The Human Sector

On Plants, People, and Belonging

Wᴇ ᴡᴀʟᴋᴇᴅ ɪɴᴛᴏ ᴛʜᴇ ʀᴏᴏᴍ at the University of Richmond to a packed house. Half the people in the class were wearing masks, the other half weren't. In all, 40 people packed into a tiny classroom. It was the tenth course we had taught and our first since COVID. It was by far the largest course to date. We looked at each other with nervous glances.

Things started shifting just before COVID. When we first started teaching, our courses were small and homogenous. Our classes were filled with a certain type of left-leaning do-gooder. Mostly white, usually young, often wealthy or at least upper middle-class. By now, though, the makeup of our courses is becoming more diverse. Ideologically, we are seeing more people from the so-called right, more Christians, and a lot of veterans. Still mostly white, but less so. In addition, the courses are now multigenerational and tend to be made up of people less on the fringe and more folks feeling trapped by conventional workday life. COVID seemed to speed up this transition to more diversity in our courses, and it did something else. It made people hungry and anxious for change.

The packed room that day in Richmond had an energy to it. Nervous, thick, and full of both creative and destructive potential. We got the sense that if someone lit a match, the whole thing would blow.

A man in the front row in his 70s, with long stringy hair, faded tattoos blurred by the sun, and a cigarette pack hanging out of his pocket glanced around the room. A woman in her 30s made eye contact with

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me and said, "I don't know if I'm ready for this." She didn't intend to speak for the group, but it was obvious, everyone was feeling the same. Whether they admitted it to themselves or not, sharing a small space with 40 strangers after the lockdown we'd all had was weird!

We had spent the last two years in our bubbles, with intimate friends and family or, worse, alone. Half the people around us thought the world was unsafe, and the other half believed people who were scared were crazy. The nervousness had an undercurrent of distrust.

Then it hit us—the feeling, the vibe, why were we all here? We didn't have to ask. Ryan opened that course with this sentence.

"You are all here because you want to belong."

The room exhaled and for the rest of the course we got to work, learning about each other while we learned about Permaculture. As we reflect on this first course we had after COVID, it becomes apparent that belonging is what Permaculture is about. It's about belonging to our landscape as much as it is about belonging to a community. A surface glance leads us to believe that these are separate, but this changes when we look deeper.

During one of the icebreakers that day, a student asked us a question. This came on the heels of Ryan talking at length about his favorite plant, the beet.

"How do you know so much about so many plants? I don't even know where to begin!"

Early in our respective plant journeys, we would memorize plant catalogs. Any plant nerd reading this understands this comforting urge. Just after Christmas, on a snowy day, Ryan liked to open a bottle of top-shelf whiskey, get a good fire going, and spread out plant nursery and seed catalogs in front of him. That ritual always kicked off the season.

The dream, the fantasy of plants to come, fed our spring and summer work. While this certainly paints a pleasant picture, the approach felt inadequate. Neither of us enjoyed the rote memory of it, the ability to spit out "back of the baseball card" facts about plants we had no relationship with. Instead, we longed for something deeper. Through conversations about this longing, we both landed on the fact that working and living with plants delivered the thing we longed for—something

more than facts—it was a relationship. A sense of comfort and ease with a plant due to having spent so much time with it.

This discovery came on the heels of shared stories, be it Trevor talking about his relationship to strawberries and how this is intimately tied to his son or Ryan's relationship with cannabis and the funny, traumatic history he has with the plant. We realized that, in both of our lives, plants were more than just a theme song; instead, we were the theme song for plants. Much like an ecosystem, this interdependent story is the story.

The idea of belonging and building plant relationships snapped into focus.

Plants, like music and food, feed our culture. They create our community; they *are* our community, and this book offers a model for how to build both plant and human communities. Story by story—or rather, plant by plant—or, to quote a student on the first day of our post-COVID course years ago: "I came for the plants, but I'm staying for the people."

Why the Human Sector

This chapter is about how to think about being a better human; the next chapter is about how to think about growing a Food Forest; put them together and you have plant stories.

But why the Human Sector?

A good friend and colleague of ours, Laura Mentore, is an anthropologist at University of Mary Washington. She took our Permaculture course and completed a teaching apprenticeship and is now a lead instructor with Shenandoah Permaculture. Last year she taught a university course that included a Permaculture-focused curriculum entitled "Anthropocene: Designs for Living in the Climate Crisis." The "Anthropocene" is just a fancy word for the geological time period where humans are having a substantial impact on our planet (and a mostly negative impact at that). We're aware that this is a controversial concept among academics. Nevertheless, we fully believe we are living in the Anthropocene, which makes the Human Sector even more important.

We define the Human Sector as human energies impacting a landscape. We noticed early in our Permaculture journey that serious consideration of Human Sectors seemed to be limited, and so we made a conscious decision to focus our work on researching and integrating Human Sector thinking into our courses. To return to the opening statement, Human Sector thinking is all about how to be a better human. We both arrived at this realization at separate times.

