

THE WHITENESS OF THE WHEAT

by

F. ALEXANDER CHAMBERS

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Aside from those more obvious considerations touching Moby Dick, which could not but occasionally awaken in any man's soul some alarm, there was another thought, or rather vague, nameless horror concerning him, which at times by its intensity completely overpowered all the rest; and yet so mystical and well nigh ineffable was it, that I almost despair of putting it in a comprehensible form. It was the whiteness of the whale that above all things appalled me.

-Herman Melville, *Moby-Dick*

Arrival

Wheat came early to the New World. It was one of the seeds the first colonists brought with them. It was more than food. Wheat would lead to flour, which would lead to bread, and bread would make the country feel like home. It would remind the colonists where they had come from and it would let them feel settled. If they had bread, it meant they were not dependent solely on hunting the wild turkeys and deer of the new land. It meant they had established agriculture, and with agriculture, civilization. Bread would convince the early settlers in the midst of the cold American wilderness that they were meant to be here, because they had made their new country taste like their old one.

They planted it early. They wrote home about it.

By 1626, twelve years after Dutch sailors abandoned their ship, the “*Tijger*,” which had caught fire on the Hudson, and built their colony’s first huts, New Netherland was sending samples of wheat back to Holland. The area, which became the boroughs and suburbs of New York City, was being scouted as a place to live and a place to grow commodities. The Plymouth settlers were less successful in making themselves feel at home. Years after that famous first winter when half of them died and the native people subsequently taught them to grow corn, William Bradford wrote that his Pilgrims had tried to grow wheat months after they arrived. It was a generation before they did so with any reliable success. But they kept trying. The colonists kept trying to grow everything the way they would have grown wheat at home. For centuries, white American farmers girdled trees by cutting rings into their bark to kill them. They would clear the field of all its stubble—ensuring it was thoroughly “stubbled,” they wrote—before planting anything. The story of Squanto teaching the Pilgrims native agriculture may or may not be true, but we do know, from old account books and agricultural chronicles, that for the most

part white farmers ignored the native practice of simply hoeing up the soil, loosening it and turning in the smaller weeds, then planting corn and squash among the stubble. The native people did not concern themselves about turning the field into a clean, blank slate. It seemed to make so much sense though, to the colonists, to clear everything out. The grain they aspired to needed that extra care. They cleared and cleared, sometimes burning trees right where they were felled, determined to clear the fields.

It was late 1620 when the Pilgrims landed somewhere in the vicinity of Plymouth rock. By 1639, wheat had been planted in Connecticut and in Essex County, Massachusetts; it had reached the Connecticut River Valley of western New England by 1640, and it made a stay there in the rich floodplain soils before continuing its expansion west.

The spread of wheat is central to this story. It is the story of the spread of whiteness.

Wheat Was an Impossible Ideal

Listen to these words. Imagine how you might pronounce them. Feel them in your mouth.

χwit

χwaitjaz

hwaiteis

hveiti

weizzi

wieten

wēten

hwæte

and again, *χwit*.

These are the words from which *wheat* derives. *χwit* is the foundation. It is an Old Teutonic word that gave us *χwaitjaz*, then the Gothic *hwaiteis*. *Hwaiteis* appeared in Old Norse as *hveiti*, Old High German as *weizzi*, and Middle Low German as both *wieten* and *wēten*, which led to words that now describe popular German beers: *weizan* and *weiße*. *Hwaiteis* landed in Old English as the strong masculine *hwæte*. *χwit* also led to *white*.

Why do *white* and *wheat* have the same root?

In his book *On Heroes, Hero-Worship, and the Heroic in History*, Thomas Carlyle heroically misreads Adam Smith's theory of language. Carlyle contends that all words, and by implication all ideas, derived from specific, concrete things. He suggests that before the general idea of greenness came about, there was one thing, one part of the world, that was especially green and known for its greenness. It was called *green*, or *a green*. Maybe it was a grassy field. In any case, once people started to notice other things that shared that quality, they described

them using the same word, referring to a “*green* tree,” for example, as we now say “coal plant,” “hog farm,” “biodiesel engine” or “cob oven.” Happily attributing this idea to Adam Smith, Carlyle says “We cannot annihilate a man for etymologies like that!”

It turns out, though, that this is not Smith’s theory. In the essay he attached as an appendix to the third edition of the *Theory of Moral Sentiments*, his “Considerations Concerning the First Formations of Languages,” Smith does make this argument for general nouns. Two savages, he suggests, who grew up without language, remote from the societies of men, would refer to their lithic home as the *cave*. Before they encountered another cave, the word would refer only to the one, and it would be a name, a proper noun. But on seeing another cave, they would be inclined to call it by the same name, and the word would end up a general term for all shelters recessed in stone. Here Smith agrees with the theory Carlyle ascribes to him. But when Smith describes adjectives, we see that Carlyle misread him:

The word *green* could not, as we were supposing might be the case of the word *cave*, have been originally the name of an individual, and afterwards have become, by what grammarians call an antonomasia, the name of a species. The word *green* denoting, not the name of a substance, but the peculiar quality of a substance, must, from the very first, have been a general word, and considered as equally applicable to any other substance possessed of the same quality.

The nature of an adjective as a quality rather than a substance makes it impossible for it to have begun as an individual thing.

Carlyle’s misreading of Smith is far more attractive than Smith’s original point. Imagine that *white* came from *wheat* rather than, as Smith would argue, the other way around. This may be difficult; when wheat sprouts it is green, and as it ripens it turns amber, reddish, beige, or gold—not white. The only white part of the plant is the seed’s endosperm, the starch. The starch, however, with its mix of protein and energy, is wheat’s most valuable part. Wheat’s starch has more gluten than any other grain, meaning dough made from wheat flour rises higher than any

other dough. Because of the nature of wheat's starch, bread made from wheat was the lightest, softest bread, and therefore the most coveted and expensive. Wheat's white starch made it a luxury food. In the parts of northern Europe where the word *χwit* was being used for a crop and a color, wheat's starch made it a more valuable commodity than barley or rye, so valuable that it has been, at times, a form of currency itself. The whiteness of the wheat was its most precious aspect.

Flour was, in this conception, the first white thing worth discussing. Wheat flour embodied the original desire for whiteness, even though only recently has flour become truly white. Millers spent thousands of years trying to isolate the whiteness, but they always end up with impurities—tiny brown bits of germ and bran that sift through the bolting cloth with the starch—and because of oils in the seed, the starch itself is actually more of a cream color. Industrial milling has, in the past century, gotten better at extracting the whiteness, but it is impossible to make a flour that is completely pure. When millers realized that true purity was an unattainable goal, they introduced bleach. We may be satisfied now with our flour's color, but if bleach gave us the appearance, the essence is still impure.

Impurity will do in practice, though, if in language we aspire to something more. In the fourteenth century, Scottish poet John Barbour described “Hawbrekis, that war quhit as flour.” *The Romance of Sir Eglamour* enjoined us in the fifteenth century to “Kepe we thys lady whyte as flowr.” The comparison means *white* had become an ideal that was, by the fourteenth century, separate from *wheat*. But Carlyle’s theory suggests—and I think we should not annihilate him for this—that before *white* had been abstracted from its original object, the best flour was the most *wheat*, and the best bread, the *wheatest*. And when other things came along that seemed especially pale and pure, like fine parchment, or the skin of a young lady who had been protected

all her life from the sun, those were called *wheat*, and, like flour, their impurities—the parchment's oily patches, the young lady's few and delicate papules—were overlooked too.

Skin's Quality

Whiteness was an impossible ideal, and so, centuries after *white* separated from *wheat*, the word *wheatish* arose. *Wheatish*, used in India to describe a person's complexion, refers to shades we generally associate with wheat. It expresses a realism that *white* would not admit to. Whereas the directness and monosyllabic purity of *white* buttresses a faith that one could someday achieve perfection, *wheatish* acknowledges similarity without aspiring to sameness. There is, perhaps, even some disappointment in the word.

I looked it up online. On the Livewire Teen Forum, MeMumbaikar asked the question “WTF is wheatish skin?”, apparently posting a picture of wheat as well, although the link was broken by the time I did my research. The next post said, “Lol. Fair > Wheatish > Dark. I think you answered that for yourself.” Hosko, respondent #3, acknowledged the word’s etymology, asking “wheat coloured by any chance?” to which Jay JW LH responded, “Well I suppose they are not talking about raw wheat, but the wheat you buy,” adding a picture of wheat kernels of the pale, whitish variety.

Along with discussions of its definition, a search for the word brings up questions like “I am having wheatish appearance. How to become fair?” and “I m a male 22 .my skin is wheatish i want to become fair please help me by giving effective tips.” The search will also offer information about India’s skin-lightening industry, suggestions for how to lighten the appearance of one’s complexion using digital photo technology, and brief self-descriptions from dating sites. The complexion seems mostly undesirable, although I did come across a picture of Salma Hayek underneath which a blogger had written, “Her wheatish color makes her inviting.”

Wheatish has been a complexion at least since 1950, the first date of the word’s occurrence recorded by the OED. The OED says it is typically “found in Indian newspaper

advertisements describing prospective brides.” What the OED does not explain is that the word is a euphemism. In India, beauty is associated with pale, white complexions—*fair* is the more common word. *Dark* is the opposite of *fair*, but no one wants to admit directly to their inadequacy, so the word *wheatish* arose for people who were not fair but also not quite dark. *Wheatish* is not a direct euphemism for *dark*—as the Livewire Teen Forum explains, it refers to complexions somewhere in-between—but it is a euphemism nevertheless. The word attempts to create a quality outside the binary of fair and dark but fails because it is only used within that spectrum. Less direct than *dark* or *fair*, it is still an admission of coming up short.

The ideal of whiteness in Indian culture is hard to trace. In 1947, India gained independence from British rule. In 1950 it became a republic. In that same year, prospective brides started comparing themselves to the color of wheat, but the admiration of pale skin began long before Europeans arrived. Around 1500 BC, Aryans were expanding their territory south. They conquered many of the Dravidian peoples, whose darker skin came to be associated with harsh outdoor labor and servitude. The agricultural workers, as usual, were some of the least-respected, so anything associated with them carried a stigma, just as anything associated with social power, with intellectual work, with religious insight, was idealized. There is doubt, however, as to whether the Aryan conquerors’ skin was actually any lighter than the Dravidians’, and so one begins to think that the appeal of “fair” skin, which occurred in Indian mythology and religion long before the appearance of the British, might not be racial at all. If the pallor of the people who sat and wrote and talked indoors was beautiful, it was not because of their race but their daily endeavors. The need for a euphemism for darkness, then, along with the euphemism itself, would derive from work and social position rather than the darkness itself. The whiteness of the wheat is not, in the end, a reference to color.

To Justify My Thinking About Wheat

About a third of a mile from the dike that stands ready to hold back the Connecticut River's floods is the former site of the Celebration Bakery. When my father first leased the building from the old Polish family who had been baking there for generations, we saw the pale yellow discolorations on the walls that marked the floods they remembered before the dike. The Celebration Bakery loomed large over my adolescence.

There was a time when my father's various small businesses were like family and I cried when one was closed. We were walking through the yard from the old carriage house (we lived on property that had once been high-class, and was still comfortable and probably expensive, but was too close to the funeral home (next door) and county hospital (across the street) to command the status it once had; my father's family had gone a similar way over the previous three generations) when he told me he was closing the pizza place, and I remember it felt like a death—if not a human death, then at least that of a beloved and long-lived border collie. He owned a restaurant, a snack bar, a bakery, always with the conviction that this one would be the instrument to settle our financial worry.

In college, I read *The Communist Manifesto* in a comp lit class and realized everything came from somewhere. I needed to know the sources of production. It was an awakening.

This father, who I now consider a great friend, has for as long as I've known him been hardworking and ambitious and unable to reach his goal. As best as I understand it, the goal has been to own and run a successful business, a business that would pay off the debt and provide for

him and my mother in their later years, which are around a corner that we'll soon be able to see. During the three years he owned and ran the bakery, he got up in the middle of the night, most nights, to shape the bagels by hand. He eventually bought a bagel-shaping machine and slept until five.

I started making bread in college and now I depend on it. I refuse to buy bread and as a result have to make two loaves almost every week. Wheat is the second most popular grain in the world, but what sold me on it, finally, was reading in *Laurel's Kitchen*, one of the early whole food cookbooks—one whose lifestyle seems so healthy as to be unattainable and certainly not wholly enjoyable—that whole wheat not only has important nutrients like folacin and thiamin, it also has a significant amount of protein. It is one of the most thorough foods, calling only for leafy green and orange vegetables and a bit of animal or legume to make a complete diet, which makes me want to hold the grain up to the sun and gaze at it in wonder, but I don't.

My father started a) a lunch counter called Snacks. I think we are both quietly proud that the counter has become a local institution, although it's been almost thirty years since he sold it. b) A restaurant, the Classé Café and, to expand on that, c) the U.S. Pasta Office, which in spite of its name mostly sold pizza, delivered in a former postal truck. I'll skip to e) the burger joint: The Better Burger (they *were* good burgers), before mentioning d) his anonymous foray into high-quality cake slices for convenience stores (saran-wrapped; delicious), in between The U.S. Pasta Office and The Better Burger. Then f) The Celebration Bakery. He made everything by hand and rarely worked for someone else for long. He never learned to sell widgets.

Nature camp made me an environmentalist. That and a duo who came to my elementary school and sang a song about how garbage was filling up our plains and our oceans and our skies, repeating the word *garbage*—relatively cheerfully and with good intentions—until it became a curse and the visions of a planet-wide landfill struck me in my sleep for years to come.

And one spring my father closed the bakery, the last of his food businesses, and went on unemployment and spent the summer in the backyard learning to juggle pins. He got good. In the next years he would become frustrated and depressed as he tried selling financial plans for IDS (International Decision Systems?), saw career counselors, and found no way to make a living that he could both believe in and enjoy. He would start baking bread at home, so there was homemade bread throughout my high school years. On Sundays, we broke into crusty rolls whose steam melted the butter. This is not about nostalgia. I make my own bread now, and it is almost as good.

The memory I have of writing a late-night entry in my first journal, a hard-cover Mead composition book, about wishing my dad would work less so I could see him before I grew up and left home, turns out, upon examination of the journal, to be false. The entries are mostly about girls.

To be a good person. To do good in the world. To do good for the world. I want to ask when you stop worrying about that.

A loaf crackling as it cools on a rack on a kitchen counter.

To juggle pins, start with two in one hand, one in the other. Toss one in the air, angled toward but not at the other hand, and as it flips, make the same toss with the other hand, so that, as the other hand follows through from releasing the second pin, the first is falling into its grip, and as you catch the second pin, you're tossing the third, and as you catch the third, you're tossing the first, and your hands are moving in small circles while the pins spin in front of you, and it keeps going—red-blue-yellow-red-blue-yellow-red-blue—until a botched toss makes for a shaky flip or a pin knocks a pin or your attention wavers and your grip is too slow. My father got good enough that summer that he could juggle as long as he chose to.

The question of whether, in the shadow of corporations and governments, individual domestic choices matter.

My own desire to open a bakery is related to my desire for heroism.

In Northampton, Massachusetts, the city he moved to when he was twenty-six and has lived in for over thirty years now, my father started small businesses. He now knows the city and the people in the city, and is not quite a Figure, but has left a small history there. You could call each business a chink in a cement post of the central downtown parking garage of the city's history.

Can you ever repay your parents? Can you ever live up to them?

I regularly talk about starting a bakery, but with the long hours and start-up capital and small profit margins and repetition I know it would be best if it never came to pass.

I can juggle three balls steadily and unfancily, and to juggle four I start with two in each hand and hold one, untossed, in my left hand. One hopes that someday one will be more competent.

A few years ago The Hungry Ghost Bread Bakery opened in Northampton and the owners rekindled my hope for a solution to the problem of the world's problems by deciding to establish an economy of local wheat. They want the people of the Pioneer Valley to have control over their supplies of seeds and food. I believe in Cheryl and Jonathan, who own the business, and their financial success seems both substantial and modest, and their bread is delicious and seems always scarce, as they are never open when I am in town over the holidays.

My father has figured it out. While I was still in high school, he started a consulting business that analyzes the telecommunications contracts of businesses, nonprofits, and municipalities to ensure that they are not paying more than they should be—because of the phone companies' mistakes, false advertising, or managers' ignorance about the better deal—and is paid a percentage of what they save. “A wholesome way to make a profit” is a phrase that sounds sentimental or cloying. He figures out the ways the system is not working and does what he can to make it work.

What we talk about all the time can be misleading. Along with his long hours at the office, the repetition of my father's belief that this year the business will turn around and really start to make enough money to pay the taxes and save a little, suggests that money is all he cares about. The problem, though, was that until recently he didn't care about it enough; he often did work for free if it seemed like an important cause.

Last week, when my parents visited Alabama to celebrate my daughter's first Christmas, my father said the business keeps getting better, and he thinks this coming year it will really start to make money. I think so too.

The building that was once the Celebration Bakery is now an antique store called Memory Lane, but I insist that this is not about the past.

The Bubble Bursts and the West Begins

At first, the Connecticut River Valley was an excellent place for wheat. Being the western edge of the colonies, land was cheap, and for thousands of years a giant glacial lake, now gone, had precipitated the calciferous remains of living creatures into its bed, leaving a soil full of nutrients for the farmers millennia later. The Valley was fertile enough that settlers could make a profit sending wheat east to Boston, where it would be eaten or sold as far abroad as England and the West Indies. Sylvester Judd wrote in his *History of Hadley* that “in Northampton, Hadley, and Hatfield, every farmer raised wheat, and wheaten bread was common.” It was the middle of the century, and a wheat boom was on. Lots were granted, populations increased, and cities were founded: Northampton in 1654, Hadley in 1661, Hatfield in 1660.

For a while, relations between the colonists and the native people were genial. They traded goods and exchanged knowledge about farming and religion. Once, a native man paddled to Northampton to conduct some business with the settlers. When he returned to the river he found he had been left with a “broken cannow” that had been “taken forth and used and abused by diverse young persons.” Northampton officials ordered that he be paid restitution. That was 1667.

Then, in 1675, John Sassamon’s body was found under the ice of Assawampsett Pond in eastern Massachusetts. Sassamon was a Harvard-educated “praying” Indian. He was a Christian, which meant he could move with the elites of white society, and he was also an advisor to Metacom, the chief of the Wampanoag Nation. Neither group ever fully trusted him. Less than a week before his death, he had whispered to Governor Josiah Winslow that Metacom, known as King Philip by the colonists, was planning coordinated attacks on settlements throughout New

England. He worried to Winslow that the warning might lead to his murder, but Winslow ignored his warning and his worry, and days later neighbors found his bloated body. Another praying Indian came forward to say he had seen three of Metacomet's men kill Sassamon and shove his body through a hole in the ice, and after a trial by a jury of twelve Englishmen and six praying Indians, the men were hanged. It can be hard, sometimes, to determine the difference between punishment and vengeance. The distinction lies in one's position on whether the punished party is guilty. In this case, the Wampanoags believed the hanging was unjustified. It seemed more like white society's vengeance on a death than fit punishment for killers, and, in any case, because they had not been allowed to try their own people, the sovereignty of their nation had been violated. Three days later, Pokanokets were arming themselves outside Plymouth, and before the month was out, Metacomet had laid waste to the town of Swansey. King Philip's War was begun.

