

Permaculture



Design

Regenerating Life Together

Emergent Design

Let's Use Our Imagination

An Interview with Rob Hopkins

**Recognizing Emergence at Play in
Your Life Design**

Teaching Good Design Process

**Puerto Rico's Emerging Model
for Cooperation**

A Story of the Amazon—

Our Choice: Forest or Desert?

PermacultureDesignMagazine.com

February/Spring
2020
No. 115
US \$6.50
Cdn. \$7.95



Permaculture Design

February/Spring 2020 Issue #115

Permaculture Design © (ISSN 2377-7648) is published quarterly. Copyright 2019 by *Permaculture Design*, a sole proprietor business operated by John Wages. Material contained herein may be copyrighted by individual authors, artists, or other publishers as indicated.

Permaculture Design is an independent journal serving the permaculture movement in North America. We aim to provide information useful to people actively working to establish permaculture systems "on the ground."

For subscriptions, advertisements, editorial submissions, and all correspondence, write: PO Box 3607, Tupelo, MS 38803 USA. Please see page 64 or our website (www.PermacultureDesign-Magazine.com) for complete subscription information.

The publisher assumes no responsibility for unsolicited materials. Please send typescript, photographs, or digital content on CD or via email to our address below. Materials not accompanied by a stamped, self-addressed envelope will not be returned. Copy and artwork should be submitted at least two months prior to publication date.

For ad rates and requirements, see our website or contact us. An ad rate card is available upon request. See address in the box below or contact us at:

408-569-8607

ads@permaculturedesignmagazine.com

Publisher

John Wages

publisher@permaculturedesignmagazine.com

Senior Editor

Rhonda Baird

editor@permaculturedesignmagazine.com

Editorial Guild

Keith Johnson

Rhonda Baird

Publisher Emeritus

Peter Bane

Photo credits to article authors unless noted.

Cover photo
Kei Rothblack

CONTENTS

EDITOR'S EDGE	2
Using the Design Web <i>Looby Macnamara</i>	3
Imagine a New Way <i>Rob Hopkins</i>	7
Generative Transformation <i>Dan Palmer</i>	10
Regenerative Futures: Emergent Design in Permaculture Education <i>Jillian Hovey</i>	16
Invitation to the Unknown: Gaia U Approaches to Education <i>Silvina Miguel</i>	24
Landscape Design: Following the Primrose Path Wormhole <i>Gloria Flora</i>	26
Importance of Imagination: An Interview with Rob Hopkins <i>Jill Kiedaisch, Chelsea Green Publishing</i>	29
Permaculture in Puerto Rico: Year Three in Cooperative Development <i>April Lea, John Lago Gonzalez</i>	31
A Choice: Forests or Deserts—Lessons from the Amazon <i>Loxley Clovis</i>	39
A Grafted Union: Working with Tree Shaping <i>Dawn Shiner</i>	48
Announcement: North American Leadership Summit <i>Peter Bane, Sandy Cruz</i>	53
Interview: Central Rocky Mountain Permaculture Institute Transitions <i>PDM Staff, CRMPI Staff</i>	56

DEPARTMENTS

Plant Profile	54	Letters	63
Permaculture Events	59	Calendar	63
		Classifieds	64

Please send subscriptions, letters, and material for publication to:

Permaculture Design
PO Box 3607

Tupelo, MS 38803

editor@permaculturedesignmagazine.com
permaculturedesignmagazine.com

Upcoming Issues, Themes, & Deadlines

#116	Permaculture Works	March 1
#117	Permaculture and Biodiversity	June 1
#118	Wild Yields	September 1

The Edge is Where the Action is

Rhonda Baird

EMERGENT DESIGN was one of the leading takeaways for me from our issue exploring Design Process (*Permaculture Design* #108). Most teachers, according to my understanding, approach the design process as a static, linear one which requires the designer to see and know all things from original principles—implementing them with flawless perfection. The resulting imprint of our imagination onto reality might make Plato proud, but it probably doesn't happen very often in reality.

Recognizing and valuing the fluid, responsive, and messy reality of design and implementation is crucially important. Perhaps it is so important because it requires us to be humble and question our assumptions. But recognizing this messy reality also helps students and clients proceed by accepting there will be valuable moments for feedback and by making adjustments along the way. Adaptability and imaginative response are wonderful foundations for survival and sustainability.

More to the point, emergent design allows us to find the growing edge of complex systems and respond appropriately. We talk about the concept of “the edge is where the action is.” Permaculturists know the capacity to identify and engage that edge in our rapidly changing world is essential to our success in pushing systems in a positive, life-affirming direction.

