Roots, Branches, and Making Way for What Follows September 16, 2018

Thoughts to ponder at the beginning:

" … a tree can be only as strong as the forest that surrounds it."
– Peter Wohlleben, *The Hidden Life of Trees*

"... the word *tree* and the word *truth* come from the same root."
Richard Powers, *The Overstory*

Opening Words *Sometimes,* by David Whyte

Sometimes
if you move carefully
through the forest

breathing
like the ones
in the old stories

who could cross
a shimmering bed of dry leaves
without a sound,

you come
to a place
whose only task

is to trouble you
with tiny
but frightening requests

conceived out of nowhere
but in this place
beginning to lead everywhere.

Requests to stop what
you are doing right now,
and

to stop what you
are becoming
while you do it,

questions
that can make
or unmake
a life,

questions
that have patiently
waited for you,

questions
that have no right
to go away.

Reading from *The Overstory,* by Richard Powers[1]
[In this novel, one character, Patricia Westerford, an arborist, is writing a book about her life's work studying how communities of trees work together so that all can flourish. This scene describes her inner process, working on that book.]

All winter she has struggled to describe the joy of her life's work and the discoveries that have solidified in a few short years: how trees talk to one another, over the air and underground. How they care and feed each other, orchestrating shared behaviors through the networked soil. How they build immune systems as wide as a forest. She spends a chapter detailing how a dead log gives life to countless other species. Remove the snag and kill the woodpecker who keeps in check the weevils that would kill the other trees. She describes the drupes[2] and racemes[3], panicles[4] and involucres[5] that a person could walk past for a lifetime and never notice. She tells how the woody-coned alders harvest gold. How an inch-high pecan might have six feet of root. How the inner bark of birches can feed the starving. How one hop hornbeam catkin holds several million grains of pollen. How indigenous fishermen use crushed walnut leaves to stun and catch fish. How willows clean soils of dioxins, PCBs, and heavy metals.

She lays out how fungal hyphae—countless miles of filaments folded up in every spoon of soil—coax open tree roots and tap into them. How the wired-up fungi feed the tree minerals. How the tree pays for these nutrients with sugars, which the fungi can't make.

> Something marvelous is happening underground, something we're just learning how to see. Mats of mycorrhizal cabling link trees into gigantic, smart communities spread across hundreds of acres. Together, they form vast trading networks of goods, services, and information …
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> There are no individuals in a forest, no separable events. The bird and the branch it sits on are a joint thing. A third or more of the food a big tree makes may go to feed other organisms. Even different kinds of trees form partnerships. Cut down a birch, and a nearby Doublas-fir may suffer …
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> In the great forests of the East, oaks and hickories synchronize their nut production to baffle the animals that feed on them. Word goes out, and the trees of a given species—

1 Richard Powers, 2018. *The Overstory.* (New York: W.W. Norton & Company.)
2 Fleshy fruit with thin skin and stone, such as a peach
3 a flower cluster with the separate flowers attached by short equal stalks at equal distances along a central stem
4 Loose, branching cluster of flowers, such as oats.
5 A group of one or more whorls of bracts beneath a flower or flower cluster.

> whether they stand in the sun or shade, wet or dry—bear heavily or not at all, together, as a community …
>
> Forests mend and shape themselves through subterranean synapses. And in shaping themselves, they shape, too, the tens of thousands of other, linked creatures that form it from within. Maybe it's useful to think of forests as enormous spreading, branching, underground super-trees.

She tells how an elm tree helped start the American Revolution. How a huge five-hundred-year-old mesquite grows in the middle of one of the planet's most arid deserts. How the glimpse of a horse chestnut through a window gave Anne Frank hope, even in hopeless hiding. How seeds brought to the moon and back sprouted all over the Earth. How the world is inhabited by magnificent creatures no one knows. How it may take centuries to learn as much about trees as people once knew. (pp. 217-219)

Sermon *Roots, Branches, and Making Way for What Follows* (c) Rev. Stocker

I had forgotten all about the tree that helped start the American Revolution. So I looked it up. In Boston's Hanover Square, a stately elm once stood. Across the street was the distillery where the Sons of Liberty, including John Adams, met to foment rebellion, first against the reviled Stamp Act, and later against British occupation in general. The tree was on a major road leading into and out of the city, so whatever was happening under its canopy was highly visible. One day in 1765, Bostonians awoke to find an effigy of Andrew Oliver, stamp commissioner, hanging from the century-plus-old tree. Thereafter, throughout the following decade, the elm became the scene of many angry gatherings and protests. The colonists dubbed it "The Liberty Tree." The tree became a potent symbol of independence. By the time the British cut the tree down in 1775, many towns throughout the region had established their own liberty trees. A red flag flying at the top of any liberty tree was a signal to assemble and organize.

