

THE SECOND EVOLUTION

The secret role of emotion in evolution



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Today, it is universally accepted that evolution on Earth is regulated by a single evolutionary process, called natural selection. Although officially co-discovered by Charles Darwin and Alfred Wallace in 1858, it was first theorized by Darwin in 1838 and finessed and popularized by him in his seminal work, *The Origin of Species*.

However, in this book, I propose a fairly radical idea; that natural selection is not the only evolutionary process operating on planet Earth. I suggest a second evolutionary process emerged about 543 million years ago, which acts independently of natural selection. Unlike natural selection, this second evolutionary process does not directly affect physical traits. Instead, it exclusively regulates ‘non-physical’ evolution: specifically the inheritance of instincts, emotions and innate behavior in multicellular animals.

I call this idea, teem theory.

Teem theory also hypothesizes that Mendelian inheritance (the inheritance of physical traits via protein-coding genes inside DNA) is not the only mechanism of inheritance on this planet. It argues that a second mechanism of inheritance exists, which uses non-protein coding DNA – that is the section of the DNA molecule that does not code for physical traits. So what does this second system of inheritance code for? Only one thing: emotion.

In a nutshell, teem theory claims that under certain conditions, intense emotions (like those experienced as the result of a traumatic personal experience) can be permanently encoded into an area of an animal’s genome called noncoding DNA, so-called ‘junk DNA’. Once encoded, these traumatic feelings can be inherited to offspring as emotions, innate behaviors and even complex instincts.

Initially, it appeared that this second evolutionary process, which I call ‘teemosis’, explained how environmental information (that is external to the organism and its genome) can be both inherited as emotion and configured into adaptive behaviors. But as the evidence accumulated, it suggested that teemosis might also play an indirect but crucial role in the evolution of physical traits as well, including the creation of new species. This meant that big ticket items of evolution – what biologists call macroevolution – are not solely the preserve of

natural selection, but a synchrony between natural selection and teemosis.

The evidence also suggested a connection between teemosis and the major psychological biosystems we're familiar with today – memory, personality, attention, perception, learning, communication, sleep, dreams, emotions, art, intelligence and motivation.

Because the evolutionary origins of these elemental biosystems appear so diverse, driven by seemingly quite different adaptive imperatives, no common thread has been found linking them into a holistic theory of biology, so that today they exist as separate fields of psychology. However, teem theory argues that like macroevolution, speciation and instincts, all these biosystems are evolutionary by-products of teemosis.

If this major assertion can be substantiated, it elevates teem theory to a unified field theory – a simple explanation of the workings of nature that holds true over a wide range of exploration.

Of course, as Carl Sagan once cautioned, 'Extraordinary claims require extraordinary proof' – or at least detailed and convincing scientific arguments that can be tested empirically. The first step was the 2005 publication of the paper, *Noncoding DNA and the teem theory of inheritance, emotions and innate behavior* in the British journal *Medical Hypotheses*. That paper outlined the core hypothesis and some of its medical implications. In 2006, I posted the paper, along with five others on teem theory, on my website.

Given the jolt teem theory provides to the sacred cow of Neo-Darwinian theory, I was prepared to see the theory ridiculed and rejected by the scientific community. Instead, the personal feedback I received from some of the world's foremost life scientists, (posted on www.thesecondevolution.com website) is best described as 'cautiously positive'.

Some, like Professor Jaak Panksepp, Distinguished Research Professor Emeritus of Psychology and Adjunct Professor of Psychiatry at the University of Massachusetts, acknowledged that 'Darwin might have missed something'. Most, including Noam Chomsky, said the theory 'sounds interesting' but added qualifications similar to that of Professor Geoff Parker, who heads the Population and Evolutionary Biology Research Group at the University of Liverpool: 'How very fascinating! I've been worried for years about 'junk' DNA and its evolution. I guess first you need good evidence, and second, some plausible mechanism for how 'teems' evolve needs working out – it poses some problems'.

Along the same lines, Professor David Featherstone, who runs the Featherstone Lab at the University of Illinois' Department of Biological Sciences said, 'Teem theory is an interesting idea,' and, 'TEEM theory is all very scientifically addressable'. But he also noted, 'I think your scientific goal should be to determine the molecular mechanism(s) by which trauma can cause changes in DNA sequence (or otherwise isolate the heritable 'thing' left by trauma)'.