Ryan's PDC Story

I experienced my first Permaculture Design Course (PDC) in 2011. My wife, Joy and I were living on what would become our market farm, Dancing Star Farm, and I was working as a child and family therapist serving families throughout my region. I had just finished my graduate work in clinical mental health counseling and so was approaching the world through a family and human systems lens.

In addition, I took the course on the tail end of a failed cooperative farming experiment. On my land, a group of friends got together to ride out the Great Recession, driven by the energy and fantasy of collective farming. We went hard and fast only to crash in a pile of mental health tragedy and infighting over accountability. I learned so much from this failure but had yet to understand it through either the human systems lens or Permaculture.

I came out of that first PDC inspired and armed with the kind of robust tools for design work and, as important, the practical experience of slowly walking through the design process with a group of learners. I also had a great time and developed relationships with other students in the course that are still going strong today. I quickly understood that one of the most powerful aspects of the course was the relationship piece. For a brief time, the course felt like a community, and this experience was healthy for me on the heels of the social failure I had just participated in.

At the time, language like "social Permaculture" was being used all over social media and by budding practitioners. Meanwhile, a term started popping up that I personally didn't understand. This term was an addition to the zoning on a design site. In a design site, zone 1 is

the landscape immediately around the house. The zoning moves from the house out through zone 5, which is intended to be an untouched landscape. It's a useful thinking strategy for space and placement of elements in that space. Some Permaculture thinkers added zone 0 for the house and zone -1 or zone 00 that was intended to be the inner landscape of the designer.

I understood what thinkers were trying to do; however, the framework seemed more clever than accurate. Here's why: zones are used in Permaculture as a model for how to order elements in space and proximity based on time spent/resources needed whereas sectors are about energies acting on a site. Human energies affect all zones, therefore putting social Permaculture in a zone like zone 00 or zone -1 strikes me as a thinking error. We are living, after all, in the Anthropocene, for good or for ill. The Human Sector permeates everything.

What also lingered was the feeling that something was missing. It seemed like only lip service was being given to the Human Sector or social Permaculture. During the first course I took, an instructor split everyone into groups and said, "You know, just use your people skills," when referring to a conflict that one of the groups was having. This felt inadequate among the backdrop of the articulated need for "more social Permaculture."

Fast forward to the creation of SPI; we all agreed there is an opportunity to layer in a more robust conceptualization and practical understanding of the Human Sector.

We started by adding this to the Scale of Permanence and have continued to build from there.

Trevor's PDC Story

In the PDC I took with the Blue Ridge Permaculture Network in 2012, we were lucky to have professional Permaculture designer Dave Jacke, author of *Edible Forest Gardens*, as one of our lead teachers. He taught us a version of the Scale of Permanence that expanded on P.A. Yeoman's original version to make it clearer, all encompassing, and with a much needed and missing section on aesthetics.

After my class, fueled in large part by Dave Jacke's enthusiasm for Food Forests, I became obsessed with learning about plants, particularly edible and fruiting perennials. This led me to spend two years living on a mountain in rural Virginia with a cohort of eight other young adults growing gardens and orchards, raising livestock, foraging, cooking, having the time of my life, and meeting my future wife Jenna.

I went up to that mountain on an urgent quest to catch up on the hands-on experiential learning I felt like I had missed as a child of mainstream America. I wanted to finally learn how to live as part of nature, not separate from it. I wanted to build an intimate relationship with the plants and animals and soil, beyond the classroom theory I was used to, in a way that was intimate and visceral. What I didn't know I wanted, but discovered along the way with those eight adults in my cohort, was how to live in better relationships with humans as well.

When I came down from the mountain, I spent three years developing a community educational farm, continuing to learn and grow. Again, I was driven by my love of growing plants, but what I learned was that it was not enough just to grow healthy plants—it was the relationships between all the humans involved in the project that could make or break the whole thing. I was reminded again of something Dave Jacke had said along these lines: "95% of all the failed Permaculture projects I've worked on failed because of poor design of the Human Sector."

This was the context and experience I brought with me when I first met Ryan and started teaching with him. Of course, as a former child and family therapist, Ryan had his own unique insight into the importance and challenges of the Human Sector. During our first PDC together, we brought out Dave Jacke's version of the Scale of Permanence—an incredibly useful checklist for organizing design thinking—and it suddenly hit us that it was missing a section about humans! We got together and revamped it, deciding to put the Human Sector towards the top, just below climate, because of its importance and how difficult it can be to change or influence.

