fifteenth-century Italian farms and seventeenth-century Native American garden plots (which are somehow not quite farms), linked by their tenders' willingness to embrace the unexplained (and association with the past). Here, as in every defence of biodynamic practice I have read, the claim is ultimately not that the wine is better for the consumer or even better for the earth but that it is better quality, variously described. The website of the trade association of the Winegrowers of Dry Creek Valley invites tourists on a "picture-perfect" itinerary of the region, promising that, "Earthy, vibrant and rich with character, you will find that Quivira wines deliver one of the most authentic wine drinking experiences you can find."<sup>38</sup> The dangling modifier suggests that you, the consumer, can be as earthy, vibrant, and rich with character as the wines. Benziger

Family Winery claims that its wines have "character and conscience"; "We don't just farm this way because we think caring for the land is the right thing to do, it also happens to be the best way to make distinctive, authentic wines."<sup>39</sup> Why these practices work, however, is left to faith.

Biodynamics tries to turn back the clock, reaching back to what it thinks has been superseded. But it is very vague about what past exactly is being evoked and who are the ancestral experts whose wisdom is valuable. Throughout her account of biodynamic viticulture in Oregon, Cole variously refers to great-grandparents, "Mesopotamians," "medieval European farmers" and "forefathers."<sup>40</sup> Joly draws our attention to "ancient authors," "great masters," and "primitive people." While he refers to "olden times," he also speaks somewhat more specifically about "the botanists of the Middle Ages and their rich store of knowledge, so little understood by our modern era" but then includes among them "Hildegard von Bingen and Nicholas Culpeper," who lived six hundred years apart.<sup>41</sup> When exactly is this not modern time and who exactly should we listen to?

Biodynamic agriculture's focus on the moon is probably the least controversial way in which it gestures towards the past and draws together daily practice and spirituality. The US website for Demeter, the organization that certifies farms and vineyards as biodynamic, includes an update on the current condition of the moon, along with a quotation from Pliny the Elder: "Pliny the Elder, the first-century Roman naturalist, stated in his *Natural History* that the Moon replenishes the earth; when she approaches it, she fills all bodies, while, when she recedes, she empties them."<sup>42</sup> On the Demeter website, Pliny serves to place biodynamics in a much longer history than Rudolf Steiner can, adding the authority of antiquity to veneration for the moon. But what happens in between then and now? Early modern almanacs and herbals include detailed instructions regarding when to plant, suggesting that following them not only ensures success but is required for it.<sup>43</sup> Many early modern writers combine the attention to astrology with the farmers' intentions that we see in biodynamics. As but one example, in his *Floraes Paradise* (1608), Sir Hugh Plat begins with instructions on how to plant a "philosophical garden," arguing that "hee that knoweth how to lay his fallows truly, whereby they may become pregnant from the heavens, and draw abundantly that celestial and generative vertue into the *Matrix* of the Earth; this man, no doubt, will proove the true and philosophical Husbandman."<sup>44</sup> He will surpass all other farmers no matter how well-read they are. However, Plat does not explain exactly how to lay those fallows truly; he just affirms

that one should. The authority is within and above, not in books. That is, even Plutarch cannot teach it. One knows or one doesn't.

Through a process many might call "modernization," a growing scepticism emerges in the seventeenth century about the influence of the moon, particularly on fruit growing. In his *Planters Manual* (1675), Charles Cotton argues that "Some there are, who in planting have a great regard to the Moon, and believe the wain to be much more proper for this work than the increase; but experience shews this Observation to be vain."<sup>45</sup> In the early eighteenth century, one S.J. disputes the claim that the moon governs sparkling wines, an accident not yet understood or controlled: "However *Bacchus* may have the Patronage of the Vine assign'd him; I do not remember that ever *Cynthia*, assumed any Government over that Plant. They might with a greater pretence of Reason, impute it to the Winds, which generally sit in about those times, which by agitating the Air, put the Wines upon a Fermentation."<sup>46</sup> Attention to the moon is both under scrutiny by the seventeenth and eighteenth century, then, and consistently an uncontroversial aspect of farmers' almanacs from Pliny to now.

What about those dung-filled cow horns, for many a symbol of the loopy side of biodynamics?<sup>47</sup> Do they have any "premodern" precedents? They might at first seem to correspond to early modern uses of generative body parts in food and medicine, as Louise Noble and others have explored, as well as in relics, image magic, counter-witchcraft "bottles," and talismans.<sup>48</sup> In the particular case of agriculture, blood and corpses were valued forms of fertilizer, and not always in the composted and unrecognizable form in which blood and bones enter our garden beds today. They found their value through being what William Harvey calls "equivocal gore": they continue to bear vitality even as they are spent and so available for use.<sup>49</sup> Agricultural treatises advised their readers, for example, that the "blood of Cattle, dead Dogges, Carrion, or the like, laid or put to the Roots of trees ... [are] found very profitable unto fruit bearing."<sup>50</sup> Hooves and horns were a coveted contribution to compost heaps, although they were usually shaved rather than left whole.

Gervase Markham, that prolific writer on agricultural topics, acknowledges the generative properties of horns, but distinguishes those from talismanic powers. On the one hand, as Markham expands his compendious text, *Markhams farewell to Husbandry: Or, The Enriching of All Sorts of Barren and Sterile Grounds in our Kingdome*, between the 1620 and 1625 editions, he adds a chapter detailing possible soil amendments, including horns in his copious lists of particularly valuable enrichments.<sup>51</sup> On

the other hand, Markham's presentation of advice from the "ancient husbandman" (probably Pliny) also changes. In each printing, the text rehearses "ancient" practices for protecting crops, including the suggestion that one mix an ox horn with dung and burn it in the field as a cure for or protection against the blighting or withering of crops. But starting with the 1625 edition, Markham concludes his discussion of the ancient husbandman with a dismissal.