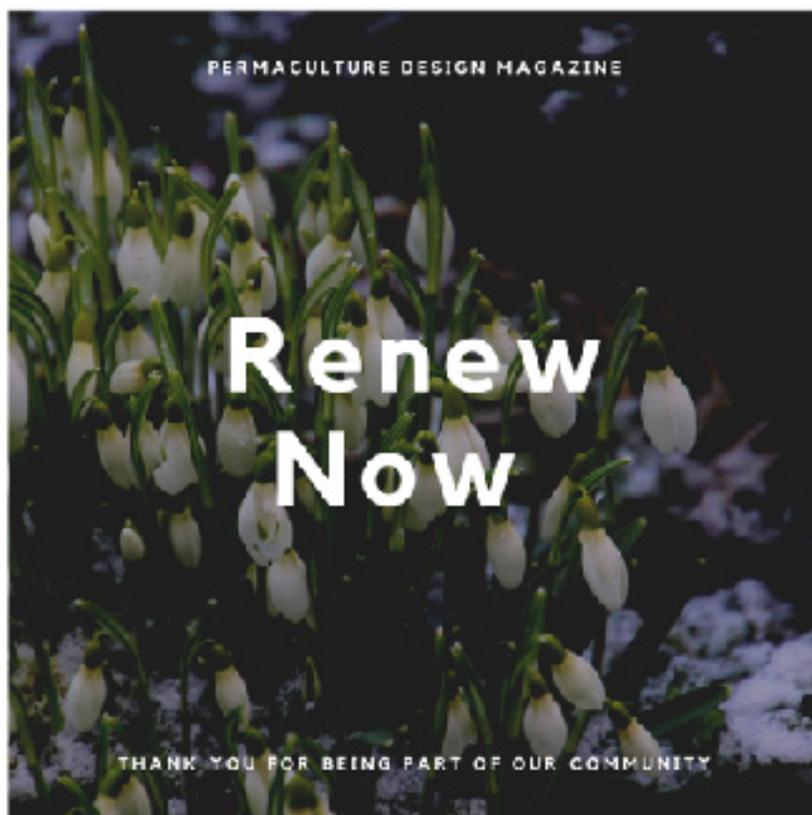
The more experience we have in design and implementation, the more intuitive our processes become so that design takes less time and realizes more success. How can we work together to ensure others recognize the value of this work?

This issue of *Permaculture Design* tells the stories of teachers, designers, community organizers, and other permaculturists who work tirelessly to realize a better world—one of a healing Earth, connected communities, and empowered people. We are proud to share their (often differing) points of view.

Looby Macnamara starts us off with some thoughts on using the design web to guide our work. Rob Hopkins contributes from his new book on the power of imagination to solve our problems, as well as an interview on the subject. Dan Palmer, a strong proponent of the power of emergent design in permaculture, sums up his thoughts from several years of consideration. Gloria Flora, a frequent contributor, brings her perspec-

tive on the theme to its application in landscape design. Jillian Hovey highlights her approach to teaching the design process—based on decades of teaching permaculture all around the world; while a student from Gaia University, Silvina Miguel, speaks to the power of Gaia U's permaculture-based approach to education. April Lea and John Lago Gonzalez contribute a piece on what is developing in the third year of Puerto Rico's post-hurricane permaculture community. Right livelihood—Dawn Shiner and Frank Hyldahl share their (truly) unique artisanal work from the mountains of southwest Virginia. We welcome the contribution of a new writer, Loxley Clovis, who brings a new perspective to the story of the Amazonian peoples. All of our contributors for this issue are passionate, and I am very pleased by their rich offering for our readers. Please put these ideas into action. Let us know how your projects are going—and how these ideas inspire you.

In this new decade, in this moment of this year—today—we are committing to a pivotal change. The world is on fire; let's get to work. Δ



One Lens on Emergent Design and Complex Adaptation

Generative Transformation

Dan Palmer

Note: The content of this article is adapted from posts on Dan's blog project www.MakingPermacultureStronger.net

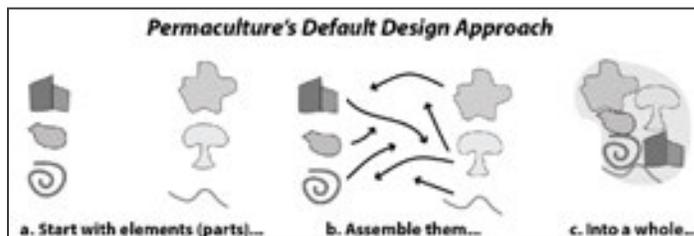
THE FOLLOWING CHART presents nine possible spaces any design process can sit within or move between. In the top right corner, the chart suggests a name for a space that I believe is permaculture's rightful center of gravity. I call this space *generative transformation*. As we'll see, generative transformation is a way of going about doing or creating anything, be it a garden, farm, organization, livelihood, or life.