To be clear, Dave Jacke and many others before us have long stressed the importance of what has been called social Permaculture or the "invisible structures" of design. Permaculture is a discipline that

evolves organically as different practitioners add their unique lenses to the field. What we simply did, and continue to do in our classes, is emphasize the vital importance of Human Sector design in all things Permaculture, starting with placing it at the top of the beloved Scale of Permanence. In addition, we have over the years fleshed out each section to make the checklist even more robust and exhaustive.

The Evolution of the Scale of Permanence

The Scale of Permanence first popped up back in 1958 spilling out of the brain of P.A. Yeomans in his book *The Challenge Of Landscape: The Development and Practice of Keyline*. It was a tool, or rather, a thinking strategy to help organize an order for planning based on relative permanence in the landscape. Yeoman's order was the following:

1. Climate
2. Landscape
3. Water Supply
4. Farm Roads
5. Trees
6. Permanent Buildings
7. Subdivision Fences
8. Soil

In both of our courses, we used Dave Jacke's updated version of the Scale of Permanence, which looked like this:

1. Climate
2. Landform
3. Water
4. Access and Circulation
5. Vegetation and Wildlife
6. Microclimate
7. Buildings and Infrastructure
8. Zones of Use

9. Soil (Fertility and Management)
10. Aesthetics

This ordered way of thinking chunked together the task or checklist of both observation, analysis, and implementation. It helped us to think about the whole in actionable parts and piece them together. Below is the updated Scale of Permanence that we at Shenandoah Permaculture have landed on followed by explanations of the new additions' importance and how we use them.

Arriving at a Human-Centered Scale of Permanence

SPI Scale of Permanence Checklist

By Trevor Piersol, Ryan Blosser, Emilie Tweardy

Adapted from P.A. Yeomans and Dave Jacke

Climate
- Plant hardiness zone
- Predicted future climate change status
- Annual precipitation
- Seasonal distribution
- Latitude
- Wind directions: prevailing, seasonal variations, storm wind directions
- Average frost-free dates
- Chilling hours (important for fruit tree dormancy)
- Extreme weather potential: drought, flood, hurricane, tornado, fire

Humans / Social
- Ecology of Self
  - Intrapersonal
  - Interpersonal
  - Transpersonal
- Human in-and-out (head, hand, heart)

- 8 Forms of Capital analysis
- Project stakeholders
- Neighborhood and community
- Population: density, demographics, patterns
- Cultural activities and uses
- Current uses by neighbors and passersby
- Legal limits: property lines, conservation easements, zoning, rights-of-way, setbacks, environmental regulations (e.g., protected wetland), agricultural and forest districts
- Site history: past uses and impacts on land
- Future potential uses (e.g., local economic development plan)

Landform
- Slope (steepness, rise/run in percent)
- Topographic position (i.e., mid-slope, hill crest, valley floor, etc.)
- Bedrock geology: depth to bedrock, type of parent material, pH
- Estimated seasonal high water table depth
- Elevation
- Landslide potential

Water
- Existing sources of supply: location, quantity, quality, dependability, sustainability
- Network layout and features (spigots, pipes, filters, etc.)
- Watershed boundaries and flow patterns: concentration and dispersion areas, including roof runoff patterns, gutters, and downspouts
- Potential pollution sources: road runoff, chemical runoff from neighbors, etc.
- Flooding, ponding, and puddling areas
- Possible sources of supply: location, quantity, quality, dependability, sustainability, cost

- Location of all on-site and nearby off-site culverts, wells, water lines, sewage lines, septic systems, old wells, etc.
- Erosion: existing and potential areas

Access/Circulation
- Activity nodes, paths of use, storage areas
- Pedestrian, cart and vehicle access points, current and potential patterns
- Materials flows: mulch, compost, produce, firewood, laundry, etc.

Vegetation and Wildlife
- Existing plant/fungi species: locations, sizes, quantities, patterns, uses, whether poisonous, invasiveness, weediness, what they indicate about site conditions, etc.
- Existing animal species: diversity, population size, pests
- Keystone species: e.g., old-growth trees, mycorrhizal fungi, large mammals, predators, etc.
- Stages of ecological succession
- Ecosystem architecture: layers, patterns, diversity, light/shade, character, quality
- Habitat types, food/water/shelter availability

Microclimate
- Define various microclimate spaces
- Slope aspects (direction slopes face relative to sun)
- Sun/shade patterns
- Cold air drainage and frost pockets
- Soil moisture patterns
- Precipitation patterns
- Local wind patterns

Buildings and Infrastructure
- Building size, shape, locations of doors and windows, exits, and possible functions

- Roads/pavement
- Power lines (above and below ground) and electric
  outlets
- Outdoor water faucets, hydrants, downspouts, septic fields,
  wells
- Location of underground pipes and utilities: water and sew-
  er, gas, fiber optics, drain tiles
- Fences and gates

Soil Fertility and Management
- Soil types: texture, structure, soil profile, drainage
- Topsoil fertility: nutrients, pH, % organic matter, soil food
  web
- Hardpans or impermeable layers of soil
- Soil toxins: lead, mercury, cadmium, asbestos, etc.
- Management history

