



HONEYBEE CAPITAL

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ROCKY II -- RESILIENCE, PART II

SUMMARY:

In this issue, we continue our examination of resilience. How come?

While helpful studies abound regarding the design and maintenance of robust systems (of all sorts), there is much less understood about the ability of those systems to bounce back once they've been damaged. Think of the Gulf Coast ecosystem post-BP spill as opposed to the city of New Orleans post-Katrina, or consider the Icelandic versus the Greek financial crisis: though there are some obvious parallels in the systemic challenges faced, the paths to recovery have varied dramatically (and, indeed, are still in progress). We examine this issue precisely because of its messiness, because of the lack of tidy, easily modeled predictability.

This is clearly a big topic, so our last issue focused on personal resilience, discussing various forms of physical resilience, inner resilience, and extended/connected resilience. We then examined some tools to cultivate those elements.

In this issue, we extend our analysis to larger-scale institutional, systemic resilience. As noted before, resilience is a squirrely notion: it is not just strength, not just robustness – though these elements often play a part. Perhaps it is best approached obliquely, by describing what surrounds it, what enables it, and what amplifies it.

In our final installment on resilience, we will examine some case studies in more detail – food crises, financial crises, and more.

QUOTES OF THE MONTH:

Just speak very loudly and quickly, and state your position with utter conviction, and you'll have a marvelous time!

- Julia Child

Don't yell, don't run, don't worry, & above all, don't quit.

- 1946 US Forest Service advisory, via brainpicker.org

All adventures are scary.

- *Sally Ride*

A non-fluctuating asset can be laden with risk.

- *Warren Buffett, BRK annual shareholder letter*

When we are dreaming alone, it is only a dream. But when we are dreaming together, it is the beginning of reality.

- *John Lennon*

You raise your voice when you should reinforce your argument.

- *Samuel Johnson*

I want the last check I write to bounce.

- *Philanthropist Charles Feeney*

Above all, be the heroine of your life, not the victim.

- *Nora Ephron*

Gratitude is happiness doubled by wonder.

- *GK Chesterton*

Strategy follows structure.

- *Jack Bogle, on why Vanguard is owned by its fund investors*

Everyone talks about rock these days; the problem is they forget about the roll.

- *Keith Richards (quoted by Stanford Social Innovation Review)*

Models eventually will replace judgment – and this is a terrible idea.

- *Jamie Dimon, JPM annual report letter, 2011*

So dawn goes down to day.

Nothing gold can stay.

- *Robert Frost (or, to a whole generation of moviegoers, Ponyboy in The Outsiders)*

SYSTEMIC RESILIENCE:

Grabbing on to resilience is like grabbing squishy bread dough – there is plenty of substance, but it is not so solid, not as neat and tidy and box-able as many other concepts. Therefore I've taken to studying resilience by studying what surrounds it – various constructs and “mental models” that knead the dough into something more workable.

In this light, recently I have spent time with biomimicry experts, complex systems scientists, and varied front-line participants in resilience at the PopTech Iceland gathering. All of these have complemented my earlier studies at divinity school and as an investor, and have illuminated these key themes:

- **KEY THEME #1: DEFINING A RESILIENT PATH: OPTIMIZING VS. MAXIMIZING** (Janine Benyus & Biomimicry)
- **KEY THEME #2: FOLLOWING A RESILIENT PATH: LEVERAGE POINTS IN A SYSTEM** (Dana Meadows & System Dynamics)
- **KEY THEME #3: SUSTAINING A RESILIENT PATH: COLLABORATION AND CONNECTION** (fittingly, numerous speakers & scholars)

We'll discuss each theme below, and in our next issue will link this work (plus our personal resilience commentary) to various case studies.

KEY THEME #1: DEFINING A RESILIENT PATH. OPTIMIZING VS MAXIMIZING – BIOMIMICRY AND LIFE'S PRINCIPLES

*“We already have a perfectly sustainable world – the natural world.”
- Janine Benyus*

I have had the good fortune to spend some time with Janine Benyus and her amazing Biomimicry 3.8 team over the past few months (thanks to Ethical Markets and Hazel Henderson for the connection!). Here are some all-too-brief highlights of this rich field, and why it intrigues me so much.