In Bedford, Massachusetts, where I used to serve at First Parish UU, the town still has a Liberty Tree—a wooden pole on a small patch of land in the middle of town. Every Patriots Day, the local Minutemen assemble with their muskets, their fifes, their drums—and their chaplain, the senior minister at the church I used to serve. Speeches are made, prayers are uttered, and then one of the Minutemen shimmies up the pole to place a red cap on its top. Pole Capping Day is a Big Deal in Bedford, and it has its roots (so to speak) with that Boston elm tree, long gone, that helped to start the Revolutionary War.[67]

In my life, I have heard lots about the Stamp Act, the Boston Tea Party, tarring and feathering, the Old North Church, "one if by land and two if by sea," the shot heard round the world, George Washington's poor, starving, and sorry troops, George Washington crossing the Delaware, among other highlights of the Revolution. But the Liberty Tree? Not so much. Maybe that's true for you, too. After all, these days,

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6 https://www.smithsonianmag.com/history/story-behind-forgotten-symbol-american-revolution-liberty-tree-180959162/
"The Story Behind a Forgotten Symbol of the American Revolution: The Liberty Tree," by Erick Trickey, *Smithsonian Magazine,* May 19, 2016.

7 http://www.bedfordminutemancompany.org/pole-capping/
(from the *Bedford Minuteman* website: "In Defiance of King George, a Red Cap Signals a Call to Patriots.")

nothing remains of the tree, except for a bronze plaque at an inauspicious and easy-to-forget city intersection.

Besides, it was only a ***tree.*** Human beings are much more likely to remember human-created stuff and to overlook the natural parts of our environments. Humans tend to forget the trees. Humans tend to forget they are part of the same vast network that hums through the forests, the living creatures communicating with each other in ways we are only beginning to acknowledge and understand. We lose so much by forgetting.

For the last twenty years or so, scientists have been exploring the so-called "wood-wide web," the communication network linking trees through the fungi that live in the soil around the roots. Trees signal danger, care for their young, and work together as a community so that all—even the weakest trees—will thrive. Trees communicate with their own species, but sometimes with other species, too. [8]

Dr. Suzanne Simard, Professor of Forest Ecology at University of British Columbia, Vancouver, for example, discovered that fungi allowed Douglas firs and paper birches to actually feed each other. Using mass spectrometers and scintillation counters, she could monitor carbon being exchanged from tree to tree.[9] Similarly, students at the Institute for Environmental Research at RWTH in Aachen, Germany, discovered that stands of beeches shared the work of producing the sugars that feed all of them. It didn't matter if the tree was taller or shorter, thinner or thicker, in better or worse soil, the trees were all photosynthesizing at the same rate, producing the same amount of sugar per leaf across all the trees. That miracle depends on communicating, then equalizing through the roots systems of all the trees.[10] Amazing. And who knew?

Humans talk about survival of the fittest to describe what happens among living creatures. So the notion that plants communicate with each other, much less cooperate with each other, is a more than a little mind bending. Dr. Simard elaborates:

"The wood wide web has been mapped, traced, monitored, and coaxed to reveal the beautiful structures and finely adapted languages of the forest network. We have learned that mother trees recognize and talk with their kin, shaping future generations. In addition, injured trees pass their legacies on to their neighbors, affecting gene regulation, defense chemistry, and resilience in the forest community. These discoveries have transformed our understanding of trees from ***competitive crusaders of the self to members of a connected, relating, communicating system."*** (Emphasis added.)[11]

The science of this is vast and complex. I'm no scientist, but others who are scientists have written about the amazing new research on trees. I encourage you to read about it. (*The Overstory* by Richard Powers, and *The Secret Life of Trees* by Peter Wohlleben are two books that can launch your study.)

Today I want to use some of the newfound discoveries as a metaphor for communication in general. Consider this: Scientists in Africa discovered something astonishing on the Savannah. Giraffes like to feast on umbrella thorn acacia trees. But the trees, wanting to repel the unwelcome intruders, quickly start pumping toxic substances into their leaves. The giraffes, tasting the toxins, amble away and select

8 Wohlleben, Peter, The Hidden Life of Trees, 247 – 250.
9 Ibid. Wohlleben, p. 53.
10 Ibid. Wohlleben, p. 15.
11 Ibid. Wohlleben, p.249.

a new tree to snack on. But they don't bother eating leaves of nearby trees. Why? Because the trees produce a warning gas that communicates danger to neighboring trees. In defense, all the neighboring trees start pumping toxins into their leaves, too. Giraffes know that. So, in effect, the trees communicate with each other, but with the giraffes, too.[12]

What are trees telling ***us*** about living in community? (And are we listening?)What can we learn from thinking of "forests as enormous spreading, branching, underground super-trees"? What can we learn from the notion that, "There are no individuals in a forest, no separable events. The bird and the branch it sits on are a joint thing"? (Richard Powers' words, from our reading)

I am fascinated with the idea of using the forest community as a model for human community. Peter Wohlleben, whose career has been in both forestry and forest conservation, describes how trees thrive in their natural communities, but they suffer when the stands in which they dwell are thinned. (Human beings often cull the weaker trees, thinking they are strengthening the forest by doing so, but no.)