Aesthetics/Experience of Place
- Defined spaces (walls, ceilings, floors), qualities, feelings,
  functions, features
- Arrival and entry experience: sequencing, spaces, eye move-
  ments, feelings
- Specimen trees/landscaping (e.g., owner's favorite rose
  bush)

Human Sector Tools and Strategies

The Ecology of Self: Towards a Conceptual Model

The Ecology of Self is a model developed out of needing to consider the inner landscape of the human energies impacting the land as much as we need to understand the outer landscape. Just like we do with the land, we want to think through and map out our observations of our inner landscapes. Once we have them mapped out, we can analyze them and begin to understand the opportunities and barriers that exist

for our projects and our site to meet the goals we have set. The Ecology of Self is simple.

1. **Intrapersonal:** The way the designer relates to self.
2. **Interpersonal:** The way the designer relates to other people
3. **Transpersonal** (ecosophy): The way the designer relates to the experience of being part of something larger than themselves.

The above model is a thinking strategy. Much like the Scale of Permanence, it lists a way to systematically understand the humans in the system and analyze how they may impact the design. For each part of the Ecology of Self, information can and should be gathered in order to create a more complete perspective on the project and site.

We can remember the feeling of impatience that almost always leads to wasted resources, for example, by planting a tree in one spot only to move it the next year. For both of us, when we decided to farm, we wanted to farm immediately. This desire for action is normal, but it is flawed. One balancing salve to this restless energy to act is the Scale of Permanence. The Ecology of Self as a conceptual model fits right into this work.

Our action in this early work is observation and analysis. The characteristic needed is only curiosity about your site and yourself. Warning: Some of this work may take a long time.

Intrapersonal. One may start the inquiry by asking what your self-talk is like. A great way to understand self-talk is to reflect on the things you say to yourself in your own head in those quiet moments of struggle. Are you an inner critic or an inner coach?

For example, it could be: "I hate myself, I'm so stupid," vs. "I'm having a hard time right now, but I've been here before and things will get better." How does this impact resilience and grit? What is your track record with accomplishing hard things? How confident do you feel at any given time? What are your triggers and how do you respond to them?

Interpersonal. Start with the general guiding question of what your relationship patterns look like. How has your history with setting

boundaries been? How has your history with establishing relationships been? Do you have a love language? What do others do that makes you feel safe? What behavior do you find yourself engaging in, in order to get your needs met? What are your needs? What do others do that makes you feel threatened? What role do you often fill when engaged in teamwork?

Transpersonal. Start with any wisdom tradition you may use to orient yourself to the world. For many this will be Christianity, for others Islam, or Buddhism. Bill Mollison, who along with his graduate student David Holmgren is credited with the development of Permaculture, has a funny line about gatekeeping Permaculture from becoming "spinning woo-woos." The dude had his opinions about the spiritual New Age and what it might offer Permaculture. We have taken a different approach to this and have concluded that it is entirely appropriate to bring spirituality into Permaculture through this model.

On this, we have been inspired by the thinking of deep ecologist Arne Naess and his concept of ecosophy. We feel slightly self-conscious to be pulling another portmanteau into a book about Permaculture— yes, we should make fun of the inherent laziness that can be found in the making of a new word by combining two words. But still …

Ecosophy is the combination of the words "ecology" and "philosophy." Ecosophy describes the act of living in equilibrium, harmoniously with our environment. It lends itself to a thinking that centers the connection between the self and the environment. Simply put, the act of caring for the Earth becomes, or rather is, an act of caring for the self. The path to this holistic thinking starts with the idea that there is something bigger than us. Our wisdom traditions and spiritual practices are a pathway towards a holistic viewpoint that allows humans to see Earth care as a radical act of self-love.

It's a tricky tightrope walk, this self-centered approach, and largely counterintuitive. Put another way, by expanding the circle of what and how we identify with the world, protecting the Earth and its ecosystems becomes self-care. This expansion requires deep listening and an increased awareness. The need to expand our awareness helped us choose the tools we are sharing in this section, starting with the LUV triangle.

We recommend keeping a journal as you start this process. After all, writing is thinking—writing leads to storytelling, and storytelling is, well, everything. One of the most powerful uses of narratives regarding the Human Sector is realizing after analysis that you can change your own story. Permaculture is about transformation so why not extend this to the self?

In addition to conceptual models that support our thinking strategy, we have gathered into the Human Sector tools and techniques for observing and interacting. The following are just a few of many that we rely on and teach in our courses.

Tool # 1: The LUV Triangle

The LUV triangle is a strategy and skill set Ryan learned from his mentors Renee Staton and Ed McKee in clinical mental health counseling at James Madison University.[1] The strategy is a foundation for counselor training and one that we started to use in our courses to support students in their thinking about how they interact with each other in class, in their team projects, and with potential stakeholders and clients when designing sites.