The roots of the war lay in the steady expansion of colonial settlements throughout New England, especially in Massachusetts and Connecticut, and the erosion of the Indians' access to land and goods for trading, which had been a strong connecting strand between them and the colonists. They didn't like the colonists' plan to convert them all to Christianity, and I imagine the colonists were also trying to convince them to start eating wheat bread instead of corn.

Colonization brought wheat and war. The war was largely over within a year, but it ended western New England's already-waning wheat boom. Metacomet was killed and his son sold in Bermuda along with his wife and a few hundred other native captives. Bermudans claim the rebels as ancestors. The native tribes—the Wampanoags, the Nipmucks and Narragansetts, the Pequots, Podunks, and Mohegans—were forced to disperse and disband, and it would not be long before the Massachusetts language had gone extinct. The farmers had gone to war, and many

of them had died—the colonists lost more than a tenth of their men—so labor to grow wheat was scarce. The War, however, gave the colonists a new collective identity: they were Americans now. They had a country. The eastern cities were no longer in danger from the native people because there were too few native people left near the eastern cities. The frontier—the area of contact between colonist and native—had moved to New England’s interior, and over the next hundred years the wars continued so settlers could plant more wheat. It is rarely mentioned, this grassy plant, but as the apex of European agricultural ideals, wheat brought about the Wild West.

Flour

a woman writes a letter

*Near the lighthouse but the fog is so thick the words
Run as she writes them for a moment she can't tell
The sea spray from the fog one falls back the other stays
Suspended between two houses in the distance is a
Clothesline with a red shirt on it but she sees a bird*

—Matthea Harvey, “Translation”

New forms. Other letters, a different syntax. We translate so the body can take the thing up, so it feels good on our lips and in our hands. To translate is to see the thing wrong.

Translation lets us understand the protein—the gluten—that grows in the kernel and fermentation, the digestion before we eat. It calls for us to deny the seed’s desire to grow, grinding it into a form it never planned. We seem to have to translate. Our lips require it. Sugars rendered as alcohol. One molecule into another. *Pane* into *pain* into bread. Translation is a milling between grindstones, a denial of what lies before us; it is an overdose on the opiates of the visionary imagination. We lose the old form, and if we know something about it, it is only history, a memory. The kernels, dusted with *saccharomyces cerevisiae*, are gone, and instead we have a powder we might mix with water and, with enough care—daily feeding, an inoculation of blueberries or grapes or another fruit dusted with the pale white bloom of yeast if the wheat’s own bloom is insufficient—with enough care we can turn the powder into a swelling thing, alive and sour. And in the oven it’s reworded again.

Which is to say we live by translation. We only know by moving old terms into new languages, by turning the thoughts of great men,—the dialectics of Marx, the parables of Jesus, the expansive affections of Whitman, the paranoias of Pynchon,—into our own. When we doubt, we translate; it comes to us that we cannot fathom the words of another, they seem so many deadbolts shutting out the fine golden grains stored within; we question whether the stores might

not have molded, gone to rot or been ransacked by some rude beast, a family of mice or a scavenging, plaguey rat; but, upon finding the key, whether sent us in a letter by a distant friend, or handed down by a teacher, or fashioned through long nights of trial and error at our own keymill—cut by our own hard-won genius—we at last open the door and find the kernels of another man's knowledge. Still we doubt. We examine the grains, weigh and test them. We find they have no taste, and are indigestible. Only when we have enough skepticism to break them open with our analytic mills and grind them down to a form we can use in the bread of our own day, do we find the truth of another man's words. To doubt is to see possibility: to see a phrase, a word, as insufficient, and to imagine it can be made more by being made different; that, though it seems impenetrable, it can be made useful. The solution to doubt is to examine, analyze, break open, and then to dissolve in the tapwater of the present.

Flour is the language of seed translated into the language of powder. There is a seed, and in the seed are germ, bran, and starch: the embryo—the beginning,—the preservative shell, and the sugars that energize life. All life depends on sugars, the trees and the teenagers with their sour patch kids made of corn syrup and invert sugar. We depend on sugars for romance, when we seduce our lovers with chocolate pots de crème, slowly cooked while we hurriedly sweep the dust from the halls as an additional luxury for her; we depend on sugars for energy when we give ourselves up to teaching third grade and have no time all day for a meal; and we depend on sugars for birthday parties we share, at ten years old, with two friends, the tallest and greediest of whom has held his breath during the birthday song so as to blow out all the candles in a quick burst of air before either of the others of us could make a wish. But when we mill a whole kernel, the sugars are tempered by the germ, with its oils, its enzymes and exaggerated flavor, and by the bran, the fiber that slows digestion and gives flour hue and texture as it flakes out of the mills we

grind by hand in our enthusiasm for the light sheen of sweat that comes with cranking out something usable.

A Field of Ripe Wheat

Must you have seen something in person to say you love it?

Taming the Rough Pennsylvania Wilds

Or wheat is itself the West. I picture healthy farmers on combine harvesters trawling through amber waves. They are only as far west as Kansas. Maybe eastern Colorado. They are not cowboys. They do not sling guns, wear Stetson hats, or ride their trusty steeds from town to town, protecting innocent settlers from Indians. They are the innocent settlers, or their great-great-grandfathers were. Nevertheless, by way of these settlers, wheat drove the West.

“The West” has two connotations. They are mutually exclusive, but they meet on the frontier. In Connotation #1, the West is Western Civilization, with its foundation in Ancient Greece and its edifice of Cartesian rationality and Baconian science. For the past four centuries, if you were from it, this latter West has stood for lower-case civilization itself. Any society without Descartes—and this applied especially to societies in the “East”—was too strange to be civilized, even if aspects of their noncartesian arts and religions were exotically tantalizing. If it was not Western Civilization, it was not civilization. The other West—Connotation #2—is the edge of settled America as arid borderland of wide open space, pioneering loners, long highways, rifles and a particular American idea of freedom. The sparsely-settled parts of the Western United States still carry an aura of the frontier.

Historian Frederick Jackson Turner contended that the frontier is what made Americans American. He announced his “frontier thesis” at the World’s Columbian Exposition in 1893, arguing that it was the encounter with the wilderness, ever-farther from European civilization, that gave Americans their desire for independence and individuality, and cemented their desire for either popular government or none at all. To the frontier, he writes, “the American intellect owes its striking characteristics.” It gave Americans “that coarseness and strength combined with acuteness and inquisitiveness; that practical, inventive turn of mind, quick to find expedients;

that masterful grasp of material things, lacking in the artistic but powerful to effect great ends; that restless, nervous energy."

The first markets that drove the expansion west favored the French trappers and traders.

The French gave the Native Americans guns and allowed them to keep hunting. The English, on the other hand, wanted farmland, and Turner quotes a Frenchman as he emphasizes the effects of the agricultural colonization to the Iroquois:

Go see the forts that our king has established and you will see that you can still hunt under their very walls. They have been placed for your advantage in places which you frequent. The English, on the contrary, are no sooner in possession of a place than the game is driven away. The forest falls before them as they advance, and the soil is laid bare so that you can scarce find the wherewithal to erect a shelter for the night.

On the American frontier, Western Civilization followed on the boot heels of the pioneering loners. Wheat was a sign of civilization's encroachment. It was also the reason to move west: as the East filled up with people and land got expensive, the West offered more space to grow more of this most valuable of grain commodities.

The frontier started on the Atlantic coast. By the time of King Philip's War the West was interior Massachusetts and Connecticut, the limits of the Europeans' New World where settlers and Native Americans mixed, one group proselytizing and the other teaching agriculture. When the war ended, the East Coast had been established as fully civilized, fully white, fully Westernized. For the next hundred years—until the 1763 Treaty of Paris—the “Old West,” as Turner calls it, consisted of the hundred-mile swath inland from the East Coast, which the colonists fought for, cleared, settled, and then planted wheat in as often as they could. The limit was the Appalachians: the Piedmont, the Shenandoah Valley, Pennsylvania's Great Valley, the Mohawk Valley and the backcountry of New England. The ability to go west and farm was a safety valve for political discontent. It allowed the dispossessed and the disenchanted to pick up

and move, finding cheap new tracts and lawless lands where they could start anew instead of confronting the exploitation of the settled East with their wrenches and bolts. It seems indicative of the promise the frontier held for economic freedom that the first national labor unions in the U.S. were formed in the late 1860s, just as railroad tycoon Leland Stanford pounded in the transcontinental railroad's Last Spike at Promontory Summit, Utah, clinching the coast-to-coast settlement of the country and sounding the frontier's death knell.

Wheat was planted on the frontier for two centuries—almost as long as there was a frontier. In the first half of the eighteenth century, it moved from the older towns in the northeast colonies to newer settlements in the west and the north. The fact that wheat was only grown on the edges of civilization worried people. Connecticut minister Jared Eliot wrote in a minor panic in 1754 that "It is high Time something were done; our old Towns raising very little wheat, it is purchased at the new Towns, and these new Towns will be old in Time; and then what shall we do unless some better Way can be found to manage our old Land. . . ." Luckily, New Jersey was still coming through. In 1749 it had raised more wheat than any of the other colonies. Later it would perpetuate the idea of the West by supporting the first film studios and the making of *The Great Train Robbery*, which set the standard for the Western. Now it has more diners than any other state and, somehow, more horses per square mile.

But even before the turn of the eighteenth century wheat was moving west to Pennsylvania, whose famous Brandywine Mill produced better flour than New York. The land there was good for the wheat, as one Dr. More had discovered in 1686:

The last year I did plant about twelve Acres of Indian Corn, and when it came off the Ground, I did only cause the Ground to be Harrowed, and upon that I did sow both Wheat and Rye, at which many Laughed, saying, That I could not expect any corn from what I had sowed, the Land wanting more Labour; yet I had this Year as good Wheat and Rye upon it, as was to be found in any other place, and that very Bright Corn.

From this we can see that the land was fertile, and settlers would inevitably be drawn westward, out from under the watchful eye of European culture, to distinguish themselves as American by taming the rough wild lands of Pennsylvania and New York, and later Texas and Colorado, and to become, through their struggles with the wilderness, strong and unsubtle. But the settlers wanted wheat and bread, so civilization followed close on the heels of the frontier, and maybe most Americans were not so rough and unsubtle then, as we're not so rough and unsubtle now.

White, Meaning Normal And Not Whole

My father sees no reason for whole wheat bread. It's denser, and the dough is harder to work with than white. When the health claims are repeated to him, he points out that he has eaten white bread his whole life, with no ill effects, and more significantly, so has his mother, who is 89 now and only in the past couple years starting to slow down. So he continues to bake with white flour, making daily bread and rolls that he eats with peanut butter for breakfast and lunch, making some of the best pizza dough I've had—crunchy and subtly sweet—and, out of the same dough, focaccia for every party and gathering, which the kids in the extended family pounce on when he and my mother walk in the door carrying their baskets of what is just pizza dough with lots of parmesan, olive oil, and salt around the edge, not to be confused with the rich, tender, deep-dish focaccia of bakeries with fancy storefronts and advertising. I could imagine him being ostracized if he ever gave up the focaccia-making, a prodigal son in reverse.

For generations—centuries even—the whiter, lighter flour was the higher-class flour. In the European Middle Ages bakers separated into two guilds based on the kind of flour they used. The brown guild made bread for the masses; the white baked luxurious, expensive bread for the aristocracy and the early merchant class. In the seventeenth century, as technology progressed and early capitalism raised per capita income, “white” bread, which by our white-bread standards was just whiter bread, as mills had yet to find a way to extract a pure white flour from the bran and germ, was accessible to more of the population. The brown guild, then, was dissolved. It is interesting to think about who has access to whiteness. It turns out to be a question of democracy, of social structure, and of politics. Why did the brown guild dissolve? I don't know, but I like to think that before they abandoned their guild, the brown bread bakers accused their former friends of acting too white.

I do not, however, mean to suggest that either democracy or white flour was commonly accessible in the seventeenth century. A conflicting report comes in that by 1800 it was only certain French millers who were striving for high-quality flour, which is to say white. American and English millers lived in less-stratified societies, so their focus was on Quantity, not Quality, because there were not enough citizens to afford the high-quality flours. French society on the other hand had sufficient stratification for the separation of flour into high and low qualities to be worthwhile to the miller. The wealthy could afford it and had a taste for the finer things; the commoners had no choice. Bread was a national obsession for the French common people: it absorbed fifty percent of their income, whereas, by comparison, they only spent five percent on fuel. Imagine following bread prices the way we follow oil prices, driving by the grocery stores and noting on their tall outdoor signs which ones have bread for \$2.45.9/loaf and where it costs \$2.49.9. Or maybe closer to \$86.15, if we want to start to think in similar proportions of income. In England and the U.S., the common folks would not have stood for the browner flour left for the French commoners, and there was not enough wealth—or not enough taste?—to call for finer-grade whiteness, so everyone ate the “single straight flour,” “single” meaning it had only been ground once, and “straight” referring to all flours that were meant for human consumption, as opposed to the tailings left for the cattle.

In Austria, millers had as many as 84 different grades of flour, the lowest for animals and on up through the levels of society, which workers had to keep track of in different buckets before the final blending and sale to the right person of the right class.

And then, in the late nineteenth century, roller mills—parallel cylinders that rolled grain between them—replaced millstones as the standard, leaving the stones to be set aside for reenactments of colonial life at state parks.

Roller mills brought the extraction of the flour's whiteness as high as 60 or 70 percent. Suddenly everyone could afford high-quality flour, which was white flour, which was pure starch, pure energy. The history of milling I have on my desk, *Flour for Man's Bread*, published in 1952, describes civilization's quest for white flour with what one might call hyperbolic reverence. The authors are thrilled about refinement and the industry that has brought it about. And it is interesting that, even then, in the nutritionally-naïve boom years of the mid-twentieth century U.S., the authors knew the bran and germ contained almost all of the wheat kernel's nutrients. Why would they so admire a system designed to sift out all the health? They understood that we still received those nutrients, if indirectly, in the meat of the animals they had been fed to as tailings. It was an inefficient route, maybe, but it was refined and industrially delicious.

Some of the worst malnutrition ever seen in England occurred in the decades following the introduction of roller mills. This constant refinement through the twentieth century of everything from sugar to flour to the exploitation of soil nutrients leaves a strange taste in one's mouth. It may be the taste of pellagra or beriberi, with which the English and American working classes were afflicted as soon as they got their strong, sooty hands on white bread. (The best treatment for beriberi is a thiamin hydrochloride tablet, but, lacking that, the recommendation is to feed the patient whole grain brown bread.) Beriberi and pellagra were mostly eradicated, at least in the U.S., after 1941, when the government called for millers to add four of the twenty-five or more nutrients lost in extraction back into the white flour.

Or the taste in my mouth might just be laziness, which I am prone to, which allows me to dream about spending my days baking rich whole wheat sourdough breads in a wood-fired masonry oven on a small vegetable farm. At the moment, though, I have to go put two French

loaves into the freezer, loaves that in a fit of decadence I made with half white flour, and commercial instead of wild yeast, and which rose excellently, were cake—as they say—to shape, looked great coming out of the oven, and which, it turns out, are kind of bland.

The Hessians Rain Destruction

Although they are best remembered for the flanking maneuver that helped the British General William Howe win the Battle of Brooklyn, Hessian mercenaries' greatest victory during the Revolutionary War was against American wheat. The mercenaries, the thousands of men who had been pressed and sold into service by Landgrave Frederick II of Hesse-Kassel, came to fight for the British. Most of the survivors returned home after the war, but they left a fly that devastated the whitest and best of the wheats that had established themselves in the young colonies. The Hessian fly was loosed from meal sacks broken during that first battle in Brooklyn Heights. It colonized with the eagerness of a persecuted religious minority, taking over the wheatfields of New Jersey by 1786, hitting eastern Pennsylvania two years later, and making it west of the Alleghenies by 1797. By the turn of the century, as the farmers continued to curse Britain for having used mercenaries on its own subjects, the Hessian fly was happily decimating wheat crops through the backcountry of New England and New York.

In 1818, the Reverend Dr. Timothy Dwight, president of Yale, grudgingly wrote *A Statistical Account of the City of New-Haven* for the Connecticut Academy of Arts and Sciences. He said, "As this account is drawn up in circumstances of extreme inconvenience, the Academy will, I doubt not, readily excuse its imperfections," after complaining that he had only made the attempt "because I was convinced, that it would be made by no other person." Eventually he reminisces that prior to the Hessians' fly,

the white bald wheat was almost exclusively cultivated. This was much the best wheat, ever known in New-England. It was less exposed to injuries from the frost, or the blast, than any other. It yielded more by the acre; the grain was heavier; the flour was whiter, and better tasted; and the bread fresh and moist much longer. This wheat was, more than any other, the favorite food of the fly; and has, therefore, been for many years disused. The yellow-bearded wheat has been substituted for it extensively.

Even regular tillage and application of insecticides has yet to make the fields safe for the white and bald. The Hessians' legacy continues to prey on American wheat.

Recent Developments in the Yard as Form

As the first decade of the twenty-first century draws to a close, the most popular American yard continues to be the Leisure Yard. This is the standard yard in neighborhoods across the country. My neighbors maintain versions of the Leisure Yard, and, somewhat by default, so do I. These yards consist mainly of lawn-space, a term I use to refer not to the physical lawn but to the idea of the lawn as it is experienced by the observer. It is the experience of lawn-space that calls for maintenance—in contrast to, say, a farm field, which is *worked*, or an empty lot, which is, at least by those responsible for it, usually *ignored*. (There are opportunities for other kinds of use in the empty lot; these uses are similar to the oppositional yard genres I will discuss below.) Small companies, often with itinerant workers, are typically employed for lawn-space maintenance, which they do with varying degrees of intensity depending on the depth of tranquility the client finds in the lushness of his or her lawn-space. For the clients whose emotional states are most dependent on the uniform greenness of their lawn-spaces, the lawn-care company not only mows the lawn with its double-wide professional mowers—behind which the itinerant employees could either ride on a smaller trailing platform or walk—it regularly fertilizes the lawn, which then necessitates more mowing, and seasonally seeds and aerates it. I was one of those itinerant employees once, so I am familiar with this process. I know the aerator.

The aerator's engine propels a cylinder spiked with metal tubes over the lawn, punching its tubes into the ground to pop out small thumbs of soil every four inches. After it has been aerated, the lawn-space looks like a flock of Canada geese have spent the night there and flown off right before dawn, the only trace of their presence being what passed through their guts. The idea is that the aerator works like a violent earthworm, digesting the soil and giving what has been packed down by a season of sneakers and mowing and the dense rhizomes of fescue some

air. But the aerator has a wide turning radius, and it's relatively fast, and to stop it one has to release its safety bar from the handle and give it another foot or so to roll out its momentum. As I discovered on my first day of aerating, a panic causes one to grip harder, even though all the mystic traditions say to let go. So when I found myself on a trajectory toward my boss, a big man of whom I was a little afraid (and I was not the only one: he made another young male employee cry that summer) and who was standing between the oncoming aerator and his new red high-horsepower pickup, I gripped harder as I shouted at him to look out. I remembered to let go in time for the metal tubes to stop churning the moment after they had broken the skin of his muscular, hairy calves. I was lucky, he told me, that I had aerated his legs and not his truck, because his legs would heal. That was my first pass with the aerator. I still had to do the rest of the lawn.

Though the thinking behind the aeration and follow-up seeding seems reasonable, the lawn never seemed to change. It was no more lush a month after the process than it had been immediately before. What the process offers is a paycheck for the company and, I believe, a sense of fulfillment for the client, who has the satisfaction of practicing neighborhood virtue, a quality of the yard I will say more about momentarily.