Peter Wohlleben: *When trees grow together, nutrients and water can be optimally divided among them all so that each tree can grow into the best tree it can be. If you "help" individual trees by getting rid of their supposed competition, the remaining trees are bereft. They send messages out to their neighbors in vain, because nothing remains but stumps. Every tree now muddles along on its own, giving rise to great differences in productivity. Some individuals photosynthesize like mad until sugar positively bubbles along their trunk. As a result they are fit and grow better, but they aren't particularly long-lived. This is because* ***a tree can be only as strong as the forest that surrounds it.*** *And there are now a lot of losers in the forest.* (Emphasis added.) [13]

Wohlleben poo-poohs the idea of "survival of the fittest," saying the well being of trees *depends on their community and when the supposedly feeble trees disappear, the others lose as well. When that happens, the forest is no longer a single closed unit. Hot sun and swirling winds can now penetrate to the forest floor and disrupt the moist, cool climate. Even strong tees get sick a lot over the course of their lives. When this happens, they depend on their weaker neighbors for support. If [their neighbors] are no longer there, then all it takes is what would once have been a harmless insect attack to seal the fate even of giants.*[14]

What are we to make of those quiet giants collaborating so that the whole system can thrive—especially when we juxtapose that kind of community with human community? Human beings have the power to collaborate on all kinds of things, child care, family support, health care, justice, peace, and more. Of course, there are plenty of examples of human communities collaborating to care mutually for one another. But on a large scale, these days our species seems all too often to be governed by fear and greed—people afraid to accept tax increases for programs that support the common good, people quick to cave to prejudice that excludes and oppresses others, people grasping and holding tight what they want, while others suffer, people afraid to welcome in the suffering, the poor, the refugee. Here in America, we are so afraid of helping the stranger that we have been ripping families apart at the border, for instance. I hear stories like that, and I want to go and become a tree in the forest. Trees, it seems, live closer to my system of values than a lot of people do.

12 Ibid. Wohlleben, p. 7.
13 Ibid. Wohlleben,pp.16-17
14 Ibid. Wohlleben, p. 17.

Now I am the first to profess that love inspires human beings to look out for one another and, indeed, for the whole life system of which we are a part. I do believe in the power of love. But do trees *love?* Is that even possible? I don't know, but I doubt it. Without love, what compels them to collaborate? Peter Wohlleben wipes away any illusion of altruism, when talking about the forest system:

"... out there under the trees, the law of the jungle survives. Every species wants *to survive, and each takes from the others what it needs. All are basically ruthless, and the only reason everything doesn't collapse is because there are safeguards against those who demand more than their due.* ***… An organism that is too greedy and takes too much without giving anything in return destroys what it needs for life and dies out****."* (Emphasis added.)[15]

Human beings would do well to remember that as we greedily plunder our planet. After all, we are a part of the larger forest. If it is true that an organism that is too greedy destroys what it needs for life and dies out, then, boy, we are in trouble.

Well, we *are* in trouble—increasing trouble, as our species takes and takes and takes without giving back. Just as the compunction to take and take and take without giving back is disastrous for the ecosystems that sustain us, so it is for our human communities, too.

Human beings are capable of caring in profound ways, it is true. Back in Massachusetts, over 20 years ago, for instance, when Malden Mills, which produced polar fleece, burned, the company's CEO, Aaron Feuerstein opted to keep paying his now unemployed workers while the factory was being rebuilt. Mr. Feuerstein was well past retirement age. He could have just as easily taken the insurance money and enjoyed a well appointed retirement. Instead, he used the strength he had to keep his surrounding community as strong as possible.[16]

But there are countless stories of greed to counter that example. How about Congress' tax reform bill, which filled the overflowing pockets of the nation's wealthy while robbing from those less well off? How about all the gains in environmental protection rolled back, one by one, so that corporations can gain short-term, while all of us will suffer the long-term consequences of a depleted and poisoned world?

I know, I know, I preach love all the time. I like an altruistic approach to things. But my observation is this: Probably people who are *habitually* governed by greed aren't typically swayed by messages about love and altruism. Could they, could we, be swayed by practicality, though? Could we learn from the message that trees teach us—that ultimately there are safeguards to discourage those who take more than their due? I think so.

Funny, that old elm, the Liberty Tree, which became such a powerful symbol in Colonial America, represented *independence* for those early Americans. But you know, I think they got it wrong back then. Human beings have been getting it wrong for so, so long. That tree, all the trees, all the forest beings—if they had only one lesson to teach us, it would be ***inter***dependence, collaboration, cooperation among all the members so that the whole can be the strongest possible. "A tree can only be as strong as the forest around it." Human beings can only be as strong as the community that surrounds them.

15 p. 113
16 http://moralheroes.org/aaron-feuerstein/