

# Quaker Earthcare Witness Earthcare for Friends

## Unit 9

### The Divine Gift of Good Soil

by Tom Small

#### Purposes of this Unit



The Web of Life in Your Hands

In this unit, we aim to promote a deeper understanding and appreciation of the soil beneath our feet and largely beneath our notice—what Quaker soil scientist Francis Hole calls “the hidden, secret friend, the root domain of lively darkness and silence.” In that hidden domain lives 80% of the earth’s biosphere, “cooking away in the warm dark,” in Gary Snyder’s words. Utterly dependent on its productivity, inventiveness, and intelligence, we need to walk more lightly and reverently as well as to understand what we can do to restore the soil community and thereby limit climate disruption, heal ourselves, and restore the community of all creatures of the earth, water, and air.

#### Sacred Texts and Other Inspirational Readings

So then, there is the sweet communion.... the sweet joy and refreshment in the Lord our righteousness, who causeth righteousness to drop down from heaven, and truth to spring up out of the earth. And so our Father is felt blessing us, blessing our land, blessing our habitations, delighting in us and over us to do us good; and our land yields its increase to the Lord of Life, who hath redeemed it and planted the precious plants and seeds of life in it.

—Isaac Penington (1617–1679)

We say that God is the Inner Light, but I want to affirm that also of the Inner Darkness, and I do not mean desolation or evil, but a quiet waiting and creativity. “The darkness hideth not from thee; but the night shineth as the day; the darkness and the light are both alike to thee.”

—Elizabeth Watson, “Your God Is Too Small”  
address to Quaker Earthcare Witness annual meeting, 1996

Green vegetation and the ground on which we step are bathed in sunlight—but not plant roots, not our own Inner Light. They work in blessed darkness.

—Francis Hole, Friends General Conference workshop, 1996

Soil is not unalive . . . Life extends over the planet as a contiguous, but mobile, cover and takes the shape of the underlying Earth. Life, moreover, enlivens the planet; Earth, in a very real sense, is alive.

—Lynn Margulis and Dorion Sagan, *What Is Life?* (1995)

The history of every Nation is eventually written in the way in which it cares for its soil.

—Franklin Delano Roosevelt, 1936

The soils of the world are either being worn out and left in ruins, or are being slowly poisoned . . . Mother earth has recorded her disapproval by the steady growth of disease in crops, animals and mankind.

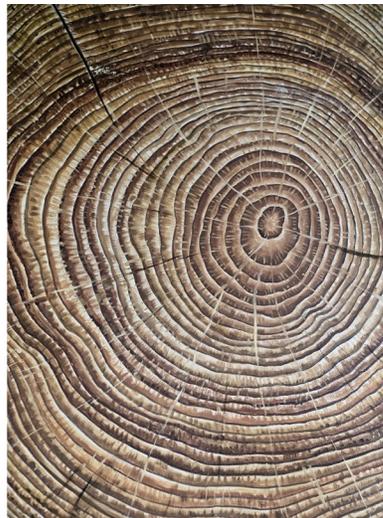
--Sir Albert Howard, *An Agricultural Testament* (1940)

Our soil is a planetary emergency. —Al Gore, 2010

*The Divine Gift of Soil*

Speak to the earth, and it shall teach thee. —*Job* 12:8

About “Nature’s writing,” Gary Snyder observes, “A text is information stored through time.” Everything tells a story. Here are a few of Nature’s texts. Listen, with all the senses, to stories of transformation.



Story-Telling: Jurassic Fossils, Tree Rings, Milkweed Seeds

## Articles and Texts for Reflection and Action

### 1. THE HEAVEN UNDER OUR FEET

by Tom Small

Heaven is under our feet as well as over our heads.

--Henry David Thoreau, *WALDEN* (1854)

Though, as a species, we may have journeyed through immense reaches of time and space, we remain close to our origins, to Eden, and to wilderness. They are within us and right beneath our feet.

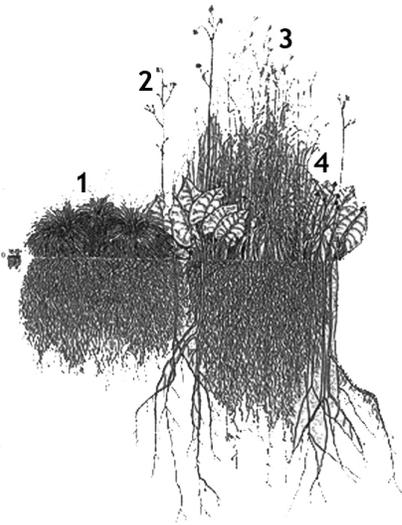
Scripture tells us God formed us “of dust from the ground” (*Genesis* 2:7); created us “from dust, then from a drop of seed” (*Koran*, Surah XXII.5). Our progenitor, Adam, is *adama*—soil, or clay. We *Homo sapiens* are capable of wisdom, perhaps, but most assuredly *Homo* (from *humus*, of soil or earth).