Assembling—Partitioning—Transforming

First, I'll clarify the two axes that give rise to the nine possible spaces. I'll start with the difference between what I'm calling *assembling*, *partitioning*, and *transforming*. I see these as three increasingly life-enhancing ways to think about whole-part relations as we design and create things.

A. Creating by Assembling

From an assembling perspective, how you go about creating is easy: choose some elements, then join them into whole systems. For example, you might get a wish list of desired elements such as pond, chook house, windbreak, and veggie patch, and then figure out how to best insert and connect them to create a whole permaculture garden.



While it has its value, a risk comes with this approach. With its focus on inserting and arranging elements, it is all too easy to *impose* solutions ("let's put the swale here, and then the herb spiral can go there"), even if you don't realize that is what you are doing. When you create by assembling elements, the outcome is an *assemblage of elements*.

B. Creating by Partitioning

Somewhere along my journey as a permaculture designer, I made an important discovery: *living systems are not assemblages of elements*. Indeed, this culturally widespread assembly approach flies in the face of how any living whole comes into being then evolves. It was Christopher Alexander that woke me up to this fact:

Design is often thought of as a process of synthesis, a process of putting together things, a process of combination.

According to this view, a whole is created by putting together parts. The parts come first: and the form of the whole comes second.

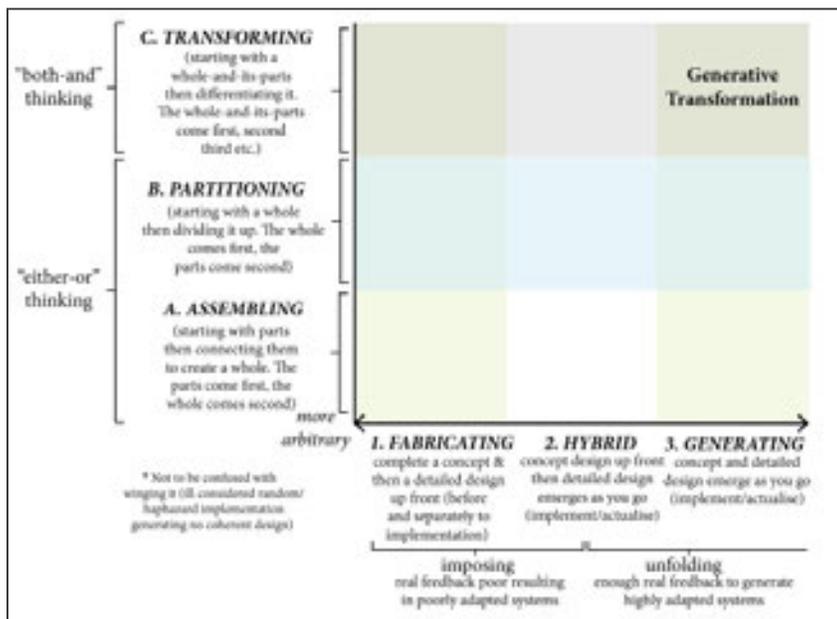
But it is impossible to form anything which has the character of nature by adding preformed parts (Alexander, 1979, p. 368)

Alexander has shown that contrary to an assembling process, it is more accurate to say that a living whole's parts, or organs unfold out of the growing whole—where the whole comes first, and the parts come second:

The key to complex adaptation... lies in the concept of differentiation. This is a process of dividing and differentiating a whole to get the parts, rather than adding parts together to get a whole (Alexander, 2002, p. 197)

This [approach to design] is a differentiating process.

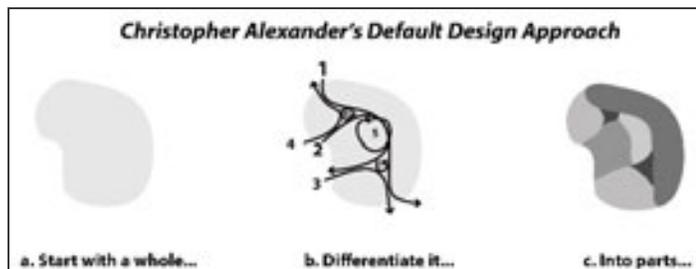
It views design as a sequence of acts of complexification; structure is injected into the whole by operating on the whole and crinkling it, not by adding little parts to one another. In the process of differentiation, the whole gives birth to its parts: the parts appear as folds in a cloth of three-dimensional space which is gradually crinkled. The form of the whole, and the parts,



Generative transformation: the sweet spot of design

come into being simultaneously. (Alexander, 1979, p. 370)

Taking Alexander's words at face value, I conducted and documented several practical design examples (documented on my blog) where the whole design process was explicitly



about moving from pattern toward detail and gradually *partitioning the preexisting whole landscape*.

