

## REVIEW

*The Evolution of Everything: How New Ideas Emerge* by Matt Ridley

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We are all Lucretians now.

Or at least according to Matt Ridley in *The Evolution of Everything* we should be. For Lucretius was one of the first evolutionary materialists who consistently applied an evolutionary outlook to everything, from nature to human societies. Which is precisely what Ridley attempts to do in this tour-de-force of natural and social systems: rigorously apply the logic of evolution to understanding a variety of natural and social systems, and show where people are still engaging in creationist thinking.

For the most part he manages to succeed in doing exactly what he sets out to do. The book is a relentless barrage of example upon example of his thesis. Every example ends up being compared, directly or (if you know your Hayek) indirectly to free markets. A good example of this can be found on p. 64, in the chapter on genes, when he says that “Each gene plays its little role; no gene comprehends the whole plan. Yet from this multitude of precise interactions results a spontaneous design of unmatched complexity and order.” This is practically Hayek’s description of how free markets work.

This is perhaps less surprising if we understand that, as Ridley demonstrates, Adam Smith was an early evolutionary thinker, applying evolutionary thinking to both morality in *The Theory of Moral Sentiments* and the economy in *The Wealth of Nations*. His influence on Darwin was at least as important as Malthus’ work on population, and in many ways Darwin merely came up with a special theory of evolution rather than a general theory of evolution, which was in the process of being established through the works of many thinkers, though never quite explicitly stated as such. Indeed, though Ridley strongly points us in this direction, and though it’s been a working theory for such thinkers as F.A. Hayek and Michael Shermer, one could make the argument that a general theory of evolution has still yet to be truly established. What stands in the way of a general theory is that humans seem programmed to engage in what is called

the “intentional stance,” meaning we see intention any time we see patterns (pp. 256-7). While this is a good way to survive 10,000 or more years ago—better to mistake that movement for a lion than to miss the lion—it results in a variety of cognitive errors, including a tendency to think that any time one sees order, there must be an orderer of some sort. The left make fun of the creationists for doing this with biology, but one could just as easily make fun of the left for doing this when it comes to educating our children or in their enthusiasm for economic planning.

One reason I say Ridley only points us in the direction of a general theory is that, despite his efforts to do so, he still manages to fail to fully apply evolutionary logic. Not through the intentional stance, but by sometimes wavering on the relentlessness of his application of evolutionary principles. For example, in his criticisms of the “anthropic principle,” Ridley fails to apply the principles of evolution to physics itself. We can explain why it is “there do seem to be remarkably fortuitous features of our own universe without which life would be impossible” (p. 18) through evolutionary processes and emergent properties. For example, given the evidence that the speed of light has changed over time (Reich 2004), meaning the strength of the electromagnetic force changed, we should perhaps wonder why it is that the laws of physics have seemed to have “settled in” to where they are now. Those laws may have stabilized precisely because those qualities created stable systems, and those stable systems in turn reinforce those physical qualities/laws and stabilize them. Which is to say, natural selection at the quantum level took place, creating stable systems that could, in turn, engage in chemistry, further stabilizing those atomic systems. So it seems the universe itself has evolved over time, those interactions that gave rise to stable systems were selected for over time by other stable systems with which they could interact and stabilize more, and we thus have a universe able to create chemistry, life, and an intelligence that can wonder about all of these things.

We see this very process happening in biological systems, where complex systems are stabilized by the internal logic of the system itself. This is no doubt how life itself emerged, as a way to stabilize certain organic chemical processes. This stability also then allows them to change. Ridley points out that complex systems can evolve while surviving due to massive redundancy built into those systems (p. 48). This is what helps to make them ‘anti-fragile.’ Indeed, one of the things nature seems to select for is anti-fragility—which makes sense, since fragile systems would fall apart too quickly to have their traits passed on. That is why we see extreme redundancy built into natural systems, from physical to biological systems. The brain, too, is an organ with such massive redundancy that most brain trauma can be routed around over time. This fact demonstrates that objections by socialists about the waste and redundancy of capitalism rather miss the point. Were we to remove all that apparent waste and obvious redundancy, the system would become fragile and eventually collapse. As has every socialist economy. If we were to remove the redundancy from an ecosystem or from a eukaryotic cell (in the latter by, say, reducing all of the mitochondria to one), we would create a system wherein the least bit of stress would overwhelm the system such that it would very quickly collapse.

Ridley does in fact make this point in his support for the “selfish gene” thesis: “It makes more sense to see the body as serving the needs of the genes than vice versa. Bottom-up” (p. 66). In other words, the purpose of the cell is to stabilize, protect, and perpetuate genes (rather than the purpose of the gene is to do something for the cell/organism). The cell is a way to protect and perpetuate a certain kind of information (gene) rather than an end in itself. Equally, the purpose of a given institution is to stabilize, protect, and perpetuate the individuals within that institution rather than the institution using the person. A firm or other institution is a way for individuals to achieve their goals. If we take this to its logical conclusion, one should perhaps question the purpose of incorporation and limited liability, as these are designed to essentially lay blame on the organization rather than the people who are using that organization to realize their goals. It’s rather like holding responsible the cells for genetic diseases.

At the same time, one of the points Ridley is keen to make is that individuals matter less than we like to think, and that the system/ecosystem/society is what matters most. This or that lion doesn’t really matter to the African savannah, though lions certainly do. Alexander Graham Bell was not necessary to invent the telephone, since it seems that it was

inevitable that it was going to be invented—as the fact that he only just barely beat Elisha Gray to the patent office. If Bell had had a cold that day, Americans would have spent decades getting their phone services exclusively through the Gray Telephone Company. Ridley provides example after example of inventions that were invented practically at the same time by different people in different places, each unknown to the other.