CENTRAL QUESTION: WWNDH? *What would nature do here?*

Biomimicry re-orientes our starting point to draw on the 3.8 billion years of experience that already exists in the natural world, instead of assuming that we are facing unprecedented questions each and every day. Importantly, this is a multi-layered approach, including questions of form, process, and broader ecosystem – instead of just looking for a single-point “bio-solution”, like cork floors or pharmaceuticals from plants, this orientation demands a more complete examination of both question and answer. Nature optimizes against numerous parameters, rather than maximizing against just one.

CENTRAL WISDOM: LIFE’S PRINCIPLES:

At the heart of biomimicry are these principles, which govern everything. Seriously, everything. This is how the world naturally functions, and to go against these principles is to inherently adopt a shorter-term, un-optimized strategy – an uphill battle. On the flip side, be aligned with these principles is to employ a proven, long term, optimizing strategy. Here’s how life works:

1. **Evolve to survive** – replicate what works, integrate the unexpected
2. **Be resource efficient** – materials and energy
3. **Adapt to changing conditions** – maintain integrity through renewal; embody resilience through variation, redundancy, and decentralization; incorporate diversity
4. **Be locally attuned and responsive** – use readily available materials, cultivate cooperative relationships
5. **Use life-friendly chemistry** – break down products into benign constituents

WHY DO I LIKE THIS APPROACH SO MUCH?

- **IT IS UNIVERSAL.** These principles and questions can be applied to anything – product design, organizational structure, business strategy, social systems, ecosystems, manufacturing systems – you name it.
- **IT IS UN-BOXED, DE-SILO’D.** Biomimicry forces a connected, integrated set of questions and considerations – you cannot consider source material without considering its full life cycle; you cannot consider one small part of an enterprise without also considering its links to other areas. This gets at one of Honeybee’s key long term themes: boxes versus bridges.
- **IT IS INSPIRING.** Have you *seen* some of these examples? That a desert beetle can provide insights for hot-climate building design, that

Galapagos fish can illustrate better waste treatment processes... this is just amazing stuff.

- **IT IS COMFORTING.** This is not some made-up consultant's approach, or the top HBS article of the month (helpful as those sometimes are). *This is how the world actually functions.* There is great certainty and comfort that comes when aligning decisions and strategies with these principles – no model is better proven over a longer time horizon than this one. Fear is lessened, which almost always results in better decision-making.

Here is a list of getting-started links for biomimicry:

- The main website for Biomimicry 3.8, with a giant treasure trove of content: <http://biomimicry.net/>
- One of my new favorite geeky things to do is go to Ask Nature under "browse" and search for conditions that match various business issues – it is amazing to see what insights appear. Say you want to see examples of how nature maintains community within an ecosystem, where various species are constantly both competing and cooperating (like most investment teams!) – you can draw inspiration from the English oak tree, wood ants, even E-coli colonies. www.asknature.org
- Janine's TED talks: http://www.ted.com/speakers/janine_benyus.html
- And her book(s): http://www.amazon.com/Biomimicry-Innovation-Inspired-Janine-Benyus/dp/0060533226/ref=sr_1_1?ie=UTF8&qid=1345474239&sr=8-1&keywords=janine+benyus

KEY THEME #2: FOLLOWING A RESILIENT PATH. LEVERAGE POINTS IN A SYSTEM

"Those seeking an easy way to design better social systems will be as disappointed as if they were to seek an effortless route to designing bridges or doing heart transplants." - Jay Forrester

A wonderful complement to Biomimicry's Life's Principles is the description of Leverage Points in a System, developed by Donella Meadows (building on earlier work of Jay Forrester, Professor Emeritus at MIT Sloan). All sorts of complex systems science relates in some way to resilience, but by focusing on leverage points Meadows highlights ways in which a system can be strengthened – or, conversely, where it might be most vulnerable. That's why we feature her work here.