Here, for instance, you might start with an entire backyard, partition it into orchard and veggie areas, then partition the veggie area into annuals and perennials, and so on, right down to where the parsley goes.

One advantage of this approach, alongside being more aligned with how the rest of life creates itself, is it requires you to pay more attention to the pre-existing whole you are working with. The risk of imposing pre-formed solutions is thus significantly reduced—hence it being midway on the chart's y-axis continuum from *less* to *more* life enhancing.

C. Creating by Transforming

Eventually, after many years designing by assembling, then by partitioning up the whole, then by reading more Alexander, the penny dropped for me. He was *not* talking about flipping from assembling (joining parts into wholes) to partitioning (dividing wholes into parts). This is a *false dichotomy*. Following in Alexander's footsteps, I now use the words *transforming* and *transformation* as a bigger and more inclusive process than merely assembling or partitioning.

To transform is to make different, to *differentiate*. When we are transforming a whole-and-its-parts, we are making it different—no matter whether we are integrating new parts, removing old parts, or changing existing parts around. These are all different ways of transforming the system, of differentiating the whole. Yes, it is hard to disagree, I know, and it seems blatantly obvious when I say it. But here's the thing. Even though we might intellectually grasp and agree with this stuff, the way we then behave as designers and creators very often *disagrees* with it. As much as we might like the sound of this, it is *very* hard not to fall back into the culturally dominant design-by-imposing-and-assembling rut when the rubber hits the road.

So, I use *transformation* to transcend and include the seemingly contradictory approaches of *assembling* and *partitioning*. To transform is to start, always, with a whole that already has parts. Every whole landscape already has parts. Every whole person already has parts. When we *surf* or *dance* or *co-participate* in the evolution of either, the whole and the parts are moving forward together, simultaneously.

Permaculture is Transformation

Permaculture is *never* about starting something brand new, with a blank slate, and dropping something entirely new into a space or place. It is always about *stewarding* the *ongoing transformation* of what is already there. In this sense, we are only ever *retrofitting* what we already have. For there is always, everywhere, *already something going on*. Which is to say there is already a whole, which already has parts. Our job is to listen to the utterly unique narrative already unfolding inside any situation, then to *harmonize* with it and where appropriate *perturb* it in life-enhancing directions.

On this note, I always appreciated this comment from Toby Hemenway (2016):

I think Alexander's concept is much closer to how permaculturists actually design, by starting with something that is already a whole and then differentiating and integrating additional factors into it. The issue is mostly that our language has not caught up to our practice.... Thinking in terms of relationships and organic wholes rather than collections of parts is foreign to our culture and not easy for anyone from Western culture to do.

The following table recaps the three-way distinction between assembling, partitioning, and transforming. I hope it helps and that you are getting a feel for the distinction and if and how it might shed light on how you see and work with things.

I also hope it is clear why I believe transforming is more life enhancing than merely assembling or partitioning. In transcending and including both assembling and partitioning, transforming is literally more holistic—it gives us more options both to *see* wholes and to more fully *develop* their potential.

Fabricating—Hybrid—Generating

Let's now focus on the x-axis of the chart. I'll explain what I mean by the progression from a *fabricating* through a *hybrid* to a fully *generative* approach to designing and implementing. I see these as three different ways designing (or thinking) and implementing (or doing) can be related whenever we do stuff or create stuff. We'll start with fabricating, then consider generating, then come back to the hybrid middle ground.

Fabricating (Master Planning)

A *fabricating* approach completes an up-front design or master plan and *only then* starts implementation. The plan for the Hayes Home is an example of a fabricated master plan: *fabricated assembly*.