But in as much as all these, and manie other the like, smell rather of conjuration, charme, or exorcisme, then of any probabilitie of truth; I will neither here stand much upon them, nor perswade anie man to give further credit unto them, then as to the vapours of mens braines, which do produce much many times out of meer imagination; and so I will proceed unto those things which are of farre greater likelihood.<sup>52</sup>

For Markham, these practices share their origin in "the vapours of mens braines" and "meer imagination" with similarly disparaged superstitions such as occult belief, alchemy, and Catholic faith. Moving forward, for Markham, means leaving such beliefs behind.

While Steiner's lectures can provoke the sceptical to imagine that he invents biodynamics from whole cloth, looking back to ancient and early modern writers suggests that, knowingly or not, Steiner and his biodynamic followers revive earlier practices that were once in use. By the early seventeenth century, a polymath such as Markham knew about such practices and he dismissed them. But it is not as simple as that. First, we need only look elsewhere in Markham's writings, or browse the prolific output of his contemporaries, to find the coexistence of faith and scepticism, empirical observation and fantasy, bookishness and hands-on experimentation, nostalgia and innovation. Bracing as his scepticism is, it is not the whole story.

In his notebooks, John Locke sometimes identifies information he finds questionable with a "Query," or, more simply, a "Q." While travelling to Paris, for instance, he noted that he had picked up the tip "To make vines beare in a barren ground put a sheeps horne to the root & it will doe wonders" but also registered his doubt by adding a "Q." When he returned to his notes later, he expanded on that "Q" as both an expression of doubt and a plan to put the suggestion to the test: "I have been told that a sheep's horn buried at the root of a vine will make it bear well, even in barren ground. I have no great feath in it, but mention it because it may so easily be tried."<sup>53</sup> So Locke, decades after Markham,

records both doubt and a willingness to experiment, even with practices that seem to depend on a faith he does not share. His sense that one might as well try something that costs little stakes out a middle ground between the traditional and the modern. This is a middle ground that many practitioners now inhabit but for which they do not have a name.

Furthermore, most believers in biodynamics have a ready answer for the fact that Markham disparages a "little bit of witchcraft." For those invested in a paradise lost agricultural narrative, Markham here allies himself with the decline of magic, the disenchantment of nature, and the industrialization of farming. For example, in *The Third Plate: Field Notes on the Future of Food*, chef Dan Barber presents biodynamics as a corrective to "the mechanized farming that took root during the scientific revolution of the seventeenth century, led by people like Sir Francis Bacon, who believed you could bend nature to your will, and René Descartes, who saw humans as masters and possessors of nature." Unfortunately, according to Barber, "most of agriculture is still mired in seventeenth-century ideology."<sup>54</sup> Similarly, a gardener tending the beds at Quivira Vineyards responded to my reference to being an early modernist by disparaging Francis Bacon as having "a lot to answer for." What, is not exactly clear. In both of these statements Bacon stands for progress that was a setback, a turning point away from a premodern that must now be reclaimed.<sup>55</sup> Thus "the seventeenth century" appears as the very specific address of ideologies that we can do without, that are holding us back, yet, at least in the form of Quivira's "17th century Native American garden plots," it also overlaps with the inspiring premodern that is otherwise difficult to pin down. Furthermore, as I have tried to suggest, biodynamics is so far from being a solution to the problem of anthropocentrism that it calls for its Renaissance.

### Natural Wine

The question of whether we are turning backward or forward, and of the value of human mastery, recurs in discussions of winemaking. While an international style of wine requires many forms of manipulation, and, arguably, tastes the same no matter where it is from, the makers of this new/old style of wine argue that interventions impede a wine's expression of place. In contrast to the biodynamic recentring of the human, this "more or less old fangled," "new (but centuries old)" school of winemaking aspires to reduce human input to a minimum.<sup>56</sup> The proponents have a hard time agreeing on a name for the wine they want to

produce: natural, authentic, real, and "naked" have all been used and have all been critiqued. But, to greater or lesser degrees, these winemakers aspire to add nothing to and remove nothing from the wine. The descriptions of the resulting wine consistently refer to standard interventions as masks or makeup.<sup>57</sup> According to Jon Bonné, the author of *The New California Wine*, "great grapes, grown in an appropriate place, should rarely require a winemaker to fix things later with additions of yeast, acid, or water – makeup, essentially, that covers up the deficits of mediocre terroir."<sup>58</sup> Such praise participates in an ancient tradition of associating ornament and artifice with the feminine.<sup>59</sup> For Bonné, what makes the new California wine new is a commitment to eschewing the usual easy fixes. These disguises not only block our access to the real or naked wine they obscure, it is argued; they also disrupt continuities. Joly argues for a return to real wine to avoid a future in which "any sense of continuity with the past may vanish forever."<sup>60</sup> Jamie Goode and Sam Harrop, the authors of *Authentic Wine: Toward Natural and Sustainable Winemaking*, call the path to this "authentic" wine variously a "retracing of steps"; "a respect for tradition, a sense of place"; and a "rediscovery."<sup>61</sup>

Goode and Harrop begin one chapter with a quotation from Columella, the first-century Roman writer on agriculture who was an enormous influence on English agricultural writers:<sup>62</sup> "We consider the best wine is one that can be aged without any preservative; nothing must be mixed with it which might obscure its natural taste [naturalis sapor]. For the most excellent wine is one which has given pleasure by its own natural qualities [suapte natura]."<sup>63</sup> But the next sentence in Columella, which Goode and Harrop's epigraph does not quote, begins with a qualification: "but when, either through the fault of the country, or of new vineyards, the [grape] must labours under any defect ..." one must do the best one can.<sup>64</sup> And this extends to boiling the wine, adding wine concentrate, salt water, and pitch.