We teach this in our sessions to provide skill exposure and practice with tools that enhance community and Human Sector design.

LUV is an acronym for Listen Understand Validate. At the end of the day, this technique is best understood as structured curiosity. Be curious—that's the point. This curiosity is what helps the speaker or sharer to feel attended to and acknowledged.

L—*Listen*

The first piece of LUV is listen. On the most simple level, it is silence. As the listener seeking to understand someone, you start by listening with your mouth shut. Understanding someone else has nothing to do with your ideas. Be patient while listening, often it takes a while for someone's ideas to be clarified. Wait for it, ask questions, if you don't understand, say so in a way that leads them to believe you are curious. Ask open-ended questions like "What was that like?" and make eye

contact. If eye contact is difficult for you, focus on the bridge of their nose or the top of one of their ears. Don't fidget.

When listening, be aware of personal space and body language. Ryan is a large man, he rarely stands close enough to touch someone, and he never squares his shoulders; instead, he stands or sits at an angle that softens the interaction considerably. In addition, if you are someone who crosses your arms or legs for comfort, don't. Crossed legs can indicate that a listener is not in a place to listen.

For many of us, crossing our arms is a form of self-soothing. If you need to do this, try crossing your toes. The listener won't notice this.

Avoid being a bobblehead. This is hard. For many of us, once that head starts nodding, it's like it's on a string. Instead, try a technique called the Lassie twist, where you tilt your head slightly to the side like the character from the 1950s TV show *Lassie*.

U—*Understand*

With LUV we are seeking to understand. Our own point of view is set aside, and we are curious. Try to repeat what you think the person is trying to say. Start with phrases like "I think you're saying that …" or "Correct me if I'm wrong please, what I hear is…"

And when in doubt, there is a magic phrase that keeps people talking. It is simply, "Tell me more."

The important piece to remember about this aspect of LUV is that not understanding is not a deal breaker. Be open to feedback when the person sharing says, "No, I'm saying this." Not understanding is an important signpost on the road to understanding.

To continue to understand, do the following: repeat what the listener says and use phrases that are similar to the listener.

Don't forget the metaphor.

A metaphor can show that you, the listener, understand the speaker in a powerful way. As a listener, the conversation is not about you, and, more importantly, you aren't trying to solve a problem or offer solutions. Instead the listener wants to understand and then communicate that understanding. Metaphors are key to this. Phrases like: "It sounds like you're a butterfly trying to break free from your cocoon," or "Wow,

it's like your energy is like a river being dammed up," or another, "Wow, you've really been running a marathon with this work lately."

V—*Validate*

This kind of validation is what we are getting at with this work. It's important to remember that agreeing with someone's ideas and validating their experience are two different things. We see a lot of ideological diversity in our courses, and our goal as instructors is to keep the conversation going.

This is important: Don't communicate skepticism or doubt. Don't debate.

When we practice this work in our courses, sometimes students get worried about working with someone who doesn't have their same ideological beliefs. Remember that the fact that someone is struggling or hurting or happy about something is not the content of the idea—it is the psychosocial experience of the speaker. Validate that shit. You can talk about ideas later. This can be done using metaphors or by simply recognizing the speaker's feelings and repeating what you heard with phrases like the following.

"I can tell that is hard for you." Or, "It sounds like you're pissed about that." Or, "You're really jumping for joy today!"

Tool #2: 8 Forms of Capital

At SPI we teach the 8 Forms of Capital. It's a brilliant conceptual framework for thinking about economics. I was first introduced to this concept through the writings of Ethan Rowland and Gregory Landua.

In thinking about economics, and by pulling ideas from the social sciences, they expanded the understanding of capital beyond finance into other realms. The eight forms they landed on are the following:

Financial
Social
Living
Intellectual

Experiential
Cultural
Spiritual
Material

It never fails. Whenever we teach this, folks always feel drawn towards value judgments about which form of capital is superior to the