Astrophysicists inform us that the very elements of our being are stardust, exploded matter of ancient stars. Agronomists note that all life receives its nourishment from rocks ground slowly down to dust by ice and water and spread by the winds of time.

No less than ourselves, the soil that supports us is alive. A handful of good soil contains more living creatures than the grand total of human beings who have ever lived on the earth. We have names and understand the functions for perhaps 5% of these mostly invisible creatures—no matter whether they live in Costa Rican cloud forest or an Ohio backyard.

The most numerous of these creatures are the bacteria. Take a pinch of pristine forest soil: you hold about a billion of them, of perhaps one million distinct species, communicating and evolving so swiftly that they outwit our antibiotic strategies. They invented recycling, photosynthesis, and genetic engineering. As Stephen Jay Gould admits, they “rule the earth.”

Your same pinch of soil may also contain thousands of wispy root hairs and several miles of mycorrhizae—networks of microscopic fungus threads interdependent with the roots of plants, drawing polysaccharide energy from them and in turn enabling them to absorb phosphorus, nitrogen, other nutrients, and water. All terrestrial ecosystems depend on this underground “web that holds it all together” (Snyder, p. 129). Without mycorrhizae, which extend a plant’s root system by 1000% or more, most plants could not have emerged from the water, to thrive on “dry land.” Either by themselves or combined with algae as lichens, fungi are indispensable to the creation of soil and evolution of life.



We are equally dependent on the lowly roundworm, which endlessly ingests, turns over, and fertilizes virtually every crumb of soil on earth. Tiny nematode worms account for four out of every five animals on earth. In a square meter of soil, there may be as many as ten million of them. In that same space, we might find a billion protozoa, hundreds of thousands of springtails and mites, and thousands of arthropods—insects with jointed legs—some of them so tiny that 20 or 30 might dance within the period at the end of this word.

*Hidden, too, beneath our feet is the radical life of plants. Their roots support them—and us. Prairie grasses and flowers—such as (1) prairie dropseed grass; (2) prairie dock; (3) big bluestem grass;*

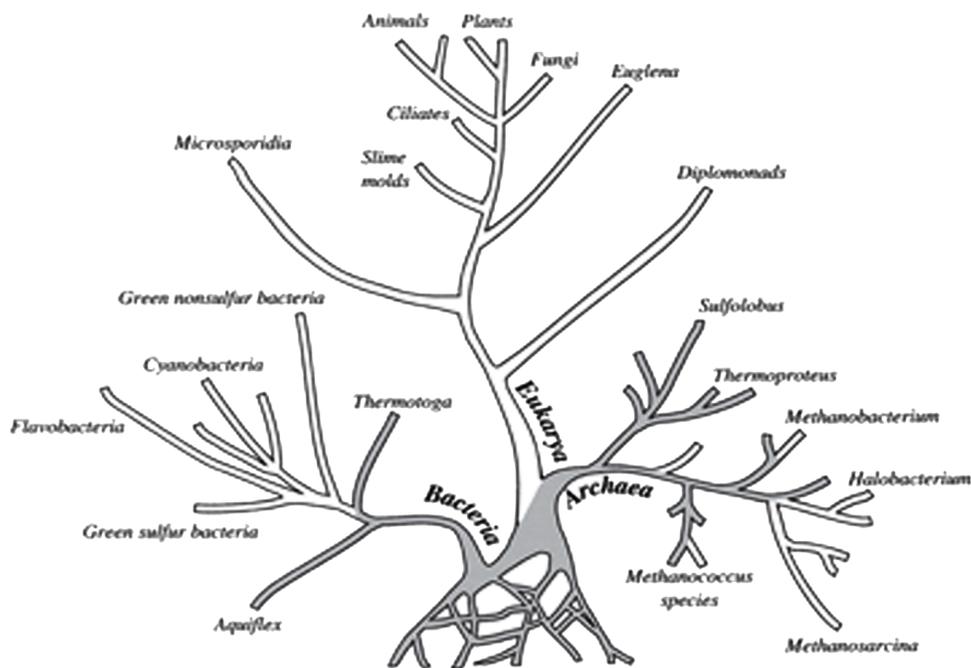
*(4) pale purple coneflower—foraged far beneath the surface to form the deep, rich “breadbasket” soil on which we depend for grains and legumes. Such natives, unlike our exotic lawns (note the standard lawn grass on the left), are independent of chemical aids and sprinkling systems.*