This seeming contradiction is resolved when we come to realize that in the first case, Ridley is really talking about a *taxis* that one develops to realize one’s goals (in this sense, a cell is a *taxis* in relation to the genes), while in the latter case, he is talking about a *cosmos* with a network logic that unfolds on its own. Organisms are not ecosystems, and vice versa. Organizations are not social systems, and vice versa. Cells and organisms are always “reacting to local effects” and in the case of cells, the responses to other cells results in the development of the organism (pp. 76-8). Equally, humans are always “reacting to local effects” and the responses to other humans results in the development of cities, economies, languages, technology, and a number of other social orders. Our environments affect the expression of our genes and the ways in which we interact with each other. Those environments are made up of other individuals (species/humans) interacting within and to create that environment, which in turn affects those interactions. Such a system is necessarily always changing, and “Darwinian change is inevitable in any system of information transmission so long as there is some lumpiness in the things transmitted, some fidelity of transmission and a degree of randomness, or trial and error, in innovation” (p. 78). “Humans innovate by combining and recombining ideas, and the larger and denser the network, the more innovation occurs” (p. 93)—a fact as true in nature (think of all the species in a tropical rain forest vs. a grassland on the same parallel) as in human habitations. Thus, cities are a hotbed for innovation, and always have been.

Given that Ridley makes a big deal about what he says is a tendency of people who make evolutionary arguments to suddenly make what he terms a “swerve” at the end, toward top-down explanations, it may be surprising to learn that he makes a handful of swerves himself, though not quite toward top-down explanations.

A good example involves his criticism of epigenetics. With epigenetics, the DNA is chemically marked in order to turn off certain genes, perhaps even certain chromosomes (i.e., one of the X chromosomes in women is turned off, with the result that half a woman’s cells express one X chromosome, the other half the other one). In recent years there

have been reports of environmental influences being passed on to offspring. The most notable example, to which he himself refers, is a study in which a short famine seemed to have effects passed on through several generations who had not experienced famine. Ridley notes, correctly, that in the germ cells the epigenetic markers are completely cleaned off the chromosomes so new patterns can be established in the developing fetus. If that is the case, how then can there be epigenetic inheritance? Here Ridley fails to take into account the environmental factors that play such an important role throughout the book. The uterus is the primary environment for the developing fetus, and that uterus is of course part of the woman's body. Since epigenetic patterns are being established in the developing fetus, and those patterns are being influenced by the cellular environment, and that environment includes the mother, it would be surprising if the uterine environment did not have some kind of influence on the establishment of epigenetic patterns. Which is to say, the epigenetic patterns the mother created in response to her own environment could be passed on to the developing fetus as part of the uterine environment. This would be consistent with all of the facts involved, and we wouldn't have to just dismiss a set that seemed inconvenient to one's theory (a tendency Ridley otherwise correctly criticizes).

Another inconsistency occurs when Ridley complains that the market "has a habit of encouraging wasteful and damaging extravagances, not least because it leads to the marketing of signals for conspicuous consumption" (p. 101). The market, as he noted elsewhere in the book, is merely a system of communication and cooperation, and cannot be blamed for its content. Indeed, Peter Turchin, in his book *War and Peace and War*, shows that conspicuous consumption of wasteful and damaging extravagances is not even remotely associated with the free market, but rather is a feature of elites' lifestyles through the millennia. The market makes what people want to buy, but the elites wanted and had these things well before the existence of modern capitalism—they only got them in different ways in the past. That is, free markets do not encourage extravagances and conspicuous consumption—elitism does. The same elites who, coincidentally, insist on top-down explanations and approaches. If anything, the free market transforms what were once extravagances and signals for conspicuous consumption into cheap, easily accessed goods for everyone. The cell phones available only for the wealthy in the 1980s have become almost ubiquitous pocket computers connected to the internet available to practically everyone. Which is one reason the elites hate the

free market. It surprises me that Ridley failed to realize this and, rather, fell for the standard anti-market rhetoric.

Finally, with chapters on the Universe, Morality, Life, Economy, Mind, Government, the Internet and many, many more, Ridley does not dedicate much space to fully developing his arguments; rather, he takes the approach of developing the evolutionary argument, which he then applies, with the help of a great many sources, to each field. As a result, many of the chapters mostly come across as summaries of others' works and as literature reviews. For example, his chapter on "The Evolution of Personality" is for all intents and purposes a summary of Judith Rich Harris' *The Nurture Assumption*, with a little on the heritability of IQ thrown in at the end. Given the purpose of this book, this problem is perhaps inevitable to some degree. After a while, the trajectory of each chapter tends to become a bit predictable, though for many of his target readers, that is perhaps necessary.

Overall, though, Ridley has written an excellent book for a general, educated audience. Perhaps it is a timely book. I think it's exactly what the world needs at this moment. Whether he will be successful at persuading anyone, however, is another matter. The intentional stance is a strong one, and is able to stare down evidence and reason. We have seen this regarding Ridley's last book, *The Rational Optimist*, and Steven Pinker's *The Angels of Our Better Nature*, which Ridley cites. Our evolved tendencies toward seeing intention, toward being pessimistic, and in expecting life to be a zero sum game are difficult to overcome. This is true of creationists on the right or on the left. Still, it is a book that needed to be written. And it is a book that needs to be read. Scientists keep discovering the world isn't as we evolved to understand it, and yet, over time, we have nevertheless come to understand this—and thus overcome our instinctual understanding of the world. We can learn. Hopefully, we will allow ourselves to be taught to see evolution everywhere, in everything. When we do, we will finally all be Lucretians.

## REFERENCES

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