Bionomics 101

Paulina Borsook on the New Economic Darwinism

Cyberia

The Bionomics Institute sees the marriage of biological and economic theory as a critical harbinger of change: "As we shift from the Machine Age to the Information Age, bionomic thinking is becoming essential to understanding our economic future." It's fitting, then, that the Institute's Web site is super-saturated with information, giving visitors a point-by-point delineation of this nascent field and updates on the recent conference, Cultivating the Neteconomy.

Not so many years ago, I dined at Embarcadero Center in San Francisco with Dan Lynch, one of those old-time SRI/Arpanet forefathers. He's the sort of double alpha in brains and dominance (and wit, too) who dresses like the manager of a lumberyard; only the Lexus he drives and the casual mention he makes of the places he owns in Los Altos Hills, Napa, and Tahoe suggest that his net worth is in the kazillions. At one point during the meal, Lynch mentioned his growing interest in economics. Hunh? I wasn't in the habit of thinking that powernerds, even one as broadly thoughtful as this one, cared much about larger social issues, or about slippery, philo-sophistical attempts to understand human behavior, particularly in a discipline that notoriously suffers from physics envy and lack of hard, replicable data.

It was of course Bionomics that Lynch was talking about. He sent me a copy of Michael Rothschild's book (Bionomics: Economy as Ecosystem) the next day, and invited me to attend the first Bionomics conference a couple of months hence in San Francisco -- October 1993.

Bionomics borrows from biology as opposed to Newtonian mechanics to explain economic behavior. It describes the world in terms of adaptation, intelligence, selection, and ecological niches. It favors decentralization, trial-and-error, local control,

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and letting things be. Bionomics is about trying things out -- whether it's a business concept or policy choice or technology standard -- learning from it, and moving on in real-world ways. One of its catch-phrases is "simple rules, complex behaviors" so that, as Bionomics Executive Director Steve Gibson puts it, "Tinkering with monetary policy to affect the economy is an example of machine-age thinking. Global liquidity flows make financial markets respond instantly and viciously." To Bionomicians, all the fooferah about the Fed is beside the point, really.

Which all makes Bionomics a great system for the top percentiles, the endlessly entrepreneurial, the happily workaholic -- but where in this ecosystem is there room for other species? What about the vulnerable, the ones who weren't able to cash out, those whose skillset or native endowment doesn't fit well into the shiny happy new information economy? I'm all three of these; so what, out of enlightened self-interest, am I supposed to do?

I emerged from the first two-day conference exhilarated and horrified. The first, because I sensed I had stumbled onto Something Seminal at Its Beginning, and I was amazed at the caliber of high-tech presence there: Gil Amelio, then head of National Semiconductor, now CEO of Apple; Carver Mead, Cal Tech prof who's a big cheese in neural networks and Very Large Scale Integration (how you keep packing more stuff onto chips); George Gilder, the parson of what Wired magazine would come to call the digerati; others displacing particles in high-tech venues in similar high-energy ways.

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President of Bionomics Institute Michael Rothschild divined the scripture for this movement: Bionomics: Economy as Ecosystem. The good news is it's available in condensed form on the Institute's Web site. Naturally: from the highly complex twenty-nine chapters, online editors selected salient points for the technically illiterate. (Talk about adaptation!)

The terror, however, had to do with seeing, writ large as only a confab of True Believers can demonstrate, what I have come to call technolibertarianism, a cultural-political style that now dominates high-tech discourse and thinking. Though Lynch says that the Bionomics Institute has somewhat steered clear of pure-form libertarians, since it's not concerned with ideological purity, it has become part of the default libertarian culture of the Net, and of the broader high-tech community.

How, though, did what sounds like an esoteric theory take hold in Silicon Valley? As it turns out, the union of geekdom and Bionomics is less random than you might think. In the early 1980s, Rothschild (who had been involved with a software startup for a few years) came to the attention of some venture capitalists, in particular Arthur Patterson. As part of Accel Partners, Patterson was instrumental in handing out Rothschild's book as the VC firm's 1990 Christmas gift to the folks they thought mattered.

Commerce

Bionomics begs to be incorporated into the larger structure of scientific revolution. Thomas Kuhn's seminal text on the subject has this to say: "Scientific revolutions are tradition-shattering complements to the tradition-bound activity of normal science... The unexpected discovery is not simply factual in its import... the scientist's world is qualitatively transformed as well as quantitaively enriched by the fundamental novelties of either fact or theory."

You can order The Structure of Scientific Revolution at Amazon.com.

Lynch read the book, glommed onto Rothschild when he was a speaker at a Sandhill Road meeting of the Western Association of Venture Capitalists a few months later -- and the Institute was born, with its annual conference, daily dose of Vitamin B listserv messages, software startup (Applied Bionomics Inc.), and now its web site. Lynch further contributed to the spread of Bionomics by buying and handing out enough copies of Rothschild's book that the publisher did a second printing. Theoretically independently, Wired executive editor Kevin Kelly's 1995 book Out of Control focused on a similarly Bionomicsesque cosmology.