Almost all these creatures are beneficent, even from our limited human point of view. Indeed, they may all be indispensable, to the life of soil, the life of plants, and thus the community of life on earth. Bacteria transform inert atmospheric nitrogen into nutritious ammonium in return for nodular protection from predators. Fungi transport water and mineral nutrients to roots of plants in return for sugars; they also transport sugars and nutrients from plants with surplus to plants or other fungi that are deficient. Unless

predator protozoa and nematodes feed on bacteria and fungi and then excrete nutrient-rich poop, plants can't access the nutrients present in the soil. Plants actively push sugars into the soil, to attract bacteria and fungi. Bacteria themselves share out genetic material and information through what amounts to a worldwide superorganism—in something like an intertribal potlatch.

Virtually all organisms are both takers and givers; they practice the “law of return,” part of the great cycle of life and death. They take from their neighbors and partners whatever they require in order to realize their potential, and they return—give back—what their successors and partakers require. In competing, they mutually discover and invent their own unique niches and processes, thus reducing energetic competition and fostering energy-saving cooperation.

In soil ecology, the process culminates in humus, the relatively stable end-product of countless ingestions, decompositions, and excretions of organic plant and animal material by fungi, bacteria, protozoa, earthworms, nematodes, and arthropods. Wendell Berry marvels over the formation of organic humus as “the chief work of the world.” Often characterized as the life-force of the soil, humus stores and slowly releases carbon and nutrients, holds up to 90% of its own weight of water, circulates oxygen, suppresses disease, resists erosion, and enables formation of good soil structure, ideal habitat for the very creatures who cooperated to form it, thus creating the conditions for their own survival—and ours.



THE UNIVERSAL TREE OF LIFE, as developed by Dr. Carl Woese using genetic sequencing data, divides all life on earth into three “superkingdoms,” two of which are microbial—the bacteria and archaea. (The shaded area represents heat-loving microbes.) The animals, usually prominent in a five-kingdom “tree of life,” appear here as rather minor, slender “twigs” from the Eukarya branch. The profound implications of the “Woesian revolution”—showing most of earth’s biodiversity (and biogenesis) as microbial—are not yet fully comprehended. Illustration by Tamara Clark

With a modicum of science and a little imagination, we can view our own bodies as habitat, designed and organized over countless millennia as shelter, reservoirs, and food sources, by the microbes that colonize us and, in return, keep us alive. We are inheritors and beneficiaries—along with soil, sunflowers, beetles,

and dolphins—of 3.5 billion years of microbial exploration and discovery.

The disheartening part of this long, miraculous story is that in the last few centuries we have been busily destroying the very body of the soil and our own bodies with our chemical fertilizers, our pesticides, our deep tilling, our monocultures, our failure to return plant residues to the soil, and the anthropogenic warming of the planet—a warming which breaks down humus and releases carbon dioxide in a prime instance of positive feedback. Not very long ago in our brief history as a species, we lost the wisdom of our ancestors—still preserved among some indigenous peoples—the cultural memory of how to live in harmony with the ground of our being.

Fortunately, the lost intelligence we seek to recover, the secret to restoration of the lost garden, is still alive and breathing. Accessible within minutes, it persists in small patches of earth, harboring an astonishing remnant of wilderness and its self-regulating intelligence, enough to serve as basis for regeneration.

In our own bodies, remnants of the most ancient life forms are virtually immortal: bacteria, mitochondria, and other tiny organisms, subsumed by our cells and ourselves. Each of us is an ecosystem, a community of life, akin to that handful of soil with its billions of living creatures. Like the soil, our very bodies carry the memory and recapitulation of everything that ever was. As the founder of modern chemistry, Antoine Lavoisier, observed over 200 years ago, “Nothing gets lost. Nothing is created. Everything transforms.” Or, as his fellow victim of the French Revolutionary guillotine, Marie Antoinette, Queen of France and Navarre, observed, “There is nothing new except what has been forgotten.”

Every species and every community of species is a unique form of cosmic memory, held, repaired, reproduced, and continually transformed by genes and enzymes inherited from the most ancient forms of life and shared out among all creatures—microbes, grasses, elephants, rattlesnakes.

Our body remembers; it knows what to do when we do not. The soil has its own intelligence; it remembers how to recover when we abuse and degrade it. Indigenous communities retain ancient wisdom, enough to provide for recovering from centuries of repression and for living more fully according to their “original instructions.” Communities of scientists—ethnobotanists, ecologists, biochemists, even quantum physicists—are helping us remember and regenerate what we have forgotten, ancient wisdom and practice of living in harmony with the earth.