Columella's reverence for natural wine, on the one hand, and encyclopedic instructions on how to amend and preserve wine, on the other, suggest that even as winemakers turn to the past for inspiration they are also fighting the passage of time. Decay is part of wine's life course and history. The arguments for an English wine industry in the seventeenth century closely resemble those for naked or real wine now; both share a horror of adulteration and a wish that there might be a natural or minimally processed wine, as well as ingenuity regarding how to preserve or reclaim wine. By the late sixteenth century, Hugh Plat laments that "we are growne so nice in taste, that almost no wines unlesse they be more



pleasant than they can bee of the Grape wil content us, nay no colour unlesse it be perfect, fine and bright, will satisfie our wanton eyes ... This makes the Vintners to tricke or compasse all their natural wines."<sup>65</sup> Plat acknowledges here that the impediment to the natural is a cultivated taste for more than nature can necessarily provide.

As part of what some have called an agricultural revolution, many writers and experimenters, following Plat, argued that the English should grow their own grapes and make their own "natural" wines rather than continuing to rely on imports that were both expensive and, usually, spoiled by the time they were poured. It was so difficult to stabilize wine in this period that virtually everyone doctored it in one way or another to conceal and slow spoilage, enhance sweetness, and extend supplies.<sup>66</sup> These interventions were routinely termed "sophistication," linking them to other suspect transformations of the honest or natural into the corrupt and suspect.<sup>67</sup> Beverages that mixed different kinds of wine or combined wine with sweeteners and other ingredients were routinely disparaged as "bastard," a widely used term for an often-drunk sweetened or mixed wine, and as "balderdash."<sup>68</sup> Both terms signal something spurious or deceptive in these mixtures. But while bastard's name announced that it was blended and sweetened, most other wines were as well. Although common, amendment threatened the notion of wine as a kind of bodily fluid, perfectly suited to the human constitution. This is why various writers advocated a more local and so more natural wine that would need less doctoring, be less sophisticated.

Strategies for preserving and improving wines included adding herbs and spices, and variations on what have since become reliable methods: increasing wine's sugar level (with added sugar, honey, or raisins), or using a preservative. Attempts to clear cloudy wines or remove impurities included adding vinegar, wood shavings, powdered marble or alum (an astringent mineral salt), egg whites, parrel (a mixture of eggs, alum, and salt), and isinglass (a kind of fish gelatin). Pigeons' dung was even recommended to make wines sparkle.<sup>69</sup> This list itself should suggest the dangerous potential of such additions.

But it should not serve as evidence of a rupture with the past. Recent warnings to vegetarians about the additives still used in making wine emphasize two things: that gelatin, fish bladders, egg whites, and other animal products are still used to clarify wine (attracting detritus so it can be removed) and that these processes remain mysterious, since wine labels need not specify either fining (or clarifying) agents or the additives routinely used to enhance sweetness, acidity, or colour, all of which

are still winemakers' secrets.<sup>70</sup> One example would be Mega Purple, a form of grape concentrate, used to deepen colour and enhance sweetness.<sup>71</sup> This is the equivalent of turnsole, a plant used to make deep red or violet dye that was added to wine in the Tudor period.<sup>72</sup> While there are some limits on what certified biodynamic wineries can add to wine (no isinglass, blood, or gelatin, for instance), they can use commercial yeasts and fining agents (such as milk or eggs), manipulate sugar and acid, and add sulphur.<sup>73</sup> In terms of the winemaking process, they can use centrifugal pumps, heat or cool during fermentation, and filter. The (largely) biodynamic winery Bonny Doon, for example, which is unusually transparent on its wine labels, confesses to adding tartaric acid, sulphur, and oak chips to its Cigar Volante (2012), one of its many "naturally soulful, distinctive, and original" wines.<sup>74</sup> Even a biodynamic wine such as this one might not meet the most exacting definitions of "authentic" or "natural." But then few wines are or have been "natural," and turning backward will not solve this problem. The history of wine is a history of what Hugh Plat long ago described as "alterations, transmutations, and sometimes even real transubstantiations."<sup>75</sup> This is, in part, because wine is made as well as grown.

### Conclusion

Trying to argue for the value of studying the seventeenth century is often a challenging task. But the growers, makers, and storytellers I am discussing here initiate a conversation about their relationship to the past. In the reverence for peasants and Native people, Hildegard and Culpeper, winegrowers reach back to what Paul Lukacs calls an invented tradition,<sup>76</sup> or what Raymond Williams calls "a myth functioning as a memory."<sup>77</sup> That myth helps many winegrowers use history to authorize themselves even as they selectively both ignore what we can know and create what they want to. What is the function of invoking the past but not really knowing it? Katherine Eggert argues that some early modern knowers turned to alchemy as a strategic means of not learning other, more difficult or "ideologically thorny" disciplines. Eggert invokes Robert N. Proctor and Londa Schiebinger's notion of "Agnotology." If epistemology is the study of how we know, then, they argue, agnotology is the study of "how or why we don't know." I am especially interested in Proctor's notion of "fertile ignorance," which, in Eggert's study, operates as a strategy of latching on to what we do not know in order to disown what we can know but prefer not to.<sup>78</sup> The concept of productive ignorance

leads me to ask what the reverence for the premodern, and the oversimplification of the early modern that comes between then and now, allows winegrowers not to know. Above all, it protects them and their consumers from the knowledge that not knowing the process between vine and bottle, or the real content of the glass, has always been part of wine drinking. The celebration of the premodern also strengthens the identification between owner and land, as we have seen, thickening the boundaries of the vineyard as closed system and conferring the patina of history on private property.

Perhaps the look backward is also a way to avoid a look forward. If winemakers' interventions remain a kind of trade secret, another is the question of how global warming will change the map of wine. Winemakers all over the world are experimenting with different varietals and rethinking their relationship to irrigation because they have to. But the possibility that the map of winemaking will change (as it has changed) is something few winemakers in prestigious appellations are willing to discuss publicly. There may also be a subtler operation at work: they may not always let themselves know this either. Even in England and Virginia, where the seventeenth-century dream of making drinkable wine might finally be coming true in part because of global warming, winemaking is celebrated not as a departure but as a fulfilment. In the early seventeenth century, James I tried to establish vineyards around Jamestown both to supplant tobacco as the chief crop and to reduce the English dependence on foreign imports. This effort included shipping guidebooks, seedlings, and experts to Virginia in the early seventeenth century, and attempting for decades to require every colonist to grow grapes.<sup>79</sup> Although this experiment was a failure, it provides a useful precedent, enabling the Virginia wine industry to present itself as a return and not a departure. Today, the Virginia Wine Marketing Office's website focuses on the slogan "Virginia Wine Is True to Our Roots."<sup>80</sup> This website, like the Wines of Great Britain website, highlights history but does not mention climate change.