More often, the Leisure Yard is maintained by the owner himself—and it is, most often, a man doing the maintenance, a gender disparity worth considering. In the Leisure Yard, men and their adolescent sons exercise their power in the world by keeping the grass shorn and pure. As mowers have evolved from spinning cylinders to motorized rotors, then to self-propelled motorized rotors and then vehicles that carry the men and their clippings back and forth through the yards, the men have measured their power in the world as inverse factors of their heart rates. The best of these lawns are not just short and thick; the edges rise from the curb to make a

boundary as forbidding as the Great Wall, and any trees or stones that decorate the otherwise sterile landscape are protected from shaggy stubble by follow-up with a string trimmer. Leisure Yards quilted one home to the next in the fin-de-siècle American neighborhood, and in most places they continue to do so.

Writers who have discussed the Leisure Yard, from contemporary sociobiologists to Thorstein Veblen—whose *Theory of the Leisure Class* gives the Leisure Yard its name—suggest that the appeal of well-kept lawns is part of our human genome’s origins in the Pleistocene: they resemble the landscape of our early days on the savannah, which, in contrast to the forest, offered wide ranges to scan for predators and prey. This may be the case, but the Leisure Lawn seems too recent a phenomenon for its appeal to be solely genetic. It only became popular after the Civil War, when Frederick Law Olmsted designed a suburban community outside Chicago to look like one long park with houses scattered at respectable distances across its lawn.

The Leisure Yard is, as Veblen suggested, a sign of wealth and a commodity. It demonstrates its owner’s ability to own the property and the owner’s leisure to mow. It is also a form of communication between owners, who say to each other through their yards that they care about the neighborhood’s appearance. Their yards tell each other that they agree with Olmsted’s image of the ideal neighborhood. Some owners maintain their neighborhood’s lawns’ uniformity through over-the-fence conversation, where they complain about other neighbors’ lawns, indirectly enforcing their lawn-judgments on the listeners. But I believe these complaints may have another, deeper, cause: we American keepers of lawns live in a state of anxiety due to the irony of material in an economy where nothing is produced—and by “irony of material” I mean simply the fact that objects show up in stores and mailboxes and none of us really understand how they get there. Mostly, we don’t mind. But I have begun to wonder if lawn-mowing is not a

kind of sublimation of the deeper human desire to have an affect on the physical world, to build cars, spin wool, smelt ore, or shoot down, skin, and eat wooly mammoth.

Spatially, the Leisure Yard is an individual fulfillment of manifest destiny—the American desire to conquer the land. It has a similar function to a landscape painting, and in that sense I agree with the writers who read the Leisure Yard as a sort of quasi-pastoral dreamscape of the savannah. Finally, as an expression of the owner's conventionality, his willingness to subordinate idiosyncrasy to the desires of the suburban "tribe" of the neighborhood, the Leisure Yard represents, to many Americans, patriotism and moral purity.

The Leisure Yard is, of course, not the only genre of yard. The Style Yard arose alongside the Leisure Yard. This yard has its roots in the eighteenth and nineteenth-century aristocratic show-gardens of England and France. The Style Yard is also maintained, but what would be uniformly green lawn-space in the Leisure Yard is dominated by shrubberies and seasonal stands of perennial flowers like the iris and daffodil in a composition that changes over the course of the year. From the Leisure Yard to the oppositional genres, most employ aesthetic elements of the Style Yard.

One genre in particular has begun to directly challenge the Leisure Yard's order and cleanliness. If, according to Freud, civilization is based in part on maintaining cleanliness and order, then we can see why this genre seems, to owners of Leisure Yards, such a threat. As it is becoming an important part of the discourse of yards, I want to codify this other genre, this genre of challenge, in order to recognize the possibility and hope it offers homeowners who doubt the conventional approach to lawn-space but think they are the only ones who harbor secret thoughts of not mowing, letting their lawn-spaces go to seed. In its capacity as a provocation to the

cultural commonplace that a well-kept lawn signifies moral purity and neighborhood spirit—and because its popularity reached a small but critical mass in the early years of the twenty-first century, concurrent with the rising-up of Iraqi militias against the U.S.-led occupation of that country—I call this other genre the Insurgent Yard.

The Insurgent Yard is characterized most significantly by the absence of traditional Leisure Yard maintenance. In various ways, Insurgent Yards survive without being mowed. They develop height and color—not the height and color of the upwardly-mobile yards full of irises, coreopsis and azalea, but the uneven heights and subtler colors of small, pale flowers on grassy stalks, of Creeping Charlie’s tiny, purple flowers, and of native meadow plants that flourish when nothing cuts them down. The Insurgent Yard looks messy. One of the more esoteric subgenres is the Unraked Lawn, which collects leaves from the surrounding trees and turns them slowly into duff, the brown decaying matter that feeds the forest floors. Another is the Meadow, which has been known to bring fines upon its owner for being a putative “menace to public health,” though the underlying issue is the owner’s refusal to conform. (A Thoreau scholar in a suburb of Buffalo, the story goes, encouraged bees and other wildlife in his front-yard Meadow and racked up over \$25,000 in municipal fines.) Finally, there is the subgenre I call, in contrast to the Leisure Yard, the Yard of Productivity. In these yards people grow, among other things, wheat.

What brought about the Yard of Productivity? Why wheat?

Objections to the Leisure Yard increased in the decades before the turn of the century. They ranged from high-minded tracts on dangerous chemicals leaching into water supplies, to lawnmower emissions spreading through the atmosphere, to a simple desire not to mow. Also, the idea that monocultures support significantly less life than polycultures, an observation

Charles Darwin made when he first published his theory of evolution, has only recently begun to gain popular currency. More life in a given square foot means more carbon in that space, and sequestering carbon is suddenly the thing all the cool professionals are doing. In the celebration of biodiversity lies a fundamental disagreement with Leisure Yard practitioners, since what they strive for is monoculture itself. Finally, the Yard of Productivity derives most directly from the paradigm shift in eating in which people have decided that their food should not have to travel across the country, or farther, to get to their plates. With all those great green swathes in front of them, these people think yards should be used for something more than show.

The radical practitioners of the Productivity Yard, who let piles of leaves decompose around rows of vegetables and flowers and encourage their lettuce to bolt, go to seed, and turn messily brown before pulling it out, have come to it through ideas like permaculture, an attempt to mimic natural systems in the design of agriculture and human settlements. In Alabama, a couple embarked on a project where they would only eat food raised in their state for a year. This necessitated a garden, and they put one in their front yard, tastefully bordered with an 18-inch-tall suggestion of a white picket fence and surrounded by a lawn, which they kept mown. Reactions from neighbors were surprisingly positive, they said. Their more moderate rebellion derived from the lucid thinking in Michael Pollan's book *The Omnivore's Dilemma*, which is both a symptom and a significant cause of the paradigm shift in Americans' thinking about food. It was in part a result of this book that, in Western Massachusetts, people began to grow wheat.

They did so in a show of community solidarity not with their neighbors but with their bakers. The bakers at a small bakery called The Hungry Ghost had read Pollan's book and had thought that if meat, dairy, and vegetables should be raised locally, then so should their product, which is the base of the FDA's Food Pyramid and, for many cultures, the staff of life. They

wanted to bring wheat production back to their region, which it had left, by their reckoning, in the early twentieth century. After local farmers apologetically refused to risk an attempt at the new crop, the bakers turned to their customers. Wheat is a grass, they thought, so why not plant it in yards?

A group of customers were happy to put less energy into maintaining lawn-space, so they cut ten-by-ten squares into their sod and scattered the wheat seeds they had been given by the bakers. The seeds sprouted and the squares turned green, then tall and shaggy. By fall, the green grass had become a golden-brown, and the successful plots had heavy heads of kernels.

The height of the wheat-plots created an effect similar to other Insurgent Yards. It was an affront to the common assumption that a shorn lawn meant something similar to an American flag. The wheat-plot signaled that the yard's owner was concerned about the environment, as is expected in progressive communities across the country. (Most owners of the Yards of Productivity think of their insurgency as being neighborly in a more inclusive sense than a mown lawn, in that their neighborliness extends beyond their block to include all living things, and they see themselves resisting the forces that are destructive of life's true purpose. In this, they resemble all insurgents.) The shagginess followed by brownness also signified education, since these yard-owners were familiar with the contemporary critique of lawns and the industrial food system.

On the other hand, did the neatness of the ten-by-ten squares, often surrounded by a thick lawn of bentgrass, mean the owners of the Yards of Productivity still bought into the repression of the wild in shorn lawns? This would distinguish them from the more radical owners of the Meadows and the Unraked Lawns. Property value was, it seems, still important to these owners. In this they represented the moderate rebellion of the middle-class. They may have aspired to a

Thoreauvian rebellion, but their refusal to deny the community they lived in made theirs a sensible, Pollanian rebellion. As the Yards of Productivity implicitly criticized middle-class norms, they also implicitly supported them. (Of course, each yard varies in its specific significations, and the reasons for maintaining a lawn and lawn-space vary with each individual owner.) I should add that their criticism of the industrial food system clearly marked the growers of yard-wheat as middle- as opposed to working-class: their ability to choose to eat the more expensive non-industrial breads of the Hungry Ghost bakery was a sign of their disposable income. In some sense, the obsession with local food that has swept the nation in the first decade of the 21st century is just the new favorite taste of the middle class, which had rediscovered the romance of agriculture.

These Yards of Productivity are not, of course, pure romance. The owners planted their wheat to help the bakers at the Hungry Ghost determine what varieties would grow best in their climate. The plots were not only symbolic, and if they were meant to signify something to passers-by and neighbors, maybe just a little, a small source of rebelliousness, knowledge, and pride, they were also planted in a sincere desire to help further knowledge, and for middle-class owners to get their hands dirty in the meantime.

It turns out that the experiment failed. It was a wet summer, and most of the wheat ended up rotting. The bakers admitted to their naiveté about the ease of growing wheat and decided they were better off leaving the test plots to farmers or other experienced growers, who would have known when to harvest it. The experiment itself has become important largely for its symbolic value. Yards of Productivity do have a sheen of naiveté about them. The idea that a single garden in a single yard could help solve the problem of industrial food seems too good to be true, and it is. The American economic system's exploitation of people and land that

American lawn-space maintenance keeps us from noticing would continue even if every middle-class household put in a plot of wheat and a plot of lettuce. If nothing else, the amount of work to harvest the wheat would mean most of it rotting on the stem. It should also be noted that the insurgent and permaculturalist critiques of the Leisure Yard neglect to discuss the pleasure-value of activities common in Leisure Yards like tossing a football, convincing dogs to run after tennis balls, barbequing, or simply standing around talking with the neighbors (although the latter, it seems, could just as easily occur in the other yard genres). The Leisure Yard has its value, and will continue to be the most popular of the genres, but as a practitioner of the Pollanian Insurgent Yard myself, and as someone who cares about the ways yard-use defines us as a people, I would like to suggest that the oppositional yard genres call for further study. Users of yards can only benefit from the Insurgent Yard's admirable repudiation of the neighborhood's imperial norms.

On Darkness

In my analogy, whiteness, like wheat, like English, is expansive, terrible, and awe-inspiring. Think of it as a blizzard, which blinds you before assimilating you into its cold, deathly embrace. It is the imaginationless Nothing of *The Neverending Story*, which gave me nightmares as a child. Think of horror films where the child's eyes snap open and you see only whites. The iris's blue and the depths of the pupil are gone. All that is left is a terrible flatness. Or an ivy's pure white root hairs hazing the glass of water you left it in, root hairs expanding through the night like the broad networks of mycorrhizal fungi whose white filaments constitute the biggest living organisms on the planet. Think of those, growing and breathing underneath you as you walk. The grotesquely soft, blanched bellies of cave fish and prehistoric salamanders who have pulsed their gills in the dark for multiple geologic ages. Or maybe it is the vastness of this color that is more absence than presence. The sun-bleached plain of a western desert. The bones that only have time left in them. Even the cleanliness is terrible. A hospital's sheets, bleached of all the life and death that happened between them, drive home the hospital's need to protect you from germs and blood and death. It is all-encompassing, the white, and it will assimilate you into its blinding abstraction.

But the analogy only goes so far. Yes, white cultures have assimilated and appropriated aspects of other, nonwhite, cultures, but there is exchange; if the assimilation is blinding, at least it is not just denial of other cultures or colors. Instead of blinding snow, we might think of whiteness as a kind of digestion, as the rapid conversion in the stomach of a highly-processed grain into simple sugars.

I don't know which metaphor is best. White is the most vulnerable of colors. Tint blue and blue remains. Tint white, and it has turned into something else. It can only exist because of

its difference from other colors, in particular its distinction from darkness. The relationship between white and black is vexed. Whiteness seems so blindingly common, and what is common is so hard to see.

Toni Morrison sees the historical construction of whiteness as the construction of a new kind of freedom that depended upon its contrast with the people who had no power, the black people whose own color stood for the incomprehensible void, the human terror of the dark. The “Africanist” blackness present in the Americas from the beginning of colonization, she says, is what allowed for the idea of whiteness in American literature and thus in the American identity.

In *Playing in the Dark: Whiteness and the Literary Imagination*, Morrison uses Edgar Allan Poe’s short novel, *The Narrative of Arthur Gordon Pym* as an example of the power of whiteness. At the end of the novel, Pym, Peters, and the native Nu-Nu have been floating “on a warm, milk-white sea under a ‘white ashy shower’. The black man dies, and the boat rushes on through the white curtain behind which a white giant rises up. After that, there is nothing. There is no more narrative.” She explains that the white images are blinding, impenetrable, and that they “surface in American literature when an Africanist presence is engaged.” The New Man of the New Country was white and—this is her point—his sense of freedom derived from his sense of control, which was most clearly emphasized by the power he had over “a bound and unfree, rebellious but serviceable, black population against which . . . all white men are enabled to measure these privileging and privileged differences.” A people’s sense of privilege and freedom can only derive, she suggests, by way of its difference from another group’s lack. Or rather, that was the case in the development of the white American’s identity.

I want to say this cannot be true or accurate. It feels wrong. I want to say my own sense of freedom does not come from its contrast with other people’s (economic, ethnic, racial) lack

thereof. The differences are not so stark now, but they are still there. To what degree is my sense of freedom based on exploitation of people or of the land? Can the echoes between wheat and white act as a sort of sonar to show the shape of that exploitation? I like my wheat. I even like my whiteness, I think—if whiteness exists as a thing to be liked. But if it is—if my ability to eat bread is based on extraction and lack—I want at least to be clearheaded enough to acknowledge how.

White-bread (a.)

Of, belonging to, or representative of the (North American) white middle-classes; bourgeois; (hence) strait-laced, conventional; bland or innocuous.

1977 *Newsweek* 3 Oct. 60 He [sc. Richard Pryor] walked off the Aladdin Hotel stage in Las Vegas, fed up with doing ‘white bread’ humor.

1979 *TV Guide* 13 Jan. 30/2 The contrast between his white-bread liberalism and the boys’ ghetto wit is the basis of all the comedy in *Diff’rent Strokes*.

1988 ‘DR. DRE’ et al. *Fuck Tha Police* (song) in L. A. Stanley *Rap: the Lyrics* (1992) 238 The jury has found you guilty of being a red-neck, white-bread chicken-shit motherfucker.

1991 D. COUPLAND *Generation X* II. xiv. 74 He’s our age, and Biff-and-Muffy private schoolish like Claire’s brother Allan, and from some eastern white bread ghetto: New Rochelle? Shaker Heights?

1996 *Q* Jan. 148/2 Perhaps too feisty for the currently booming Easy Listening sector, but ultimately too white bread to really grasp the lapels, this Nashville-recorded LP from 1969 is an agreeable thing nonetheless.

2000 *Courier-Mail* (Brisbane) 19 May 19/2, I find these white-bread whingers all a bit much.

– *Oxford English Dictionary Draft Entry Dec. 2008*

Wheat Cracker (n.)

The blackest white person around.

– www.urbandictionary.com, posted Aug. 5, 2007

Cryptology for Extractive Agriculture

It is clear to me that when Mikhail Bakhtin critiqued the language of poetry in his day, he was actually writing about certain kinds of agriculture. I imagine it was misdirection of this sort that kept him alive during Stalin's purges. In the following passages, from "Discourse in the Novel," I have inserted substitutions to show how Bakhtin addresses farming under the guise of poetics. When Bakhtin writes "poet," he means "farmer," specifically the extractive farmer who has little or no interest in caring for the soil, a grower with only short-term profit on his mind.

*The poet [farmer] must assume a complete single-personed hegemony over his own language [soil], he must assume equal responsibility for each one of its aspects and subordinate them to his own, and only his own, intentions.

*It is noteworthy that the poet [farmer], should he not accept the given literary language [soil], will sooner resort to the artificial creation of a new language specifically for poetry [his crop] than he will to the exploitation of actual available social dialects [microclimates]. Social languages [local soils] are filled with specific objects, typical, socially localized and limited, while the artificially created language of poetry [extractive agriculture] must be a directly intentional language, unitary and singular.

*The poet [farmer] is a poet insofar as he accepts the idea of a unitary and singular language [soil] and a unitary, monologically sealed-off utterance [field].

*Everything that enters the work [the field] must immerse itself in Lethe, and forget its previous life in any other contexts . . .

Erotics of Leavening

Leavening—the rising of dough—creates spaces, makes openings. Rooms develop, cells breathe. Leavening is erotic because it creates desire. If we think of the erotic as the space between desire and its fulfillment, we see that leavening, the mediation between a mound of flour and a slice of warm bread, is that same space. Some leavenings are fast, some are slow, and different speeds create different tastes and meanings. I spend my days waiting for wild yeast, the slowest, most seductive kind.

Slow and sour used to be a practical matter. Settlers carried lumps of living dough with them as they traveled west, since the only other option was a fragile vial of liquid yeast. They would add a piece of the old dough to the fresh mix of flour and water, the yeasts would multiply, and the dough would rise. It is said they sometimes left a lump of starter in the crotch of a tree as a gift for travelers behind them. Sourdough must have been erotic then, too, as they wondered whether their bread would come to fruition, but urbanization, bakeries, and supermarkets eliminated sourdough's reproductive necessity, and now it is mainly a game about moisture and time. All dough is a kind of flirtation, whether risen with Fleischmann's commercial yeast, baking soda, or baking powder, but it is most exciting when it uses the nonproprietary and unpredictable wild yeast in a lump of old dough.

Desire intensifies as dough rises and can never be fully satisfied. When I eat a slice of good sour sourdough I am always half-thinking about how to get more: “One of these days I need to build an oven,” or “I should move to Northampton and live next to Hungry Ghost Bread,” or “Maybe just one more slice.” Similarly, during sex, my lover’s body is overlain with

the transparent, cellophane-like image of my attraction to her body. Stomach becomes *stomach*. Breast, *breast*. The curve of her hip in moonlight becomes the image of the curve of her hip in the moonlight. Ideas interpose themselves between my body and hers. But something would be lost if they did not: that sudden moment of total presence, where your experience becomes pure and thoughtless, is the end of the erotic. Because the imagination is the erotic separation between the mental experience and the physical, I disagree with the Buddhists who suggest that we abandon desire and live completely in the moment. Doing so means losing the erotic imagination of what might come next. We would lose the future. Without desire, how would I get the dough to rise?

