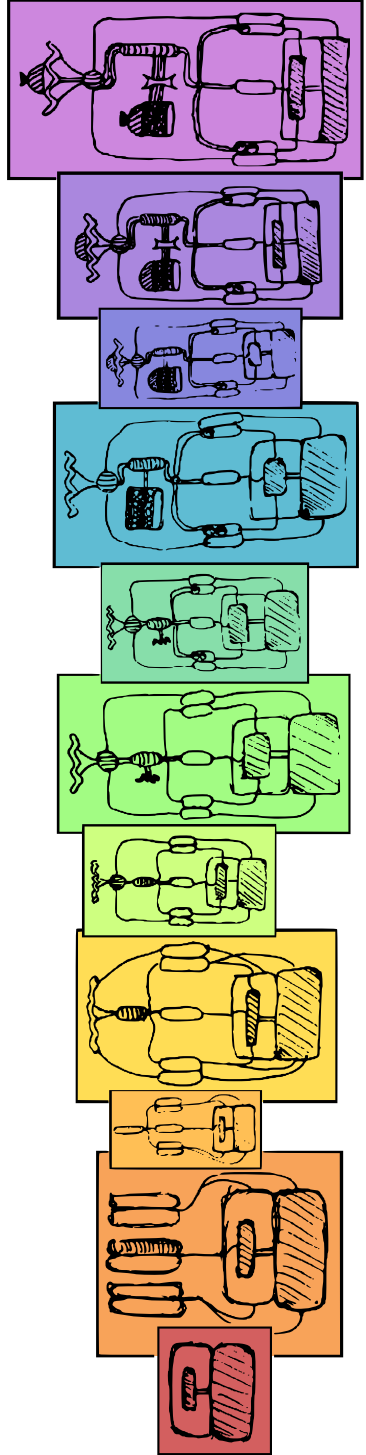


MACHINAE EX DEO

PHILOSOPHY
THEOLOGY
TECHNOLOGY

2024 ISSUE I
RHYME & SYNERGY



POETIC THINKING

A Pattern Language is a tremendous book. If you are interested in good building/city development, I recommend you get yourself a copy. I couldn't even get a few pages in without my mind being blown:

A Pattern Language

Towns · Buildings · Construction



Christopher Alexander
Sara Ishikawa · Murray Silverstein
WITH
Max Jacobson · Ingrid Fiksdahl-King
Shlomo Angel

In an ordinary English sentence, each word has one meaning, and the sentence too, has one simple meaning. In a poem, the meaning is far more dense.

It is also possible to put patterns together in such a way that many many patterns overlap in the same physical space: the building is very dense; it has many meanings captured in a small space; and through this density, it becomes profound.

Now this is something I have been circumambulating for a long time. This is related to complexity-versus-complication, I think - the sort that is spoken of in the Zen of Python.

```
Python 3.11.2 (main, Mar 13 2023, 12:18:29) [GCC 12.2.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import this
The Zen of Python, by Tim Peters
```

```
Beautiful is better than ugly.
Explicit is better than implicit.
Simple is better than complex.
Complex is better than complicated.
Flat is better than nested.
Sparse is better than dense.
Readability counts.
Special cases aren't special enough to break the rules.
Although practicality beats purity.
Errors should never pass silently.
Unless explicitly silenced.
In the face of ambiguity, refuse the temptation to guess.
There should be one-- and preferably only one --obvious way to do it.
Although that way may not be obvious at first unless you're Dutch.
Now is better than never.
Although never is often better than *right* now.
If the implementation is hard to explain, it's a bad idea.
If the implementation is easy to explain, it may be a good idea.
Namespaces are one honking great idea -- let's do more of those!
```

We can string together a lot of simple things - especially simple things that are from different languages; simple things with contradictory premises; and make something complicated. Such a thing is difficult to understand for it has many moving parts but none of which seem to have a relationship to one another except for the fact that they touch or exchange inputs and outputs. They do not seem to take on a life - they don't share the same spirit.

A Rube Goldberg machine is complicated - it works, it is even whimsical and interesting to look at, but it is not profound. Its components do not share a deep relationship to one another, they have only a shallow one - one of happenstance.



However, if we take simple things and interweave them densely, especially things which resonate, we can make something complex. Such a thing, oddly, is easy to understand. Or, perhaps more truly, such a thing has **layers of comprehension**, much like scripture has layers, types, and an interwoven meaning, especially a meaning pointing to something beyond itself.