8 Forms of Capital
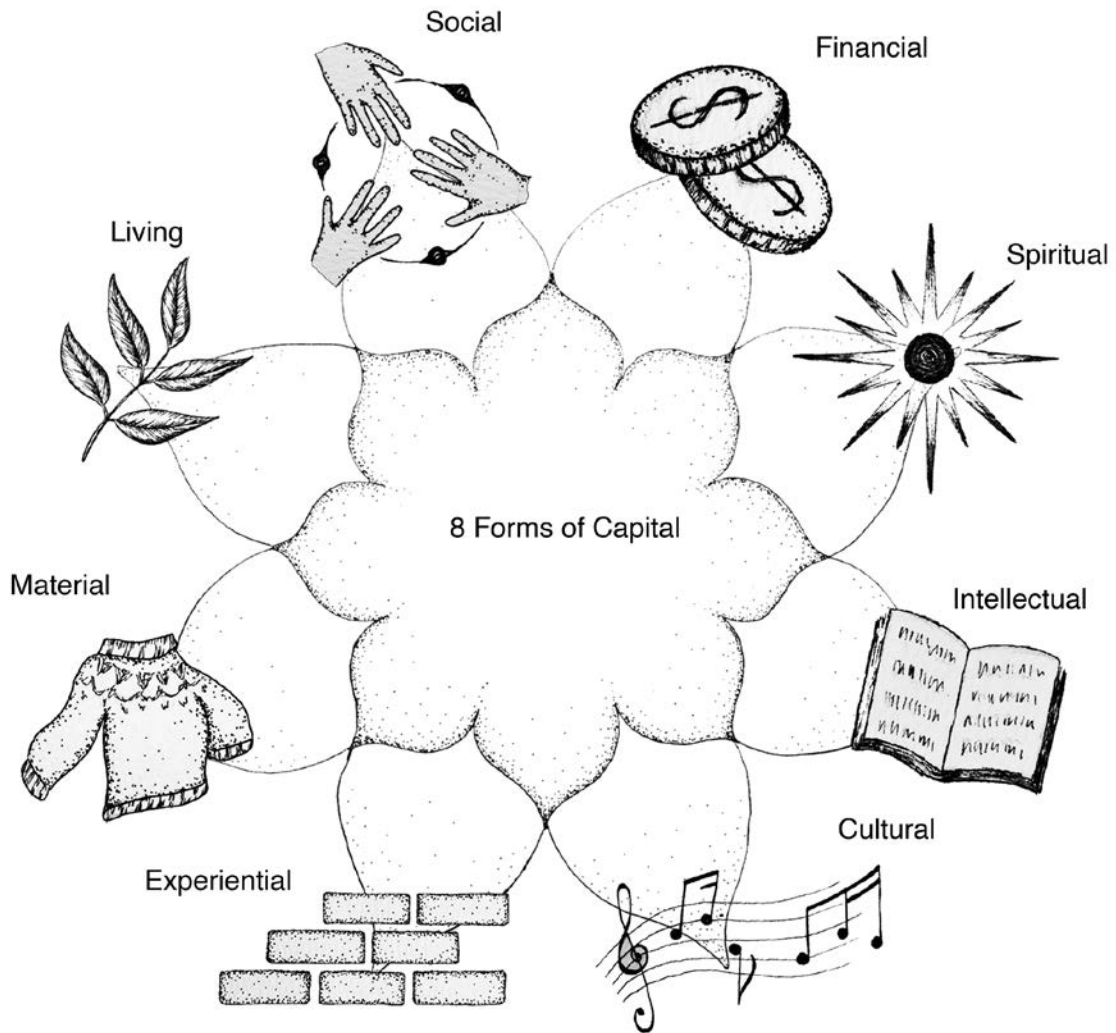
other. Often financial capital gets put at the bottom and social capital gets placed at the top of the pile. This, I believe, misses the point.

Don't get me wrong, I get it. Social capital is the feel-good one, and some Permaculture practitioners in all of our upper-middle-class wisdom like to demonize and discount the importance of financial capital. In Rowland's conceptual framework, he does a nice job of exploring how each form of capital has the potential for deficits and credit and that this creates opportunities. The brilliance of the 8 Forms of Capital is that it is a tool for analysis and design. Much like the way we use the Scale of Permanence, we now have a tool to analyze our economic landscape and use that tool to discover how to intervene, i.e., how to live a more balanced life. For many, this might mean how to live a life without such a high need to earn.

Financial

Financial capital is what most people understand as conventional capital. It's money. Included in this analysis would be debt—credit card, student loan, mortgage, etc.—and cash flow. Conventionally speaking, when we think about economics, we think about financial capital.

Social

Social capital is sometimes misunderstood as generosity. As we talk about social capital in this model, it refers more to political capital. It's the ability of someone to influence a decision or to make something happen in a community.

Living

Living capital includes the living/organic systems you have access to. Fruit trees, gardens, land, natural resources, etc. We include national forest or public lands in this.

Intellectual

Intellectual capital is on a spectrum from problem-solving ability to education and training. We also include books or a library in intellectual capital.

Experiential

Experiential capital is the experience a person brings to a community. Be it raising kids, farming, building, or teaching. It's the thing we have done for most of our lives.

Cultural

Cultural capital is the collected efforts of a community. It's art, it's songs, coming together in celebration. Cultural capital is the recipes that are passed down through the community. Cultural capital cannot be gathered or spent by an individual.

Spiritual

Spiritual capital is the thing that gets a person out of bed—the well they draw from to get them through the day. Simply understood, it's a person's purpose. As a teaching team, we always get stuck on this part, none of us being very religious. It was a student named Kelsey who helped us put words to this.