This separation is a little embarrassing to admit. I imagine other people are fully present with the body and the bread, and their dough rises anyway.

As I help my lover undress I anticipate her. As the sourdough starter takes two days to rise I imagine the just-cooled loaf, its nutty, complex sourness. In many cases, I would rather be reading about something than doing it, the thing being so much less than the idea of it, which suggests pornography.

And which explains my friend Nick Ferrari's knack for advertising photography. It derives from his ability to make the Nikes and the Vespas in his pictures seem more (what?) than the real things. His subjects are not sexual, or even beautiful, but his cherry tomatoes, floating in blackness and glazed around the edge with white light, exist more intensely than real tomatoes. They're like gifts offered from an advanced alien society in a distant galaxy. His Nikes stand on their shoelaces, black on a white surface, and his luggage dances, yet none of the photographs are about motion. Everything holds still, hovering there, casting ethereal shadows on the neutral

background. The pink Vespa, currently on Vespa's website as part of a breast cancer campaign, makes no gesture toward motion, but the angle makes it seem alive, a subtle anthropomorphization, unlike the company's other products shot by other photographers, where the objects are simply examples of what you would see in person. Vespa has decided to eschew showing its products in use on their site, focusing their appeal on the objects' design, as if a motor scooter was something you were going to put on display in your living room, maybe next to a vase with one calla lily rising from it. Ferrari's affectionate photos help you enjoy the Vespa's aesthetics, as they do with the tomato and the sneaker—and then you take the Vespa around the block and the cold air makes it hard to breathe and, arriving back, you hit the gas instead of the brake and crash up the curb onto the sidewalk, and you're reminded how much less appealing the lived experience is than the aesthetics. Nick Ferrari considers himself a still-life photographer, and his ability to create desire makes his work perfect for advertising. Still-life, like leavening, is about the erotic.

Where is the line between erotics and pornography, or between still life and advertising?

Nick Ferrari's wife, Toby Kaufmann, has been hired by *Maxim* to revitalize their soft-core photography by making it more gritty. There is less air-brushing, which makes the models seem more real, more alive, and therefore, in the reader's imagination, more attainable.

I like sourdough because it is alive. To make sourdough, you take flour and dissolve it in water. You might, as I did years ago, inoculate the floury paste with local plums or blueberries on which you see the white bloom of wild yeast, although wild yeast develops on wheat berries as well. As it rests overnight, the flour breaks down in the solution and sugars become available, and the yeast begins to digest and develop. The paste captures bacteria from the air, the fruit, the

bowl, your hands. You feed it flour and water each day for a week or so, and soon you have a slowly-bubbling, living starter that will raise bread for you if you keep giving it food. The slowness of wild yeast allows the bacteria to produce lactic and acetic acids, and these acids make sourdough sour. Sourdough bread takes more preparation than bread risen with commercial yeast. There are more intermediate stages in which the wild yeast is fed and turned-on—for sourdough to work, you have to be good at foreplay.

I would not call most scenes of lovemaking in mainstream movies pornographic, and I would not call the almost immediate leavening of dough in bread factories a moral problem. Neither is natural, though, and both industrial bread and movie romance give the impression of being softer, easier, and longer-lasting than the versions made with raw materials real people have access to. The real versions usually go stale within a week, and then you have to make more. Best not to store the real versions in plastic.

The erotic is about distance. It's about risk.

I don't flirt well. I would like to do it better. The goal would not be to lead the person on, just to enjoy innocent attraction. The excitement of flirting lies the question of whether the attraction is mutual.

When you work with wild yeast, it is hard to predict whether the dough will rise. The weather affects things, as does the age of your starter. Sometimes you end up with a bowl of dense, unrisen dough. It helps to have sauce on hand to make pizza.

When I needed an external hard drive I sought out the girl at the Apple store who had helped me with a computer, but then I pretended it didn't matter to me whether I asked her or

someone else for the information. Flirting involves the assumption that the other person will find you attractive or interesting. Having failed at that more than once in the past, I worry about it happening again. I ended up giving short, almost curt answers to her friendly, conversational questions. It occurred to me as I left that she thought I just needed advice about a hard drive. She may even have felt snubbed, since, remarkably, she remembered my daughter's name, and I gave no indication of having remembered hers. I apologize, Girl At Apple Store. Know that I liked you as a person, not just a source of information. And I remembered your name, too.

Leavening, like flirtation, is about optimism.

The natural tendency of food is to ferment. This is usually a problem, though refrigeration, curing, and pickling help mitigate it. With bread, though, you want to encourage fermentation, because fermenting is what makes it rise. The yeast and bacteria break down the complex sugars in the flour, which is why bread tastes sweeter than a raw kernel of wheat. The trick is to stop the tendency to ferment at just the right moment, burning the memory of the sugars into their glutinous frame.

I seem to have captured the wild yeast of Tuscaloosa, and now it's simply a matter of cultivation. The trick is to find the right amount of moisture for the starter, which I prefer, following the Brits, to call the barm, then let it rise long enough in the fridge to develop flavor and life but not so long it develops a brackish liquid funk. Then it's a matter of putting the right amount into the dough before letting the dough rise in the fridge for another couple days. The climax is not the heat of the oven but holding the barely-warm loaf in your hand. The loaves are getting better, but I continue to think toward the next one.

Two Bakers Attempt to Transform an Economy

I met Cheryl Maffei and Jonathan Stevens just a couple months after they started handing out seeds. It was the first step in their plan to revolutionize an economy through wheat.

I visited the Hungry Ghost Bread Bakery on a clear afternoon in May, 2008. The bakery is in the old Chamber of Commerce building in Northampton, Massachusetts, a one-room building on a hill downtown. The room is dominated by the wood-fired oven they built. Along with the pregnant dome of the oven, there is a counter with a cash register, some shelves for presenting the bread, and a flour-dusted table, where the bakers shape the loaves before proofing them on racks and, when they are at their peak, sliding them into the oven on a wooden peel.

As they mixed dough and moved loaves in and out of the oven, the bakers told me about the impetus to hand out seeds. The price of flour was already rising when they opened in 2004, but it started increasing faster with oil prices. (As it turned out, the price of flour, along with the price of oil, was at its peak that May.) The flour used at Hungry Ghost is milled in North Carolina and grown in Quebec, so it has a long way to go in oil-burning vehicles before it arrives at the bakery. The more the bakers thought about it, the less acceptable it seemed for a small local bakery trying to support the community to be putting most of its expenses into a profit-driven, oil-based agricultural economy. They were reflecting on how American eating habits are connected to everything from corporate influence on dietary guidelines to the Gulf of Mexico's algae-induced dead zone to Type II diabetes. The biggest problem, though, was the lack of community control of its sources of food—especially of wheat, the staff of life and the world's second most popular grain.

Today, a few influential corporations control the bulk of our calories. Cargill and Archer Daniels Midland trade in the commodities grown on large-scale farms, especially grains.

Monsanto engineers and produces the majority of large-scale farmers' seeds, and their focus, too, is on grains. DuPont manufactures the insecticides, fungicides and herbicides necessary in the fragile monocultures of the large farms where there is nothing else between an invasive pest and acres and acres of its favorite food. The goal of these companies, who control a significant part of the economy we all participate in, is ever-increasing profit. This is, of course, capitalism, an economic system that extracts its profit from the people and the land. A lot of the legislation that supports this extractive agricultural system, including the 72% of farming subsidies that went to the biggest 10% of farming business, is enacted through the Farm Bill. Cheryl calls this aspect of the Farm Bill "immoral" and "obscene."

The growing of wheat has been extractive in the United States from the beginning. The early settlers were so awe-struck by the amount of space available to them that they made no effort to cultivate the soil to keep it healthy, and as early as the eighteenth century, writers familiar with European farming were critical of Americans' lack of attention to the health of the soil. In 1748, for example, the Swedish-Finnish naturalist Pehr Kalm noted that after a colonial farmer exhausts the nutrients of a field, he "leaves it fallow, and proceeds to another part of his ground, which he treats in the same manner. Thus he goes on till [sic] he has changed a great part of his possessions into corn-fields, and by that means deprives the ground of its fertility." John Falconer wrote in *The History of Agriculture in the Northern United States* in 1925, that "the economic basis of western predatory agriculture" was that "land was cheap, fields were large, and the best management was the application of a minimum of labor per acre."

The extraction is even more effective now. In the mid-twentieth century, agronomist Norman Borlaug developed the dwarf varieties of wheat and rice that would lead to a huge increase in cereal production throughout the world, especially in developing countries. These

high-yield varieties depend on heavy applications of fertilizer, and the practices used to grow them have seriously depleted soil fertility from India to the United States. Along with polluting the water and exhausting the soil, this system keeps farmers indebted to the companies that produce the fertilizer and the high-yield seeds. Bakers are beginning to notice that the focus on yield has resulted in wheat with fewer nutrients and less flavor.

It was because of all this, Cheryl said, that she and Jonathan wanted more control over their resources. They would ultimately need not only to be able to buy their wheat locally but to save the seed, a practice that is becoming less common as wheat growers depend more and more on hybrids, whose offspring are not reliably similar to the parent plant. Hybrids are highly-specialized, as opposed to heritage varieties, which tend to have more variety and lower yields but are open-pollinated and can adapt to regional differences. (Genetically-engineered wheat has yet to make it on to the market, due in part to the resistance of farmers in North Dakota and other states, as well as Canada and Australia.) You import resources, Jonathan says—a bit hyperbolically, one can't help but hope—“at your peril. It's gonna collapse. The biotech companies look real good if you're a hedge fund manager.” For the people of western Massachusetts to take grain production out of the hands of the corporations and into their own, they will have to recreate a local wheat economy that was last viable in Massachusetts in the seventeenth century.

Cheryl took me outside to a few small plots of unmown grass, marked with string, outside the bakery's front door as she told me about the first steps in their project.

In the spring of 2007, the bakers had organized a local wheat conference at Hampshire College. As they talked with farmers, bakers, and other stakeholders, they realized there were

indeed some major hurdles. One was the lack of infrastructure. Contemporary wheat culture depends on machinery, and without the machinery it becomes prohibitively expensive. To keep bread from doubling or tripling in price, the Valley would need reapers, threshers, trucks, bins, dryers, storage facilities, and, the biggest hurdle of all, a mill. Another problem was that, wheat having been absent from the region for so long, no one knew what varieties would do well in the cool, damp climate, with a yield high enough to make the farmer's work worthwhile and with enough gluten and flavor to make the baker's bread stand up.

There seemed to be a solution to the latter problem. The people who eat the bread, the bakers realized, should be the ones to grow the wheat. So they started the Little Red Hen project. They handed out a few different varieties to volunteers in different parts of the valley. They would record the yield and quality from each ten-by-ten plot and determine which might produce the best bread. Everyone was excited about the idea of contributing to their community's bread, and Jonathan and Cheryl have a knack for pithy commentary on the importance of the project¹. Hungry Ghost distributed packets of seeds to about a hundred people, who planted it in community garden plots or broke through their sod to make their lawns productive.

The plots of grass outside the bakery's front door, it turned out, were wheat. There was something stirring about seeing the basis of bread in a lawn at my feet. They had Red Fife and AC Barrie in the ground. They also passed out a lot of Zorro, the main variety in their Quebecois flour blend.

¹ Examples of the bakers' comments on the importance of local wheat:

JS: "Agriculture, since we're not cows and can't just eat grass directly, actually created civilization."

CM: "You can chemically reproduce food but what about the authenticity? How does it feed the intellectual human being, the soul?"

CM: "I'm not as eloquent as Pollan, I can't say why this kind of production and eating is better, but it has to do with the gut. I feel in my gut it's better. People are ignoring the gut."

JS: "We have to save the fields, and we have to figure out how to eat, how to be with our food. If we don't figure that it, how many miles per gallon your Prius gets—it doesn't matter. We have to figure out some basic things about living on the planet. Eating is one thing. Getting along is the other."

I would talk to Jonathan a year after we met, and by then he would know “the difference between a dilettante and a farmer.” From a research perspective, the Little Red Hen project had not worked, although Jonathan points out that they “definitely learned some things not to do, which is success in another way.” The variety of conditions in people’s yards, the different times they planted, and everyone’s ignorance to the fact that you “plant wheat right before it rains and harvest it right before it rains” would show the bakers that, for now at least, they would have to depend on local farmers, with their expertise and equipment and acreage, to be the primary producers.

In another sense the project was a great success. People got their hands dirty. They saw where bread comes from. “It would come up,” Jonathan told me, “and people would say, hey, it looks just like grass!” which, he happily points out, it is. We can’t eat grass, so instead we eat its seeds, and what for cows would happen in the first stomach happens for us outside our bodies as we grind seeds into flour, dissolve the flour in water, and bake the dough in the hot belly of the oven. Jonathan told me it was the wisdom of people who first stopped chasing animals around, living in one place, growing food they could process and store, that created civilization. Grain—and wheat in particular—allowed it to develop and flourish. “This all sounds esoteric,” he said, “but it becomes very real when you’re actually looking at wheat.” People would get excited when it started to turn brown. Suddenly, there in their yards, were amber waves of grain. In the sense of agriculture as culture, of people understanding and being excited about the production of their food, the project was a success.

In the fall of 2008, Wally Czajkowski of Plainville Farms was peeling squash when “one of the Parsons brothers” brought over a packet of wheat seed from the Hungry Ghost. The

Parsons didn't have the space for it, but Czajkowski had a section of organic land available, so he harrowed it in. That was the Quebecois Zorro, a hard white wheat.² It grew well, and the following August, the Wagners came from their farm in Amherst with a combine to harvest it. There was only a half acre, and the combine, which Czajkowski says is as big as a small house, had trouble maneuvering in such a small field. With so little wheat, it was almost not worth the trouble of cleaning it out of the combine. There was not enough to dry in a standard batch dryer, so they "kind of half-ass did it." This past November the Czajkowskis planted three acres—which will be enough for the combine and the batch dryer—of a hard wheat called "Turkey Red," which Wally said was a beautiful color: "I don't mean red like fire engine red. You know how trees when they turn red look really pretty? This was beautiful. I can't wait to see how it turns out."

This kind of enthusiasm seems essential. As important as it is to the bakers that their wheat is local, they also want it to be grown sustainably, without chemicals, in healthy soil. When they went to France this past June to meet with the *paysan-boulanger*s—peasant-bakers who grow and mill their own local varieties of organic wheat as both a protest against the increasing standardization and corporate control of wheat in Europe and out of a love of good bread—they saw a marked difference between the wheat grown by the small-scale bakers and the high-yield dwarf wheat grown all over the country now. The *paysan-boulanger*s had a relationship with their wheat. They paid attention to how conditions changed year by year. Coming back to Massachusetts, Cheryl and Jonathan noticed the wheat on the small farms there had the same look. The farmers in Massachusetts care about what they're growing. The wheat fields look healthier for it, and as it turns out, the wheat itself is healthier, too. Cheryl said they

² Hard wheat is best for bread, because of its high gluten content, and white wheat tends to have a milder flavor than red.

have done some tests on wheat grown at Half Moon Farm in the Manhan River floodplain, in soil whose minerals are replenished every few years by the floods. The wheat has high protein and more B vitamins and other nutrients than conventional wheat. The farmers are excited.

When I asked Czajkowski whether they could make money off the wheat, he said no. As it turns out, that's good. The Cjazkowskis raise three acres of organic green beans each year. They have typically rotated the beans with squash, which is useful in that the squash uses the nitrogen fixed into the ground by the beans and, as with any crop rotation, takes up any excess fertilizer left behind by a previous crop, but it is a problem in that they are both dicots (plants with two embryonic leaves), which means, because of their close relation, rotating between them can maintain certain diseases in the soil. Wheat, however, is a monocot, so it breaks the disease cycle, making all the plants are healthier and the farmer's investment in the field more efficient.

Leslie Cox, the farm manager at Hampshire College and the bakers' advisor on this project, says that the rotation works best with winter wheat. Planting it in September or October allows wheat to establish itself while many of the perennial broadleaf weeds are dormant, and then in the spring it "can grow at its own convenience." Come spring, some farmers plant a legume among their wheat so that as the wheat starts to ripen, turning brown and ending its period of photosynthesis, the sprouting legume will use the sunlight, add nitrogen to the soil, and provide a harvestable bean or pea, or a cover crop, later in the season. The wheat, which feeds people directly, nurses a later crop in its infancy. For Cox and the bakers this is what will make growing wheat on a small scale worthwhile to farmers. It will make their fields more productive, and should not interfere with their already-established harvests. And whereas farmers in the west who only grow wheat have to worry about producing the highest yields possible, if wheat helps local farms become more productive apart from its yield, the farmers can focus on growing the

varieties that will be best for the bakers' bread. As Czajkowski puts it, "Even if we don't make money on wheat, if we lose less money, that's a beautiful thing."

The past creates assumptions that are hard to overcome. When wheat moved west, it escaped the barberry bushes that host the most devastating fungal diseases, which Cox says were the nail in the coffin for eastern wheat. Whenever wheat was planted here, it developed rust. In every conversation I had with Cheryl and Jonathan, they were worried about rust. But when they asked their colleagues in France about fungus problems there, the *paysan-boulanger*s pointed to the rust on their own plants and shrugged. "It's not a big deal" was their response—although probably in French.

There was also the assumption that hard wheat—which because of its high protein content is best for bread—could not develop its protein in the moist climate of the east. "Botany-wise, wheat enjoys having a period of basically drought. It doesn't need a lot of water when the kernels are filling out. That's mostly photosynthesis," Cox told me. Wheat originated in the Fertile Crescent, and the climate closest to that in the U.S. is in western Kansas, which is why, he says, Kansas is the wheat hub of the U.S., if not of the world. History and biology suggest wheat should not work in the Valley.

But these bakers are practical people, and at least one of them is a Hampshire graduate no less, and they are not to be stopped by factors so trivial as conventional interpretations of history and biology or doubts about feasibility. As they forged on with the project, they were surprised by the number of farmers willing to plant their wheat seeds. The bakers had expected to spend the next few years convincing farmers to get involved; with more than twenty acres of wheat grown by four different farms this past season, Cheryl says they are about four years ahead of

schedule. And in a season that was wet even by western Massachusetts' damp standards, the farms all had surprisingly good harvests. The bakers and the farmers all know that one year is little indication of the next in agriculture, but this one has been auspicious nevertheless.

In spite of all the excitement from customers, from farmers, from media, there is still very little infrastructure for wheat in western Massachusetts. To make a loaf of bread without mechanical infrastructure, you would have to reap the wheat with a sickle or a scythe, bundle it into sheaves to dry, then thresh it with a flail before grinding it into flour with two stones turned against each other by hand or water wheel. These are the machines the bakers say are necessary to make a local grain economy work in the long run:

1) A combine harvester. It is feasible for the new wheat farmers to rent combines from a few other farms in the Valley, as Czajkowski did, but because the wheat is grown in small fields and various varieties, a farmer can harvest an acre one week and need to harvest a different acre the next, only to find that the harvester's head has been switched over for the corn harvest in the meantime. The extant combines are also, as Czajkowski found, too big to be practical.

2) Drying and storage facilities. Wheat is best if it has dried for at least a couple months before milling. Most contemporary wheat is shot through with potassium bromate to speed up the oxidation process, after having been dried in large batch dryers. The *paysan-boulanger*s build storage facilities out of wood and mesh wire and blow air through it, which oxidizes the wheat without chemicals; Cheryl points out that even burlap sacks can work well for this. A few of the farmers are planning to build storage, and at Hungry Ghost they find it works to store it for a week in the warm dry air behind the oven.