The wine industry is, inevitably, aware of the impacts of climate change. Many wineries are preparing for them. But, in the stories they tell visitors to their websites and vineyards, stories meant to burnish their brand and entice consumers, they tend to downplay how they are hedging their bets against climate change.<sup>81</sup> As I have shown, biodynamics and natural winemaking place startling emphasis on the human winegrower. Climate change is both human-made and beyond the control of any one winegrower. In the vineyard, one can control one's own land, vines, and workers. In the winery, one can control what one does or does

not add to or do to the wine. But there are factors outside the vineyard that shape one's options. It is not, ultimately, a closed system because it is part of a larger ecology.

In questioning the functions of not knowing the past one invokes, I do not mean to idealize knowledge as inevitably translating into ameliorative action. As Sharon O'Dair discusses here, when it comes to our civilization's impending environmental collapse, we know a great deal but fail to act on that knowledge.<sup>82</sup> The fantasy of the closed vineyard and the embedded winegrower wards against such paralysis by narrowing the scope of action and scaling down to the individual and to the present. Digging into the local makes it possible to act at least within and through one's terroir, reversing the trajectory Dipesh Chakrabarty traces from biological agency to geological agency. If the disparity between human and non-human time scales with regard to climate has opened rifts between knowing and acting, then one can, at this time in this place, till them. If, as Chakrabarty argues, climate change is, among other things, a crisis of historical understanding, "a sense of the present that disconnects the future from the past by putting such a future beyond the grasp of historical sensibility," conjuring the ties between present and past attempts to ward off that inconceivable future through intentional action in the here and now.<sup>83</sup> Looking backward at the history of viticulture can at least teach us that wine's story is one of change and unpredictability. We cannot preserve the savour of the past unchanged; we cannot anticipate the future. But we can dig in right now.

In what follows, Louisa Mackenzie reflects on the crisis of the humanities and how challenging it is to explain the value of the humanities, and particularly the value of studying the remote past and its artefacts, to those who are not already converts. Faced with urgent environmental and food system crises, who cares about the early modern? Yet the proponents of biodynamic viticulture and natural winemaking already assume that the past is of use to them. Historical knowledge is not something specialists impose on them. Nor do they view knowledge and action, the scholarly and the practical, the academic and the relevant, as opposed. They bring it up; they initiate a conversation. As Mackenzie asks: can we sustain it?<sup>84</sup>

## NOTES

- 1 Tobias Whitaker, *The Tree of Humane Life, or the Blood of the Grape, proving the possibilitie of maintaining human life from infancy to extreme old age without any sickness by the use of wine* (London, 1654), sigs. C1<sup>r</sup>, C2<sup>r</sup>, B3<sup>r</sup>, E6<sup>r</sup>. See Frances E. Dolan, "Blood of the Grape," in *Blood Matters*, ed. Bonnie Lander

- Johnson and Eleanor Decamp (Philadelphia: University of Pennsylvania Press, 2018).
- 2 Jamie Goode and Sam Harrop, *Authentic Wine: Toward Natural and Sustainable Winemaking* (Berkeley: University of California Press, 2011), 111. They announce this at the start of a chapter called "When Winemakers Intervene: Chemical and Physical Manipulation." Later in the book, they quote winemaker Ted Lemon arguing that "winemaking is a human process and not a 'natural' one" (148).
  - 3 As I will discuss below, the popular notion of the "premodern" is elastic and imprecise. Popular idealizations of the "premodern," and suspicion of the early modern, bear little relationship to the vexed scholarly contestations over when we might locate shifts from premodern to early modern to modern, and evade the question of whether we have ever been modern. See Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, MA: Harvard University Press, 1993) and, as but one example, the special issue edited by Marshall Brown of *Modern Language Quarterly* 64, no. 1 (2001) on "Periodization: Cutting Up the Past." The popular notion of the premodern also ignores proposals to reimagine history in environmental terms, with a crucial turning point the emergence of the "Anthropocene," as one example. See the special issue edited by Jan Zalasiewicz, Mark Williams, Alan Haywood, and Michael Ellis of the *Philosophical Transactions of the Royal Society* 369, no. 1938 (2011) on "The Anthropocene: A New Epoch of Geological Time?"
  - 4 They engage, then, in what artisanal baker Lionel Poilâne calls "retro-innovation," the "combination of the best of old techniques with the best of new techniques." Accessed 2 July 2018, <http://laboiteny.com/poilane-bakery/>.
  - 5 Jonathan Gil Harris, *Untimely Matter in the Time of Shakespeare* (Philadelphia: University of Pennsylvania Press, 2008).
  - 6 Jeffrey J. Cohen, "The Love of Life: Reading Sir Gawain and the Green Knight Close to Home," which is included in this volume.
  - 7 Patrick E. McGovern, *Uncorking the Past: The Quest for Wine, Beer, and Other Alcoholic Beverages* (Berkeley: University of California Press, 2009), 27, 269, and passim. Jonathan Nossiter, the maker of the film *Mondovino*, labels his wine memoir "Liquid Memory" – because, he says, wine is "memory in its most liquid and dynamic form." See *Liquid Memory: Why Wine Matters* (New York: Farrar, Straus, and Giroux, 2010). Tom Standage, *A History of the World in Six Glasses* (New York: Bloomsbury, 2005), calls beer "a liquid relic from human prehistory" (10–11).
  - 8 David K. Coley, "Failure," which is included in this volume.

