Henry David Thoreau wrote somewhere that hundreds are hacking at the branches for every one who is striking at the root. He meant this as a metaphor, but it applies literally to modern agriculture and to the science of modern agriculture. As it has become more and more industrialized, agriculture increasingly has been understood as an enterprise established upon the surface of the ground. Most people nowadays lack even a superficial knowledge of agriculture, and most who do know something about it are paying little or no attention to what is happening under the surface.

The scientists at The Land Institute in Salina, Kansas, on the contrary, are striking at the root. Their study of the root and the roots of our agricultural problems has produced a radical criticism, leading to a proposed solution that is radical.

Their criticism is made radical by one crucial choice: the adoption of the natural ecosystem as the first standard of agricultural performance, having priority over the standard of productivity and certainly over the delusional and dangerous industrial standard of “efficiency.” That single
change makes a momentous difference, one that is historical and cultural as well as scientific.

By the standard of the natural or the healthy ecosystem, we see as if suddenly the shortcomings, not only of industrial agriculture but of agriculture itself, insofar as agriculture has consisted of annual monocultures. To those of us who are devoted to agriculture in any of its historical forms, such criticism is inevitably painful. And yet we may see its justice and accept it, understanding how much is at stake. To others, who have founded their careers or their businesses precisely upon the shortcomings of agriculture as we now have it, this criticism will perhaps be even more painful, and no doubt they will resist with all the great power we know they have.

Even so, this is a criticism for which the time is ripe. A rational denial of its justice is no longer possible. There are many reasons for this, but the main one, I think, is the virtual meltdown of the old boundaries of specialist thought in agriculture—a meltdown that I hope foretells the same fate for the boundaries of all specialist thought.

The justifying assumptions of the industrial agriculture that we now have are based on a reductive science working within strictly bounded specializations. This agriculture, an agglomeration of specialties, appeared perfectly rational and salutary so long as it was assumable that efficiency and productivity were adequate standards, that husbandry was safely reducible to science and fertility to chemistry, that organisms are merely machines, that agriculture is under no obligation to nature, that it has only agricultural results, and that it can be confidently based upon “cheap” fossil fuels.

The inventors of this agriculture assumed, in short, that the human will is sovereign in the universe, that the only laws are the laws of mechanics, and that the material world and its “natural resources” are without limit. These are the assumptions that, acknowledged or not, underlie the “war” by which we humans have undertaken to “conquer” nature, and which is the dominant myth of modern intellectual life.
IN THE DAYS of human darkness and ignorance, now supposedly past, we found ways to acknowledge the sanctity of nature and to honor her as the common mother of all creatures, including ourselves. We conducted our relations with her by prayer, propitiation, skilled work, thrift, caution, and care. Our concern about that relationship produced the concepts of usufruct and stewardship. A few lines from the “Two Cantos of Mutability” that Edmund Spenser placed at the end of The Faerie Queene will suffice to give a sense of our ancient veneration:

Then forth issued (great goddess) great dame Nature,
With godly port and gracious Majesty;
Being far greater and more tall of stature
Than any of the gods or Powers on he... ...  
This great Grandmother of all creatures bred
Great Nature, ever young yet full of old,
Still moving, yet unmoved from her steed;
Unseen of any, yet of all beheld...

Thus, though he was a Christian, Spenser still saw fit at the end of the sixteenth century to present Nature as the genius of the subluminary world, a figure of the greatest majesty, mystery, and power, the source of all earthly life. He addressed her, in addition, as the supreme judge of all her creatures, ruling by standards that we would now call ecological:

Who Right to all dost deal indifferently,
Damning all Wrong and tortious Injuriue,
Which any of thy creatures do to other
(Oppressing them with power, unequally)
Sith of them all thou art the equall mother,
And knittest each to each, as brother unto brother.

And then, at about Spenser’s time or a little after, we set forth in our “war against nature” with the purpose of conquering her and wringing her powerful and lucrative secrets from her by various forms of “tortious Injuri.” This we have thought of as our “enlightenment” and as “progress.” But in the event this war, like most wars, has turned out to be a trickier business than we expected. We must now face two shocking surprises. The first surprise is that if we say and believe that we are at war with nature, then we are in the fullest sense at war. That is, we are both opposing and being opposed, and the costs to both sides are extremely high.

The second surprise is that we are not winning. On the evidence now available, we have to conclude that we are losing—and, moreover, that there was never a chance that we could win. Despite the immense power and violence that we have deployed against her, nature is handing us one defeat after another. Even in our most grievous offenses against her—as in the present epidemic of habitat destruction and species extinction—we are being defeated, for in the long run we can less afford the losses than nature can. And we have to look upon soil erosion and the spread of exotic diseases, weeds, and pests as nature’s direct reprisals for our violations of her laws. Sometimes she seems terrifyingly serene in her triumphs over us, as when, simply by refusing to absorb our pollutants, she forces us to live in our mess.