Can we be silent long enough to hear and respond to voices that call to us from deep within our own bodies? Can we attune our ears to the harmonies of the land, drowned out as they often are by dissonances and cacophony of our techno-civilization?

Let us hope that if we keep our ears to the ground, we may yet hear what Lynn Margulis calls “earth’s sentient symphony” and Lewis Thomas “the music of *this* sphere.” By harmonizing with the music of the soil and by cooperating with its intelligence, we may yet become wiser and restore our bodies, and our souls. Eden, the unfallen world, endures and is continually renewed in the very dust of the native soil we repeatedly seek to shake from our restless feet. Stop. Take a stand wherever you are.

Practice mindfulness, and do no harm: preserve as much as possible of what remains. Then, seek to restore. Begin with your yard and garden. Continue with the grounds of the school, the meeting, the church, a garden in the park, a vacant lot, an abandoned field, your neighborhood.

Grow as much as possible of your own food. Support the local farmers and indigenous peoples who seek to recover—and improve—ancestral wisdom and practice. Learn the flowers and grasses that evolved in this place where you live. Bring them back, and the creatures that co-evolved with them will be fostered and revived—yourself as well. The spirit and the memory of earth will be manifest. In this faith, in this

work of hearts and hands, the world is “all alive” and “every particle of dust breathes forth its joy”  
(William Blake, *Europe*, 1794).

## **2. CLEANSING AND SELF-REGULATING PROCESSES OF THE SOIL: TWO AMERICAN TRANSCENDENTALIST PROPHETIC VOICES**

from “THIS COMPOST” by Walt Whitman (1819-1892)

Behold this compost! behold it well!  
Perhaps every mite has once form'd part of a sick person--yet behold!  
The grass of spring covers the prairies,  
The bean bursts noiselessly through the mould in the garden,  
The delicate spear of the onion pierces upward,  
The apple-buds cluster together on the apple-branches,

The resurrection of the wheat appears with pale visage out of its graves,  
The tinge awakes over the willow-tree and the mulberry-tree,  
The he-birds carol mornings and evenings while the she-birds sit on their nests,  
The young of poultry break through the hatch'd eggs,  
The new-born of animals appear, the calf is dropt from the cow, the colt from the mare,  
Out of its little hill faithfully rise the potato's dark green leaves,  
Out of its hill rises the yellow maize-stalk, the lilacs bloom in the dooryards,  
The summer growth is innocent and disdainful above all those strata of sour dead.

What chemistry!  
That the winds are really not infectious,  
That this is no cheat, this transparent green-wash of the sea which is so amorous after me,  
That it is safe to allow it to lick my naked body all over with its tongues,  
That it will not endanger me with the fevers that have deposited themselves in it,  
That all is clean forever and forever,  
That the cool drink from the well tastes so good,  
That blackberries are so flavorful and juicy,  
That the fruits of the apple-orchard and the orange-orchard, that melons, grapes, peaches,  
plums, will none of them poison me,  
That when I recline on the grass I do not catch any disease,  
Though probably every spear of grass rises out of what was once a catching disease.

Now I am terrified at the Earth, it is that calm and patient,  
It grows such sweet things out of such corruptions,  
It turns harmless and stainless on its axis, with such endless successions of diseases'd corpses,  
It distills such exquisite winds out of such infused fetor,  
It renews with such unwitting looks its prodigal, annual, sumptuous crops,  
It gives such divine materials to men, and accepts such leavings from them at last.

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Originally published in *Leaves of Grass* 1856 as "Poem of Wonder at The Resurrection of The Wheat."

### **3. THE “LIVER, LIGHTS, AND BOWELS” OF THE EARTH by Henry David Thoreau (1817-1862)**

When the frost comes out in the spring, and even in a thawing day in the winter, the sand begins to flow down the slopes like lava. Innumerable little streams overlap and interlace one with another, exhibiting a sort of hybrid product, which obeys half way the law of currents, and half way that of vegetation. As it flows it takes the forms of sappy leaves or vines; or you are reminded of coral, of leopards' paws or birds' feet, of brains or lungs or bowels, and excrements of all kinds. It is a sort of architectural foliage more ancient and typical than acanthus, chiccory, ivy, vine, or any vegetable leaves. The various shades of the sand are singularly rich and agreeable, embracing the different iron colors, brown, gray, yellowish, and reddish.