- 9 Christy Campbell, *The Botanist and the Vintner: How Wine Was Saved for the World* (Chapel Hill, NC: Algonquin Books, 2006).
- 10 McGovern, *Uncorking*, 180. In *Ancient Wine: The Search for the Origins of Viniculture* (Princeton: Princeton University Press, 2003), McGovern hypothesizes palaeolithic winemaking and documents neolithic winemaking, speculating that humans and wine co-evolved because one of the drivers in the development of human civilizations was the quest to get reliably intoxicated (27). McGovern documents an ancient history of transporting not only wine but vines, and he suggests that "We recapitulate that history every time we pick up a glass of wine and savor the fruit of a Eurasian plant that has been cloned, crossed, and transplanted again and again from its beginnings in the Near East more than 7000 years ago" (299).
- 11 Sir Hugh Plat, *Floraes Paradise* (London, 1608), sig. E7<sup>r</sup>. Plat's word "racy" corresponds to the term "typicity": "the way a wine displays characteristics shared among wines from this particular location" (Goode and Harrop, *Authentic Wine*, 13).
- 12 In Virgil's *Eclagues*, trans. H.R. Fairclough for the Loeb Classical Library (Cambridge, MA: Harvard University Press, 1916), he imagines a golden age when "the earth untill'd will pour forth its first pretty gifts" and *omnis fert omnia tellus*, or "every land will bear all fruits" (Virgil, *Eclagues* 4.18, 37). The repetition of "omnia" renders the vision sweeping. But possibilities are not endless in a fallen world. In Eclogue 8, Virgil adds the negative and uses the phrase with a broader meaning, so that it might be translated as "we cannot all do everything" (*Eclagues* 8.62). Early modern writers tend to use the negative formulation with specific reference to soil and plants. See, as one example, Samuel Hardlib, *A Designe for Plentie, By an Universall Planting of Fruit-Trees* (London, 1652), sig. D1<sup>r</sup>.
- 13 Nicholas Joly, *Biodynamic Wine Demystified* (San Francisco: Wine Appreciation Guild, 2008), 3; Goode and Harrop, *Authentic Wine*, 41. According to Susan Pinkard, *A Revolution in Taste: The Rise of French Cuisine 1650–1800* (Cambridge: Cambridge University Press, 2009), in the eighteenth century, "this concern with the authenticity of wine – its status as a unique natural product that mirrored the land and weather from which it sprang – was new" (231).
- 14 John Parkinson, *Paradisi in Sole Paradisus Terrestris: A Garden of all sorts of pleasant flowers which our English ayre will permitt to be noursed up* (London, 1629), sigs. Zz6<sup>r</sup>–Aaa1<sup>r</sup>. The claim that climate change "may have been to blame" for the decline in English grape production in the sixteenth century is repeated in popular accounts such as Alison Sim, *Food and Feast in Tudor England* (Stroud: Sutton, 1997), 58.



- 15 On the encouraging precedent of earlier English wine production, see, for example, Conrad Heresbach, *Four Bookes of Husbandry, Newly Englished, and encreased, by Barnaby Googe* (London, 1601), sig. A3<sup>v</sup>; and William Camden, *Britain, or A Chorographicall Description of the Most flourishing Kingdomes, England, Scotland, and Ireland*, trans. Philemon Holland (London, 1637), sigs. Gg3<sup>r-v</sup>, Z2<sup>r</sup>. In *The Grape Vine in England* (London: Bodley Head, 1949), Edward Hyams recapitulates the early modern arguments that climate was not the problem: "Let us not blame on our weather and our soil what is due to our own bad character" (16); "The reason for the decline certainly had nothing to do with any alleged change in the climate" (49). In her Introduction to Hyams's volume, Vita Sackville-West summarizes his argument thus: "Often had I asked myself the question, why, if we once grew grapes in England and made wine from them, do we not do so now? And here, at last, comes Mr. Hyams with a clear and unequivocal answer: we did, we don't, we can, we could, we should" (5).
- 16 Morgan Kelly and Cormac O'Grada, "The Waning of the Little Ice Age: Climate Change in Early Modern Europe," *Journal of Interdisciplinary History* 44, no. 3 (2014): 301–25. One of their sources supporting a collapse of medieval English wine production is Isabelle Chuine, Pascal Yiou, Nicolas Viovy, Bernard Seguin, Valerie Daux, and Emmanuel Le Roy Ladurie, "Historical Phenology: Grape Ripening as a Past Climate Indicator," *Nature* 432, no. 7015 (2004): 289–90, but it focuses on Burgundy and does not address England. See also Emmanuel Le Roy Ladurie, *Times of Feast, Times of Famine: A History of Climate since the Year 1000*, trans. Barbara Bray (New York: Doubleday, 1971), especially the chapter on wine harvests (23–79).
- 17 Sam White, "The Real Little Ice Age," *Journal of Interdisciplinary History* 44, no. 3 (2014): 337, 344. While White dismisses "this tangential matter of wine in England," he also discusses some evidence that cold summers did affect grape harvests (337). See also Brian Fagan, *The Little Ice Age: How Climate Made History, 1300–1850* (New York: Basic Books/Perseus, 2000). The defence of climate as a historical actor, against resistance to environmental determinism, now seems itself a relic of another time, before the recognition of how human history has made climate, that is, the Anthropocene.
- 18 Goode and Harrop, *Authentic Wine*, 17; see also Jon Bonné, *The New California Wine: A Guide to the Producers and Wines behind a Revolution in Taste* (Berkeley: Ten Speed, 2013), 102.
- 19 Goode and Harrop, *Authentic Wine*, 25; see also 177.
- 20 Bonné, *New California Wine*, 46, quoting Ted Lemon of Littorai Wines.

