



HONEYBEE CAPITAL

**HONEYBEE PUBLICATION #8 – DIRT AND SLIME ECO-ISSUE
APRIL 2010
(ABRIDGED WEB VERSION)**

MAIN TOPICS FOR THIS PUBLICATION:

- **The Power of Ick – Dirt, Slime, Bugs, and Why They Matter**
- **Notes from Bill McKibben – Is Growth Uncool? (literally!)**
- **Highlights from WSJ Eco-Conference – Algae and VC (two separate topics!)**
- **E.O. Wilson – Worms and Consilience - On Thinking Smaller - and Bigger**

QUOTES OF THE MONTH:

“Neutrality is not the same as hostility.”

- *Amory Lovins, on the need for neutral government policies*

“We thought we had a 50 year water plan, but Lake Meade dropped so quickly that we came back 2 years later and had none.”

- *Patricia Mulroy, NV Water Authority*

“Within a decade there will be very few processes dependent on natural organisms.”

- *Craig Venter*

“Physics beats chemistry beats biology, in terms of energy efficiency.”

- *Bill Joy, cofounder of Sun Microsystems (quoted by John Doerr)*

“I have learned after a year in Washington, it is much easier to spread fear than to spread a vision of opportunity.”

- *Michael Chu, US Secretary of Energy*

“Endless growth will seem less attractive than security and stability.”

- *Bill McKibben*

“Growth in and of itself is not a good or bad thing – you grow to adulthood, but if you keep growing after that it’s obesity.”

- Amory Lovins

"Let us a little permit Nature to take her own way; she better understands her own affairs than we."

- Michel de Montaigne

"We are going to go down in history as the dumbest crowd ever."

- T. Boone Pickens

"I'm not going to stop until they pry the microscope from my cold dead hands."

- E.O. Wilson

ECONO-IMPLICATIONS OF ECO-ISSUES:
NOTES FROM BILL MCKIBBEN TALK (March 2010)

*It can be challenging for environmentalists is to communicate their passions and concerns to folks who are not so environmentally-centered. Sure, everyone wants a healthy planet (in theory), but it is sometimes seen as a separate issue instead of an integrated one. Bill McKibben's work consistently ties issues of the environment back to economic and political reality, and to daily life, making the links between all of the above more clear, and making his call to action (and awareness) more obviously relevant. McKibben also has an optimism and energy that highlight hopeful courses of action without denying the gravity of his underlying concerns. He has a brand new book, *Eaarth*, along with prior publications that include *Enough* (focused on technology), *Deep Economy* (proposing that growth in and of itself is not always the answer), and *The End of Nature* (an early and important analysis of climate change).*

- Here is a link to McKibben's group, 350.org: <http://www.350.org>
- And here is one to images from their global 350 day last year (worth watching for the sheer breadth of geographies!):
<http://www.youtube.com/watch?v=noPcVKf24rk>
- And here is his new book:
http://www.amazon.com/Eaarth-Making-Life-Tough-Planet/dp/0805090568/ref=sr_1_1?ie=UTF8&s=books&qid=1271334961&sr=1-1

KEY POINTS FROM MCKIBBEN'S LECTURE:

His premise: The single biggest driver of social and economic development for decades has been the availability of CHEAP FOSSIL FUEL – this is a very long term trend, which is ending.

- **WHAT DOES THIS IMPLY?**

1. **“Endless growth will seem less attractive than security and stability.”** ... at least in areas where there is already plenty. *My notes: you already see some of this in the financial markets – some of the re-allocation is fear-driven and possibly will reverse over time, but some is driven by demographics and by this deeper socio-economic trend McKibben sees. What does it mean if we do not ever return to equity markets where there is a steady IN-flow of capital? Different funding for new ideas, different mechanisms for saving, different demand for investment expertise...*

2. **De-centralization and re-localization** will be increasingly compelling. Example, local farmers' markets have been the fastest growing food source for a number of years now. The last agricultural census showed an increase in the number of farms for the first time in 125 years – mostly in small farms growing food for people to eat locally. Similar trends with power generation, big growth in micro-power at very local level. *Will the energy grid look more like a farmers' market than Safeway in coming years?*

3. **LOCALIZED SYSTEMS MIGHT BE MORE ROBUST, MORE INDEPENDENT.** For example, in recent years, we've been reminded that things that are too big to fail maybe should just not be that big – not that there should be no failure. Small banks, small power, small farms – problems with these cannot take down the whole country. Might this improve the prospects for human flourishing, at least in the US?