The whole bank, which is from twenty to forty feet high, is sometimes overlaid with a mass of this kind of foliage. You find thus in the very sands an anticipation of the vegetable leaf. No wonder that the earth expresses itself outwardly in leaves, it so labors with the idea inwardly. The atoms have already learned this law, and are pregnant by it. The overhanging leaf sees here its prototype. The feathers and wings of birds are still drier and thinner leaves. The whole tree itself is but one leaf, and rivers are still vaster leaves whose pulp is intervening earth.

You here see perchance how blood-vessels are formed. It is wonderful how rapidly yet perfectly the sand organizes itself as it flows. Such are the sources of rivers. What is man but a mass of thawing clay?

Thus it seemed that this one hillside illustrated the principle of all the operations of Nature. This phenomenon is more exhilarating to me than the luxuriance and fertility of vineyards. True, it is somewhat excrementitious in its character, and there is no end to the heaps of liver, lights, and bowels, as if the globe were turned wrong side outward. This is the frost coming out of the ground; this is Spring. It precedes the green and flowery spring, as mythology precedes regular poetry. There is nothing inorganic. These foliaceous heaps lie along the bank like the slag of a furnace, showing that Nature is “in full blast” within. The earth is not a mere fragment of dead history, stratum upon stratum like the leaves of a book, to be studied by geologists and antiquaries chiefly, but living poetry like the leaves of a tree, which precede flowers and fruit,--not a fossil earth, but a living earth; compared with whose great central life all animal and vegetable life is merely parasitic. You may melt your metals and cast them into the most beautiful moulds you can; they will never excite me like the forms which this molten earth flows out into.

--Edited from “Spring,” Chapter XVII of *Walden* (1854)

## 4. THE SOIL AND CLIMATE CHANGE

Human treatment of the soil is directly related to climate change. The soil contains three times as much carbon as does the atmosphere, five times as much as all plant and animal life. Land management—agriculture and landscaping—is the second largest contributor to carbon dioxide emissions on the planet.

Release of the soil's stored carbon into the atmosphere is largely the result of tilling. From the beginning of the Industrial Revolution to the year 2000, roughly one third of the total carbon added to the atmosphere came from plowing the world's soils, primarily in the American Great Plains, Eastern Europe, and China.

The good news is that agriculture is the only industry with the ability to transform itself from a net emitter to a net sequesterer of CO<sub>2</sub>. Many farmers are already doing it, by following the three principles of conservation agriculture: minimal soil disturbance; cover crops and plant-residue retention; diverse crop rotations. Such practices employ nature's own methods to "farm carbon," feed rather than mine the soil, and restore the health of all its interdependent organisms—including us.

Rattan Lal, Distinguished University Professor of Soil Science and Director of the Carbon Management and Sequestration Center at Ohio State University, estimates that a 2% increase in carbon content of the earth's soils could offset 100% of all greenhouse gas emissions. Conservation and "carbon" farmers report gains far greater than that in just a few years. Indeed, if we achieved results as good as many carbon farmers report, we could offset all our current emissions of CO<sub>2</sub> on only 11% of the world's cropland (Ohlson, 232-33).

But it's not just farmers who can make a difference. The largest irrigated crop in the United States is turf grass—45 million acres, three times as much as second-place corn, and spreading by almost two million acres every year. At that rate, the total acreage of American lawns will soon be greater than the total 55 million acres of *all* irrigated crops in the U.S. The American lawn is fundamentally a vast industrial monoculture—irrigated, fertilized, herbicided, compacted, pesticided. In terms of soil life and resilience, not much better than a parking lot.

David Montgomery, University of Washington Professor of Geomorphology, began 15 years ago to apply the principles of conservation agriculture to his own yard. He increased the carbon content of his lawn from 1% to 4%, of his flower bed from 1% to 9% and from 1% to 15% in his vegetable garden. "Farmers and city dwellers alike," he affirms, can make a "huge difference in terms of carbon storage" (*Growing a Revolution*, 244).

The revolution we seek is at hand, and right beneath our feet: in our yards, our vegetable gardens, and the food we consume. The soil scientists and the local conservation farmers are providing us with a new understanding of ancient realities. The causes, effects—and solutions—of climate change are coming ever closer to home.

## 5. THE SOIL, FOOD, AND HEALTH

In 1905 Sir Albert Howard was sent to India as the official Imperial Economic Botanist. His mission: teach modern farming methods to India's primitive farmers. By 1910 he was persuaded the British Empire had it the wrong way around. The "supreme farmer," he concluded, was Nature. The "primitive" farmers of India and China passed his "supreme test": maintaining soil fertility over forty centuries of agricultural practices "almost as permanent as those of the primeval forest, of the prairie or of the ocean."