This is like an ecosystem: there is an obvious way in which it functions, but deeper analysis always reveals a new behavior for study and understanding.

SYNERGISTIC SOIL

The organic^[1] world is a model for what such deep relationships can be. It is a constant model for "fighting entropy" (even if this is simply by outsourcing the entropy to the sun). Organic beings renew and replace themselves, and are highly resourceful, being able to use a broad category of things set before them, and being able to produce a broad category of things for those around them. It is anti-reductionistic.

Healthy Soil is a living ecosystem... nature is more collaborative than competitive, and this concept [runs] totally against training as a government agronomist.

- Gabe Brown, Dirt to Soil

Competition seeks the maximal functioning of a particular portion. Cooperation seeks the maximal functioning of an entire system. Cooperation should not imply conglomeration, though: this is the mistake of central planners, especially of a communist bent. In our machine-minded world, this is difficult to imagine. We have strove to make things simple - too simple. We box away complication and aspire to turn everything into simple functions. We totalize.

We forget that our models are just that - models. They are not the thing themselves, and the world is much more complicated. The the complication is of an often unknown-unknown nature.

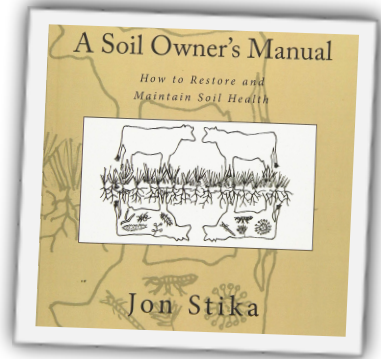
Real things are extremely sophisticated, and their functions often go unnoticed. Organic things especially require a degree of diversity - we need a huge swath of micronutrients and microbes to live in full health. Sterility and cleanliness, strange as it may seem to the modern germaphobe, damage our health.

God made a complex thing. Let us learn and study His ways through the book of the world.

1. I don't really like the word "natural"...
it implies that man is un-natural and utterly alien from the organic order.

A healthy soil should perform the basic roles of water cycling, nutrient cycling, and physical support. It should perform all of these while supporting a diversity of life that will facilitate its continued capacity to function.

- Jon Stika, A Soil Owner's Manual

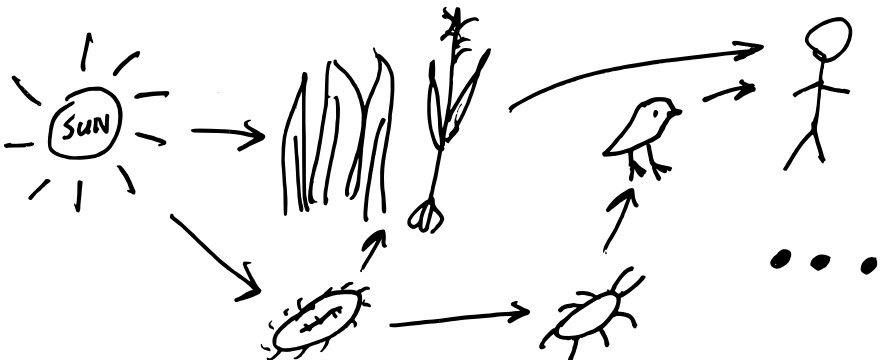


These functions are interwoven with one another in a complex ecosystem. A major advantage of this is a sort of resiliency. Biological things can heal themselves - but this is only half-true. They can use their environment to heal themselves. This self-healing is contingent on having an environment that has a diverse set of tools to pull from. It is not sufficient to have the capacity; there must be the requisite nutrients for an organism to rebuild itself with.

To do this requires us to examine the low-level functions and tools available, while also simultaneously thinking of higher things. The highest cannot stand without the lowest. The little things must work in order for the big things to flourish. Not even one iota must pass - but the iotas must come to their fullness; their perfection.