3) A dehuller and a bolter. The protective hull of the wheat kernel is indigestible, so it needs to be cleaned. A bolter separates the starch from the brown germ and bran, making white

flour. Until they find a bolter, all the local bread at Hungry Ghost will be whole wheat. In this case, the bakers don't seem to mind.

4) A mill. This is the big one. Jonathan and Cheryl would love a mill like the handmade stone ones used by the *paysan-boulanger*s, which grind slowly enough to keep the flour cool and fresh. Those cost about 15,000 euros, not including shipping, and there is an eighteen-month waiting list. For Americans, Cheryl says, the Meadows mill is "the only game in town." A twenty-inch Meadows mill grinds a few hundred pounds in an hour, but they will need a location for it, because it is too big for the bakery. At the moment they grind all their local wheat with an eight-inch mill they keep behind the oven.

All this machinery will cost thousands of dollars. At the moment, Hungry Ghost sells its "Locavore's Dilemma" loaves for \$6, a dollar more than its regular loaves. Even after the investment in the machinery is making a return, this small-scale system is unlikely to produce cheaper bread than the massive scales of the Great Plains.

Is there something redeeming about an agricultural economy that can, because of the scale of the machinery and the fields and the mills and the highways and railways, grow wheat more cheaply than a local system? The supposed inexpensiveness of large-scale grain growing does not factor in environmental destruction—the loss of topsoil, the carbon dioxide from the machinery and transportation, the dead zone in the Gulf of Mexico from fertilizer runoff. If the long-term costs were factored in, and this system was still cheaper, might it then be worthwhile?

Maybe economics is not the only measure. Or, to put it another way, maybe money should not be the measure of an economy. Traditionally, the breads of France tasted different in each region, because the climate, and therefore the wheat, varied. This would be unacceptable to

a lot of American bread-eaters, who expect their bread to be consistently white. It is this consistency that our current system of production offers. Whereas a French *bâtarde* loaf would be dark, or would have flecks of grain in it, the flour for American bread is bleached. Leslie Cox says a lot of millers are surprised that that degree of whiteness is so important to customers—shooting chlorine through the flour does nothing to improve the quality, it just makes it white.

Local organic wheat with minimal infrastructure is not white. Aside from their current inability to produce white flour efficiently, the bakers in the Valley—like the bakers in France—end up with weeds in their wheat harvest, since weeds are a by-product of healthy soil. A trace amount of weeds can get ground into the flour, giving the flour extra color. Cheryl said they had been concerned about the small amount of weeds in their harvest, but when they mentioned it to their French colleagues, the *paysan-boulanger*s brushed it off. “It’s a fiber,” they said.

Along with cheap food, our centralized, industrial agricultural system lets us know what to expect from a bag of flour and a loaf of bread in most parts of the country. It is, if nothing else, consistent. The question for whether we can redevelop local grain economies, then, is whether we can handle the slightly denser loaves, the nuttier, sweeter flavors of the local loaves at the Hungry Ghost, or the other, yet-to-be-determined flavors produced by the soil of our own localities.

Cheryl and Jonathan’s project suggests a new way of defining the local. The local is what is affected by the climate and the soil of a place. A loaf of local bread is determined by its difference from other places, in the same way that Ferdinand de Saussure noticed that language is determined not by its relation to an object (there is no physical resemblance between either the appearance or the sound of the word “flour” and the off-white powder in the bowl) but by its ability to differentiate between objects. It is in our ability to comprehend difference that we

develop our intellect, and we develop it further in seeing resemblance. It is conceivable that when all wheat is the same, when there are no differences to perceive, we have lost part of our ability to think. I imagine the well-traveled eater of bread being able to taste the soil and weather behind the loaf, the farming practices, the crop rotations, and say which country, and in that country which valley or plain, it came from.

After looking at the grass in front of the bakery, we went back inside so Cheryl could stoke the fire.

As concerned as they are about extractive agriculture and corporate control of seeds, Jonathan ultimately wants this to be about something other than politics. “We’re all obsessed right now with where the food’s from and the political process of how it got there. That’s all important, but there is no shorthand for what Ivan Illich used to call conviviality. You actually have to be involved in the process. There’s no way to have other people involved in the process for you. We can’t just have all our food certified politically correct. We can’t all be growing all our own food in our backyards, but there is no substitute for connecting. And food is just the way that we connect with each other and with the ground.”

But it *is* political, too. Or it can be, if it works. A society that raises its own grains, along with its own vegetables, cows, chickens and pigs, and makes food out of them, together; a culture that knows its purpose is to continue itself, to feed itself and the land through the work of its people; an economy whose goal is productive conviviality—the transformation to that from what we have now would be political, because it would undermine the profits of the corporations who still, today, depend on us to buy their far-off flour, grown, processed, and shipped with far-off oil. It would take back some of the corporations’ power and return it to the people—that is,

us. In order to put a stop to the destructiveness of the capitalist agriculture economy, we must take political action. But we also have to create the systems that will replace it, and that is what a local wheat project can do.

Cheryl grabbed six or eight logs from behind the building, brought them in, put on fire gloves and stuck them in the oven. As we continued to talk, Jonathan was cleaning the bread table, measuring out starter, pouring it from a white 10-gallon bucket into a big transparent plastic measuring bin on a scale. The starter was wet and poured easily. It looked like a mix of whole grain and white, but I didn't have time to ask. Then he was scraping flour and seeds off the wooden tabletop, sweeping the floor with a push-broom, and after Cheryl had stoked the fire and we'd been talking he interrupted her to say "You know we're at eleven minutes, right?" and she said "I'm well aware" and finished her sentence to me before filling a cast iron pot with water and lifting it on a poker into a chamber directly above the fire, still talking about politics and food security. Next I noticed, Jonathan was taking shaped and proofed loaves off a rack, spreading some cornmeal on a peel, using another rectangle of wood to transfer the loaves onto the peel, then putting them into the oven, with a headlamp on to see in, and he turned to me, the light in my eyes, and said that diet—the question of what we decide to eat and where it should come from and even where we put our money—is an existential issue. "What will we do with our lives?" he asked. "What will we do with our time?"

Blast and Trash

The settlers brought a mildew that would be a problem for American wheat farmers for centuries to come. It would have arrived here eventually anyway, by bootsoles or stowing away on an airline passenger's jacket. It is still a concern. In the spring of 2009 there was a spate of worry that the most recent strain, which started in Uganda and spread north to Iran, would continue into Pakistan and India and, like the H1N1 virus, continue on to become a global pandemic. Through the hard work of agriculture research scientists, the blast pandemic was averted. In the early 1660s, the peak of the Western Massachusetts Wheat Bubble, the heads of the cereal started to rot on the stalk. It was black stem rust, the blast, a fungus that turns the wheat a ruddy brown and destroys the leaves before the wheat can produce its seed.

Soon, everywhere wheat had been grown for more than a couple years was infected with the blast. Farmers noticed that wheat grown in the vicinity of barberry bushes seemed more likely to be "blasted." The barberry bushes became a curse. They pushed for legislation to ban them. Then the jam-makers, who needed the little red berries, announced that the farmers were being reactionary; there was no connection between the barberries and the blast, they said. In 1726, Connecticut passed a law allowing town meetings to eradicate them. Massachusetts and Rhode Island followed suit. By the middle of the century, legislators generally agreed that, as Connecticut had put it, "the abounding of barberry bushes is thought to be very hurtful." Even so, even when town meetings put laws in place to get rid of the bushes, they did not enforce them. The barberries remained. In 1870, scientists proved that the barberries did host the fungus in an earlier stage of its development, vindicating their farmer forebears. In the meantime, wheat had left New England for the West, trying to escape this European weed that, in William

Cronon's words "had brought with it a European disease that made it exceedingly difficult for European farmers, keeping European animals, to raise a key European crop."

I would like be able to follow Turner's frontier thesis and say that the blast became less of a problem as wheat moved west and escaped Europe and its influence. In some ways this is true. With the better soil in New York and Pennsylvania, wheat's next location after western New England, it was easier for farmers to grow healthy plants that could resist the fungus. Farmers found that winter wheat—wheat planted in the late fall—resisted the blast better than spring wheat, which matured in the fall. But their cultivation practices did not improve, and that meant that, even as they escaped the worst of the blast, their wheat did not get better. *American Husbandry* tells us that "They say they cannot grow good wheat; that they do not grow good wheat I am sensible... I am of the opinion, under such culture, it would be the same in Britain." The writer in *American Husbandry* is telling his compatriots, in a refrain that would continue for centuries, that their culture is wrong. And so Turner's thesis seems accurate: By moving west, exhausting the soil as they took advantage of the limitless space, the farmers became more and more American. They forgot what had been learned in Europe about keeping soil productive and healthy. As they ignored cultivation their whitened fields turned trashy.

10,000 Years of Tilling

“Cultivation often has a negative impact on provision of [ecosystem] services. For example, cultivated systems tend to use more water, increase water pollution and soil erosion, store less carbon, emit more greenhouse gases, and support significantly less habitat and biodiversity than the ecosystems they replace.”

from the 2005 synthesis report of the United Nations' Millennium Ecosystem Assessment

Program

It Is Tempting to Submit to a Form

I want to think about roots but instead I'm thinking about hair, the young Southern man on campus in Tuscaloosa who seemed to be wearing a flat newsboy cap and then on closer inspection a toupee and then, as we passed on the sidewalk, his own hair, Bama bangs, but there's no point to thinking about his hair, is there, except in the way it locates you in culture, in place, in history, in demographic category, in orientation toward hierarchy, authority, the status quo. I want to think about roots, how where I'm from might matter, but to whom? The Pro-Brush factory building in Northampton, Massachusetts was built to make Prophylactic Brushes. It now houses artists' studios and the offices of an important new poetry press. The whole of my identity derives from that latter Northampton. I want to think about wheat because I eat bread. I want directions and I think wheat could offer them because anything could, really. How do I deal with the fact of the self? How do I deal with the fact that I'm dying and probably going to be late to meet Lauren? What is it I want? I said I want to know how to live. This is too much, I know. So then yes I want form, a generative form for my wheat, for my days, for my sentences. A form I know I can return to. This is the temptation of the loaf. At times like this I tell myself again: *I must not become a baker.* Form is sustenance. Form is a trap.

Virginity and Weeds

Lord Selkirk of Scotland was one of many colonizers who had to deal with weeds. “It is interesting to note,” wrote A. H. Reginald Buller in his 1919 collection *Essays on Wheat*, “that the weed nuisance which the weed inspectors and farmers of Manitoba are to-day so vigorously combating, should have made its appearance over a century ago as soon as the virgin soil was turned into farm land.” Buller’s surprise turns on the assumption that the soil’s virginity meant it should be clean and pure and somehow, in defiance of observable evidence, free of any already-established life. It is a comment on virginity as well as colonization.

Why is soil considered virgin until it is used for human purposes? The answer involves the idea of fertility, which can only come at the loss of virginity. Soil is virgin before it is productive—a belief that has troubling implications for both ecology and gender. Seeing the soil as fertile shows us how semen, which comes from words for *seed* and *sow*, is an agricultural metaphor, and if all goes well, insemination of the field will bear fruit, whether or not the soil was virgin. This is complicated by the fact that once someone has lost her virginity she is no longer pure or clean. Transferring that idea to soil suggests that turning the land from its natural state into something humanly productive defiles it. Farms, in this sense, defile the land. That parallel, between the worship of virginity and the effects of farming, is probably not the one Professor Buller intended. The idea of purity, though, might explain Buller’s surprise that weeds were a problem from the start. “Virgin soil” suggests that it is pure, that it has never been inseminated, but unless the virgin soil is in a barren desert, it has had plants growing in it, producing and disseminating their seeds, for eons. If you call soil “virgin,” you begin to assume it has never been inseminated, and then, when it bears a fruit you didn’t plant, a fruit you do not want and cannot use, you are surprised and disappointed. Even, maybe, a little hurt.

This seemed to be the case for Lord Selkirk's colonizers. The weeds were not all they had to clear from the land.

The Scottish colonizers' plan was to cultivate wheat at the south end of Lake Winnipeg, but the Métis—descendents of marriages between indigenous tribes and fur traders in Canada—and the North-West Company's fur traders were troubled by the idea of what Buller calls a "civilized community" in the heart of their country. They attacked the settlement, trampling crops, stealing horses, and burning the colony's fort, its mill, and its stable and barns to the ground. Finally the few of Lord Selkirk's men who had not escaped in canoes or rushed off with their families "stoutly defended themselves with a three-pounder cannon fed with lengths of chain" that they had grabbed from a nearby blacksmith's shop, holding the native people at bay and eventually driving them off.

The next year, in the spring of 1816, the settlers sowed forty bushels of wheat and barley. The seeds sprouted. Imagine a haze of grass over the brown fields, green stubble. There was a boy in the tower at Fort Douglas who, looking out beyond the fields, saw a crowd of Métis, and he passed word along to the Governor, who took thirty men with him to meet them. "Hot words were exchanged, a shot was fired, and in the fight which followed Governor Semple and twenty of his men were left dead on the field." The rest of the settlers left, and for the next year the fields around the fort lay open for the wild grasses, the prairie crocuses, the milkvetches and the hoary paccoons, to spread their seed. Then, one night in the winter of 1817, a few of Lord Selkirk's men scaled the walls of Fort Douglas, took the sixteen Métis men living inside prisoner, and raised the flag of the Hudson's Bay Company. After five years of struggle with the native people and the North-West Company, the settlers had made the land their own, having

once again, following the usual pattern for civilization, cleared the land of the hunting peoples to establish farms.

The crop of 1818 was coming up lush and green and promising when, as the corn filled and the barley ripened, “a cloud of grasshoppers from the west darkened the air, and fell like a heavy shower of snow on the devoted colony.” The next morning, “[c]rops, gardens, and every green herb in the settlement had perished, with the exception of a few ears of the barley, half ripe, gleaned in the women’s aprons. This sudden and unexpected disaster was more than they could bear. The unfortunate emigrants, looking up towards heaven, wept.” In some places the grasshoppers lay two or three inches thick on the ground. They had arrived on August 2. They laid eggs and the next year’s plague came up from the soil. The soil continued to produce unwanted life.

By 1820 there was nothing left to plant. The men had to head to Prairie du Chien, Wisconsin, several hundred miles away, on snow shoes, for new seed. They bought 250 bushels and rented flat-bottomed boats. They pushed the boats up the Mississippi to the Minnesota River, up the Minnesota to Big Stone Lake, through Big Stone Lake and down the Red River, in order to plant in June. They did plant the new seed, and while they didn’t produce enough to feed the colony the next winter, there was enough to plant the following year, and the Wisconsin wheat, as far as we know, stayed in production for generations to come.

The aging Dr. C. N. Bell, who had lived in Winnipeg since he was young, told Professor Buller that there were a number of weeds introduced from the Wisconsinan seed-wheat, including the French-weed or Stink-weed. Buller seems happy to lay the blame on an invasive species, remaining staunchly opposed to the idea that there might have been something undesirable in soil that seemed virgin.

Purity in America

Not only can we not see the individual colors within whiteness, we can't see whiteness itself.

Toni Morrison argues that white racial identity is invisible to white American culture. White American culture considers itself to be neutral, "race-free," which might be one reason for the appeal, to many people, of trying to end racism by ignoring race. American culture—its dominant strand, at least—has considered whiteness to be the blank over which all other racial identities are written. Whiteness is the norm, and everything else is a deviation. Whiteness is, in other words, invisible.

The basic assumption Morrison identifies holds that canonical American literature has not been at all influenced by the presence of Africans and African-Americans: "There seems to be a tacit agreement among literary scholars that, because American literature has been clearly the preserve of white male views, genius, and power, those views, genius, and power are without relationship to and removed from the overwhelming presence of black people in the United States."

Because her focus is literature, Morrison does not discuss the way the assumption of the blankness of Europeans as the universal starting point affected not only the fields of literature and culture and politics, but the literal field of the farm. It was this same assumption of blankness that led to the industrial farms of the 1890s and the twentieth and twenty-first centuries' agro-purity complex, wherein any stray seed, weed, fungus, insect, or clod of dirt had to be removed immediately and completely before farming could get under way. American farmers' enthusiasm for cleanliness, which went hand in hand with their enthusiasm for a quick buck, led them to pesticides and monoculture, practices which will be their downfall, and ours.

It is so much harder to see the way a completely cleared field is, itself, marked. A hoe or a tractor has come through and tilled it, and it is so satisfying, the dark brown soil stretching out ahead of you, blank and ready as a field of new-fallen snow. But it *is* marked, now, distinct from its surroundings and history. It is no longer in a “state of nature”—and even that phrase is based on assumptions and elisions, like the fact that the vast Eastern prairies the settlers found were grasslands only because the Native Americans had kept them that way through controlled burns to encourage buffalo and other grazing animals. At least those tallgrass prairie pastures were complex systems unto themselves, with plant families living together, messily and productively, legumes like the partridge pea fixing nitrogen for forbs and grasses, which maintained the soil’s tilth and drew up nutritious minerals from deep down. A cleared field is too simple to maintain itself, and it washes away in the wind and rain, and whiteness doesn’t stand alone either. It only survives where there are other colors, other cultures to define itself against and among.

The Erie Canal Banishes Smut

For its first fifteen years, the main effect of the Erie Canal was to make it cheaper to transport wheat grown in the fertile soils of Western New York's Genesee County and the lake shore of Northern Ohio. The time and energy it used to take to move a ton of food from Buffalo to New York City made transportation three times more expensive than the wheat itself. The opening of the Canal in 1825 eased the transportation, meaning the farmers suddenly had to make their produce more consistent, closer to its Platonic (market) ideal, which meant it had to achieve a certain appearance of purity, with no traces of soot or dirt or smut, the ash-like fungus that sometimes afflicts cereal grains: "Instead of such meslin crops of chess, cockle, rye, smut and wheat, all intermixed, as grew here under the slovenly husbandry of former years, the wheat-fields of this county, with but few exceptions, are now expected to produce crops exhibiting a very cleanly and neat appearance. The smut of wheat is almost banished from the county." So we are told by the New York Board of Agriculture's *Memoirs* of 1826, Volume III.

Authority

I am no wheat farmer, America. I have driven through Kansas but have never knowingly seen a field of wheat. Mostly I'm at the library, walking the stacks in the dry forced air.

Prairie Traces Toward the Breaking of the Plains

It was about 1840 that the white westward expansion emerged from the eastern woods and saw the beginnings of the vast and promising prairies with the setting sun ahead and few traces of indigenous people. Everyone was full of speculation about whether the prairie was lying there supine and ready for the “grass or fruit, corn or wheat, sheep, hogs, or cattle” of the new agricultural millennium or whether with its dense root systems of prairie dock, prairie bluestem, rattlesnake master, coneflower and indigo it would force civilization to wait centuries yes centuries for a way to plow its civilizing furrows, claim the territory, and leave its trace.

*

As part of a landscape, a trace is a path worn by the continual tread of animals hooves, then human feet. It is “a line in the dirt etched across the land.” North American traces, most famously the Natchez from southeastern Mississippi to Nashville, Tennessee, existed long before European settlers, but they did not become traces until Europeans discovered them. The idea that they were discovered is significant. It implies the lines in the dirt were unused until the Europeans found them, as if they were natural features of the land. But they existed because of human and animal activity, and even if there were traces not being used by humans when the settlers found them, they were in use by animals. The Buffalo Trace, which became the first roadway across southern Indiana, was marked out by the annual migrations of bison from the Ohio River to the Wabash. The Europeans told themselves they were the first to trace this land.