In short, their "age-old tradition" followed Nature's methods, as exemplified in a forest, where there are no monocultures; the soil is always protected; deep roots of perennials gather minerals from the subsoil; the "greatest care is taken to store the rainfall"; there is no waste because everything, including animal waste, is recycled; and, because the system as a whole is healthy, "crops and livestock look after themselves" without "vaccines and serums."

In his seminal works, *An Agricultural Testament* (1940) and *The Soil and Health* (1947), Sir Albert established the basic principles of organic agriculture and permaculture (permanent agriculture). His followers include such notables as Bill Mollison, Vandana Shiva, and Prince Charles.<sup>1</sup>

Fundamental to Sir Albert's vision was the health of the soil, which depended on the "Law of Return"—always giving back, or, in the words of Vandana Shiva, "growing food for the soil, not just commodities for the market" (*Soil Not Oil*, p. 127). "A soil teeming with healthy life," Sir Albert stated, "in the shape of abundant microflora and microfauna, will bear healthy plants, and these when consumed by animals and man, will confer health on animals and man."

Industrial agriculture has not heeded Sir Albert's vision. Instead, it has fulfilled his prophecy: "The soils of the world are either being worn out and left in ruins, or are being slowly poisoned." As Al Gore summed up in 2010, "Our soil is a planetary emergency." So is our food. In the past 40 years, 30% of earth's arable land has been lost to erosion. One quarter of the earth's land surface is threatened with desertification. The United Nations Food and Agriculture Organization estimates that the world has, on average, about 60 harvests left before we run out of arable land.

Meanwhile, industrial agriculture continues to degrade soil life and soil carbon. It supplies the deficiencies with pesticides, herbicides, and artificial fertilizer, further degrading soil health, the health of plant and animal food it produces, and the health of human beings, rendering us as dependent on supplements, poisons, and chemicals as the soil. The food-industrial complex is as great a menace as the military-industrial complex President Eisenhower warned us against decades ago.

How, in the face of impending catastrophe, shall we manage to feed and restore the health of nine billion people, not to mention sharing food and habitat with the rest of the creation? "Answer," responds Kristin Ohlson: "Let's begin by feeding our microbes." Observe Sir Albert Howard's Law of Return, which begins in gratitude. "Feed the soil and it will keep feeding us," affirms David Montgomery.

Let us better inform ourselves and others about the crisis, and act accordingly. Change the unproductive

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<sup>1</sup> See Mollison, *Permaculture* (1991, 2013); David Lorimer, *Radical Prince: The Practical Vision of the Prince of Wales* (2003), esp. pp. 87-96; The Prince of Wales, *Harmony: A New Way of Looking at Our World* (2010).

way we landscape our yards, our cities, our countryside. Support agroforestry, small organic farmers, farm markets, community gardeners. Join the “growing revolution.” It begins at home. It begins with the soil under our feet. It’s a matter of life and health. For the planet.

## **Regenerative Actions: The Practice For Restoring the Soil, at Home and Beyond**

Buy organically grown food. Try to avoid large-scale “factory organic,” which substitutes deep, heavy-machine tilling for herbicide and thus compacts and destroys soil structure.

Buy locally grown food, directly from farmers at local markets when possible. It’s mostly preferable to “factory organic” from Argentina—or California.

Grow as much of your own food as possible. Preserve it, the old-fashioned way.

Practice the Law of Return (and its corollary, the Gift-Exchange Economy). Composted food scraps and yard “waste” enrich the soil. Decaying leaves, twigs, and branches provide habitat, nourishment, water storage, and weed control. [Adjunct to this, a boxed quotation from Vandana Shiva.]

Practice no-till or minimal-till gardening. Use a garden fork to loosen soil; amendments will trickle down—don’t spade or rake them in deeply. In general, favor low-tech, appropriate technology. Most complex machines save labor and spend life.

Plant perennials, not annuals, which don’t have enough time to form soil structure and foster a complex soil food web, don’t have deep roots, and generally require more water, energy, and care.

Plant flowers and even food crops that are native to your place. They co-evolved with the insects and the soil organisms. They’re at home, and they provide a home.

Spare the fertilizer. It disrupts the gift-exchange cycle of sugars from the plants, nutrients from the soil organisms. Fertilized plants get lazy or “selfish.”

Don’t be an anti-biotic or an herbicide. In particular, avoid using glyphosate (Monsanto’s Round-Up), which persists in soil and food, disrupts microbial communities, and acts as endocrine disrupter in very low concentrations (parts per trillion).