Thus she has forced us to recognize that the context of American agriculture is not merely fields and farms or the free market or the economy, but it is also the polluted Mississippi River, the hypoxic zone in the Gulf of Mexico, all the small towns whose drinking water contains pesticides and nitrates, the pumped-down aquifers and the no-longer-flowing rivers, and all the lands that we have scalped, gouged, poisoned, or destroyed utterly for “cheap” fuels and raw materials.
Thus she is forcing us to believe what the great teachers and prophets have always told us and what the ecologists are telling us again: All things are connected, the context of everything is everything else. By now, many of us know, and more are learning, that if you want to evaluate the agriculture of a region, you must begin not with a balance sheet, but with the local water. How continuously do the small streams flow? How clear is the water? How much sediment and how many pollutants are carried in the runoff? Are the ponds and creeks and rivers fit for swimming? Can you eat the fish?

We know, or we are learning, that from the questions about water we go naturally to questions about the soil. Is it staying in place? What is its water-holding capacity? Does it drain well? How much humus is in it? What of its biological health? How often and for how long is it exposed to the weather? How deep in it do the roots go?

Such are the questions that trouble and urge and inspire the scientists at The Land Institute, for everything depends upon the answers. The answers, as these scientists know, will reveal not only the state of the health of the landscape, but also the state of the culture of the people who inhabit and use the landscape. Is it a culture of respect, thrift, and seemingly skills, or a culture of indifference and mechanical force? A culture of life, or a culture of death?

And beyond those questions are questions insistently practical and economic, questions of accounting. What is the worth, to us humans with our now unsupportable health care industry, of ecological health? Is our health in any way separable from the health of our economic landscapes? Must not the health of water and soil be accounted an economic asset? Will not this greater health support, sustain, and in the long run cheapen the productivity of our farms?

If our war against nature destroys the health of water and soil, and thus inevitably the health of agriculture and our own health, and can only
lead to our economic ruin, then we need to try another possibility. And there is only one: If we cannot establish an enduring or even a humanly bearable economy by our attempt to defeat nature, then we will have to try living in harmony and cooperation with her.

By its adoption of the healthy ecosystem as the appropriate standard of agricultural performance, The Land Institute has rejected competition as the fundamental principle of economics, and therefore of the applied sciences, and has replaced it with the principle of harmony. In doing so, it has placed its work within a lineage and tradition that predate both industrialism and modern science. The theme of a human and even an economic harmony with nature goes back many hundreds of years in the literary record. Its age in the prehistoric cultures can only be conjectured, but we may confidently assume that it is ancient, probably as old as the human race. In the early twentieth century this theme was applied explicitly to agriculture by writers such as F. H. King, Liberty Hyde Bailey, J. Russell Smith, Sir Albert Howard, and Aldo Leopold, Howard being the one who gave it the soundest and most elaborate scientific underpinning. This modern lineage was interrupted by the juggernaut of industrial agriculture following World War II. But, in the 1970s, when Wes Jackson began thinking about the Kansas prairie as a standard and model for Kansas farming, he took up the old theme at about where Howard had left it, doing so remarkably without previous knowledge of Howard.

And so, in espousing the principle and the goal of harmony, The Land Institute acquired an old and honorable ancestry. It acquired at the same time, in the same way, a working principle also old and honorable: that of art as imitation of nature. The initiating question was this: If, so to speak, you place a Kansas wheatfield beside a surviving patch of the native Kansas prairie, what is the difference?

Well, the primary difference, obvious to any observer, is that, whereas the wheatfield is a monoculture of annuals, the plant community
of the prairie is highly diverse and perennial. There are many implications in that difference, not all of which are agricultural, but five of which are of immediate and urgent agricultural interest: The prairie’s loss of soil to erosion is minimal; it is highly efficient in its ability to absorb, store, and use water; it makes the maximum use of every year’s sunlight; it builds and preserves its own fertility; and it protects itself against pests and diseases.

The next question, the practical one, follows logically and naturally from the first: How might we contrive, let us say, a Kansas farm in imitation of a Kansas prairie, acquiring for agriculture the several ecological services of the prairie along with the economic benefit of a sufficient harvest of edible seeds? And so we come to the great project of The Land Institute.

I lack the technical proficiency to comment at much length on this work, I would like to end simply by saying how I believe the science now in practice at The Land Institute differs from the science of industrial agriculture.

We are living in an age of technological innovation. Our preoccupation with invention and novelty has begun, by this late day, to look rather absurd, especially in our strict avoidance of cost accounting. What invention, after all, has done more net good or given more net pleasure than soap? And who invented soap? It is all too easy, under the circumstances, to imagine a media publicist snatching at The Land Institute’s project as “innovation on an epic scale” or “the next revolution in agriculture” or “the new scientific frontier.”