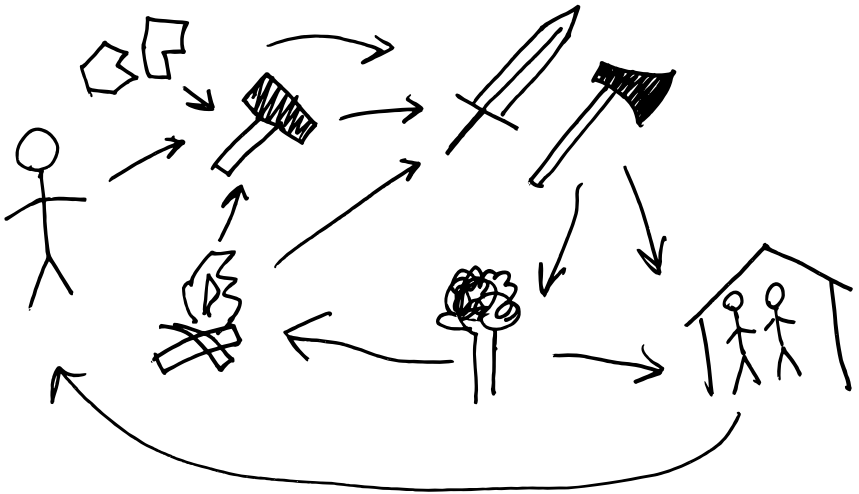
Instead of looking at your system to maximize yield of a particular crop, look at making the soil the best habitat possible for soil microorganisms to thrive and build soil organic matter and feed the plants.

- Jon Stika, A Soil Owner's Manual



SHOP AS ECOSYSTEM

So, we should make our technology more organic. Well, in reality, it already is. Technology is very much alive - but not in the sort of self-propagating-artificial-intelligence way that science fiction often contrives. No, this is science fact. Our tools exist in an ecosystem steered largely by man - in actuality, they exist in the same ecosystem that biological organisms exist in. We often forget this and make a harsh divide between the "manmade" and the "natural".



"The way to solve the conflict between human values and technological needs is not to run away from technology. That's impossible. The way to resolve the conflict is to break down the barriers of dualistic thought that prevent a real understanding of what technology is: not an exploitation of nature, but a fusion of nature and the human spirit into a new kind of creation that transcends both."

- Robert Pirsig, Zen and the Art of Motorcycle Maintenance

It has been said that modernity's hallmark is technology. To me, this is a tautology. Technology is the -logy of techne; it is the study of craft. This is the fundamental human activity; this is the fundamental divine activity, even! Technology is society, and society is technology. Maybe we have strayed and erred; maybe we need to tear down what we have built. But after tearing down, do we not expect to build anew? We strive to build the New Jerusalem - even if we have built Babel.

STORIES FROM THE FIELD

We had a bearing go out on our bin auger this month. This was a common pillow block (I think it would be a McMaster-Carr 5968K91). I can't make a bearing. This portion of our farm is not self-healing; it would be quite strange for it to be self-healing, too. We would need a mine, a foundry, machining centers, heat-treatment capabilities, ball bearing grinders, ... the list goes on.

Of course, though, we are part of a larger ecosystem. So, we get the part from a store. But this is a very distant sort of transaction. It is reductive: the exchange *is* one of pure dollars. It seems to not rhyme with the biological processes around us; it lacks layers of meaning; it is prepackaged and isolated.



A BEARING
NO MORE...



But we do have certain things at our immediate disposal: we only needed the part. We had the wrenches, the sockets, the hydraulic press, and more needed to do the re-assembly. We still have a certain degree of diversity on our farm in terms of what we can do. But it is not an infinite diversity. It seems that the diversity of capabilities and tools required to maintain equipment in good health is constantly expanding as our machines become more and more sophisticated.

IS CHINESE EQUIPMENT MORE R2R?

I have a theory that Chinese-made industrial equipment is far easier to repair than anything American-made.

I don't want that to be true.

However, my experience tends to prove me correct. I am not saying that it is of higher quality, or better workmanship. What I *am* saying is that it tends to be made of cheap, simple, generic parts put together in such a way that you can easily access things and fix them.

Again - I do not want this to be true. I wish that American-made equipment was made of ***cheap, simple, generic parts that were put together in such a way that things could be easily accessed and fixed.***

But so often we have injection-molded plastic, special extrusions, "WARRANTY VOID" stickers, snap-fits... even on industrial equipment!