Isn't it pretty! It also brings together hundreds of mistakes in the sense that many of these decisions would be made much better in sequence and in context as the site was being developed, rather than being dreamed up and crammed into a plan up front. This is not to suggest that there is not a time and place for such plans. It *is* to say we get in trouble when we forget what they are—diagrammatic guesses that can never, ever capture or respond to all the new details that only and

	Assembling	Partitioning	Transforming
What you start with	A background space or container (already containing some elements)	A continuous chunk of uniquely textured whole space	A continuous chunk of unique and evolving-whole-space-revealing-itself-through-its-parts
What you do from that starting point	Introduce more elements to the container and assemble them to maximise functional interconnection	Slice or partition the space up into a pattern of sensible units based on its unique texture	Iteratively transform the whole-and-its-parts in desired, life enhancing directions
Primary operation	Addition	Division	Integration, addition, division, subtraction, multiplication, modification, etc – In any combination that is appropriate with no upfront bias
What you end up with	A whole system of interconnected elements	A harmoniously partitioned whole	A more evolved (and harmoniously interconnected) whole-and-its-parts
Primarily creative or conservative?	Creative	Conservative	Both
Direction re patterns and details	Details to patterns	Patterns to details	Both
Capacity to enhance life	Almost non-existent	Average	Off the charts!

Put together by Dan Palmer for www.MakingPermacultureStronger.net September 2018

It recognises that complex systems can never be completely described, predicted or controlled but that forces can be identified and worked with to develop a more balanced and productive system. Most importantly, strategic planning can help pinpoint the initial step to get the desired processes moving without later having to undo what has already been done. (1994, p. 21)

In a master planning or fabricating approach, it is difficult to avoid making premature decisions and then *imposing* them on reality. You thereby end up taking steps that are *not* the best suited to what is actually going on at that stage in the unfolding process.

In a generating process, on the other hand, we move from *imposing on* reality to *unfolding out of* reality. As a result, the decisions we make along the way are *non-arbitrary*. They are made at the right time in the presence of the right information, meaning we have at least a chance of getting them right. When by fabricating we make our decisions before we even start, it is as if we are turning on this massive tap

inevitably emerge as soon as you start to intervene in any complex system or ecosystem.

Ben Falk (2013) has put this very nicely:

It's easy to just take paper too seriously and have too many decisions based on what is or isn't on a piece of paper. It can be great to guide overall decisions and to know starting points and know general steps but if it's not coupled with the active hands-on that constantly changes what's on that paper master plan/site design, it can be very misleading and very dangerous.

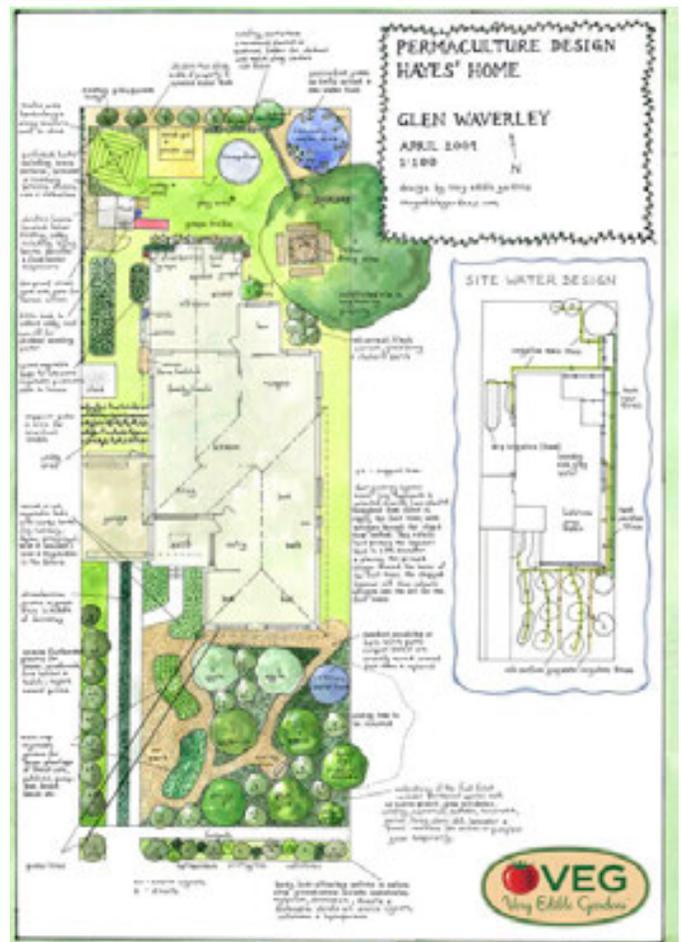
Generating

A *generating* approach rigorously and repeatedly hones in on the *best next step*, then takes it. Here we generate a design layout or pattern in the very process of actively modifying whatever we are working with. Any design sketches are at best *servants* of the way things are unfolding on the ground, rather than upfront *masters* (as in *master plans*) where fabricated guesses are imposed.