Many TBI conference attendees and speakers have been high-tech-associated: they perhaps make up the single biggest chunk of Bionomics adherents. Lynch says that the fit between Bionomics and high-tech is intuitively obvious. "Computers embody learning mechanisms," he says. "There's the great belief in trial-and-error. You see it in rev after rev of software. You don't have to wait for evolution: you see it." Rothschild would agree, since in high-tech, in what he calls "super-accelerated capitalism, you see in two years what you might see [in other venues] in 20 or 30 years. "

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Wired Executive Editor Kevin Kelly is an insistent proponent of biology-as-paradigm: "To keep the ever-complexifying technical world going we will need to use the principles of biology. With a biological technology we'll get machines that adapt, evolve, and learn," he says in his book, Out of Control, which offers a broad and entertaining survey of the trend towards "self-organization" in science, technology, and philosophy. You can order the print version at Amazon.com, though before tackling its 200,000+ words, you might want to stop by the Absolut Kelly web site for a drink.

Evolution of product lines, competitors driving each other from market niches -- these metaphors conform to day-to-day high-tech reality. So now the language of Bionomics is everywhere in hightechlandia, though most who deploy it have no idea that there is a think tank located between San Quinten prison and the Bay that is the single greatest fountainhead of the concept.

As for charting the spread of this theory beyond Silicon Valley, the Bionomics Board of Directors decided to see how much biological thinking began to shape the terms of argument in discussions of economics and technology. Members of the Bionomics community would send in mentions in print wherever they found the language of economy-as-ecosystem. At first, these were rare, prized sightings, along the lines of spotting a white buffalo. Now, in 1996, they have become Too Numerous to Count, as the term from the medical community goes to describe the number of white blood cells or pathogens present at the site of an infection.

You can argue that Bionomics' spread is the mark of a) an idea whose time as come, much like recreational drug use fit with the emphasis on individuality and pleasure-seeking and rebellion in the 60s; b) the fine, puppet master-hand of the VC community, the true Freemasons of our era, who influence far more than the lumpen-rest-of-us comprehend, about what happens, where and when, and which new-fangled notions get legitimized, and which

get ignored; c) an externalization of the swing in fashion towards libertarianism, which is enjoying a vogue throughout American life right now with everyone from militia wackos to New York Times columnists; d) a divine accident.

But then you have to discreetly inquire how much you believe in which version of the Whorf hypothesis: how much does language shape thought? Does the proliferation of Bionomics Moments really mean people in the popular press get it? Does the reliance on a new set of metaphors (remember "Information SuperHighway" and all the bad puns and lame infographics it generated a few years back?) imply more than the general tendency towards imitation that most writers suffer from?

For the TBI folks, visibility may be enough. They're already looking towards the dissolution of the institute in 1999; the feeling being, either we can have some effect on culture -- or we can't. Either way, a decade or so of trying should be sufficient. And I am wondering if 1996 will be my last Bionomics conference. What value is there for a snotcake cultural commentator in having links to an once-esoteric subculture that every dweeb now unconsciously pays homage to daily?

Well, it is still valuable for the Bionomically-less-fit to confront the allure of Bionomics: it *is* nifty-cool, but, as with any overarching grand unified theory of everything, Bionomics leaves some important pesky bits out. Like, how, even in high-tech, if you're being historically and intellectually honest, you can't claim that the best technology, the best marketing, the best management, the best company, or the best people necessarily triumph in the marketplace. That sometimes you really do need to bring in the Feds (or some other Central Organized force) to redress local problems, like a tendency towards lynching. That regulation can create better, more level playing fields for markets to evolve. That sometimes, when you're dealing with interests, forces and personalities that are wildly incompatible, no win-win solution is obtainable and, in these cases, complex rules of law make sense. That technology creates as many problems as it solves. That assessing the market-value of basic research, fine art, or a whole bunch of other negligibly-fungible pursuits is not easy, fun, or maybe even possible.

So I approach this week's Fourth Bionomics Conference ("Cultivating the NetEconomy") as a form of homeopathy. Small doses of toxins, that in normal exposures might make a well person sick, will make a sick person well. Further exposure to the seductions of the Bionomics metaphor will force me to reconsider exactly what does matter, in economics and life, that Bionomics doesn't address.

Dialog

For some other perspectives on the modern-day economy, check out last March's FEED Dialog on wage stagnation "One Nation Underpaid" where panel members debate the promise and peril of "super-charged capitalism." As Sheldon Danziger writes: "The same economic forces -- the globalization of world markets and technological changes that have shifted employer demand toward more-skilled and away from less-skilled workers -- have affected all of the industrialized economies."

Feedbag

One FEED reader writes in to say: "Best, in this context, is undefined, or perhaps 'in the eye of the beholder', to warp a phrase. Another way to understand the term 'best' might be an ecological one..."

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