A Hole in Science

An Opening for an Alternative Understanding of Life

By Ted Christopher

Contents

Preface

The modern scientific understanding of life is built upon the belief that all features of life - including of course consciousness - are completely describable in terms of molecules and their activities. From this perspective, living beings can be viewed as simply constituting a particular subset of the material universe, and as such are presumably constrained by the same laws of physics and chemistry. This material-only hypothesis is usually referred to as scientific materialism or materialism, and it is essentially a modern intellectual fixture. The corresponding blueprints for organisms are of course believed to be given by a particular large molecule - deoxyribonucleic acid (DNA).

A couple of preliminary orientation notes. Hereafter the term "materialism" (or one of its synonyms) will only refer to the belief in the material-only nature of life (not the more general hypothesis about the universe). A second orientation note is that the focus herein will be primarily on humans, with secondary consideration given to other animals.

Now with regards to scientific materialism there are two basic points presented in this book. The first is that materialism has a big hole in it. This gap is centered on the unfolding "absolutely beyond belief" failure of DNA to determine some basic innate characteristics of individual humans and this possibility was apparent before the frustrating follow-up to the Human Genome Project. The second point is that this hole appears to be consistent with the common premodern transcendental understanding of life ("transcendental" will be used herein in place of a number of existing terms including "transmigration" and "reincarnation"). Starting with this preface I will lead with the first set of arguments and then follow up with some possible transcendental-based explanations. At a minimum I hope to get readers to see some serious challenges facing science's material-only vision, and also to encourage them to consider alternatives.

I get the ball rolling by taking a quote from Sam Harris' *Free Will* in which he pointed out that:

> And now your brain is making choices on the basis of preferences and beliefs that have been hammered into it over a lifetime - by your genes, your physical development since the moment you were conceived, and the interactions you had with other people, events, and ideas [Harris S. 2012, p.41].

Harris' message naturally flows from the materialist model. From that model's perspective, you are lucky to be alive given your dependence upon a very unlikely conception that produced your particular DNA blueprint, a blueprint that as Richard Dawkins put it, "created [you], body and mind" [Dawkins, p.20]. Continuing, that DNA blueprint (including the gene portions), defined your "nature" component and your subsequent environmental exposures formed your "nurture" component. From materialism's viewpoint that nurture dynamic was essentially updating or refining your innate programming. Thus, the material-only entity that is you; your particular behavior; and of course as a bio-robot, lack of free will. The particular molecules that constitute you just carry out their molecular activities and thus Harris can simply characterize you as a "biochemical puppet". Some of the potential significance of this materialist's perspective was made apparent in a June 2014 *Scientific American* article that pointed out some of the ways in which "skepticism about free will erodes ethical behavior" and how this could conceivably culminate in societal "anarchy" [Shariff and Vohs].

Now compare the previous quote with the following description of a musical prodigy found in Darold A. Treffert's *Islands of Genius*:

> By age five Jay had composed five symphonies. His fifth symphony, which was 190 pages and 1328 bars in length, was professionally recorded by the London Symphony

> Orchestra for Sony Records. On a *60 Minutes* program in 2006 Jay's parents stated that Jay spontaneously began to draw little cellos on paper at age two. Neither parent was particularly musically inclined, and there were never any musical instruments, including a cello, in the home. At age three Jay asked if he could have a cello of his own. The parents took him to a music store and to their astonishment Jay picked up a miniature cello and began to play it. He had never seen a real cello before that day. After that he began to draw miniature cellos and placed them on music lines. That was the beginning of his composing.
>
> Jay says that the music just streams into his head at lightning speed, sometimes several symphonies running simultaneously. "My unconscious directs my conscious mind at a mile a minute," he told the correspondent on that program [Treffert 2010, pp.55-56].

Treffert's book contains a number of other examples supporting his conclusion that prodigal (including prodigious savant) behavior typically involves "know[ing] things [that were] never learned". Such behaviors provide clear rebuts to the materialist vision and thus Harris' statement about free will. Treffert also considered the phenomenon of acquired savant syndrome in which savant behaviors appear in the wake of central nervous system setbacks. Needless to say, it is unlikely that puppets (or robots) would acquire skills as a result of physical damage.