Though I first learned about generating from Christopher Alexander, I subsequently discovered that permaculture co-ordinator David Holmgren explored something similar for many decades. David contrasted *master planning* (fabricating) with *strategic planning* (which is something very similar to what we're calling *generating*).

Master planning, (where detailed plans are implemented producing a final fixed state which is a copy of what is on paper) has been discredited in the planning profession due to its failure to deal with complex evolving systems...

In strategic planning, the emphasis is on processes of development which are on-going and respond to changing circumstances.



Master plan for the Hayes' Home: an example of fabricated assembly

of arbitrariness where the quality of the *outcome* rests on the nature of the *guesses* we made at the start.

Furthermore, if we seek to align with the rest of nature, nature only generates. As a result, an authentic generating process is much better able to connect with and enhance life. It just makes sense.

Here's a few images from the 10-acre Mayberry Woodend project in Victoria, Australia, where the residents and I have been experimenting with generating. In terms of our diagram, this was actually an example of generative *transformation*.

This next diagram shows all we *drew* before we started to ground-test and *do*—a diagram that includes only what we'd decided was the best next step—a new driveway.

Not only are functionally and aesthetically harmonious layouts achievable without drawing upfront plans, what emerges is in my experience *so much better*.

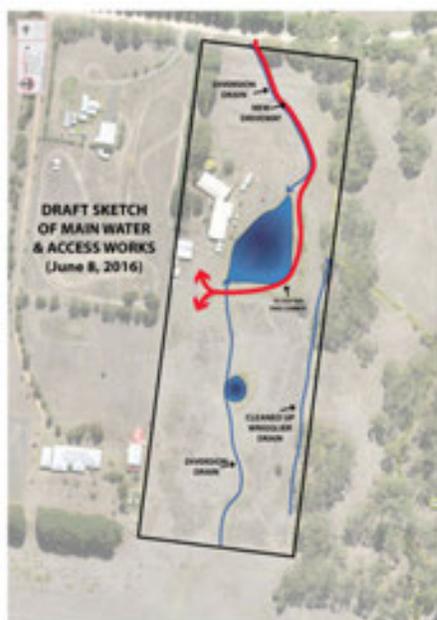
For the record, I am not saying that there is no place for drawing on pieces of paper or computer screens. Indeed, as I've shown above, part of the planning process for the driveway was drawing possible driveway layouts on paper. But the focus was honing in on and crash-testing the best next step, not creating a plan to impose.

Hybrid (Concept Planning)

The hybrid approach is now easy to introduce. It mixes together equal parts fabricating and generating. In particular, it involves completing a high-level, broad-strokes *concept plan* ahead of starting to implement, then lets all the details fall out of the creating/doing/implementing process as it rolls forward.

Renowned ecological designer Dave Jacke (2017) described what I'm calling a hybrid approach well in this personal communication:

In reality, I design the overall pattern, implement key pieces after designing them, then redesign as more parts of the system get implemented. I have never had a client where I could implement all



Mayberry Woodend driveway.

at once as a grand expedition! It's always been piecemeal implementation with design along the way, responding to changes in goals, site and emergent reality as the design goes into place. But having a big picture view, that is, an overall site design to at least a schematic



Overhead view Mayberry Woodend site.

level, is critical to help one work out where to begin the implementation. Then I would design the relevant patches, including their site prep and implementation strategies, and then proceed on the ground. Staking out is a critical part of the process! Field testing the design in reality, essentially.

Next is a simple example of a rough concept design I sketched with my parents for the layout of their new house garden. We took the concept to the site and figured out the details with rakes and shovel rather than a pencil or computer mouse.

Winging it

You'll note a little asterisk in the diagram next to the *generating* label in the chart at the start. It says:

Not to be confused with winging it (ill-considered random/ haphazard implementation generating no coherent design)

I mention this to ward off any misunderstanding that a generating process is somehow less rigorous, logical, evidence-based, or documented/documentable than a fabricating approach. In my experience, it is more of all these things.

It is also harder work. You cannot just draw a nice picture and hand it over to the implementation team. You need to stay fully engaged as you make changes, immerse in the outcome, and figure out the best next move from there.

From Less to More Life Enhancing

In my experience and experiments, an authentic generating process is more able to honor and enhance the life in a given system than a fabricating process (where obviously a hybrid process fits in between). This is an important point I



Garden concept

want to flesh out a little more.

Life and adaptation are not separable concepts. In other words, all life *involves, requires, maybe even is* adaptation. To enhance life is to enhance adaptedness. Enhancing adaptedness is another way of saying enhancing fitness—fitness in the sense of the fitted-ness of a whole’s parts to each other, and the fitted-ness of that whole to the larger wholes it sits within. The moment an organism doesn’t fit its environment, for instance, it doesn’t live.