- 21 "Our Farming Philosophy," La Clarine Farm, accessed 22 November 2016, [http://laclarinefarm.com/La\\_Clarine\\_Farm/Our\\_farming\\_philosophy.html](http://laclarinefarm.com/La_Clarine_Farm/Our_farming_philosophy.html).
- 22 Rudolf Steiner, *What Is Biodynamics? A Way to Heal and Revitalize the Earth: Seven Lectures* (Great Barrier, MA: Steiner Books, 2005).
- 23 Rudolf Steiner, *Spiritual Foundations for the Renewal of Agriculture*, trans. Catherine E. Creeger and Malcolm Gardner (Kimberton, PA: Bio-Dynamic Farming and Gardening Association, 1993), 17 (Lecture One), 56 (Lecture Three), and 87 (First Discussion).
- 24 Goode and Harrop, *Authentic Wine*, 58.
- 25 "Viticulture," Bonny Doon Vineyard, accessed 22 November 2016, <https://www.bonnydoonvineyard.com/about/viticulture/>.
- 26 Ibid.
- 27 See, for example, Katherine Cole, *Voodoo Vintners: Oregon's Astonishing Biodynamic Winegrowers* (Corvallis: Oregon State University, 2011), who explains that "The biodynamic farm should be self-sufficient. It should require few if any inputs from the external world" (50). This sometimes gives rise to its own forms of sleight of hand, such as conceptualizing the continental US as one farm so that preparations can be outsourced (127).
- 28 Frances E. Dolan, "Digging the Past: How and Why to Imagine Seventeenth-Century Agriculture" (book manuscript in progress).
- 29 Ursula K. Heise, *Sense of Place and Sense of Planet: The Environmental Imagination of the Global* (Oxford: Oxford University Press, 2008), 10, 8, and passim.
- 30 Wendell Berry, *The Unsettling of America: Culture and Agriculture* (San Francisco: Sierra Club Books, 1977).
- 31 See Steiner, *What Is Biodynamics?*, on "sheaths of animal organs and body parts" (134) and on the importance of local cows' horns (125). The horn has long-standing associations with plenty and abundance. Winemaker Nicholas Joly describes the importance of the horn in this way: "the highly fertilizing property of horns has been known since the beginning of time. They are sold in the form of bone-meal or powder by almost all agricultural associations" (*Biodynamic Wine Demystified*, 102); "Basically, the horn acts as a nursery that cultivates the life of micro-organisms in the dung we put into it" (102); it is a container that concentrates dung's forces (104) and directs its energy.
- 32 Cole, *Voodoo Vintners*, 67; and Goode and Harrop, *Authentic Wine*, 65.
- 33 Cole, *Voodoo Vintners*, 67.
- 34 Joly, *Biodynamic Wine Demystified*, 145.

- 35 "Viticulture," Bonny Doon Vineyard, accessed 22 November 2016, <https://www.bonnydoonvineyard.com/about/viticulture/>.
- 36 "Our Farming Philosophy," La Clarine Farm, accessed 22 November 2016, [http://laclarinefarm.com/La\\_Clarine\\_Farm/Our\\_farming\\_philosophy.html](http://laclarinefarm.com/La_Clarine_Farm/Our_farming_philosophy.html). Emphasizing that one must "accept the uncertainties" of farming and winemaking, Beckmeyer has moved in the direction of low intervention or "do nothing" farming, based on Masanobu Fukuoka's *The One-Straw Revolution* (New York: NYTimes, 2009). But as Beckmeyer's reflections make clear, this does not remove the farmer or the winegrower from the equation.
- 37 Quivira Vineyards, accessed 1 October 2015, [http://www.quivirawine.com/index.php?option=com\\_submenus&id=2&show=8](http://www.quivirawine.com/index.php?option=com_submenus&id=2&show=8). Quivira has subsequently updated their website, removing this statement. Although they acknowledge their debts to Steiner, they now describe "biological diversity," "self-sustainability," and "holistic farming" rather than the "scientific side" and "spiritual side" of biodynamic farming. They also no longer make it clear whether they are Demeter certified. The new website describes the farming approach under "Vineyards," at <https://quivirawine.com/vineyards/> (accessed 2 July 2018).
- 38 Dry Creek Valley Sonoma Wine Country, "Picture-Perfect Itinerary," accessed 2 July 2018, <https://www.drycreekvalley.org/itineraries/picture-perfect-itinerary/>.
- 39 Benziger Family Winery, accessed 2 July 2018, <https://www.benziger.com/winemaking-biodynamics/>.
- 40 Cole, *Voodoo Vintners*, 8, 16–17, 22, 24, 59, 94.
- 41 Joly, *Biodynamic Wine Demystified*, 4–5, 11, 23, 64, 65.
- 42 Demeter Association, accessed 22 November 2016, <http://www.demeter-usa.org/learn-more/>.
- 43 Bernard Capp, *English Almanacs, 1500–1800: Astrology and the Popular Press* (Ithaca: Cornell University Press, 1979); Adam Smyth, "Almanacks and Annotators," in Smyth, *Autobiography in Early Modern England* (Cambridge: Cambridge University Press, 2010), 15–56; and Wendy Wall, "Temporalities: Preservation, Seasoning, and Memorialization," in *Recipes for Thought: Knowledge and Taste in the Early Modern English Kitchen* (Philadelphia: University of Pennsylvania Press, 2016), 167–208.
- 44 Plat, *Floraes Paradise*, 9. See Ayesha Mukherjee, "'Manured with the Starres': Recovering an Early Modern Discourse of Sustainability," *Literature Compass* 11, no. 9 (2014): 602–14.
- 45 Charles Cotton, *The Planters Manual: Being Instructions for the Raising, Planting, and Cultivating all sorts of Fruit-Trees* (London, 1675), sig. E1<sup>r</sup>.