An under-appreciated problem for the carved-in-scientific-stone, materialist vision is that there have always been counterexamples available in the form of unusual (and noncontroversial) behavioral phenomena. Additionally monozygotic twins - with shared DNA blueprints - are far too different. For example, take Harris' logic and then consider that with very similar environments and the same DNA, it turns out that if one monozygotic twin is gay then the likelihood that his twin brother will also be gay is only 20-30% (ironically found in Francis Collins' *The Language of Life: DNA and the Revolution in Personalized Medicine* [pp.204-205]). This is an example of the large differences found between monozygotic twins, differences which suggest a behavioral mystery potentially affecting all of us and which led Steven Pinker to acknowledge, "something is happening here but we don't know what it is" [Pinker 2002, p.380].

The big question, though, is how well can science in general confirm their Nature-plus-Nurture, material-only understanding of life? In September 2008, the geneticist David Goldstein (then at Duke University) was quoted regarding the outcome of thorough comparisons between the million or so common genetic (or DNA) variations and the apparent inheritance patterns associated with the occurrences of common complex diseases [Wade 2008]. It had naturally been assumed that some of these common variations amongst our DNA blueprints would be correlated with the patterns of susceptibility to common diseases (and of course to other innate differences between individuals). This assumption was also bolstered by estimates that very little DNA - perhaps 0.1% or about 3 million nucleotide elements - appears to differ between any two humans [Schafer; Green; Kingsley]. Somewhere then amongst this small subset of variable DNA there should be the origins of our innate differences, and this assumption is the basis of the fields and great expectations of personal genomics and behavioral genetics. But Goldstein pointed out that:

> [a]fter doing comprehensive studies for common diseases, we can explain only a few percent of the genetic component of most of these traits. For schizophrenia and bipolar disorder, we get almost nothing; for Type 2 diabetes, 20 variants, but they explain only 2 to 3 percent of familial clustering, and so on.

Goldstein then added:

> It's an astounding thing that we have cracked open the human genome and can look at the entire complement of common genetic variants, and what do we find? Almost nothing. That is absolutely beyond belief.

Subsequently, in 2011 the director of the Bioscience Resource Project, Jonathan Latham, offered his own assessment:

> The most likely explanation for why genes for common diseases have not been found is that, with few exceptions, they do not exist ... The likelihood that further searching might rescue the day appears slim. A much better use of the money would be to ask: if inherited genes are not to blame for our commonest illnesses, can we find out what it is [Latham]?

This surprising DNA deficit has been reflected not only in the lack of DNA breakthrough-headlines but also in the extraordinary failure of the associated biotechnology industry [Sheldrake, pp.168-171].

Nonetheless confident news may continue - such as with the junk DNA headlines of September 2012 - but significant findings with regards to our individual inheritances are still missing (the junk DNA news bonanza was later characterized by neurobiologist Athena Andreadis as a big "orchestrated PR campaign" [Andreadis]). Thus, in a 2012 blog contribution, geneticist Kevin A. Mitchell acknowledged that a "debate is raging in human genetics" over this missing heritability problem [Mitchell 2012/02]. This under-communicated scientific impasse offers a fundamental challenge to materialism, an understanding which might simply have been questioned based on some behavioral enigmas.

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The second argument in this book can be approached thru findings from studies of the natural religious or spiritual understanding of young children. In the book, *Born Believers - The Science of Children's Religious Belief*, Justin L. Barrett laid out some of the growing evidence that infants tend to possess an innate understanding of the existence of souls/God/gods, to be believers in what Barrett termed a "natural religion" [Barrett]. The book contained some striking examples including ones in which the positions of atheists' were rebutted by their young children. As

Barrett wrote “[c]hildren are prone to believe in supernatural beings such as spirits, ghosts, angels, devils, and gods during the first four years of life” [p.3]. He later added:

> Exactly why believing in souls or spirits that survive death is so natural for children (and adults) is an area of active research and debate. A consensus has emerged that children are born believers in some kind of afterlife, but not why this is so [p.120].

These striking findings were simply placed within science’s vision, though. Barrett, even as a practicing Christian, concluded that these are simply delusional tendencies derived from evolution and nurture - “biology plus ordinary environment”. How our evolution-formed DNA blueprints could have resulted in such beliefs appears to be quite a mystery, though. At the beginning of his book Barrett did offer an alternative explanation that had been provided confidently by an Indian man he encountered on a train. In Barrett’s words the man had explained:

> [T]hat on death, we go to be with God and are later reincarnated. As children had been with God more recently, they could understand God better than adults can. They had not yet forgotten or grown confused and distracted by the world. In a real sense, he explained, children came into this world knowing God more purely and accurately than adults do [p.2].