Here is an early version of Meadows' summary of leverage points in a system:

1. **Power to transcend paradigms** – to be unattached, free to choose the best rather than the 'right' or 'true'
2. **Mindset** - paradigm out of which the system arises
3. **Goals of the system** – not easy to discern – what is DOES is not always what we SAY it does (for example, for capitalism, profits are a rule – farther down the list – and not a goal)
4. **Power to add/change/evolve the system** - evolution, revolution, self-organization...
5. **Rules of the system** - incentives, punishments, constraints
6. **Structure of information flows** – who has access (like visible electric meters – potential to heighten accountability)
7. **Positive feedback loops** – self-reinforcing – note that eventually an unchecked positive loop will destroy a system (like a flu epidemic) – risk of chaos
8. **Negative feedback loops** – self-correcting
9. **Timing of delays** relative to the system's own pace of change (in financial markets, smaller delays are sometimes 'efficiency' but sometimes 'volatility')
10. **Structure of material stocks and flows** - transport systems, supply chains
11. **Size of buffers** and other stabilizations - river versus lake, pension funds versus hedge funds (maybe!)
12. **Constants/parameters/numbers** - taxes, standards, regulation

WHY DO I LIKE THIS APPROACH SO MUCH?

- **BREADTH** - As you can see, Meadows describes a full range of systemic influences, from the philosophical to the mechanical. She illustrates the relationships between various sorts of functions, but also highlights their differences. A change in regulation might eventually serve to influence cultural mindsets, for example – but if kept in isolation, laws often fall short of loftier aims.
- **CLARIFYING ABILITY** - Our day-to-day discussions – by necessity - often focus on tactical measures (closer to the end of the list), but this can sometimes distract us from the more fundamental issues at the top of the list, which also need candid and careful examination. I cannot begin to count the number of arguments I've had over the mathematical formulas for measuring research performance, when usually the real question was about why the measure was relevant or valid in the first place – that is, what is the goal of research itself?
- **CONNECTEDNESS** – Meadows shows how any one lever is related to all of the others. They are distinct, but connected. Take #9, timing – I recall visiting a mega-large oil company where we kept returning to the question of their commodity price assumptions, which seemed far too low. Everyone was

increasingly frustrated and finally the management team said, look, we use a 50-year time horizon, because that is the physical reality of our assets – so tell us, what is your 50-year investment view, and then we can talk. OH. This pointed out a huge series of disconnects between the assets, the business, its information flows and feedback loops, and our own investment systems. Sometimes this mis-match is healthy, sometimes it's destructive - and sometimes it creates great investment opportunities.

- **OBJECTIVITY** – this leverage list is an objective description of systemic influences – it does not argue that taxes are “bad”, or that certain rules are “unfair” – it just describes what they do. That allows us to cut through a lot of the judgment and emotion that are baked into most conversations (and even into most analysis).

Here is a list of getting-started links for systems and leverage points:

- *The full text of one of Meadows' publications that explains her framework more eloquently is here – highly recommended reading!*
http://www.sustainer.org/pubs/Leverage_Points.pdf
- *And here is a brief commentary by on system dynamics from Jay Forrester. His own career is a great example of cross-disciplinary pollination – a professor of electrical engineering, he pioneered early work on what became digital computers (he invented RAM!), then changed course at age 38 because human systems interested him as much as electrical and electronic ones.* <http://clexchange.org/ftp/documents/system-dynamics/SD2011-01SDFoundationunderST.pdf>

KEY THEME #3: SUSTAINING A RESILIENT PATH. COLLABORATION AND CONNECTION

“I want the hole, not the drill.... I want the music, not the CD.”

- Rachel Botsman

“Life is not just a struggle for survival – it is also a snuggle for survival.”

- Prof. Martin Nowak, arguing for the importance of cooperation in *Scientific American* (July 2012 – great article)

Collaboration, community and connection – all of these are relevant to resilient systems. Don't worry, I am not going to discuss the Prisoner's Dilemma here, but obviously the reason it's featured so often is that it illustrates central questions about self interest versus collective interest. Prof. Nowak's work shows that interesting cooperative patterns emerge in the Prisoner's construct over time (as well as in real life). Connection – whether to other individuals, other systems, or other parts of your own system – is one way to build resilience. So how can we organize our thinking around cooperative action, especially in its modern forms?