*

In western Ohio and southern Michigan the settlers found oak openings with so much space between the bur, white, and black oaks that they could drive their wagons through the openings as the sunlight created broad shifting mosaics through the sparse canopy. The sunlight

was promising, and soon farmers were tracing through the mesic loams with “plows of immense proportions, and only occasionally was it necessary to turn aside from some oak.” What seemed blank was actually a trace itself, in that the oak openings stayed open through regular small fires which suppressed the growth of shrubs and succession into forest. The Native Americans contributed to these fires, intentionally and unintentionally, maintaining “high levels of fire disturbance” without which, due to European settlement and the wildfire suppression policies of the 1920s, the oak openings have in the past century and a half turned into closed-canopy forests, farmland, college campuses, and cemeteries.

*

Settlers followed the old traces into prairie they believed was unmarked, but because the prairie was unmarked they could not be settled. The prairie needed at least a few traces of civilization to get started: wells so settlers could drink, roads that didn’t transform into byways of mud in the spring, timber to build and heat with, and the sometimes six yoke of oxen necessary to pull the immense iron plows necessary to break through the prairie’s dense roots. Many of the immigrants, coming from crowded European cities, felt at sea in the wide open prairieland. A trace is a memory of someone having been there, and the settlers saw no memory in the prairie.

*

In 1837 a blacksmith named John Deere moved from Rutland, Vermont to Grand Detour, Illinois, invented the self-scouring steel plow, which could break the dense sod with far less effort than the cast-iron plow, and by 1841 he was selling almost a hundred per year of what came to be known as “the plow that broke the plains.” A Depression-era documentary of the same name traced the connections between the plow and the Dust Bowl, blaming settlers for the environmental disaster. Sometimes traces we think we see are not actually there. Other times, we

do not have the instruments to find them. To what degree the plow led to the Dust Bowl remains an open question.

*

To break a wild horse is to subdue it, to conquer and control its wildness. Breaking the plains had the same goal. A break is also a split, a crack, an interruption, and so to break the plains was to interrupt the line of their history. The plow that broke the plains broke the past. We trace the past now in travelers' journals more than in the traces of prairie the plows left.

*

A railroad map from 1850 shows a tiny line, as if a hair with a split-end, coming from Chicago. A map made ten years later shows that the East from Iowa to Kentucky to Maine has developed a network of arteries or corridors or steel traces that could carry fuel and timber to the Plains and commodities back to the city. By 1860 the Sac and Fox Nations have been "removed" from northern Illinois and Wisconsin and the high price of wheat has overcome "all prejudice to any land with available markets which would produce that crop"—now settlers are bypassing the Eastern woods; there is "talk of abandoned farms in the East"; settlement has spread over the open grasslands; the prairie has been broken.

*

With the breaking of the prairie, the era of tracing ended. To trace something is to pursue it, to discover it through investigation, and once the prairie had been broken, the age of discovery there was over. A trace is a mark of something passing, too, and so, in that sense, the wheat and corn that replaced the prairie might also contain traces of it. There were traces of humans across the prairie once, and now the prairie is a trace element in our bread.

In Which the Author Finds Himself Influenced by Karl Marx

My father believes he is a practical, hands-on kind of guy, as opposed to an artist, a thinker, an interpreter. He has said repeatedly over the years that when he reads, he assumes the author is going to say, straight-out, what he or she means. Why, he says with a subtly exaggerated innocence, would the author say something other than what he or she meant? He intends this as an affectionate lack of understanding of my pursuit of literature, although he did enjoy the Russian novel class he took at Buffalo State before leaving school to be more active, helping his father and brother open and run a bar they called Barleycorn's.

In a comparative literature class sophomore year of college I read *The Communist Manifesto* and as if the clouds have suddenly parted understood why my father has so rarely been willing to work for someone else. I read that the bourgeoisie—by which Marx and Engels mean the owners of the means of production and the employers of wage laborers, which is to say the capitalists—“has converted the physician, the lawyer, the priest, the poet, the man of science, into its paid wage-labourers.” My professor pointed out that everything in the temperature-controlled lecture hall, the plastic whiteboards, the magenta covers on the fold-down seats, the pens, the books and students’ maize and blue sweatshirts, had been made by someone, that human hands had touched the whole room and everything in it, which had all to seemed exist *ex nihilo* until then. I decided that to understand the world I had to understand its means of production and so, the next summer, I found a job working on a small vegetable farm in northern Massachusetts where I learned what kale was but was still not able to conceive of how a seed turns into a radish, because there are, after all, limits to human understanding.

My high school English teacher assigned Ignazio Silone’s novel, *Bread and Wine*, about an Italian communist in the 1930s who is forced to disguise himself as an aging Catholic priest. I

was caught up by the revolutionary utopias the character works toward. I also learned to appreciate, as the character did, that these can be destructive and that the relationship between religion and economics is not simple. I appreciated this exposure to complex ideas. I admired my teacher while realizing that his roots may have been less working-class than he made himself out to be. He was the father of a classmate of mine and would die of a heart attack a year later, at 51, while building a house. It would be the first wake I attended, the face in the open casket waxy, lips pressed closed and slightly pursed as if the embalmer had added someone else's. I thought of my own father, four years younger. What would happen if he died?

“The closer you get to real matter, rock air fire water, boy,” Snyder told Kerouac, “the more spiritual the world is.”

Leaning back against the kitchen counter in my teenage years, I conversed with my father into the night. The sessions were unplanned—unintended, even—but regular. They ranged over school, the Clinton administration’s welfare reform, local politics, my feeling of obligation to do something good in the world, and the importance of small, independent businesses to the life of a city. Later, I would attribute my desire to be a writer and intellectual to my enjoyment of these wandering conversations.

It was senior year of college and in office hours, my brilliant and challenging young American literature professor asked if I was, like her, her husband, and her children, a “fac brat.” I explained that no, my father had a series of small businesses in my hometown. The brilliant and challenging young professor, who up to this point I had admired unconditionally, smiled politely and said, “Oh. I guess we need people like that too.”

Every morning, for three years, my father got up in the dark of the early morning and drove to the bakery he opened where he would roll bagels and shape bread alone in a large brick-

walled room a mile from downtown. Bruegger's, the bagel chain, opened up within walking distance of town hall in the same period.

Capital: A Critique of Political Economy turns out to be remarkably entertaining and lucid, full of sarcasm and literary allusions. Marx would have fared well across the table from Stephen Colbert's television personality "Stephen Colbert." In Volume One, Chapter 6, Marx explains the process by which capitalists extract profit through conditions wherein wage laborers are forced to work longer hours than are necessary for the reproduction of their own necessities. I realized that the creation of surplus value through the exploitation of alienated labor was a prerequisite for capitalism.

My father thought about becoming a minister because he wanted to do something good for the community but didn't because he couldn't stomach religion.

My father once said that having a Bible in the house is as bad as having a gun in the house. I am not sure how serious he was. He seemed serious.

In the summers of my childhood, I went to a nature camp and learned cooperation games such as Human Knot and Amoeba Tag. I also learned to fear and loathe pollution and love recycling. When the campers were challenged to see how long we could bring our lunches in the same paper bag, I lost to a friend whose original bag had slowly transformed into one of duct tape.

It strikes me that most people who talk about class, who consider class an important idea, one we should all think more about—people for whom class explicitly shapes their politics and their work—grew up as part of the industrial working class. Not me. I get impatient with the way, in talking about class, people seem to have to refer to their childhood near Detroit or in Ohio. Why can't more people concerned about class in America say, "I grew up going to private

schools, the daughter of an astronomy professor and a doctor?" Why aren't more people concerned about labor and the production of materials?

Say It Again

The colonists who had girdled the trees and so thoroughly stubbed the fields sent their children's children west. The soil was better and better the closer they got to the prairie. When they broke the prairie, the topsoil was two feet deep. With the native people slowly being cleared and the buffalo soon to be slaughtered, the frontier was ready for consistency. The settlers could smell the uniformity, and the money. The best practice for the frontier farmer seemed to be to grow on the soil until the soil could grow no more. A magazine writer observed in 1849 that in Missouri, "most of the farmers in this country *scratch* over a great deal of ground, but *cultivate* none. Instead, however, of . . . ceasing to enlarge their farms and growing grass seed until they are reduced to a manageable size, the cry is still more land, more corn. It is corn, corn, corn, nothing but corn." It is as if Agriculture Secretary Earl Butz was in the spirit of the land before the land produced Nixon's fence-row-to-fence-row secretary. "Take the state over," the writer continued about Missouri, "and I have no idea that one farmer out of fifty has ever hauled a load of manure to his corn fields since he has been in the state."

Most ecologists, soil scientists, environmentalists and farm thinkers today agree that soil improvement is the basis of good agriculture. The importance of maintaining the health of the soil has become a familiar refrain. Surprisingly, that was the prevailing opinion in "the majority of treatises on good agriculture" in the nineteenth century, too, and so, when historian John Falconer explained in 1925 that the vastness of the prairies was "the economic basis of western predatory agriculture," he was not saying anything new. "Indeed," a traveler through Illinois wrote in 1840, "the two greatest objections to the West, in my judgment, are that the land is too cheap and too productive."

Wheat and Its Metaphors

A kernel of wheat consists of bran, germ, and endosperm. Two of these are well-known, especially among health food zealots. The other is less-known, because it is the rest of the kernel, the part we use so much that it seems normal, and has left the other two parts behind, coming to be the whole of what is commonly referred to as “wheat.” The bran, the outer shell or hull, protects the rest of the seed. For people who choose to eat it, it offers fiber, B vitamins, and trace minerals. The germ, which provides nourishment for the seed, provides eaters with antioxidants, vitamin E, and more B vitamins. The endosperm provides the carbohydrates, but also, interestingly, protein. The protein, it turns out, is the gluten that allows flour, when it’s made into a mash, to pull together and become dough. The wheat kernel, on the plant, is covered with a husk.

As a seed, holding within it the genetic information to grow into a blade of grass, a blade that will produce more heavy, full-bodied seeds, the wheat kernel stands for possibility. What things may become, as in the child who, running down the hallway dragging a brown crayon along the wall who may become a great producer of paradigm-shifting performance art in New York galleries and museums. A wheat kernel is like that child.

The husk that surrounds the kernel, therefore, is the younger sister of the X-Men’s Cannonball, who (the sister) can remove one layer of skin, revealing an epidermis of a different composition underneath, which composition is often metal or stone, but may be another, giving her superhuman, which is to say heroic, powers. As one may guess, Husk is insecure, considering herself to be a bit of a hick.

The wheat kernel stands for potential and the difficulty of realizing potential, especially alone, as we will see. The hull holds secrets, protecting them from prying eyes until the

dissolving rain has laid them bare and they begin to interact with the materials around them, the soil, the minerals in the soil, and the living things who depend on the transfer of their information among themselves, like an undercover agent with the country's best and most private interests at heart who travels from municipality to municipality, insinuating himself into the local cultures and passing along, at each new junction, the unspoken but effective assumptions that keep each city running, allowing them to come to a greater understanding of why, say, one lets its whole economy depend on the game of football while another encourages a variety of enterprises for its people. The husk is the shyness that surrounds a good secret. The eventual roots are the intertwining assumptions about a common good.

To realize its potential, the kernel must find itself in a crowd of others like it, so its plant can stand in the wind and reach, and so it is also a member of a town that only supports the game of football, hardly noticing the small edge-species, the purslane and chickweeds that grow among the dominating monoculture. In this sense, too, the wheat kernel stands for the fragility of any culture that depends only on itself, not allowing new ideas or information or colors of people to produce their geometrically unusual interpretations of what exists around them. This kind of culture can develop a blight that spreads frighteningly quickly among its members, killing them off like that.

If this small brown kernel of hard red spring wheat resting on my palm is monoculture, it is also the whole of agriculture itself, being related to *emmer*, *einkorn* and *barley*, the first three strains of wheat domesticated in the Fertile Crescent. Domestication allowed the early societies to develop and become complex, shifting from nomadic tribes of hunter-gatherers to settled groups whose stores of grain allowed certain members—those who controlled the stores—power

over others, and the ability to make war on other societies and expand the reach of their territories. The kernel of wheat is therefore social stratification, power, and empire.

The kernel is also, in its size and shape and potential, the warty growth I got on my thumb, and, as a blight, it is what the settlers brought on the prairie. It is the Dust Bowl, and capitalism.

The Civil Cultivation

History . . . celebrates the battlefields whereon we meet our death, but scorns to speak of the plowed fields whereby we thrive; it knows the names of the king's bastards, but cannot tell us the origin of wheat. That is the way of human folly.

—J. Henri Faber

Although farming is one of the oldest undertakings, individual farmers rarely become heroes of their time. They are continually eclipsed by the great warriors and generals, men like Pericles, Ulysses S. Grant, and Eisenhower. The same is true for historians. The ones who focus on the great battlefields—the wars, the courtrooms, the Constitutional Congress—rise to the top of the bestseller lists, while the historians who tell stories of crops toil in obscurity.

As I read James C. Malin's 1944 *Winter Wheat in the Golden Belt of Kansas* about the long effort to establish wheat there in the second half of the nineteenth century, I was impressed with his ability not to be distracted by the celebrated events going on at the time. During the years Kansas was becoming a wheat state, it saw John Brown kill some pro-slavery soldiers and take others hostage; one senator beat another with a cane for denouncing pro-slavery violence in the state; the whole country debate whether Kansas should enter the union as a free or a slave state; and battles with the Cheyenne and Arapahoe Indians increase. All Malin talks about is weather, pests, and harvests. He writes, for example, that the 1862-63 growing season was an especially difficult one for Kansas wheat. There was a fall freeze as the crop sprouted, and the spring was windy and wet. It rained from April until July and all that moisture brought rust, meaning the wheat had to be harvested quickly. The need to harvest quickly brought another challenge, Malin tells us, because "many men left for army service during the harvest season." This is the closest he comes to mentioning the war that would end slavery in the United States, solidify the authority of the federal government, and impoverish the American South. Almost a third of the state's men of fighting age were killed. He refers to it as "army service," and then

tells us that in 1865 “chinch bugs and grasshoppers were reported in Western Kansas,” and that the grasshopper visitation of 1866 was severe.

Reading Malin, I wonder what would happen if suddenly, en masse, historians shifted their focus to grasshopper visitations. History would be less exciting, at least at first, until some great writer came along, another Gibbon or Ellis, and turned the visitations into epic struggles which became bestsellers and were then absorbed into culture as metanarratives of a people’s self-definition. If history celebrated the men who plow the fields and neglected the soldiers and generals, the honor and glory we associate with war would shift to sustenance. Commercials would show a young man fighting computer-generated locusts and announce him as one of “The few, the proud, the wheat-growers.” Teenagers would be drawn to sign away the next four years of their lives to become “a farm of one.” On second thought, the latter might not be effective, since farming is most exciting when it is a shared endeavor—but then, so is battle.

As I conjure up images of a heroic scythe-wielding farmer I am uncomfortably reminded of Soviet posters and murals with those very images of strong men and women gazing out over their wheat fields, and I realize the aggrandizement of farming is a complicated and dangerous thing, and that honor and submission are easy to confuse.

I remember too that we do hear in other places about the struggle to thrive, as in the novels of Laura Ingalls Wilder, Willa Cather, and John Steinbeck. The reason the record of thriving is not more thorough is that the people who focused on it throughout human history were busy. They were women more often than men, and they did not have time to tell the stories of the conquests of fields, the daily firing-up of ovens, the risings of bread, the harvests. If they had had time, they probably would not have called plowing a conquest. If instead of Achilles’ rage, the muse had sung of the sweat of Achilles’ farmer cousin, maybe more farmers would rise

to the presidency. Malin's history would seem more exciting, then, and instead of the wars, we would remember history's great plantings. There would be sections of the library devoted to the Revolutionary Nurture. We would all be told in elementary school how the nineteenth century's Civil Cultivation almost destroyed our nation, but brought it together in the end.

The Dry Hazards of Kansas

What can syntax say about weather? I came across a sign at the Fall River Pass in Rocky Mountain National Park whose sentences evoked the mountains' effect on the Plains. Winter wheat develops the strongest gluten after a hard winter and a dry spring. If there is too much rain, the wheat will rot; if there isn't enough, the kernels will shrivel up or never grow at all. The Rocky Mountains give western Kansas the aridity that produces some of the best bread wheat in the world, but they also create the "hazards" of winter wheat production, as James C. Malin puts it. As we go about our lives, feeding our families, trying to save a little, recovering from floods and droughts and lay-offs, we might dismiss the effects of a well-constructed sentence, but without a sentence like this, we would not know the sadness and struggle of weather in the Plains:

Winter winds out of the west sweep the snow up these gentle slopes and, with the mountains acting as huge snow fences, feed small, remnant glaciers and permanent snow fields occupying the steep eastern flanks.

Let's consider, briefly, the effects of the sentence, before we head back to the mountains and the wheat.

When it is too obvious, alliteration can be forced or clumsy, but the alliteration here (*winter winds out of the west, sweep the snow up these... slopes*) feels inevitable, as if it is sweeping us along with the wind. The subordinate clause that follows begins with a rushing feeling in the rhythm of stressed and unstressed syllables (**mountains acting as**) and ends on three strong one-syllable words (the –es of "fences" is negligible, to my ears), like the great peaks stopping clouds-worth of snow. It is a good length for a subordinate clause—long enough to stand out but not so long we lose our train of thought. In describing what the winds feed, two descriptors precede both "snow" and "glaciers," but the ingenious comma after "small" means

that instead of a sounding like writer's tick, the adjectives are evocative, specific, and deliberate. The slant rhyme of *remnant* and *permanent* connects the glaciers and snow fields with a sad irony, and the last five words carry the line's cross-country momentum, letting it glide to a close as what's left of the snow settles on the eastern flanks. It is a clear, vivid sentence, not the kind one expects to see on governmental signage, even in areas as congenial as national parks, so it was especially satisfying up in the cool thin air of the pass.

I'm left, reading that sentence, with a feeling of the loss in the moist winds' diminishing momentum. The little moisture that remains after the air mass has crossed the mountains provides water for lands and people just to the east, cities like Boulder, Denver, and Colorado Springs. By the time the air makes it to eastern Colorado, it is dry as chaff. In the meantime, the moisture-laden air from the Gulf of Mexico, moving west, meets up with the dried-out Pacific air just over western Kansas, Oklahoma, and Texas. This means the weather there is dry, but unreliably so. Some years there are severe storms. There is plenty of wind. Tornadoes are common. The early developers of Kansas agriculture accurately predicted that the region would have a failed crop every five years.

In the meantime, a sign sits in the mountains, communicating through its limber syntax how geology affects the weather that shapes our agriculture and our bread.

Bonanza!

Business Sense As Applied to Agriculture

May 7, 1884 *The grass begins to grow, and soon the whole prairie will look beautiful. . . . We have fifty acres for a dooryard. All the rest is sowed with grain and now looks like green velvet.*

In the late nineteenth century, it occurred to certain businessmen that they could apply the principles of factory production to farms. They bought up thousands of acres in the northern Plains, and the press began to describe their farms with a mining term: Bonanza!