Some of the possible implications of that transcendental view will be explored herein, in particular in the context of the growing mystery of the origins of our innate individual specifics. This view appears to have been a common premodern understanding as described in *M’Clintock and Strong’s Cyclopaedia of Biblical, Theological and Ecclesiastical Literature* ,“[t]ransmigration, dating back to a remote antiquity, and being spread all over the world, seems to be anthropologically innate, and to be the first form in which the idea of immortality occurred to man” [Head and Cranston, p.170]. This belief has two aspects, the intuitive continuity of behavior/personality part and the much more puzzling cause-and-effect (or popularly “karma”) part. Of these two logically distinct hypotheses it has been claimed that they were historically “in fact ... virtually always conjoined” [Head and Cranston, p.10]. Perhaps the apparent continuity of personalities across lives in small and undistracted populations initiated and then amplified the credibility of the continuity belief. Additionally, perhaps the karma hypothesis then followed on occasion from observing an individual encountering their apparent just deserts across lives. In a personal sense, a transcendental understanding would assert that at a core or foundational level, each of us is a non-material self or soul - a center of consciousness - which in the long run travels back and forth between embodied and disembodied existences (and thus transcends any particular one), and further that there is some continuity between these sequential existences.

In this book I will argue that in addition to offering a straightforward explanation for our natural religion, a transcendental perspective also provides traction on some scientific conundrums including prodigies, transgender individuals, and the surprising variations in personality found amongst a number of species; a simple explanation for the mysteries associated with monozygotic twins; a backdrop for some controversial phenomena including near-death experiences; and finally a consistent framework for the missing heritability problem. In brief, the missing origins for a number of our innate individual specifics could be understood as carryover from previous lives and with some standout behaviors - as with prodigious savants and prodigies - there could be some additional carryover consistent with some of the remarkable descriptions of the intervening disembodied state.

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This book serves the Religion-versus-Science debate by offering counterarguments to science’s material-only, bio-robotic vision of life. In so doing it helps open a door to alternative understandings. In exploring some potential explanations provided by the premodern transcendental understanding I consider evidence for a transcendental soul and in so doing offer some bottom-up support for what I think is a religious perspective. On the other hand, the usual top-down approach of pursuing objective arguments for the existence of God is apparently very difficult. Furthermore, even if someone succeeded - perhaps with a physics-based effort like *The God Theory* [Haisch] or an evolution-required-some-intelligent-intervention effort like *Darwin's Doubt* [Meyer] - how would that ultimately change science's puppet-like vision of you and your life? A chapter taking a uniquely critical look at both religion and science is included.

The discussions in this book can also be seen as complementary to some of the established approaches to breaching scientific materialism. A sampling of these established efforts include investigations of extrasensory perception [Tart; Radin]; possible cases of reincarnation [Stevenson; Tucker 2005 and 2015]; near-death experiences [Holden et al; Alexander]; the totality of psychological challenges as chronicled in a thorough text like *Irreducible Mind* [Kelly et al]; and also more broadly-based challenges to materialism [Sheldrake]. This book on the other hand, focuses on materialism's inheritance problem along with some consistent explanations available with the common premodern transcendental understanding. Some possible reincarnation cases will be used herein, though, as they offer some support for general transcendental hypotheses.

The perplexing range of personalities found among people and other species; the surprising differences found between identical twins; and also our innate religious inclinations; all challenge scientific materialism. Together with some behavioral conundrums and the unfolding "beyond belief" missing heritability problem, it is time to question the completeness of biology's view of life. In *The Sacred Depths of Nature*, this view was confidently characterized by the author/biologist Ursula Goodenough, as "relentlessly mechanical", "bluntly deterministic", and by extension without free will [Goodenough, pp.46-47]. As will be shown herein, though, contradictions to this view are easy to find.

Preface to the 2016 (2nd) Edition

A number of sentences in the original edition of this book were cleaned up for this edition. Also some significant changes to portions of Chapter 6 and Chapter 7 were introduced. The book is still quite conceptual in a number of places - including Chapter 1 - and in combination with a somewhat terse writing style, that encourages slow reading.

Preface to the 3rd Edition (2017)

In the year following the release of the second edition there were some relevant publications. Two books and two articles, in particular, provided important followup material to *A Hole in Science: An Opening for an Alternative Understanding of Life*. Given the limited but mostly positive response to my book, I thought it would be good to do a third version containing an additional chapter with commentary on those recent publications.