TED to the rescue! There has been a series of TED talks on collaboration over the past few years, including those by Howard Rheingold, author of Smart Mobs; Clay Shirky, author of Cognitive Surplus; Charles Leadbeater, author of Living on Thin Air; Yochai Benkler, law professor and co-director of the Berkman Center for Internet & Society; and Rachel Botsman, author of What's Mine is Yours. Also, this year's BBC Reith Lectures from Niall Ferguson focused on the role of institutions, which represent a specific form of collaboration (and also sometimes forces unto themselves).

From all of the above I draw the following highlights:

- **Importance of technology** – from early increases in literacy and communication mechanisms like the book to today's never-ending stream of file-sharing and social networks, advances in technology have consistently enabled increased collaboration. Curiously, it's only recently that tech has enabled sharing of physical assets as well, such as with ZipCar and Airbnb. (Rheingold and Botsman)
- **Importance of institutions** - they foster and coordinate collective action (Rheingold and Ferguson). But this role is shifting as basic organizing no longer requires institutions: Shirky notes that in distributed systems, “the head gets taller and the tail gets longer”, leading to big challenges, especially for rigid institutions. Additionally, Ferguson notes many examples of institutions where rule of law has devolved into “rule of lawyers” – over-reaching in their search for useful structure and function. Curiously, both Shirky and Ferguson distinctly separate institutions and individuals, somewhat in opposition to the linked Meadows/Benyus models noted above, where the two naturally intersect, intertwine, and influence one another.
- **Importance of individuals** – Charles Leadbeater's talk on innovation highlights the role of the individual – and not of the “lone creative genius”, but of the multitude of “users and consumers”. Again, advances in technology and communication make it easier and easier to gain insights from outside the legendary (and isolated) towers of genius. But this is hard for established organizations to see – think of rap music, where independent

labels flourished precisely because the big guys weren't interested, or ETF's, where the list of leading providers has very little overlap with leading mutual fund companies.

- **Importance of power** – a number of observers noted the democratizing effect of technology (Leadbeater, Benkler, Botsman), and Benkler has a provocative framework for examining market vs. nonmarket and central vs. decentral systems (he notes that we have not seen large scale non-market/ decentralized systems before, which could prove threatening to established institutions in destabilizing ways). Indeed, Botsman notes a clear and important power shift, **from ownership to access**: “I want the hole, not the drill.... I want the music, not the CD.” Oddly, though, none of these observers focused on our currently gigantic concentration of wealth, especially in the US. I believe that this could be a key shortcoming in the analysis offered by these (largely) tech-centric TED-ish folks: they see technology as **the** major source of power and information, and while it is surely **one** major source, there are others to be considered too. This seems especially important in a system where the existing, established institutions are often dependent upon (and perhaps reinforcing) that same tipsy skew of wealth holdings.

Here are links to the sources mentioned above:

- *Reith Lectures, BBC. Check out other years too – the list of lecturers over the decades is fantastic. Aung San Suu Kyi just after her release! Robert Oppenheimer in 1953! Bertrand Russell in 1948!*
<http://www.bbc.co.uk/programmes/b00729d9>
- Howard Rheingold, “The New Power of Collaboration”:
http://www.ted.com/talks/howard_rheingold_on_collaboration.html
- Clay Shirky, “Institutions vs. Collaboration”:
http://www.ted.com/talks/clay_shirky_on_institutions_versus_collaboration.html
- Charles Leadbeater, “On Innovation”:
http://www.ted.com/talks/charles_leadbeater_on_innovation.html
- Rachel Botsman, “The Case for Collaborative Consumption”:
http://www.ted.com/talks/rachel_botsman_the_case_for_collaborative_consumption.html

BOOKS AND MEDIA:

*Hallelujah for knowledge and for the honor of language and ideas.
And books.*

- Maira Kalman, quoted at <http://brainpickings.org>

RESILIENCE, by Andrew Zollli and Ann Marie Healy

My only wish is that this book had come out before all of the searching around described above, as it might have focused my explorations more clearly. (On the other hand, three cheers for serendipity! I've learned partly through open-ended gatherings like the author's own PopTech that sometimes the greatest results come from wandering a bit off of a linear path.) In this book, Zollli (PopTech Curator) and Healy weave together a wide net of research and insights on resilience, punctuated with intriguing examples all along the way. A great resource for those who want to dive into this topic more deeply, including tons of helpful references to others' ongoing work in the field (both people and organizations).