- 46 S.J., *The Vineyard: Being a Treatise Shewing the Nature and Method of Planting, Manuring, Cultivating, and Dressing of Vines in Foreign-Parts* (London, 1727), sig. F6<sup>r</sup>.
- 47 As Bonné puts it, "the buried cow horn became skeptics' rallying symbol" (Bonné, *New California Wine*, 44).
- 48 Louise Noble, *Medical Cannibalism in Early Modern English Literature and Culture* (New York: Palgrave, 2011); Katherine Eggert, *Disknowledge: Literature, Alchemy, and the End of Humanism in Renaissance England* (Philadelphia: University of Pennsylvania Press, 2015), 80–92; and Frances E. Dolan, *Dangerous Familiars: Representations of Domestic Crime in England, 1550–1700* (Ithaca: Cornell University Press, 1994), 180–94.
- 49 William Harvey, "The Second Anatomical Essay to Jean Riolan," in *The Circulation of the Blood: Two Anatomical Essays by William Harvey*, ed. and trans. Kenneth J. Franklin (Oxford: Blackwell Scientific Publications, 1958), 38–9. Gail Kern Paster discusses this phrase in *The Body Embarrassed: Drama and the Disciplines of Shame in Early Modern England* (Ithaca: Cornell University Press, 1993), 73.
- 50 Ralph Austen, *A Treatise of Fruit-Trees* (Oxford, 1653), sig. H4<sup>v</sup>.
- 51 Gervase Markham, *Markhams farwell to Husbandry: Or, The Enriching of All Sorts of Barren and Sterile Grounds in our Kingdome, to be as fruitfull in all manner of Graine, Pulse and Grasse, as the best grounds whatsoever* (London, 1625), recommends shavings of horn from tanners, horners, and lantern makers: "Now if of these you cannot get sufficient to trimme all your ground, you shall then deale with Butchers, Sowse women, Slaughter men, Scullions, and the like; and from these you shall get all the hoofes you can, either of Oxe, Cow, Bull, Calfe, Sheepe, Lambes, Deere, Goates, or any thing that cheweth the cud, and which indeed, if not for this use, are otherwise utterly cast away to the dung hill and despised" (sig. I2<sup>v</sup>). This text went through at least seven editions from 1620 to 1668. After 1620, each was "revised, corrected, and amended."
- 52 *Ibid.*, sig. P1<sup>r</sup>.
- 53 John Lough, ed., *Locke's Travels in France 1675–1679, As Related in His Journals, Correspondence and Other Papers* (Cambridge: Cambridge University Press, 1953), 144 and 144n1 (quoting Locke, *Observations upon the Growth and Culture of Vines and Olives* [London, 1766], 7; and Locke, *Works* 10:323–56). I was led to Locke's "Q" by Richard Yeo, *Notebooks, English Virtuosi, and Early Modern Science* (Chicago: University of Chicago Press, 2014), 199. Jeffrey Masten's exploration of the queerness of the letter Q ensures that it arrests one's attention and invites a second look. See *Queer*

- Philologies: Sex, Language, and Affect in Shakespeare's Time* (Philadelphia: University of Pennsylvania Press, 2016).
- 54 Dan Barber, *The Third Plate: Field Notes on the Future of Food* (New York: Penguin, 2014), 268, 269.
- 55 The disparagement of Bacon might participate in a venerable tradition of feminist critique of his gendered figurations of nature, its mastery, and the process of knowledge production. See, for example, Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (New York: HarperOne, 1990), 168; and Sandra Harding, *Whose Science? Whose Knowledge? Thinking from Women's Lives* (Ithaca: Cornell University Press, 1991), 43.
- 56 Randall Graham describes his "more or less old fangled style" of winemaking on his website for the Bonny Doon winery. In this context, we should also note the surtitle, *A Personal Journey into the New (but Centuries Old) World of Natural Wine*, at the top of the cover of Alice Feiring, *Naked Wine: Letting Grapes Do What Comes Naturally* (Cambridge, MA: Da Capo Press, 2011).
- 57 Goode and Harrop, *Authentic Wine*, 117; Bonné, *New California Wine*, 105; and Joly, *Biodynamic Wine Demystified*, 42, 47.
- 58 Bonné, *New California Wine*, 105.
- 59 Jacqueline Lichtenstein, "Making Up Representation: The Risks of Femininity," trans. Katherine Streip, *Representations* no. 20 (1987): 77–87.
- 60 Joly, *Biodynamic Wine Demystified*, 5.
- 61 Goode and Harrop, *Authentic Wine*, 5.
- 62 For example, Joan Thirsk attributes the revival of composting in seventeenth-century England to Columella's *De Re Rustica* in "Making a Fresh Start: Sixteenth-Century Agriculture and the Classical Inspiration," in *Culture and Cultivation in Early Modern England: Writing and the Land*, ed. Michael Leslie and Timothy Raylor (Leicester: Leicester University Press, 1992), 22.
- 63 L. Junius Moderatus Columella, *Of Husbandry*, Book 12 (London, 1745), which is quoted at the start of Goode and Harrop, *Authentic Wine*, 111. I have added in the original Latin phrasings from Columella, *On Agriculture*, ed. Jeffrey Henderson, trans. E.S. Forster and Edward H. Heffner (Cambridge, MA: Harvard University Press/Loeb Classical Library, 1968), 12:228. "Suapte" means "its very own."
- 64 Columella, *Of Husbandry*, Book 12, 525. This is the book addressed to the bailiff's wife. Books 3 and 4 address viticulture and winemaking more generally.
- 65 Sir Hugh Plat, *The Jewel House of Art and Nature* (London, 1594), sigs. L1<sup>r-v</sup>.