Material

Material capital is the material world we have access to. Shoes, cars, housing, clothes. The things that make up our lives.

By analyzing each of these categories, a person can start to understand where they may be trading one form of capital for another that isn't bringing their life into balance. For example, someone may go into debt for a new pair of Nikes—despite my environmental positioning, I'm a sucker for a new pair of Jordans. Go ahead, judge me.

When this happens, material capital is high and maybe this inches up social capital in some circles, but it also increases a person's need to earn in a job they may not like that decreases spiritual capital, never mind the impact it may have on living capital in other countries (i.e., sweatshop labor). This is a system out of balance.

There are so many ways to apply the 8 Forms of Capital to a system after an analysis. Often, we are doing this without thinking about it.

At Shenandoah Permaculture, thanks to our friend and co-owner Emilie Tweardy, we are big on potluck culture. In the class, the invitation starts small with the first weekend where we invite students to bring in snacks, pickles, or any other homemade/home-canned foods to share on the snack table. People are so proud of their jams, jellies, and ferments, and this is a great way to showcase them and invite the class to start making connections. In every course, and occasionally in the summer, we hold a giant potluck and seed swap.

At first glance, I love this for what it is—a big-ass party. On second glance, it is so much more.

At this giant party, students meet alumni, friends are meeting friends. Plants are exchanged, recipes traded, food shared, seeds swapped, and most of all, stories are told. We recall one particularly magical potluck where our friend and colleague—one of the best farmers we know—Betsy Trice, who farms at Peacemeal Farm with her husband, Chris, showed up with a groundhog, aka, whistle-pig, cooked down in wine sauce. This whistle-pig au vin tasted incredible, and everyone got a chance to wash it down with Betsy's homemade elderberry wine. Later that night, stories were swapped around the fire about the source of the groundhog. Turns out Betsy teaches a sustainable farming course pathway at Reynolds Community College, and the college farm needed a groundhog dispatched. About as resourceful as anybody we've ever known, Betsy of course didn't want the dead groundhog to go to waste. So, she skinned and butchered the animal. A hop, skip, and a jump later, we've got groundhog au vin.

If we were to trace the web of interactions happening across the 8 Forms of Capital in this anecdote, the diagram would be rich in intersecting pathways. Aside from modeling and living the very real but played-out Bill Mollison quote, "the problem is the solution," Betsy's act and all that went into it—trapping, butchering, recipe creation (she even made a hat with the skin for her husband)—and the stories that were told from this added wealth to the community at that potluck.

That act was a gift of intellectual capital, living capital, spiritual capital, social capital, and experiential capital but very little financial capital. Betsy used her wealth in other areas to add wealth to the

community. In exchange, she used very little financial capital to achieve this. Others may have used financial capital, in the form of buying food, to contribute to the potluck, which is a perfectly acceptable though admittedly less charming approach. In a potluck experience like this, stories, the money spent, the food made, the recipes shared all contribute to balancing a community experience where everyone can get their needs met without needing an abundance of one single type of capital.

In thinking through the 8 Forms of Capital, we have another example: my transition from the role of Executive Director at Project GROWS to full-time farming.

The decision to leave Project GROWS didn't exactly come all at once. I had been thinking about the next thing as early as my second year growing the project. This thinking included the knowledge that Jenna Clarke, our director of operations, was much better than me at leading nonprofits—she knew more, worked harder, and loved people more. It would be the perfect role for her.

Meanwhile, the nudge that ended up being the thing that moved me in the direction of starting my own market farm project was the money and the struggle. I loved Project GROWS and sunk every ounce of effort I had into growing the nonprofit. This included making sure staff would get paid on time even if that meant I did not get paid. As the leader of Project GROWS, I missed an incredible number of paychecks, and we (my family and I) were broke.

If I was going to be broke, I figured I might as well be running my own farm. So, I moved on and launched Dancing Star Farm. Jenna took over the reins of Project GROWS and turned it into an incredible, functional organization.

Being a nonprofit leader in our area didn't make me any money. I think my highest earning year was in the vicinity of $20,000. But the opportunity increased my general wealth when considering other types of capital.

The work increased my profile considerably in the region. As executive director, I was on the news constantly speaking about food insecurity or answering questions about farming. In addition to this, I was able to interact with our community constantly. This created several connections

Whistle-pig au Vin

Ingredients:

1 (5 to 6 pound) groundhog
2 tablespoons extra-virgin olive oil
1¾ cups chicken broth
2 medium onions
3 cloves garlic
1 teaspoon fresh thyme
¾ stick unsalted butter
1 bottle Bordeaux
⅓ cup Dijon mustard
1 tablespoon sea salt and pepper

Directions:

Cut groundhog into pieces, rince, remove any fat, and cut out the glands underneath the front legs and armpits, then pat the meat dry. Season with sea salt and pepper. The groundhog will be unpleasant if this step is skipped—for real; do this or else.