Now here’s the thing. *Adaptation cannot be fabricated or master planned, period.* I believe it to be an essential truth that



Implementation.

adapted systems can only emerge or be generated iteratively, in an ongoing dance between a system’s form and its context.

I’m going to let Christopher Alexander (2002) drive the point home:

...there is a fundamental law about the creation of complexity, which is visible and obvious to everyone—yet this law is, to all intents and purposes, ignored in 99% of the daily fabrication processes of society. The law states simply this: ALL the well-ordered com-

plex systems we know in the world, all those anyway that we view as highly successful, are GENERATED structures, not fabricated structures.

The human brain, that most complex neural network, like other neural networks, is generated, not assembled or fabricated. The forests of the Amazon are generated, not fabricated. The tiger, beautiful creature, generated, not fabricated. The sunset over the western ocean with its stormy clouds, that too is generated, not fabricated. (p. 180)

The significance of generated structure lies in the concept of mistakes. Fabricated plans always have many mistakes — not just a few mistakes but tens of thousands, even millions of mistakes. It is the mistake-ridden character of the plans which marks them as fabricated — and that comes from the way they are actually generated, or made, in time. Generated plans have few mistakes (p. 186)

If a [human] embryo was built from a blueprint of a design, not generated by an adaptive process, there would inevitably be one thousand trillion mistakes. Because of its history as a generated structure, there are virtually none. (p. 188)

Summary

I have shared three ways in which wholes and parts can be related inside any creation process: assembling, partitioning, or transforming.

I have shared three ways in which designing and implementing can be related inside any creation process: fabricating, generating, or hybrid.

Together, these define nine possible spaces any permaculture design process can sit within or move between.

For me, it has been helpful to make clear which of the nine spaces I am in at any moment within a process. It has been even more helpful to realize that, in general, when I move from the bottom left toward the top right, the processes I am working with come more alive and are better able to enhance life.

I mean it is all so simple really. Permaculture aspires to align with and fully participate in life, in living systems. What this really means, I believe, is that it aspires for us humans to drop back into being the life we already are and, in that sense, to drop back into *being alive*. At the very least, I’m sure we can agree that the rest of life creates itself via generative transformation. Or at least that generative transformation is the most accurate way of framing what the rest of life is and does as far as the terms of reference the chart has to offer. There are no master plans. There are no concept plans. There are no parts separate from wholes. There are no wholes separate from parts. Period. I mean, just watch a tree germinate and grow, or a baby growing into a child.

One thing that has happened for me as a result of all this is that designing has stopped being something separate from life. It has stopped being something I do in advance, or something I do only in a professional capacity. Generative transformation can apply to *everything* I do, to everything we do. To every space or landscape we work with. To every day we live, to our life as a whole. To how we show up as parents, as partners, as colleagues. To how we develop our own homes and all the spaces we inhabit, to how we plan and roll out parties, courses, any and all kinds of events.

This was initially a shock: to realize there wasn’t this

specific set of skills I turned on and off as I arrived and left my work as a permaculture designer; to realize that in every situation I am ever part of I can choose to be alive to the wholes-and-their-parts I am participating in. I can choose to be alive to my intentions with regard to these wholes, and I can choose to be and act in ways that honor what is already there while drawing it out and developing it in the moment so as to add, enhance, and increase its life and beauty and function and flow.

Everything you do, every process you are part of, everything you help create, can be located somewhere within the nine portions of this diagram. I'd love to hear about your experiences, but I'd wager that the more alive the process felt, the more connected and respectful it felt, the more it flowed and the more its outcomes were beautifully adapted to the situation, the more you were approaching the top right corner. The more you were in the space of generatively transforming whole systems in healthy, life-giving, life-enhancing, life-welcoming directions.

After sessions working with generative transformation, I feel more alive, more energized, as do the folk I'm working with. Rather than being the expert who needs to manufacture brilliant solutions on the spot, I am a process support team, a facilitator, where so many of the decisions become effortless to make because we make them at the proper time in the unfolding process, rather than attempting too much guesswork up front.