- http://www.amazon.com/Resilience-Why-Things-Bounce-Back/dp/1451683804/ref=sr_1_1?ie=UTF8&qid=1345480777&sr=8-1&keywords=resilience

THE SOCIAL CONQUEST OF EARTH, by E.O. Wilson

Wilson makes the mega-case for the cooperation/collaboration discussion above. I haven't quite figured out what to make of this book yet, and that's exactly why it's worth featuring. Many Honeybees will know that I am a big fan of E.O. Wilson, and many will also know that this book is an extension of a hugely controversial paper in Nature that Wilson & co. published in 2010. I want to believe in Wilson's eusociality argument (that humans & other creatures are motivated to act for group benefit and not only self-benefit) – but when putting forth a sweeping theory, by definition one makes sweeping claims, claims that are not really airtight. And I have not been able (might not ever be able!) to sift through the mountain of criticism of the scientific and mathematical arguments put forth in the Nature paper in enough detail to reach a conclusion. Still, the vehemence of the argument speaks to the fact that this debate is a Very Big Deal, worthy of our collective (and individual!) consideration.

- http://www.amazon.com/Social-Conquest-Earth-Edward-Wilson/dp/0871404133/ref=sr_1_1?ie=UTF8&qid=1345512608&sr=8-1&keywords=EO+WILSON+SOCIAL+CONQUEST

UNBROKEN, by Laura Hillenbrand

When I first read this book, I sped through it: to say the story is riveting is an understatement. What I appreciate even more now is the way that it illustrates both endurance and resilience – concepts that are sometimes related, but not at all synonyms. It is hard to say much about this book without veering into platitudes – just read it. (And thanks to Honeybee Kelly C. for the long-ago recommendation!).

- http://www.amazon.com/Unbroken-World-Survival-Resilience-Redemption/dp/1400064163/ref=sr_1_1?s=books&ie=UTF8&qid=1345511493&sr=1-1&keywords=unbroken

THE FRENCH CHEF, with Julia Child

It's Julia's 100th birthday this month, and what better reason to celebrate? Among the many things I admire about her: she did not start cooking in earnest until her late 30's, and The French Chef was not published until she was 49. She often remarked on how she had not discovered her calling until midlife – not mentioning that it might have been because she was busy in earlier years being a SPY!

I've often referenced her cookbooks, the new biography Dearie is getting rave reviews, and of course her autobiography My Life in France is great too. But they pale in comparison to the real live woman, captured on the PBS series, The French Chef. When she blackens the browned butter, she calls it a good example of what not to do. When she makes a buche de noel and the icing blobs all over, she cautions, "don't be too neat or it won't look real... it should be woodsy". She uses the word "hypotenuse". She licks the spoon.

- Here is a delightful grab-bag of PBS Julia links, including a hilarious video/song remix in honor of her birthday: <http://www.pbs.org/food/julia-child-100-birthday/>
- ...and here is the PBS shopping link: <http://www.shoppbs.org/family/index.jsp?categoryId=3725250&ab=B1B2SpotDOWJuliaChildSpecial>
- Here is the new bio, Dearie: <http://www.amazon.com/Dearie-Remarkable-Life-Julia->

[Child/dp/0307272222/ref=sr_1_1?s=books&ie=UTF8&qid=1345474396
&sr=1-1&keywords=dearie](http://www.amazon.com/Child/dp/0307272222/ref=sr_1_1?s=books&ie=UTF8&qid=1345474396&sr=1-1&keywords=dearie)

- And here is Julia's full Amazon book page:
[http://www.amazon.com/Julia-
Child/e/B000AQ0XXS/ref=sr_tc_2_0?qid=1345474331&sr=1-2-ent](http://www.amazon.com/Julia-Child/e/B000AQ0XXS/ref=sr_tc_2_0?qid=1345474331&sr=1-2-ent)

FINALE:

Awake awhile.
It does not have to be
Forever,
Right now.
One step upon the
Sky's soft skirt
Would be enough.

– *Hafiz*