Heat the oil in a cast iron skillet, then brown the meat.

Move the meat to a medium heavy pot.

Add broth to the pot.

Pour off any fat in the skillet, then add onions, garlic, thyme, and 3 tablespoons butter.

Add the wine and bring to a boil.

Pour the mixture over the whistle-pig. Cover the pot and bring to a simmer. Braise whistle-pig until tender, usually 2½ hours.

Remove whistle-pig from pot

Bring liquid in the pot to a boil and reduce it by half.

Whisk in the mustard. Remove from heat.

Stir in the rest of the butter.

Pour sauce over whistle-pig.

for me. In terms of capital, my social capital was extremely high at the end of my tenure at Project GROWS. In fact, I am still reaping the benefit of this almost a decade later.

In addition, I was given experiential and intellectual capital in this role. Project GROWS allowed me to learn the craft of farming at scale along with sending me to trainings and conferences where more connections were made.

During the transition from nonprofit leader to market farmer, I can remember being worried about not having enough customers. That's when I realized the value of social capital. The first paying customers to my farm were made up almost entirely from people in the Project GROWS community. They knew what I gave to the organization, and they showed up with support when I needed them the most. In this scenario, the thing I needed the most—financial capital—but had the least, showed up in my life because of my wealth in another category. By understanding how this works, the 8 Forms of Capital can be used to design our life around our goals, reducing the need to earn.

In the same way that this concept or thinking strategy can be used to analyze one's economic experience, it can also be used to build a better-balanced life.

Decisions have consequences. And this tool tells a more holistic story of the consequences behind the decisions.

Tool #3: Human In-and-Out

For many of our readers who are already familiar with Permaculture, we are confident you have come across the famous chicken in-and-out exercise. It's a classic Permaculture thinking strategy where a chicken is drawn on a white board and inputs are brainstormed for what the chicken needs. It may look like but is not limited to something along the following lines: food, exercise, other chickens, sunshine, roost, dust, grit, etc.

Next a list is made for the chicken's outputs. This list may look like this: meat, eggs, calcium in the form of feathers, manure, scratching, entertainment.

This analysis can then be done on other elements in a design before finding where the two can connect. For example, one might then do an input-and-output exercise with a greenhouse. Through this work, very quickly we'd discover that a greenhouse needs heat, provides shelter, and then it snaps into focus. Put the chickens in the greenhouse.

We love this kind of work; for us it represents a path for how to arrive at elegant solutions that often hit our personal favorite Permaculture principle: integrate don't segregate, aka stacking functions. The key to stacking functions well is making sure that every element added to a system has two or more functions and is supported by two or more elements. This underscores a core Permaculture strategy of making sure to always connect—also a core imperative when thinking about relationships.

This strategy has several applications in the Human Sector. We can run an inputs-and-yields exercise on individuals in a system by using the 8 Forms of Capital that we previously discussed. This is how to make connections about needs and supports in a human community. Another form of the Human in-and-out exercise that takes place within a broader community we call Head, Heart, Hands.

Head, Heart, Hands

On the first day of every course, we assign the Head, Heart, Hands homework. The challenge is to spend the evening documenting five things that the student is gifted in for each category. For example, Trevor's first pass at this might look like this:

> Head: organized, ordered thinking
> Heart: loyalty
> Hands: planting/pruning trees.

He would then repeat this list five times, assigning a new characteristic or skill to each category.

For Ryan it might be:

> Head: poetry writing
> Heart: intuitive listening
> Hands: athletic; good at ball sports/water sports.

Conversely, we ask each student to document five needs or "debts" they might have in each category. Trevor's might look like this:

> Head: jokes to cut the seriousness
> Heart: listening
> Hands: earth moving/digging.

When each student arrives in class the next morning, we open by taking an inventory. Once we take the inventory, then we start making connections. Almost always the group of strangers/emerging learning community comes to a very real understanding that everything we all need is already in the room. The played-out quote, "We are the ones we've been waiting for," snaps into focus and is refreshed when participating in this exercise in a large group.

Bringing It All Together

We've shared a lot. The Human Sector is huge and still largely unexplored in a formal way through the Permaculture lens. What we have chosen to share is just the tip of the iceberg. We anticipate this changing and growing as the conversation around Permaculture snowballs to include people new to the concept and those already thinking and writing about it. In this section, we have included a model, the Ecology of Self, along with a select few of the many tools we use in our courses to explore and build skill around the Human Sector. In addition, we have shared where we have chosen to add the Human Sector and beef it up in the Scale of Permanence. This work is incomplete at best, and we look forward to expanding it in future writings. For now, let the following truism suffice: when we don't pay enough attention to the Human Sector, our designs fail. The work of partnering with the landscape to build a better, more ethical habitat is also the work of being a better human.