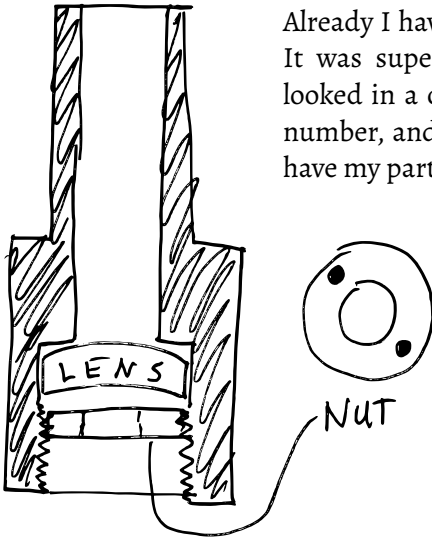
It seems to be the case that commodification and industry clustering has produced the more generic attitude - you can go on AliExpress and find 20+ sellers for the exact same thing - but each one is using different molds/tools/etc. to make the exact same thing.

Is this good? It certainly has its problems. In a global market, the way we have constructed it, these suppliers' margins are slim. Yes, they pass the savings onto us, but they pass the poor working conditions and wages onto their employees. It doesn't seem maximally co-operative.

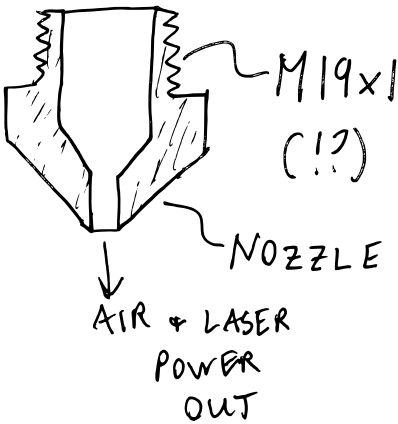
Putting that aside though, once the equipment exists, it is a huge win for the owners. I bought (secondhand) a 60W laser cutter from a guy. It's a Chinese one. I have no idea the model number. But it's generic. There are tons of guys making parts for these things and you can fabricobble stuff to make a frankenstein. There's no unibody silliness - if something breaks, there is a generic off the shelf part that can replace it.

I do not need to have faith that the original manufacturer will still be in business if I want to have replacement parts. Someone else will make them - for my machine and zillions of other models.

Already I have had to replace the linear bearings. It was super simple - I just measured things, looked in a catalog, figured out the generic part number, and found a supplier. A few days later I have my part.

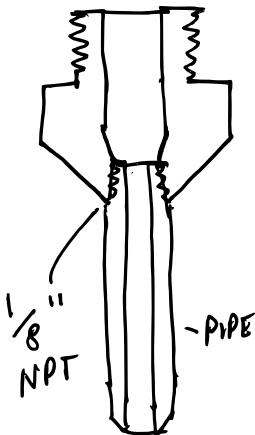


This month I wanted to increase the focal length - easily done by changing the lens (no surprise there). But then, I wanted the nozzle to be the right length, so that the airblast would be right up against my work and actually improve cut quality.



My desire for 'propriety' and a clean solution (complex, not complicated) led me to take the lens apart. I wanted to make a longer lens. But as I took it apart, I would need to cut a M19x1 thread. I guess I could order a die for \$30 - but it would take a few days and I would never use it again. An M19x1 thread just doesn't fit in our shop ecosystem.

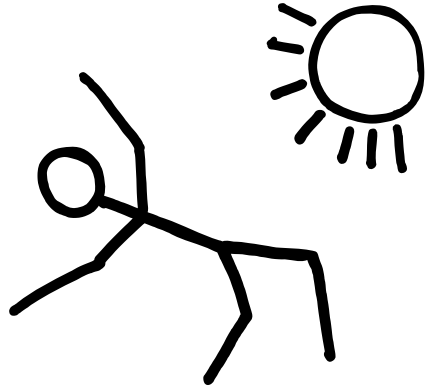
So, I took the easy way out: I threaded the nozzle and made an extension from a piece of 1/8" pipe.



I realize now that although this was a weird mashup of things, it ended up making something that was more native to our shop, and more sustainable. It may not make the machine itself more beautiful, but it certainly helps this piece of equipment fit in better to an American farmer's shop.

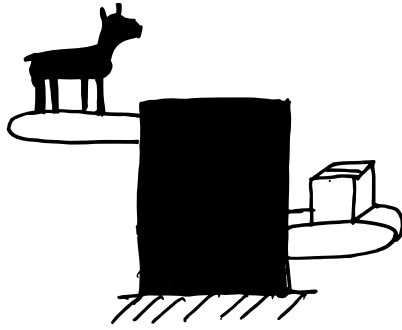
I don't think everything here is ideal, but there are still points of goodness in this.