Recognize that most disease (including “weeds”) is nature’s way of restoring health by eliminating or diminishing the root cause—a monoculture, an impoverished soil, or a stressed organism (such as yourself).

Stay out of off-road vehicles. Stay on the paths, unless you’re seriously searching for the Way and thus intent on getting lost. (Consult Rebecca Solnit’s *Field Guide to Getting Lost* for directions.)

Enjoy the intertwined cycles of life, including the time of decay and passing. Contemplate and practice being part of these cycles.

## Queries for Reflection and Action

1. **“Membership in a place** includes membership in a community”— Gary Snyder, *THE PRACTICE OF THE WILD*.

What “place” do you consider yourself to be a “member” of—or in? In how many senses are you a “member”? (You might want to consult an unabridged dictionary.) How does one become a member of a community?

What steps are you taking to enlarge and extend your community? To extend it so as to include more of the soil’s body, the life beneath your feet?

2. **What sort of “front yard”** do you have? Begin by considering this quotation from Henry David Thoreau’s “Walking” (it’s in this essay that he says, “In wildness is the preservation of the world”).

Hope and the future for me are not lawns and cultivated fields, not in towns and cities, but in the impervious and quaking swamps. . . . I often think that I should like to have my house front on this mass of dull red bushes, omitting other flower plots and borders, transplanted spruce and trim box, even graveled walks. . . . Front yards are not made to walk in but, at most, through, and you could go in the back way.

Yes, though you may think me perverse, if it were proposed to me to dwell in the neighborhood of the most beautiful garden that ever human art contrived, or else a Dismal Swamp, I should certainly decide for the swamp. How vain, then, have been all your labors, citizens, for me! . . .

A township where one primitive forest waves above while another primitive forest rots below—such a town is fitted to raise not only corn and potatoes, but poets and philosophers for the coming ages.

What does your house “front” on? Is its frontage “made to walk in” or only “through”? Do you, in fact, “go in the back way”? Where does most of your outdoor living occur? Why?

What does your “front yard” offer for the delight or contemplation of the “poets and philosophers for the coming ages”? What does it offer for the community of creatures you are a part of? What more could it offer?

## Visionary Activities

### 1. Revealing “The Little World Hidden Beneath”

**EDWARD O. WILSON**, who studies and loves the small creatures of the earth, says he rarely can resist turning over a rotting log to reveal “the little world hidden beneath.” He relishes the rich smell, “like a perfume to the nostrils that love it.” He enjoys tracing the fine threads of rootlets and fungi, the revelation of “secret lives,” this “ancient wilderness” suddenly brought to life (“Prologue: a Letter to Thoreau,” *The Future of Life*, xv-xvi).

Share in Wilson's pleasure on your next outing. What organisms can you observe in the first few seconds after you turn the log? What do you find if you probe the decaying wood and the soil beneath with a knife blade or stick? What are the signs that the log is lapsing back to soil again? What are the causes—the agents—of this recycling?

## 2. Taking a Handful of Earth

**STEP OUTSIDE** with a few friends, gather in a circle, and share this ancient Osage "Song of the Vigil," perhaps as a responsive reading.

The touching of the earth is an act divine—*Greetings*  
The touching of the earth is an act divine—*Greetings*  
The touching of the earth is an act divine—*Greetings*  
*I have come—Greetings*  
The touching of the earth is an act divine—*Greetings*

The digging into the earth is an act divine—*Greetings*  
The digging into the earth is an act divine—*Greetings*  
The digging into the earth is an act divine—*Greetings*  
*I have come--Greetings*  
The digging into the earth is an act divine—*Greetings*

Be aware that touching of the earth is mutual; as you touch the soil, it touches you.

Dig into some loose garden soil with both hands; take up a handful. Observe it closely as you sift through it. Sit quietly for a few minutes as you continue to hold the soil in your hands. What *is* this that you hold? Who or what is greeting and being greeted?

George Washington Carver believed, "Anything will talk to you if you love it enough." Forget the questions. Wait in silence and meditate on the soil. Listen, with all your senses.

Later, after you've broken the silence and risen, reflect on whether you received an answer. If you did, try to share your answer with your friends—in words or in whatever manner seems appropriate and possible.

## 3. Observing Soil Action

**AS FRANCIS HOLE OBSERVES**, "The soil is a slow-motion sea that gradually devours whatever it can." Whatever it devours, it also transforms. On a walk in the city, observe instances of soil reclaiming and recovering its lost realm: sidewalks and paths, pavements, dead or hollow trees, fence posts, roofs, lost and discarded objects. What are the agents of these transformations?