- 66 Coopers, who both made barrels and shaped their contents, were important wine amenders, as were tapsters and housewives.
- 67 Plat, *Floraes Paradise*, sigs. E6<sup>v</sup>–E7<sup>r</sup>; and John Evelyn, *Sylva, Or a Discourse of Forest-Trees ... To which is annexed Pomona* (London, 1679), sig. Xx4<sup>r</sup>.
- 68 See Barbara Sebek, "'More natural to the nation': Situating Shakespeare in the 'Querelle de Canary,'" *Shakespeare Studies* 42 (2014): 106–21, on bastard and on "balderdash – an inferior beverage that mixes different ingredients" (115).
- 69 Plat, *The Jewel House*, sigs. K4<sup>r</sup>–L2<sup>r</sup>. For other extensive lists, see *A True Discovery of the Projectors of the Wine Project, out of the Vintners owne orders made at their Common hall* (London, 1641), 27–8; and Walter Charleton, "The Myserie of Vintners" in *Two Discourses* (London, 1675).
- 70 See, for example, the Appendix to Feiring, *Naked Wine*, which lists "U.S.-Approved Additives and Processes for Wine" (207–8).
- 71 According to Bonné, *New California Wine*, the grape concentrate Mega Purple was "devised by a division of Constellation [Wines] as a way to add color and sweetness to generally cheap red wines – although it is also added to more than its share of expensive bottles" (97–8) and is "one of those not terribly scrupulous additives that is widely used but never discussed" (98).
- 72 Sim, *Food and Feast in Tudor England*, 65.
- 73 Certified biodynamic growers are allowed to use copper and sulphur as fungicides. They defend these as "traditional" chemicals (Goode and Harrop, *Authentic Wine*, 58) and also say that the longer they farm biodynamically the less they need them.
- 74 The homepage of Bonny Doon Vineyard announces that it is "On a spirited adventure to make naturally soulful, distinctive, and original wines": <https://www.bonnydoonvineyard.com/> (accessed 22 January 2017). The clear listing of additions to the bottle and in the winemaking process, which distinguishes Bonny Doon from most other wineries, appears on the retail site for the 2012 Le Cigar Volante normale, under Other Notes: <https://shop.bonnydoonvineyard.com/product/2012-Le-Cigare-Volant-normale?pageID=6C283D98-96C6-14A4-826A-A1E83DFBF311&sortBy=DisplayOrder&maxRows=100&> (accessed 22 January 2017). Such "notes" do not appear for every wine that is for sale.
- 75 Plat, *Jewel House*, sig. L1<sup>r</sup>.
- 76 In *Inventing Wine: A New History of One of the World's Most Ancient Pleasures* (New York: W.W. Norton, 2012), Paul Lukacs emphasizes how recent what we recognize as modern wine actually is: a function of methods, knowledge, and equipment very recently invented. As he observes, "In their opposition

to industrial farming methods, organic and bio-dynamic vintners may seem old-fashioned or traditional, even reactionary. Yet while they certainly can be dismissive of other methods, their philosophies are in fact quite new. Farmers in centuries past may well have grown grapes amid a sea of other crops, but they did not study their properties' ecosystems to determine which of those crops would best prevent dangerous insects or diseases from infecting their vines. Nor did they research which compost materials would change the pH of their soils, and then reinvigorate their vineyards through the introduction of specific chemical elements. Similarly, they may have planted or harvested at the full moon, but they did not do so while consulting Rudolf Steiner's *Spiritual Foundations for the Renewal of Agriculture*. That title gives the modern game away. Both organics and biodynamics are forms of regeneration, with something old revitalized and restored. They reflect traditions, but traditions invigorated or invented anew" (311; see also 299).

- 77 Raymond Williams, *The Country and the City* (New York: Oxford University Press, 1973), 43.
- 78 Robert N. Proctor and Londa Schiebinger, eds., *Agnotology: The Making and Unmaking of Ignorance* (Stanford: Stanford University Press, 2008), especially Robert N. Proctor, chapter 1, "Agnotology: A Missing Term to Describe the Cultural Production of Ignorance (and Its Study)," 25; and Eggert, *Disknowledge*.
- 79 Thomas Pinney, *A History of Wine in America: From the Beginnings to Prohibition* (Berkeley: University of California Press, 1989), 12–29; and John Bonoil, *His Majesties Gracious Letter to the Earle of South-Hampton ... commanding the present setting up of Silke-works, and planting of Vines in Virginia* (London, 1622).
- 80 Virginia Wine, accessed 2 July 2018, <https://www.virginiawine.org/>. See especially "Where Virginia Wine Growing Begins," accessed 2 July 2018, <https://www.virginiawine.org/learn/history>. See also "History of UK Vineyards and Wine Industry" on the Wines of Great Britain website, accessed 2 July 2018, <https://www.winegb.co.uk/visitors/history-of-the-industry/>. Wines of Great Britain is a merger of earlier trade organizations, reflecting, according to the website, "the new confidence from the industry itself."
- 81 Lee Hannah et al, "Climate Change, Wine, and Conservation," *Proceedings of the National Academy of Sciences* 110, no. 17 (2013): 6907–12; Alexandre Boudet, "Climate Change May Change the Global Wine Map," *Huffington Post*, 2 December 2015, [https://www.huffingtonpost.com/entry/climate-change-global-wine-map\\_us\\_565f09b7e4b072e9d1c42d47](https://www.huffingtonpost.com/entry/climate-change-global-wine-map_us_565f09b7e4b072e9d1c42d47); and David Gelles,

"Falcons, Drones, Data: A California Winery Battles Climate Change," *New York Times*, 5 January 2017, accessed 22 January 2017, [https://www.nytimes.com/2017/01/05/business/california-wine-climate-change.html?rref=collection%2Ftimestopic%2FWines&action=click&contentCollection=timestopics&region=stream&module=stream\\_unit&version=latest&contentPlacement=5&pgtype=collection](https://www.nytimes.com/2017/01/05/business/california-wine-climate-change.html?rref=collection%2Ftimestopic%2FWines&action=click&contentCollection=timestopics&region=stream&module=stream_unit&version=latest&contentPlacement=5&pgtype=collection).

- 82 Sharon O'Dair, "Consuming Debt," which is included in this volume.
- 83 Dipesh Chakrabarty, "The Climate of History: Four Theses," *Critical Inquiry* 35 (Winter 2009): 197–222, esp. 206, 197.
- 84 Invitations from Tiffany Werth, and then from Tiffany and Vin Nardizzi, prompted me to write and develop this essay. Tiffany's and Vin's questions and comments, and the conversation and community they created through the Pacific Oecologies conference and this volume, have shaped its development and my thinking about premodern ecologies and why we might care to think about them now. I want to thank them, and the other contributors to this effort, for an unusually collaborative and generative experience.