

Matthew's Book Club Summary #19

By: Matthew Klippenstein

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Title: The Ecotechnic Future

The book club started as an informal, fun way to explore and consider business ideas relevant to our work with colleagues. The format consists of one person (usually Matthew) reading a book and writing a summary for discussion during team meetings. This allows the other team members to benefit from the book's insights, without carving time in their schedule to read the full volume.

The idea was to summarize *an interesting part* of each chapter in a paragraph or two, and where applicable, note how these could be relevant to the workplace. This provides the reviewer with practise condensing a mass of data into a few pieces of key information: an underappreciated skill. The reviews are meant to be accurate but light-hearted, on the assumption that people learn more when they're having fun.

Matthew's company gave permission for these to be distributed to non-employees as long as the employer-specific content was removed, for which he is sincerely appreciative.

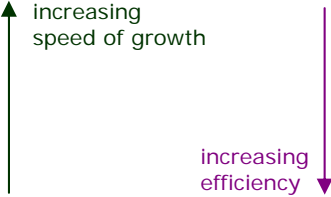
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About the author:

John Michael Greer is a certified Master Conserver (ecology type stuff) and is a giant in the field of "peak oil" pessimists. Originally I read the book for fun (my idea of fun) but a few themes he introduced, transformed my thinking on the fuel cell industry and the role it may play in the coming decades. So I decided to summarize it here.

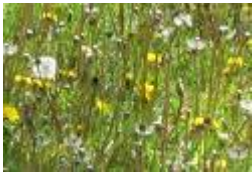



Much of the book is devoted to his dystopian vision of an energy-constrained, declining civilization, which is of little interest from the company's perspective. As such, instead of summarizing each of the fourteen chapters, I've selected interesting excerpts from each part of the book.

Oh -- "ecotechnic" is his metaphor for ecologically sound technology.

Part	Title	Summary												
1	Orientations	<p>Just as a chain is only as strong as its weakest link, in agriculture, Liebig’s Law of the Minimum says the size of a crop depends only on the concentration of the least-available nutrient. All plants need N-P-K; you could have lots of N & P, but if you have no K, you’ll have no crop.</p> <p><i>This can be applied to companies. To be successful, they need healthy Sales, R&D, and manufacturing groups, among others. A deficiency anywhere will bottleneck them and stunt their growth. Being conscious of bottlenecks, may help them choose the best resource allocations for success. Most companies try to do this on some level.</i></p> <p>Succession is the biological process whereby different ecosystems succeed each other. In the centuries after a forest fire:</p> <ul style="list-style-type: none"> • weeds are the first thing to emerge • shrubs then replace the weeds • pioneer trees then replace shrubs • old growth forest replaces the pioneer trees  <p>Succession always happens, in some manner. Weeds grow first because nutrients are abundant, and they grow fast. But trees eventually end up on top – in the end, efficiency counts more than speed.</p> <p><i>If “business ecology” works like “environmental ecology” that could partially explain the slow uptake of fuel cell technology. Fuel cell technology is inherently more efficient than combustion engines – but you can build engines faster than fuel cell stacks (it takes less energy / money to manufacture an engine than a stack).</i></p>												
1b	Orientations (2)	<p>The author posits that the coming centuries will see a transition as below:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 30%;"><i>Industrialism</i></td> <td style="width: 30%;">→ affluence</td> <td style="width: 20%;">(wastefulness)</td> <td style="width: 20%;">(Rome, 100 AD)</td> </tr> <tr> <td><i>Scarcity Industrialism</i></td> <td>→ hardship / relocalization</td> <td>(efficiency)</td> <td>(Rome, 400 AD)</td> </tr> <tr> <td><i>Salvage</i></td> <td>→ living in the shadows of ruins</td> <td>(reuse)</td> <td>(Rome, 1000 AD)</td> </tr> </table>	<i>Industrialism</i>	→ affluence	(wastefulness)	(Rome, 100 AD)	<i>Scarcity Industrialism</i>	→ hardship / relocalization	(efficiency)	(Rome, 400 AD)	<i>Salvage</i>	→ living in the shadows of ruins	(reuse)	(Rome, 1000 AD)
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		<p>Conveniently, this is to occur over centuries, so we can't tease him if he's wrong. In our generation, we'd only notice incremental hardship. It's also noteworthy that the exponential ramp rate of renewable energy sources will start messing up his projections sooner or later.</p> <p><i>"Salvage" made me think of lifecycle design – what was discussed in <u>Cradle to Cradle</u>. There's a lot of embodied energy in our products; designing parts for reuse could save a lot of energy and money, relative to making brand-new parts. This would be like how a tree's leaves decompose on the ground... where the nutrients eventually get absorbed by the tree's roots.</i></p>
2	Resources	<p>One point really stood out here, as it reinforced a point from <u>Thinking in Systems</u>: efficiency often comes at the expense of resilience. The Roman Empire had some spectacular centres for ceramics which basically drove local potters out of business. (Not unlike an ancient Wal-Mart!) In later centuries when the Empire declined and trade was interrupted, a lot of villages couldn't buy pottery – nor did anyone there remember how to make it!</p> <p><i>From a company perspective, the implication might be to ensure we have a healthy mentoring or cross-training program, so that no one becomes indispensable, or holds too much unique knowledge.</i></p> <p>The German philosopher Oswald Spengler's book <u>The Decline of the West</u> is then discussed, in its ideas about culture and civilization. Spengler proposed that in its prime, a society generates new culture – new ideas and ways of perceiving the world; new art forms, etc. (Like Greece did.) When it's over the hill, instead of producing new culture, the society merely standardizes existing civilization. (Like Rome did.)</p> <p><i>This made me think of the difference between engineering practise and bureaucracy. If you follow good engineering practise, you theoretically don't need formal reviews, precautionary hazard assessments, product design processes, and so forth. Bureaucracy occurs when you try so hard to prevent mistakes, you stifle creativity; but it's appropriate when mistakes could be costly. The ideal is to find enough checks and balances without weighing down innovation.</i></p>
3	Possibilities	<p>This section basically reiterates the author's view that the combination of climate change, peak oil and other stressors will gradually cause a transition from R-type ("weed") industries to K-type ("old growth forest") industries. Sadly, no specific predictions or stock-picking recommendations. ☺</p>

Ecosystems after a forest fire: from Weeds back to Old Growth Forest

Years after fire	Image	Plant	Ecological Type	Growth Rate	Efficiency w/ resources	Possible Analogues	Possible Analogues
1 ?		weeds	R-type	highest	lowest	combustion engine cars	coal plant
5 ?		shrubs		high	low	gas-electric hybrid cars	combined-cycle natural gas
50 ?		pioneer forest		low	high	battery-electric car & FC-hybrid bus / truck	FC cogen
>100 ?		old growth forest	K-type	lowest	highest	?	wind/solar farm + FC cogen?