September 19, 1884 *The first frost. Looking from the granary steps with the telescope I could see twenty threshing machines running. The weather is perfect and they will thresh an average of 1,500 bushels each.*

In the 1880s, Mary Dodge Woodward and her son managed a 1,500-acre farm near Fargo.

April 11, 1885 *I am glad that we can have the same men that were here last year. They planted eighty acres yesterday which was a big day's work, as seeding is the hardest part of farming in Dakota. The men walk between eighteen and twenty miles a day besides lifting sacks, filling seeders, and managing horses; moreover it is frequently either muddy or dusty in the spring.*

1,500 acres is too small to be officially considered a bonanza farm. In 1897, the average acreage for a Red River Valley wheat farm was 7,000.

May 23, 1885 *The wind blows all the time, so hard that one can scarcely stand before it. . . .*

About four o'clock the sky looked fearful, we heard a distant roar, and soon the storm was upon us. The hailstones were as large as nutmegs and oh, how they did kill things! . . . Our wheat that looked so green has disappeared and the fields are bare.

One farm in North Dakota had 50,000 acres. A farm in California had 60,000. That's 93 square miles. In 1995, Eliot Coleman's advice for young vegetable farmers was that they attempt to make their living on no more than five acres, as that is the maximum one person can work and still pay close attention.

August 11, 1885 *Harvest has started. Now there will be no rest for man, woman, or beast until frost which comes, thank heaven, early here. I was nearly beside myself getting dinner for thirteen men besides carpenters and tinners. . . . I baked seventeen loaves of bread today, making seventy-four loaves since last Sunday, not to mention twenty-one pies, and puddings, cakes, and doughnuts.*

The men cut one hundred acres today. All four of our harvesters are being used as well as three which were hired to cut by the acre. Things look like business with seven self-binders at work on this home section. The twine to bind our grain will cost three hundred dollars this year.

The Oliver Dalrymple family controlled as much as 100,000 acres at one time.

August 6, 1886 *A beautiful day. The men are all harvesting. Not even a chore man is left on the place. They have been cutting sixty acres a day with all five harvesters running. . . . Some of the*

men are shocking [stacking sheaves of grain upright in a field for drying] . . . The reapers are flying all about us, stretching out their long white arms and grasping the grain. They remind me of sea gulls as they glisten in the sunshine.

In 2002, half of all American farmland was on farms with more than 2,190 acres. While the number of small farms was increasing, so was the size of the large farms.

August 13, 1887 *Our family has increased until there are thirty-two. We have put the cook stove in the blacksmith shop. The men have taken all the machinery from the machine house and put in tables with bunks overhead, making a fine new living quarter. We have a man cook and he has taken sixteen at his table out there.*

The yard is full of threshers. They have been running the new machine to try it. . . . It looks very queer indeed to see an engine running around the yard with no horses attached to it. They whistle and toot and frighten the chickens and some of the horses. At present there is about a mile square covered with buildings and machinery.

Combine harvesters can harvest more than three acres in an hour. The John Deere 70 STS Series Combines, for “High-Octane Harvesting,” come with ProDrive Ground Drive Systems, AutoTrac™ RowSense™, AutoTrac™ Ready, High Performance 4x4 Feederhouses, and Self-Levelling Cleaning Shoes.

Abstraction

By expressing the whole spectrum of light, white includes all. We cannot see all the colors in white: all we see is white. But the theory tells us that all the wavelengths are there, and that is what makes it so luminous. This raises the question of whether whiteness actually exists, or whether it is just light itself. What we think is white may only be the imperfect paleness of surfaces and objects, the specific, concrete surfaces. These particulars drown whiteness of its abstract perfection and make it visible as “color.” Pure whiteness seems to be separate from the local specifics of daily existence, the world we live in minute to minute, where our old t-shirts are slightly yellowed and we’ve just banged a gray dent into a freshly-buffed Lincoln Navigator.

Discourse in the Field, or
Lie With Me, Oh Forb, and Tell Me Tales of Excess Seed

Seventeen miles west of Salinas, Kansas, Wes Jackson is unwittingly applying Bakhtin's theory of language to the farm. Jackson wants to end the 10,000-year-old habit of tilling and planting seeds. To do this, he has introduced the idea of "Natural Systems Agriculture," a method whose critique of traditional agriculture bears an uncanny resemblance to Bakhtin's critique of 1930s aesthetic theory. Was Bakhtin thinking of ecosystems when he wrote his new theory of stylistics? Does Jackson have a secret Ph.D. in literary theory? Both are unlikely, but the reverberating tropes of these two thinkers suggest that how we read affects more than trends in literary criticism. It shapes our attitude toward hierarchy and authority. Reading affects the soil. It influences wheat.

THE NOVELIST

Jackson, who appears to be in good health, will almost certainly die before his project is achieved. As of 1999, when he was 63, he projected it would be 25-50 years before prairies could begin to grow crops. Seven years later his researchers at The Land Institute wrote that if all went well, they would have the results they were looking for in 48 years. The Institute assigned their youngest plant breeder, Lee DeHaan, to create perennial wheat, because they knew wheat would take the longest and they wanted him to be able to follow it through. It's hard to imagine going in to do your research every morning knowing the answer to your question will take half a century to find. Wes Jackson says if you're working on a problem that can be solved in your lifetime, you're not thinking big enough.

In the late 1970s, Jackson read a report from the United States General Accounting Office and was surprised by the rate of erosion it described, especially considering the Soil Conservation Service had already existed for more than forty years. He started to read the history of commentary on erosion and realized it went back much farther than he'd imagined. Early critics of American agriculture like Tench Coxe were themselves continuing a long tradition. It went back to Plato, who lamented the "demise of the mountains of Attica that were once prosperous but were now only fit for bees." It went back to Job. Jackson began to wonder if there was something about agriculture itself that linked it, inevitably, to erosion. Once he asked the question, the answer was clear: the need to re-till each year to keep the ground weed-free and ready to plant meant fields were standing empty for months at a time. Plowing broke up the ecosystems that had been a part of the land, holding in the soil, maintaining its water and nutrients, for centuries. Cultivation of the soil turned out to be less wholesome than it seemed. Agriculture, Jackson realized, had been undermining its base since the beginning. To clear a field was to simplify a system that needed complexity.

Mikhail Bakhtin came to similar conclusions about literary language. The language of the epic and poetry had maintained them as Myth: the embodiment of a society's truth and understanding. This epic, poetic language gave the impression that it was authoritative, and that it had a single, unified meaning. But society had become (was always) far more heterogeneous than reflected in the epic and poetic modes. It was the novel that gave voice to all of society's languages, its dialects, its official discourses, its pidgins and texts. The novel, argues Bakhtin, places every language in its larger social context, the way in an ecosystem each organism is part of a larger biological context. The novelist puts languages themselves in conversation with each other, creating a "dialogism" where every sentence has a double meaning, that of the narrator

and that of the author. Bakhtin calls this multiplicity of languages the novel's *heteroglossia*.

Wes Jackson believes it is possible to create an agricultural heteroglossia, which is to say that Wes Jackson is an aspiring novelist of the fields.

IT WAS SIMPLE, ONCE

Just as the stylistics of the novel in the Russian 1930s focused too much on the individual author's voice, the stylistics of soil read it as a simple matter. In the early 21st century, most definitions still call soil a substance—life-giving, but inert. Edward Hyams, who was not a scientist or a farmer or a scholar but wrote a paean to soil called *Soil and Civilization* in the 1950s, presaged the conclusions of later ecology theory by arguing that it is a process. Soil, he said, is the continual breaking-down of organic matter by worms, insects, fungi, and bacteria; the fixing of atmospheric elements, especially nitrogen, by other bacteria; and the transfer of those broken-down elements to the self-organizing structures of plant and animal life. Organic matter consisting of “animal and vegetable carrion, and animal faeces” is metamorphosed into humus by ammonifying bacteria that live in the soil and upon which all life depends. Scientists have since identified mycorrhizal fungi that form symbiotic relationships with plants’ roots, receiving the plants’ carbohydrates in exchange for better access to water and nutrients, and Jackson points out that, when the prairie was plowed for crops, its vast mycorrhizal webs were destroyed.

Humus, like narrative, is still a mystery. Scientists understand that it is the life of the soil. It is what holds the moisture that allows plants’ roots to access nutrients. Pure mineral powders would let water drain or evaporate and roots could not ingest the minerals if they were dry, the way, without novels, modern social life desiccates, fragments, forgets. The large molecular structures in humus incorporate oxygen, making negatively charged nodes that plant nutrients,

which are positively charged, can latch onto. Scientists get this. What is mystifying about humus is that it is stable. It can, in theory, last for centuries or even millennia. In that sense humus sounds more like a mineral, or a religion. Maybe it is a force, like gravity. And yet it comes from organic matter and is, in essence, a mix of tiny pieces of once-living tissue. It is carrion, death and waste, and the line between those endings and humus, the beginning, is fuzzy. In Maori, the word *whenua* means both placenta and land.

The majority of a soil's humus is in the topsoil; the topsoil is the first to erode; it is because it can take hundreds of years for humus to be created that soil, contrary to Wikipedia's entry on it, is not, practically-speaking, a renewable resource.

AUTHORITY GOES WEST

Jackson's attempt to novelize the otherwise-epic monoculture is a critique of authoritative farming. Monoculture reigns in most of the world's agriculture, but although early American farmers, starry-eyed with all that undeveloped land, did not worry about exhausting the soils because they could pick up and move west, farmers with less space had to find ways to keep growing locally. Pure monoculture, year after year, always depletes. If, for practical, economic reasons, forward-thinking farmers cannot plant multiple species at once, they at least plant a mix over the years. Rotation has added temporal complexity, if not spatial, and patterns have emerged: a simple one is corn, then soybeans, then corn, then soybeans. Or the Native American Three Sisters gardens of corn, beans and squash, which, when mixed, complement each other above ground as well as below. Some farmers have mimicked natural systems well enough that they have created humus: in parts of Europe where agriculture has been uninterrupted for centuries, the soil is healthier than the surrounding, uncultivated land. The

plaggen soils were started by the pastoralists of the Middle Ages, who cut peat from outlying fields, used it as bedding for their livestock, then spread it back on the fields. Climate differences, though, would prevent this practice from being implemented elsewhere: peat is not available in Kansas the way it was in 13th-century Orkney.

The advantage of monoculture is that the farmer, like the U.S. military when liberating and occupying a foreign country, has, in the short term, complete control over what goes into the field and what comes out. This is authoritative farming, where the unwanted plants are reeducated into submission (killed with Round-Up), so the official commodity crop can appropriate all the soil and nutrients for itself.

Bakhtin saw the same imperial tendency in national, centralized languages. Listen to him describe European linguistic authority, and, as you do, think of wheat as it spreads through the prairie:

The victory of one reigning language (dialect) over the others, the supplanting of languages, their enslavement, the process of illuminating them with the True Word, the incorporation of barbarians and lower social strata into a unitary language of culture and truth, the canonization of ideological systems, philology with its methods of studying and teaching dead languages, languages that were by that very fact “unities,” Indo-European linguistics with its focus of attention, directed away from language plurality to a single proto-language—all this determined the content and power of the category of “unitary language” in linguistic and stylistic thought, and determined its creative, style-shaping role in the majority of the poetic genres that coalesced in the channel formed by those same centripetal forces of verbal-ideological life.

In the same way, wheat replaces native plants, incorporates what nutrients are left in the soil, canonizes the idea of One True Crop, wipes out even its own varieties leaving only the highest-yielding, fastest-growing and often least interesting. We might even say it enslaves the field, not to mention the farmer. Centralized language gave us the ability to establish laws, to enter into a social contract. Wheat gave us sandwiches. But for either to happen—for Kansas to produce

wheat for the world, for official language to maintain its authority—the irregularities, the weeds and the variant spellings, had to be whited over and out. Still, if there is hope for language—

Alongside the centripetal forces, the centrifugal forces of language carry on their uninterrupted work; alongside the verbal-ideological centralization and unification, the uninterrupted processes of decentralization and disunification go forward.

—then there is hope for the field. The ideals of Wes Jackson's agriculture are apparent in the details of the novel's heteroglossia.

LONG DAY'S JOURNEY INTO DIALOGISM

Bakhtin's dialogism is Jackson's goal. His researchers are working on hybrid constructions, plants that both produce and survive. Historically, the best seed yields come from annuals, because annuals have to make seeds for their species to live another year. Rice, corn, and wheat, like most of the grains, are annuals. Perennials survive by storing energy in their own bodies rather than by reproducing. They depend on their root systems during the winter, and what seeds they do produce are smaller and fewer than those of the annuals. A Jacksonian dialogism would express both perennialism and yield.

Common sense suggests this should not work. A plant only has so much photosynthetic energy, says common sense, and it can put that energy either to roots or seeds, not both. It turns out, though, that perennials produce more plant matter than necessary for their survival, and some of this could be redirected, through breeding, to a better yield of seeds. The Land Institute researchers say that the reason we don't already have perennials yielding harvestable seeds is that the annuals were shouting out to be domesticated by scattering their seed all over our Neolithic ancestors' outdoor kitchens and latrines. The researchers list four reasons they believe perennials should be able to produce harvestable seed yields:

First, perennials have a longer growing season. Shoots from the rhizomes of perennial sorghum appear a month earlier than from the seeds of annual sorghum in the Kansas research nurseries. This means they have more time to photosynthesize over the course of the season, which means they make more energy, and they can spend more time collecting nutrients from the soil. Thus the soil is productive for more of the season too.

Perennials also have better access to soil nutrients. Because of their longer growing seasons, their roots reach deeper. Intermediate wheatgrass roots can dig down more than ten feet, whereas annual wheat's roots rarely reach more than three. With their reach, they can draw up deeper minerals and water.

Third, perennials use their resources more efficiently. The breeders measured nutrients in the soils of native hay meadows in Kansas and adjacent wheat fields. Both have been harvested every year for the past seventy-five, but the wheat fields are reseeded annually, whereas the hay fields grow from perennial roots. Each year, similar amounts of nitrogen are harvested in the form of seeds or hay, respectively, but while the hay fields have never been fertilized, the wheat fields have been given about seventy kilograms of nitrogen fertilizer per hectare per year for the past decade. The hay fields still retain more nitrogen and carbon in their soil. Where does their nitrogen come from? Perennials surprise us with their conservatism.

Finally, perennials are bigger. They have more aboveground biomass than annuals, and if they are able to put all that energy and carbon into making more shoots and leaves, the breeders believe, they ought to be able to redirect some of the plants' excess carbon toward seeds for people.

The Land Institute breeders are hybridizing annual crop and perennial varieties of wheat, sorghum, and sunflower. They are also directly domesticating perennials in these families. The

latter—selecting seeds from the plants with the most desirable traits—is the project that will take decades. But remember that, as Jackson’s researchers point out, “Perennial grain breeders are in a sense aiming to replicate the achievements of the Neolithic peoples who domesticated and improved the grain crops on which agriculture depends today.” If you consider, also, that when trying to cross annual seed producers with their perennial cousins, “The plant breeder . . . must struggle with genomic disruptions while selecting to improve multiple traits simultaneously. The history of plant breeding shows that progress in such situations is often achieved slowly and only through extraordinary efforts,” then half a century sounds like not such a long time to wait for the end of monoculture’s epic authority.

BECAUSE THE LORD DID THERE CONFOUND THE LANGUAGE

If the breeder can achieve dialogism, the farmer, ultimately, will be a keeper of heteroglossia. Bakhtin sees heteroglossia occurring like this:

Authorial speech, the speeches of narrators, inserted genres, the speech of characters are merely those fundamental compositional unities with whose help heteroglossia can enter the novel; each of them permits a multiplicity of social voices and a wide variety of their links and interrelationships (always more or less dialogized). These distinctive links and interrelationships between utterances and languages, this movement of the theme through different languages and speech types, its dispersion into the rivulets and droplets of social heteroglossia, its dialogization—this is the basic distinguishing feature of the stylistics of the novel.

The multiplicity of languages in society functions like the variety of species in a natural field, allowing the stylistics of the novel to become those of the prairie. In the prairie, the interaction of different grasses and forbs leads to a multiplicity of voices, all of which depend on each other, none with complete authority. They each have their own humbling irony. The grasses, most of whose biomass is in their root systems, provide the soil with its structure by weaving through the minerals, making paths and food for worms and insects and symbiotic fungi and bacteria, helping

the water go deep. Eventually the roots decompose to add to the humus, which, always more or less dialogized, both holds water and helps it pass through. Although the grasses dominate in number and mass, they depend on the forbs—all the plants that are not grasses—to produce their larger flowers, attracting birds and bees. The legumes are the most essential of forbs, fixing nitrogen from the atmosphere into the soil using nodules on their roots, nitrogen that all the plants use to build their leaves. The constant presence of perennials' roots and rhizomes keeps the soil from eroding.

A natural field with its variety of species is more resilient and forgiving than a monoculture, which is easily wiped out by a plague of grasshoppers or blast of mold. Jackson's field will work in a similar way. The Maximilian sunflowers will produce seeds and suppress weeds; the seeds of eastern gamagrass are edible and may start a new cuisine; flour from intermediate wheatgrass cannot yet make leavened bread, but hybridized with wheat, it might; Illinois bundleflower, a member of the mimosa family with fern-like leaves, provides the nitrogen; giant wild rye will be another seed-producer: it has already provided food to Russians during drought years when annual small grains have failed; a hybrid of Sorghum halapense, the aggressive weed known to Southern farmers as Johnson grass, and Sorghum bicolor, a common commercial variety used for silage and grain, will be another grain producer in the heteroglossic field. The species will interface and, in communicating soil structure and nutrients, support each other. It will be a division of labor, and the cosmopolitan variety will also attract more animals, who will eat and defecate and help nutrients cycle through. Once the breeders establish dialogism, heteroglossia should be relatively easy.

This particular mix of plants will, however, only work in agricultures based in the medium and tall grass prairies of the American Plains. Like the novel, which does not represent

all voices, only a “plenitude” of actual socio-historical voices that have entered into conversation in a particular place and period, the Jackson’s polycultural field will need to be recreated for each region, each climate. These may be models for representing language and growing crops, but the culture of the novel and the field must know the local conditions. Their authors must know the grounds from which they speak.

SOME METHODOLOGICAL OBSERVATIONS IN THE MANNER OF BAKHTIN

Conventional studies of the culture of the field fail to acknowledge that they are based in a simplifying paradigm. As annuals continually re-accentuate themselves with new higher-yielding varieties, they reinforce the expectations of the farmer, the seed company, and the consumer that one language, one crop, one variety, one fertilizer, fully expresses the land’s potential. Each of these players takes monoculture as the only viable option, failing to see in deviation a productive or interesting alternative. Conventional stylistics are helpless when confronted with the authentic uniqueness of the novelistic field. This has led to a situation in which, when it is acknowledged at all, a heteroglossic agriculture of mixed perennials is passed off as a sentimental idyll with no relation to the reality of growing food—at best a utopian undertaking of dreamers and romantics, as opposed to the hard-headed utilitarianism of the academic agricultural scientists who, along with seed company spokespeople, direct field stylistics through trade magazines and academic journals.

The study of soil as a unitary substance offers nothing that will describe an ecosystem’s complexity. Moreover, this approach is—as is the description of agriculture in general—methodologically flawed, for in the soil, like the field, there is no single species; soil and field are, rather, *processes* wherein multitudinous species and substances link up with each other in

unity through space and time. It is necessary, then, that studies of soil read it as a system of interactions within itself and in the context of a broader climate and culture, rather than as a single-purposed unit ready to be interpreted into one crop year in and year out.