Some, like Professor Roger Masters, President of the Foundation for Neuroscience & Society immediately saw the implications for

understanding human behavior: ‘My reaction: your approach makes very good sense because the ability of *Homo sapiens* to adapt to widely different environments (obviously a key feature of the species) will be greatly enhanced through the ability to shape somewhat the triggers of emotional responses in the manner you describe’.

Most of the scientists were sufficiently intrigued to want to read the detailed arguments promised in *The Second Evolution*: ‘I will certainly look forward to seeing the publication of your book,’ wrote Professor Simon Conway Morris from Cambridge University, ‘not least because of some recently developed interests of my own on the evolution (and inevitability) of sensory mechanisms’.

What open-minded scientists want and justifiably expect from a theory that attempts to augment arguably the most venerated scientific paradigm of the last millennium are the molecular biochemical details, peer reviewed studies and tangible proofs as are available – so I started writing this book.

Except I got sidetracked. That’s because a good scientific theory is like a skeleton key that can open all sorts of other doors. It suddenly dawned on me that as well as explaining how animals acquire new instincts, it could also throw light on some long-standing issues of human behavior and evolution. Like how we acquired the unique physical and behavioral characteristics that set us apart from every other animal.

For example, teem theory identified a period when our ancestors were subjected to abnormally traumatic conditions that reshaped us as a species. I was so excited by this, I wrote a book in which I theorized that Eurasian Neanderthals (*Homo neanderthalensis*) hunted, abducted and interbred with a population of early humans in the Middle East between 100,000 and 50,000 years ago, and that this was a causative factor in the emergence of fully modern humans.

Them and Us: How Neanderthal predation created modern humans,[¶] was published in 2009. Less than a year later, the *Draft Sequence of the Neanderthals Genome* published to much approbation in the journal *Science*[¶], confirmed that Neanderthal males had indeed interbred with early human females, and that the interbreeding occurred in the Middle East within the precise time frame predicted by NP theory.

Because these successful predictions were derived directly from teem theory, it gave me considerable confidence in the theory’s explanatory powers. It is also gratifying to see NP theory increasingly being taught in universities.

Putting *The Second Evolution* in a drawer for four years was helpful in other ways too. I was able to reassess the theory from a fresh perspective, as well as factor in the feedback I’d received, along with new supporting evidence from recent studies in genetics, neuroscience and microbiology.

While I am confident enough to publish on teem theory, I’m aware that like any new scientific theory it almost certainly contains both theoretical and factual errors. As some of these may be serious enough to discredit the entire theory, it is prudent to get as much scientific feedback as possible before I sign off on it. That’s why I am inviting

readers, (and particularly life scientists) to critique it. Comments can be sent to: dv@thesecondevolution.com

Having produced five rather dense academic papers on teem theory, I have written *The Second Evolution* for an educated lay readership, keeping jargon to a minimum, providing a glossary, occasional boxes to explain essential terms, and generally simplifying the theory as much as possible. To assist academic evaluation, the EBook also contains all my research references, most of which will probably be omitted from the print edition.

Finally, despite the critique of Neo-Darwinian theory in the first three chapters, *The Second Evolution* is not out to disprove or discredit Darwin. Nor, despite its 1,000 references, is it an undergraduate textbook or a journalistic review of the latest research. It is a speculative theoretical work that requires feedback from the scientific community to help refine, correct, explicate and revise.

ⁱVendramini, D, 2005 'Noncoding DNA and the teem theory of inheritance, emotions and innate behavior', *Medical Hypotheses*, v64, 3, pp512-519. doi:10.1016/j.mehy.2004.08.022. Website: <http://www.thesecondevolution.com/>

ⁱⁱVendramini, D, 2009, *Them and Us: How Neanderthal predation created modern humans*, Kardoorair Press, Armidale. website: <http://www.themandus.org/>

ⁱⁱⁱGreen, RE, Et. Al. 2010. 'A Draft Sequence of the Neandertal Genome'. *Science* 7 May 2010: Vol. 328 no. 5979 pp. 710-722
DOI: 10.1126/Science.1188021