WSJ ECO-CONFERENCE (March 2010)

BIG PICTURE THEMES

Background: this was a much smaller conference this year, maybe 200 people vs. last year's 300+. Since that time, the WSJ has disbanded its Eco-reporting team, (though its individual members are still with the paper), and the main sponsors for this year's conference were big oil companies. Themes for this year were also a big shift from last year, where attention was mostly focused on a hoped-for US government-funded bonanza.

- More companies want to be **engaged** in carbon-related discussions, even when it is not that pleasant, or even productive: RD Shell, Microsoft, HP.
- Mismatch of priorities – for example, RD Shell is big in oil sands, but oil sands are not that big to them. How to manage this?
- Mismatch of markets – global drivers for energy commodities, but lots of local and fragmented systems (this provides opportunities of all sorts).
- Surprisingly widespread agreement that we need some kind of more explicit **price signal for carbon in the US** (even by those who will be disadvantaged by it). No one can really plan longer term projects without this.
- **Role of government?** Huge difference vs. last year, when attention was disproportionately on US government action (and funding). This is still a focus, but expectations seem more realistically set now (i.e. lower).
- **Need for acute crisis?** NV water authority talked about the cooperation of the business community, but this was only *after* it was clear that there was literally no water left. Can progress ever be made in a group with disparate interests if this crisis point is not reached?
- **DIRT and SLIME.** Tons of potential here, research is just beginning!

MORE DETAILED NOTES FROM THE BEST SESSIONS:

CRAIG VENTER, “SUPPLYING SLIME” – SYNTHETIC GENOMICS

If you have lost track of Craig Venter since his Celera days, it's time to catch up! His current venture, Synthetic Genomics, is going to save the world with engineered slime. Seriously.

<http://www.syntheticgenomics.com/>

- “THE EXPONENTIAL GROWTH OF BIOLOGICAL SYSTEMS COULD SAVE US.”
- Aren't there a thousand algae biofuels ventures out there? What are they doing that's different? Instead of 'farming' algae (the focus of many ventures), they are trying to engineer new organisms that directly produce useable fuels.
- They are close to having the first cell powered by a completely synthetic DNA genome: “we can design cells to do what we want them to do.” *The science-y side of me says, woohoo! But the less science-y side thinks, doesn't this seem like a line in a horror movie just before the creepy music starts and the cells start eating people?*
- Don't get too excited, all this is roughly a decade away – the blink of an eye for scientists, but an eternity for many investors. He was also candid about scalability - they have no idea yet.
- Public reaction? People are much more fearful of this for food sources than for fuel. *Algae you eat? Eeeew. Algae for your car? Awesome!*

- “DNA is the software of life.” So, what they want is more raw material. Venter’s ocean project helps here – they are recording all of the DNA they find in the ocean (40k organisms in one barrel of seawater!) – this is the genetic “raw material” for when they are looking to design new organisms.
- **Soil is just as rich in new organisms as the water** – there are hundreds of organisms that consume coal, for example. Hugely under-explored area (note, this dovetails with EO Wilson comments).
- **DESIGN PROCESS** is what’s key here, it’s not a single product application: **“within a decade there will be very few processes dependent on natural organisms”**.
- *My comments: this talk was similar in its far-ranging scope to the early days of DNA sequencing – in fact, we are finally at “chapter two” as Venter and others envisioned it, where there are feasible commercial applications for the scientific breakthroughs of the last decade. This enthusiasm was echoed at a recent meeting of medical researchers, where one investigator noted that projects that were too costly just 18 months ago now were completely fund-able, due to the dramatic cost declines in sequencing they’d seen. And that, in turn, reminded me of the advice of a great technology investor, who explained how the ‘next new thing’ was really the thing you were sick of hearing about, because you’d discussed it for 10 years and already made (and lost) a bundle several times over. Like big hair, skinny jeans, and cheesy pop stars, the next new thing is likely something that’s not that new at all.*

VC PANEL

JOHN DOERR, KLEINER PERKINS

PAUL HOLLAND, FOUNDATION CAPITAL

VINOD KHOSLA, KHOSLA VENTURES

- What’s the **most exciting thing** they’ve focused on in the last 12 months?
 - John – He is really intrigued by solid state ways to be disruptive in **energy storage**... only have found a few projects here. One is the notion of supercapacitor. (“physics beats chemistry beats biology in terms of energy efficiency” – Bill Joy’s saying)
 - Paul – big focus on **smart grid** for them, next level of activity they think is combo of open internet and upgraded energy grid -- > “energy web”, this should enable lots of applications, tons of enabling tech is already in place for monitoring, dynamic usage, etc.
 - Vinod – **energy storage** (both mobile and stationary power, large scale) evolving rapidly. Solar and wind are not that viable without this. Huge opportunities in **internal combustion engines (!)**, biomaterials, bioplastics, agricultural technology.