Natural systems agriculture calls for a new way of reading. The novelistic field appears, to conventional readers, to be a stylistic choice by an individual author-farmer, particular to that author's idiosyncratic approach to syntax and semantics but insignificant beyond its ability to identify the author. It seems chaotic and unmanaged, an inconsistent mélange of species and voices. It is style, nothing more. But to relegate to one farmer's idiosyncrasy all the particularities of a field's climate and slope, its purposes within the community, its own internal responses to soil deficiencies and excesses, its plant populations, its flowers and the birds and insects they attract, its dialogized uses of water and crop plants, is as absurd as blaming a farmer for letting his corn be contaminated by a proprietary gene blown in from down the county road.

An authentic stylistics of agriculture necessitates profound historical and ideological penetration into the field. Such insight (reinforced, of course, by factual knowledge) also involves a value judgment on the field, one not only agricultural in the narrow sense but also ideological—for there is no agricultural understanding without evaluation.

The reader must make associations between the surface activities and the soil. She must be capable of observing interactions of fungi, sunlight, minerals, and human activity over great spans of distance and time, and of reading always on multiple planes. The reader must make connections between aspects that seem distant and unrelated. An authentic stylistics of the field can only be achieved through a profound understanding of heteroglossia, an understanding of the dialogue of species and elements as they exist in a given era in a given locale. No plant is ahistoric. No system has existed forever in only one form. Each field is always in transition. But,

as Bakhtin said about great novelistic images, and as Jackson and others hope for the new stylistics of agriculture, the complex systems of the natural field continue to grow and develop long after the moment of their creation; they continue to produce through generations, far distant from the day and hour of their original birth.

Dough

When a risen ball of dough goes into the oven—no, before that. When water blends with flour, that's when I love my country.

When a grain of flour gets wet, the starch dissolves. It becomes available for the enzymes, which are a kind of protein that act as a catalyst for biochemical reactions, to digest. They turn the starch into simple sugars, glucose and fructose, and the double-glucose, maltose. The simple sugars are just single molecules of carbon, hydrogen and oxygen with the formula C₆H₁₂O₆ in different arrangements. In maltose, two glucose molecules are cleaved together, which may be what makes malt less sweet: the enzymes of the tongue pull those molecules apart more slowly. The immediate sweetness is simple; the slower sugar more complex. Bread, too, is more complex the slower it is risen, and so is democracy in America.

Yeasts are single-celled fungi. In the mix of flour and water, they eat the sugars. The reaction is C₆H₁₂O₆ → 2C₂H₅OH + 2CO₂, which is to say, when yeast eats sugar it leaves alcohol and carbon dioxide. Sugar holds energy, so the reaction is exothermic. It gives off heat. In the meantime, glutenin, which is a protein, disperses through the newly-formed paste, as it spreads connecting with other glutenin molecules, forming longer and longer coils: gluten. This tangle of fibrous strands holds the dough together. Gluten makes it dough and not just paste. When it is first mixed, the flour and water forms a loose “shaggy mass,” as they say. The gluten is in tiny, unconnected pieces and the dough has yet to see itself as dough. It’s an odd moment, when the flour suddenly comes together like this. The parts are still discrete, and at first, stirring seems like it won’t have any effect. As you stir through the lumps and hillocks of flour floating on top of the water, your mind might wander to the Quaker economics professor who sponsored

the first Students for a Democratic Society meetings in Ann Arbor. Those meetings led to the Port Huron Statement and its call for creating a participatory democracy. And suddenly, when the granules have rubbed against each other or enough time has passed for them to find the water and dissolve, there is a mass of paste in the bowl, which seems hopeful, if still unfinished. It is a dough, cohering to itself.

At first, bran and germ cause the gluten molecules to break and other substances to prevent them from bonding, the way slavery would for our first century, and civil rights for the twentieth, and now the question of how to react to climate change, and new kinds of labor and a lack thereof. As the dough is mixed, oxygen enters, along with oxidizing compounds from the yeast, and the gluten begins to organize itself by making strong sulfur-sulfur bonds at the end of the molecules. Because the molecules are coils, they can stretch and compress. This is what gives dough its strength and pliability, like the long-planned, loose-knit actions that shut down the WTO talks in Seattle in 1999. Kneading stretches the gluten chains and wraps them around themselves through the dough, adding strength and length. It also aerates, making small air pockets instead of big ones, leading to a more homogenous crumb. It feels good too, working the wet dough until it becomes soft and resilient, a smooth swell of nourishment.

After blending, the dough sits. Letting dough rise was a major innovation; the “no-knead bread” described in the *New York Times* a recent refinement. Egyptian remains show the first signs of leavened bread around 4,000 BCE, although the bread wheat itself had evolved by around 8,000 B.C., which happens to be the approximate date of the beginning of agriculture itself, suggesting—but the bread is rising and I’m getting ahead of myself, or rather, behind. The leavening would have happened naturally at first, since spores of yeast, everywhere in the air, accrete on wheat berries as they do on most fruits and grains, and if the mixed paste—the pre-

pasta or proto-flatbread—was left out for a few hours or a day or two, the activity revving up inside would start to inflate it. It is plausible that bread was the first inflated pleasure-ball, a central part of human life that might be what inspired people to inflate other things: pigskins (which led to sport and then Saturdays at the stadium eating meat wrapped in bread), balloons (which sans inflation would sit, flaccid and unwanted, on party store shelves), and later, anthropomorphized animals like Felix the Cat and Aviator Snoopy (which bring us out each November after the turkey's been stuffed). Maybe these balloons remind you of the giant revolutionary peace puppets of the Bread and Puppet Theater in Vermont, where Peter Reinhart, who would later help revive hand-shaped, artisan loaves in America, discovered a love of bread. It's good to think of leavened bread as the inspiration for footballs and balloons, and as the fuel of revolutionary peace puppeteers. The way to harness the wild yeasts was to save a piece of the old dough, which already had life in it, and add it to the new dough. It was a kind of dialectics, but a sour kind, and by 300 BCE, Egyptians were capturing yeast from the froth left over from beermaking to raise sweeter, faster, lighter breads.

It is in fermentation that yeast does its work. In beer and wine, the primary byproduct, the waste we create, is the alcohol. In breadmaking we focus on the carbon dioxide, because it will turn into gasses, which swell. It expands, stretching the paste and tempering its gluten, forming a network of cells, like the group 350.org, who organized demonstrations in iconic places in all fifty states—the tops of melting glaciers, underwater—to convince American politicians to cut carbon emissions 80% by 2050. Two years later, on October 24, 2009, there were “350” demonstrations in 181 countries calling for a reduction of parts per million of carbon dioxide in the atmosphere to 350, the safe upper limit. The other byproducts of fermentation, water and alcohol, help soften the dough, making it easier to work with.

At this point there are options. You can refrigerate the dough to retard its fermentation. You can leave it overnight, as the baker in the *New York Times* suggests. If you have added plenty of yeast and maybe a dash of sugar you may be behind the times in bread fashion but your dough could rise in a couple hours. The speed would make a more crumbly loaf, with a simpler flavor that the less-forgiving might call bland. As you lengthen the time your dough takes to ferment, you let the subtler byproducts of the yeast develop, and even the flavor of the wheat comes through. I forgot about my dough in the fridge behind the beer and the leftover stirfry the other day and when I baked it the crumb was large and irregular, meaning it had fermented slowly, maybe a good idea in general, and the flavor was full, nutty, and creamy. The Quaker economist Kenneth Boulding was not, I assume, talking about commercial yeast or long twisted strands of gluten when he wrote, in his “Ballad of Ecological Awareness”:

One principle that is an ecological upsetter
Is that if anything is good, more of it is better,
And this misunderstanding sets us very, very wrong,
For no relation in the world is linear for long.

And the road to civil rights, which we’re still on, has been long and indirect, and has not just been about voting in the right people or more minorities in management. More money (I should say, more dough) is not the only answer. Rights have to be exercised, historian and activist Rebecca Solnit says, for them to stay in shape. While the dough ferments, you might head into the street.

Regardless of how long you knead and ferment, and you are forgiven either way, you must next shape your dough. There is no point to being rough with it; you can’t be blamed if sometimes you lose your patience, but dough is like a child that way and it will rise higher in the end, with a springier center, if you manage to handle it lightly. One way—the simplest, perhaps—is to fold the mass over on itself, letting it rest a moment or two each time, then cut it

with a pastry cutter into fist-sized pieces. You could roll these into balls if you wanted, or shape them into torpedoes. You could also leave them in their wedge shapes, which is less work and leaves more of the gasses inside, and think of the upper-case letter delta, which in math denotes change, as you eat them.

In baking they will spring up once more, the most dramatic rise of all. The gasses expand as they get hot, and a wetter, stronger gluten matrix will hold them longer, making bigger crevices for the butter to catch in once it's sliced. The gasses in the middle of the loaf expand last, but luckily the outside—what will soon be the crust—stays moist due to the loaf's escaping steam. More and more often, bakers are adding their own steam to encourage even greater expansion. This springing-up is the *bloom*: the moment when dough turns to loaf, when water and wheat become the staff of life, when hope swells as the final days of an Obama campaign. Then the outer edge, its moisture suddenly gone, stops swelling and it hardens. What starches are left decompose into maltose and dextrin, and these deeper flavors infuse the loaf, changing it from white and bland to hearty, rich, and complex.

Alexis de Tocqueville noticed the messiness of the democratic project when he toured the young United States in 1831. He wrote in *Democracy in America* that “In aristocratic governments public men may frequently do harm without intending it; and in democratic states they bring about good results of which they have never thought.” The spongy mass inside, meanwhile, has stabilized and become what is called the crumb, and due to the gluten and the yeasts from the air and the grocery store and the byproducts of those yeasts it holds a lot of moisture, and the moisture makes it tender beyond anything a thinking human could assemble on her own.

Appendix to “Dough”

I love my country, where Gary Snyder, who will later sympathetically disagree with Wendell Berry, can get caught up with Jack Kerouac, Kenneth Rexroth and Allen Ginsberg in a cultural movement that will begin as the Beats and lead to the Hippies and through counter-cultural questioning of the 1960s to the anti-war movement and the back-to-the-landers, who come together at Bread and Puppet Theater in a circus of giant revolutionary peace puppets and who get Peter Reinhart excited about cooking bread. Where Peter Reinhart can then combine his love of bread and his interest in Buddhism to help develop and popularize slow-rise artisan breads, influencing the baker at The Downtown Bakery and Creamery in Healdsburg, CA who will suggest I read Reinhart’s book, which solidified my own obsession with bread. And where the Downtown Bakery and Creamery was started by the retired pastry chef for Chez Panisse, the restaurant opened by Alice Waters in Berkeley in 1971, who would spearhead the notion that delicious, gourmet food can and should be made from fresh, local ingredients and teach a number of chefs who would help popularize that notion at restaurants from California to New York, although until recently not many in between, and who (Alice Waters) would also write books and start the Edible Schoolyard, the most famous of many schoolyards attempting to make food, its production, its growth, its enjoyment, an essential part of every child’s education.

Where radical evolutionary economist Kenneth Boulding and his wife Elise can be instrumental in founding the discipline of peace research and, while teaching at the University of Michigan, allow Tom Hayden to host the first meeting of Students for a Democratic Society at their house, a group that would be instrumental in protesting the Vietnam War and would lead Bill Ayers to break off from SDS with the more radical Weathermen only to go underground for years after the Weathermen bombed the Pentagon and later become a teacher as what he believed to be the

best way to resist the exploitative capitalism of his country and to come to Indiana University to give an inspirational speech at Indiana University at the behest of Tom Gregory, who founded an alternative education program there and helped me, when I was his student, connect to Harmony School, which formed the basis for how I think about teaching, in Bloomington, Indiana, where Kenneth and Elise's first son Russell and his wife Bonnie raised four children, including Kit, my wife. Where, through living in Bloomington, I met Michael Martone, a writer and another teacher of mine, who told me about a conversation he had had that helped him believe in the importance of writing about places—Indiana, in Martone's case—which occurred with Wendell Berry, the Kentucky agrarian essayist who studied with Wallace Stegner, a writing teacher at Stanford who grew up in Utah and spent his life writing about and protecting the land of the American West and who influenced his other students, including Edward Abbey and Larry McMurtry, to do the same, and where, on the other coast, Helen Nearing and her husband Scott, another radical economist, can move to Vermont to live off the land in the 1930s, spending the next forty years as an inspiration to other doubters of the American suburban lifestyle. Where Scott's granddaughter Elka would marry Peter Schumann, the founder of Bread and Puppet Theater, where Peter Reinhart realized he loved to bake. Where Thoreau, whose writings would influence Gandhi, who would inspire King, refused to pay his taxes because of the Mexican-American war and go to jail and the next day go huckleberrying.

Western Predatory Agriculture

is sad; is an unhesitant decider; is hard-pressed to see what you mean about the trees; fell asleep on the railroad tracks outside Omaha; is looking kind of pale; is lefthanded and an avid follower of chess columns; is ready to end it all; is sung in barroom ballads from one coast to the other; dreams of a small island in the Pacific with a fruity drink and neverending warm breeze; is the man with the plan, an army of one; is, like all men, mostly on the surface; is our hero; is our lover; spells his name backwards on unimportant paperwork; bites through the tendons of 4-H children and saves the bones for stock; is no one's lover, no one's end; is, on a scale of 1-10, 9; brings chocolates after an argument, no matter how small; rubs his feet with coconut oil before retiring; is both palm and frond; is fruit of the Enlightenment's loins and father to beer and bread; considers himself a person while denying the existence of the metaphysical self; bought stock in erosion when it was just two guys and a garage; prefers hot dogs and whiskey; is not afraid; cries softly in the privacy of moonless nights; remembers trees; tends towards dehydration; is narrow and uncreased; is blind; is plastic; is an unacknowledged contributor to *The Federalist; or, The New Constitution*, and *The Communist Manifesto*; believes he would do well with a solo act on Broadway; had an incestuous relationship with Earl Butz; used to wet his bed; scoffs at Chomsky and Bono; extracts minerals and puts them into food and sells it on the cheap and buries the profit in a sack; is the question of how to live; is bald-faced and subtle; used Poet Laureate Ted Kooser's folksiness to push his agenda; started off as a boxer; started off as a seed drill; started the Wheat Foods Council; started, when I said hello; is dead; is dying; is alive and well and living in Peoria.

If Not On or In or From

Being the solid surface of our experience. Being the floor of sound. Being the material at the bottom of things. The central aspect of the soul. The assumption upon which we base our argument. Where the fair takes place. Being that which is made up of soil and stone and gravel and contains nutrients for our seeds and energy for our computers and cars. The main surface of a painting. Dregs. Sediment. Where we place our hope, and what we claim.

When I was young, the ground didn't seem so important. It was just an impediment to wild dreams of walking a long tunnel to China, and it was also, being both the beginning and end of gravity, what stopped me from flying the quarter mile to Jackson Street Elementary School and home again with a heavy backpack. It kept me from seeing the tops of houses. I was weighted down on the sidewalk. It felt hard and solid, but tree roots were breaking through.

The beginning of nationalism. What's around. Residuum. Being the linoleum, in certain situations. What was leftover, once, after the use of wool or of meal. Godhead as the source of all that is. What's done to a child when he's been bad. The meshes upon which the pattern of lace is worked. The bottom. Being the home of the spirit and the place where you are. The plainsong or melody on which a descendant is raised. The beginning of a race or a culture. Where our end is.

Later we notice more space. My parents drove me from Massachusetts to Michigan, I went to college, and for the decade following moved from state to state. I started to miss that old root-cracked sidewalk. I had planned to settle near it. I had thought that I, unlike my parents,

would be an adult in the same town I had been a kid in. I would mold the geography and culture of the city whose streets and small rivers, small hills and parks were enchanted at first. The ground had been giant whirlpools, labyrinthine castles, mole-tunnels, and rodeos, or even just what it was—the base of a tree with a rope swing that swung us into the Mill River. But I don't want to romanticize old stomping. The ground breathes threats around children too. Roots cracking up through the sidewalk made me fall off my bike, knocked the wind out of me and stopped me from learning to ride for years, in spite of my father's gentle suggestion that I get up and catch my breath and try again.

Ornamental fields surrounding an estate. The bass-line giving a center, or harmonic weight, to the melody. Recreational fields on a campus. What some people take and others unwittingly give. What some refuse to give and others unwittingly take. A subject of study we will cover, and so therefore also a cultural field. Where farms are, and houses, and streets. That upon which the towers stood tall. Property, and where you take a stand, and something surprisingly terrestrial, like the flightless bird, or the baseball the few times you managed to hit it, in gym class, in middle school, around all those guys who already had muscles and knew, at the time, where to put their feet. Also, a place to do our work.

Sitting in Alabama, about to move to Indiana, thinking about Massachusetts, one wonders how much it matters to know the ground. It does, if you want to know where you come from. Coal, wood, plastic, bread come from the ground. Adam was formed of dust from the ground. It is a womb. It shapes water, wind, narrative. It gives us computers and New York City. The one human thing that is not, somehow, connected to the ground is abstraction.

The ground is the definition of the local. It is nothing if not specific. Generalization defies it. It is the realization of every map, which is to say if you could see all the layers, if you knew how to read it, you would know every detail there was to know. Each one of us, though, can only read so many languages: we read the geological, the biological, the epic, semiotic, patriotic. My linguistic limitations are bound up in the narratives derived from the grounds I've walked.

And so this would not be enough either, to say:

Sitting on the edge of the Cumberland Plateau, about to move to the Norman Upland, remembering the Connecticut River Valley, I wonder how to know.

The root that knocked me off my bike is 800 feet down Prospect Ave. from Prospect St., before Calvin Terrace and the bike path. My mother was less anxious for me to learn to read or ride a bike.

Hyphenation would produce a similar list, including words like ground-sparrow, ground-swell, ground-muffin—what I call my wife to end an argument. There's ground-ivy, which trails along, never getting tall; ground-cloth, which acts as a membrane to keep the floor of your tent dry; and groundwater, which is contained within the space between rocks and some of which, having been introduced by magmatic processes, has never once been in the atmosphere.

Somehow the ground is generalized anyway. I say *Northampton* and I mean certain things about a happy childhood. Somehow the ground is turned into *coal, hotel, soy, profit*. Ideas attach themselves to places and bury others, how the ground is the source of all beginnings. In the beginning was the word, and the word was ground.

Phrases, too. To stand your. Our hopes have yet to be dashed to the. To be run into the, as when someone convinces us to work too many hours. To smell the, as when you've been on a cruise for three weeks and are hankering for greenery. To break new. To take the. To cover a lot of. To give and to lose, and also to make up.

Groundskeepers know where to stand. A bass player maintains the harmony that grew out of a church in Mississippi. A couple of bakers learn what kind of wheat to grow in western New England. A young family in southern Indiana, refusing to generalize onto large, profitable acreage, keeps three acres productive. Picture those three acres, generating for generations.

I imagine my mother growing old in Massachusetts while I dig in in Indiana. It doesn't seem fair. I want to keep her.

Also, maybe, related to groin.

Also, maybe, grain.

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The bulk of the historical research in this book came from the excellent and exhaustively researched history of agriculture by Percy Bidwell and John Falconer, the first work listed below. Much of the historical commentary on agriculture that I refer to came from this book; when that's the case, I have marked the listing with a *.

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