Man, falling
Regretful, despairing
Shunned the Father's love
Barred from Above
To the pit he sinks down
Pursuing a false crown



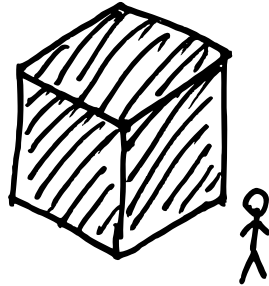
*Ebonized Oak! Gold-Painted Foamcore!
Fallacious Fraternity! Pleasure Galore!*

A semblance of what he once knew
And yet the meat is hard to chew
So he gets on the grind
He takes to the mine
Groveling, exhausting folly
To both the ground and his body



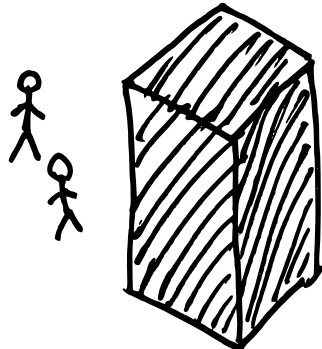
*Synthetic Sausage! Mineral Wax!
Corrugated Chipboard! Castrated Flax!*

Til the oil erupts
Filling his cup
But do the mines run forever?
Do they sustain his endeavors?
His days less than grass
Verily, they don't last



*Extractive Economy! Bottled Labor!
Antisexual Life! Unearned Favor!*

To heaven, does he turn?
Will he at long last learn?
Nay! To the mines! For a cure can be found!
He settles himself there - earthly bound.
From earth's womb he is born
And stands forlorn



*Self-Made Man! Worriless Pimp!
Liberated Harlot! King with a Limp!*

His works were mighty - lofty - grand
Of a different basis than that heavenly land
Whose power was solar, carbonic at that



The vision of man was surprisingly flat
 Form follows function in modules black
 Armor plating to withstand all attack

*Linear Intelligence! Photovoltaic Ecology!
 Pasteurized Ponds! Mechanized Polity!*

They lived lives extravagant
 Their work was to gallavant
 Until their time was up
 They soaked up and up
 At first with mouth and spoons
 Then their deathbeds, arms full of tubes.

*Corn-Fed Cowboys! Ungenerative Fetishists!
 Do-Nothing Conquerors! Intubated Tyrants!*

And when some grew weary of parallel line
 (While the rest thought them perfectly fine)
 He grasped at thin air - at the chaos-filled breeze
 And fired up his grinder to make sculptures with ease
 His forms were barbaric, or perhaps even worse
 Suggesting his freedom were truly a curse

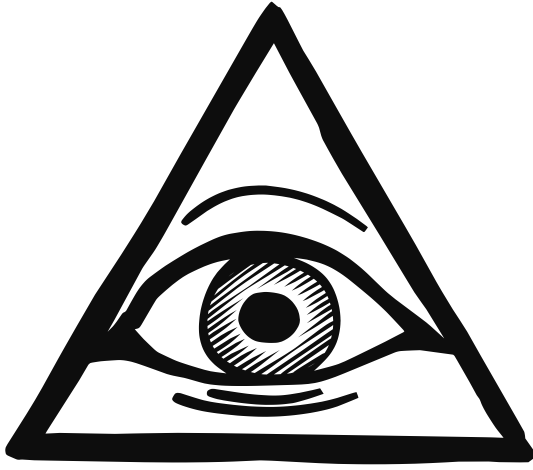
*Smooth-Flowing Entropy! Art Deco Cars!
 Jagged Streams! Zero-Pointed Stars!*



When he dug just a little
 Through the topsoil, grown brittle
 A familiar impression
 Cause for depression
 Forgotten, battered
 And yet, not shattered

*Terrible beauty! Divine heuristics!
 Holistic function! Benevolent mystics!*

That heavenly radiance undergird all:
 The mines - the cities - and even the fall
 A foundation rejected but never removed
 Only painted over, her rough spots smoothed
 And what did man do then, what did he erase?
 What do we build - us natives of this place?



MACHINAE EX DEO . COM

ENVISIONING TECHNOLOGY
THROUGH THE
MIND OF CHRIST