But these scientists are contemplating no such thing. Their vision and their work do not arise from or lead to any mechanical or chemical breakthrough; they do not depend on any newly discovered fuel. The innovation they have in mind is something old under the sun: a better adaptation of the human organism to its natural habitat. They are not
seeking to implement a technological revolution or a revolution of any kind. They are interested merely in improving our fundamental relationship to the earth, changing the kind of roots we put down and deepening the depth we put them down to. This is not revolutionary, because it is merely a part of a long job that we have not finished, that we have tried for a little while to finish in the wrong way, but one that we will never finish if we do it the right way. Harmony between our human economy and the natural world—local adaptation—is a perfection we will never finally achieve but must continuously try for. There is never a finality to it because it involves living creatures who change. The soil has living creatures in it. It has live roots in it, perennial roots if it is lucky. If it is the soil of the right kind of farm, it has a farm family growing out of it. The work of adaptation must go on because the world changes; our places change and we change; we change our places and our places change us. The science of adaptation, then, is unending. Anybody who undertakes to adapt agriculture to a place—or, in J. Russell Smith’s words, to fit the farming to the farm—will never run out of problems or want for intellectual stimulation.

The science of The Land Institute promptly exposes the weakness of the annual thought of agricultural industrialism because it measures its work by the standard of the natural ecosystem, which gives pride of place to perennials. It exposes also the weakness of the top-down thought of technological innovation by proceeding from the roots up, and by aiming not at universality and uniformity, but at local adaptation. It would deepen the formal limits of agricultural practice many feet below the roots of the annual grain crops, but it would draw in the limits of concern to the local watershed, ecosystem, farm, and field. This is by definition a science of place, operating within a world of acknowledged limits—of space, time, energy, soil, water, and human intelligence. It is a science facing, in the most local and intimate terms, a world of daunting formal complexity and of an ultimately impenetrable
mystery—exactly the world that the reductive sciences of industrial agriculture have sought to oversimplify and thus ignore. This new science, in its ancient quest, demands the acceptance of human ignorance as the ever-present starting point of human work, and it requires the use of all the intelligence we have.
PART III

FOOD
Author’s Note

Part III calls for a few words of explanation. The publisher’s idea was to show in this gathering of writings the connections that make one subject of farming, farms, farmers, and food. I agreed, thinking the idea was a good one. But if we limited the contents of our book to essays, as at first we thought we would do, we were going to come up short on food. Though I have written many essays on farming, farms, and farmers, I have written only one specifically on food. I am by no means a chef, and as a cook I am limited to frying and scorching.

And so we decided to include in Part III, in addition to the lone essay, “The Pleasures of Eating,” a selection from my fiction of passages in which people eat. This is a good idea also, I think, because it unspecializes the idea of food. All the episodes from my stories and novels are not about food only, but about meals. You can eat food by yourself. A meal, according to my understanding anyhow, is a communal event, bringing together family members, neighbors, even strangers. At its most ordinary, it involves hospitality, giving, receiving, and gratitude. It pleases me that in these fictional passages food is placed in its circumstances of history, work, and companionship.

I have provided notes to accompany these episodes, to say when they took place, and to give some sense of the stories they belong to.

But I need to say, furthermore, something about the part of the women in these episodes. The effort of justice to women, in addition to the substantial good it has done and is doing, has attached a sense of belittlement to “women’s work.” I know that there are reasons for this. But understandable as it may be, it is unjust when it extends to traditional farm housewifery.

People and their domestic arrangements are imperfect, of course. Abuses no doubt can be found in the customs and usages of any time, no matter how enlightened or liberated. But the women in the episodes that
follow, as I think is obvious, are not the “little women” of the liberationist stereotype, and are related distantly if at all to the housewives of the modern suburbs. They are not consumers. They are not openers of cans or heaters of frozen dinners or stirrers of “mixes.”

On the contrary, they are, with their menfolk, managers of domestic economies that are complex, practically and culturally. These economies unite household and farm. They are as dependent on old knowledge and immediate intelligence as on the land. In accordance with tradition, these women do the cooking, but this is a cooking that is only a part of an intricate seasonal procedure that includes the cultivation of plants and the nurturing of animals, harvesting and bringing in, slaughtering and butchering, preserving and canning and storing for the winter. How all this work was (and sometimes still is) divided between the sexes would vary, according to preferences and abilities, from one household and marriage to another. But both men and women participated and were associated in the work.

Justice to these women requires recognition of the entirely admirable knowledge, intelligence, and skill that they applied to their “women’s work.” Moreover, many of these women were perfectly capable also of “men’s work.” The reader will notice, in the passage from The Memory of Old Jack, that Mary Penn is helping to prepare a harvest dinner, but also that she is wearing work clothes. After the women have eaten (with the men fed and gone, this will be a leisurely, quietly sociable meal that the women have) and after they have washed the dishes and set the kitchen to rights, Mary will go to the field to work with the men. Hannah would be going too if she were not pregnant.