- All three noted that energy-related investments are WAY more capital intensive than their traditional IT investments – *it will be interesting to see how this plays out, as this wave of VC companies might have to access the public markets earlier than their low-capital-intensity predecessors.*
- Who's winning the global competition for cleantech development?
 - John – China's investing 10x what we are in alternative energy, wind has doubled each of the last 4 years, they are way ahead of their goals for 2020 (which are equal to current world capacity). From scratch they are the biggest in solar... from 2% global share for China 3 years ago to 50% now (US went from 43% to 16%). **China is winning.**

T. BOONE PICKENS, BP CAPITAL MGMT

- “We are going to go down in history as the dumbest crowd ever.” – we have the resources to get out of foreign oil dependence, yet still are going ahead on the old path.
- He thinks this is his mission. He is not going away.
- “We need to move forward, it's time to start driving until you hear glass break.”

E.O. WILSON LECTURES (April 2010)

E.O. Wilson is a legendary thinker and researcher, a true practitioner of multi-disciplinary Thinking Without Borders. He's won the Pulitzer Prize twice, just published his first novel (see book links below), and recently gave a series of lectures at Harvard, from which these notes are taken.

“I'm not going to stop until they pry the microscope from my cold dead hands.”

CONSILIENCE OR, “LET'S MEET ON THE BORDERLAND”

- How does Wilson see the world? In 4 big quadrants -
 - Policy
 - Moral Reasoning
 - Social Sciences (economics, sociology)
 - Biology/natural world

- Important questions and decisions involve ALL of these quadrants, so you need to cycle through all four when examining any issue. Being a specialist in one quadrant does not excuse responsibility for and consideration of the others.
- This explains the huge importance of the “borderland disciplines”:
 - Behavioral finance
 - Cognitive neuroscience
 - Evolutionary biology
 - Environmental science
- Why do these borderland areas exist? To better understand human nature and its ramifications. This is sometimes perceived as downplaying the role of science. But that’s the cool part, areas that are perceived as qualitative can often be quantified with fascinating results, while areas that are perceived as scientific often need more qualitative context given around them.
 - For example, written languages – this seems like an area firmly in the ‘arts’ part of ‘arts and sciences’. But, scripts for Punjabi, Japanese, ancient pictorial languages... all have the same measurable level of abstraction, the same number of discrete elements (seven). This one part of language, then, is very quantifiable and can be studied as such. (Neat side note, this is also why so many find Matisse soothing and Picasso jarring – Matisse conforms to the ‘right’ level of abstraction).
 - Habitat preferences – same thing here, we assume this is an emotional and personal decision, but overall people have enormous preference for being up on a hill, looking down over relatively open terrain, with visible water and trees that have low branches. Doesn’t matter if these elements are just aesthetic. Doesn’t matter that these preferences are no longer tied to physical survival. The preferences are completely predictable and steady over time and place. (Ask any developer and they know this, even if they don’t put it in Wilson’s terms).
- *My comments: again, this commentary is useful when applied to academic or scientific research, but it has application everywhere. For one thing, it offers reasons to think hard about the mix of specialization vs. general knowledge in any endeavor – importantly, Wilson does not downplay the usefulness of specialization (quite the contrary), he just notes how much more useful it is when applied creatively, and with an awareness of the context surrounding it. I am coincidentally taking an ethnography/religion class called “Borderlands” right now, where these themes emerge from different sources, but with the same conclusion – in the betwixt and between, outside of the silos, outside of the regular, that’s where the creativity comes, that’s where the new discoveries are made. How can we*

find room in our lives to spend at least a little time wandering past our own borders?

- Wilson's final quote: **"Let's meet on the borderland"**.

NEXT ISSUE: ENOUGH!

Our next issue will focus on the theme of "enough", with inputs ranging from Thoreau to HBS --- really, they are not as far apart as they seem.