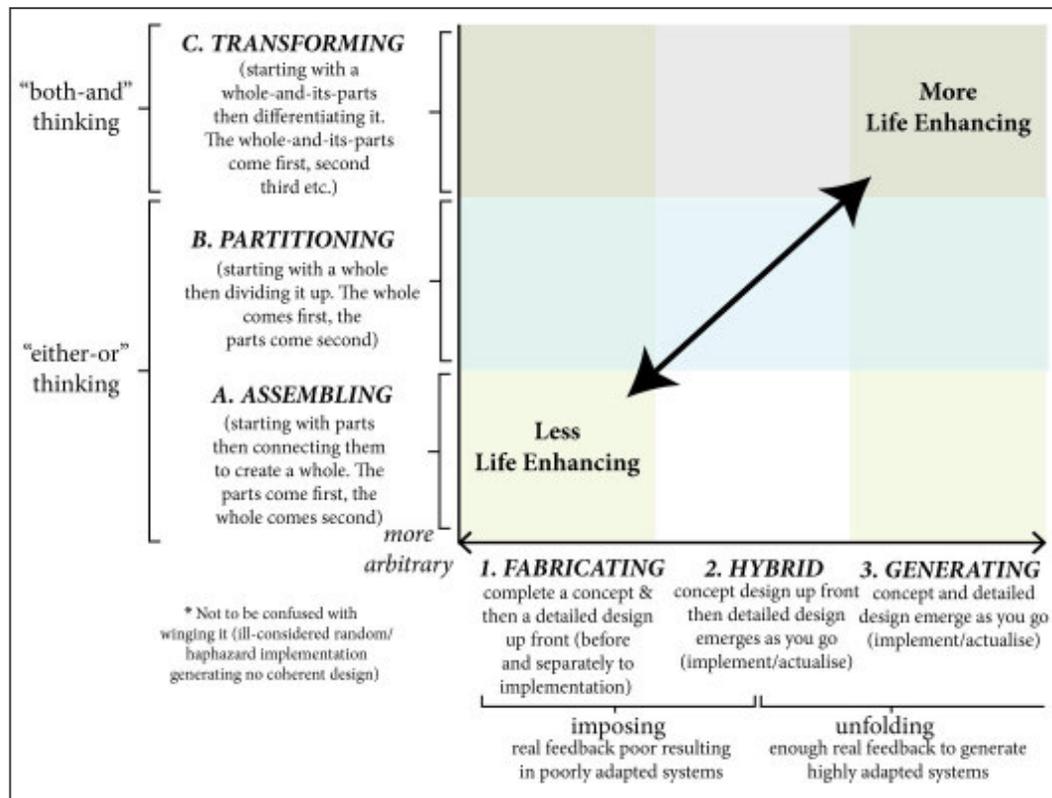
Then there is the sheer satisfaction to have collaborated with others to reveal the most unexpected yet beautiful and perfect steps forward. Those of you who know what I am talking about know that it doesn't get much better than that!

In closing, I want to make it clear that I don't think that generative transformation is in any way a new thing. It is an attempt to describe and clarify an aspect not only of life's default operating system, but of what is *already happening* when permaculture is at its best. As in generating real, adapted solutions that wrap themselves beautifully into and around the specifics of given situations.

That said, I know permaculture designers who *talk*, *teach* and *write* about permaculture design as a process of assembly and at most partition-based fabrication who *in practice* especially at their own places are doing something far more akin to generative transformation! Have any of you noticed this phenomenon? It is like we say what

we need to say for professional credibility then when we think no one is watching, we do what it is we really love.

What I am suggesting is why don't we do what we really love, ALL THE TIME! Δ



Dan Palmer is a permaculture design philosopher, consultant and teacher who lives in Central Victoria, Australia. Aside from co-directing permaculture design company Very Edible Gardens, Dan is constantly co-founding things (such as Permablitz, Holistic Decision Making, and Living Design Process). You can read more about Dan's work at www.DesigningForLife.com, and contact him at dan@veryediblegardens.com.

References

- Alexander, C. (1979). *The Timeless Way of Building*. Oxford University Press
- Alexander, Christopher. *The Nature of Order: An Essay on the Art of Building and the Nature of the Universe: Book Two: The Process of Creating Life*. Vol. 2. of 4 vols. The Center for Environmental Structure, 2002.
- Falk, Ben. *Interviewed by Scott Mann for the Permaculture Podcast, episode 1328*. www.thepermaculturepodcast.com/2013/ben-falk/
- Hemenway, Toby. *Comment on the Making Permaculture Stronger Blog: makingpermaculturestronger.net/christopher-alexanders-neglected-challenge-to-permaculture/#comment-90*
- Holmgren, David. *Trees on the Treeless Plains: Revegetation Manual for the Volcanic Landscapes of Central Victoria*. Holmgren Design Services, 1994.
- Jacke, Dave (2017). *Personal email communication from Dave Jacke to Dan Palmer, January 28, 2017*.