## 4. Walking on the Earth

Generations have trod, have trod, have trod,  
And all is seared with trade, bleared, smeared with toil;  
And wears man's smudge and shares man's smell: the soil  
Is bare now, nor can foot feel, being shod. —Gerard Manley Hopkins, "God's Grandeur"

Yes. Feet on earth. Knock on wood. Touch stone. Good luck to all.  
—Edward Abbey, *Desert Solitaire*

Wherever you may be on this earth, take off your shoes. You are standing  
on holy ground. —Elizabeth Watson, “Your God Is Too Small”

In your yard, or in a natural area, take off your shoes. Feel the soil, the duff, leaf litter, twigs, mosses, lichens, downed wood (let us hope you have all these things abundantly in your own yard, to harbor and provide food for creatures, and to enrich your soil and your life). Work your bare feet down into decaying vegetation, microbes, invertebrates, sand and loam and clay. Touch the earth, and let yourself be touched by it. Let your feet be your intelligence.

## Communal Prayers and Responsive Readings

Nature’s method involves reciprocity, exchange—a process of both receiving and giving back. Gratitude is the prime motion of acknowledging the gift and observing the Law of Return.

We conclude with two offerings of praise for the giver and thanksgiving for the gift. As you recite or meditate upon them, hold in mind that the ancient image underlying the word Law (both *lex* and *logos*) is a communal “gathering of acorns” scattered upon earth by oak trees. (From Robert Pogue Harrison, *Forests: The Shadow of Civilization* (1992), p. 35.)

### Excerpt from *Canticle to the Sun*, by St. Francis of Assisi

Be praised, my Lord,  
For all your creatures,  
And first for brother sun,  
Who makes the day bright and luminous.

And he is beautiful and radiant  
With great splendor,  
He is the image of you, Most High.

Be praised, my Lord,  
For sister moon and the stars,  
In the sky you have made them brilliant  
And precious and beautiful.

Be praised, my Lord, for brother wind  
And for the air both cloudy and serene  
And every kind of weather,  
Through which you give nourishment  
To your creatures.

Be praised, my Lord, for sister water,  
Who is very useful and humble  
And precious and chaste.

Be praised, my Lord, for brother fire,  
Through whom you illuminate the night.  
And he is beautiful and joyous  
And robust and strong.

Be praised, my Lord,

For our sister, mother earth,  
Who nourishes us and watches over us  
And brings forth various fruits  
With colored flowers and herbs.

## Excerpts from *Thanksgiving Address* *of the Haudenosaunee* (Iroquois)\*

### *Greetings to the Natural World*

#### **The People**

Today we have gathered and we see that the cycles of life continue. We have been given the duty to live in balance and harmony with each other and all living things. So now, we bring our minds together as one as we give greetings and thanks to each other as People. *Now our minds are one.*

#### **The Earth Mother**

We are all thankful to our Mother, the Earth, for she gives us all that we need for life. She supports our feet as we walk about upon her. It gives us joy that she continues to care for us as she has from the beginning of time. To our Mother, we send greetings and thanks. *Now our minds are one.*

#### **The Plants**

Now we turn toward the vast fields of Plant life. As far as the eye can see, the Plants grow, working many wonders. They sustain many life forms. With our minds gathered together, we give thanks and look forward to seeing Plant life for many generations to come. *Now our minds are one.*

#### **The Enlightened Teachers**

We gather our minds to greet and thank the enlightened Teachers who have come to help throughout the ages. When we forget how to live in harmony, they remind us of the way we were instructed to live as people. With one mind, we send greetings and thanks to these caring Teachers. *Now our minds are one.*

#### **The Creator**

Now we turn our thoughts to the Creator, or Great Spirit, and send greetings and thanks for all the gifts of Creation. Everything we need to live a good life is here on this Mother Earth. For all the love that is still around us, we gather our minds together as one and send our choicest words of greetings and thanks to the Creator. *Now our minds are one.*

#### **Closing Words**

We have now arrived at the place where we end our words. Of all the things we have named, it was not our intention to leave anything out. If something was forgotten, we leave it to each individual to send such greetings and thanks in their own way. *And now our minds are one.*

\*This translation of the Mohawk version of the Haudenosaunee Thanksgiving Address was published in 1993, and provided courtesy of Six Nations Indian Museum and the Tracking Project. All rights reserved. English version: John Stokes and Kanawahienton (David Benedict, Turtle Clan/Mohawk). For the full text, see <[nmai.si.edu/environment/pdf/01\\_02\\_Thanksgiving\\_Address.pdf](http://nmai.si.edu/environment/pdf/01_02_Thanksgiving_Address.pdf)>.

The Thanksgiving Address reminds you that you already have everything you need.

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