The two relevant books were Siddartha Mukherjee's *The Gene: An Intimate History* [Mukherjee] and Sean Carroll's *The Big Picture: On the Origins of Life, Meaning, and the Universe Itself* [Carroll] and they provided sharp contrasts to *A Hole in Science*. *The Gene* is essentially the opposite of my book. It is a long, overwritten ode to the presumptions of genetics (and science), and it raises none of the questions or challenges considered in *A Hole in Science*. Carroll's *The Big Picture* is in fact anything but a big picture (unless your idea of an intellectual picture is bracketed by the presumptions of physics) and even offers an equation "underlying you and me". Needless to say no behavioral conundrums were considered in Carroll's book.

Bolstering my critical take on those books were the responses I received this spring for my submission to an essay contest at the physics-oriented Foundational Questions Institute (or FQXi). The essay, "Question the Big Picture and Expand the Horizon", in minimalistic fashion pointed out a number of non-controversial examples which seriously challenge the scientific vision of consciousness (and thus the basis of FQXi's essay contest) [Christopher FQXi]. From amongst some highly-educated, physics-oriented people there, these points were deemed quite impressive.

This response furthered my conviction that the scientific vision of life is in need of serious questioning.

The two recent articles were also significant and both appeared in the May 2017 issue of *Scientific American*. One of these articles emphatically demonstrated the basis for the assumptions of behavioral genetics by showing that selective breeding across generations of a population of foxes could produce profound behavioral shifts (in particular towards those of dogs) [Trut and Dugathin]. Their confirmation of the underlying innateness of those shifts was very important and involved procedures you could not consider doing with humans. The belief that DNA was responsible for the observed innate behavioral shifts in that experiment, though, was put to test with the other *Scientific American* article's revelations of the failure of extensive efforts to identify a DNA basis for the tendency to experience schizophrenia [Balter]. This despite an abundance of evidence testifying to a large heredity component to that susceptibility. If innate contributions are grossly obvious amongst humans - in official and everyday ways - and these contributions further come in heritable (or parent-linked) patterns, then why have the extensive efforts to identify specific DNA origins failed so thoroughly in the health and behavioral areas (i.e., the missing heritability problem)? Additionally, if the DNA basis for the striking emergence of dog behaviors amongst foxes is identified - in addition to a very fundamental confirmation of evolutionary reasoning - it would also lead to difficult questions about the possible incompetence of analogous human genetics studies and/or the possible uniqueness of homo sapiens.

Another segment of the last chapter contains a discussion about autism and schizophrenia. These very challenging conditions were believed to have mostly genetic bases but that is not panning out. Given the significance of these conditions and the current state of scientific bafflement with regards to them, it is worth looking for alternative explanations. As elsewhere in this book I look to the premodern transcendental perspective for alternative takes on these conditions. Chapter 2's consideration of the Einstein syndrome offers a possible lead-in to a transcendental explanation for autism which is thus pursued in the final chapter. Einstein syndrome in fact appears to be on the autism spectrum, seemingly in the vicinity of Asperger's syndrome. Schizophrenia, on the other hand, if approached from a transcendental perspective would appear to be related to the tumultuous disembodied state. An alternative to ever more complicated scientific hypotheses with regards to these conditions - conditions which really can be characterized simply - is to approach them from the premodern dualistic perspective.

I close here with some general context provided by authoritative quotes. In an interview with Nobel laureate James D. Watson, *Scientific American* asked him [Watson]:

> [i]n a century, we went from rediscovering Mendel's laws and identifying chromosomes as agents of heredity to having the human genome largely worked out. Finding the double helix drops neatly in the middle of that span. How much, with respect to DNA, is left for us to do? Are there still great discoveries to be made, or is it just filling in details?

After some speculation about the possible significance of epigenetic phenomena (secondary factors beyond the actual sequence of DNA elements) Watson said:

> [relevant research] seems to moving pretty fast. You don't really want to make a guess, but I'd guess that over the these next 10 years, the field will be pretty played out. A lot of very good people are working on it. We have the tools. At some stage, the basic principles of genetics will have be known be in terms of gene functioning, and then we'll be able to apply that more to [more difficult] problems such as how the brain works.

Next *Scientific American* asked Watson, "[i]f you were starting out as researcher now". Watson interjected, "I'd be working on something about connections between genes and behavior. You can find genes for behaviors…".

The fact that Watson said this in 2003 and as of 2017 little if any of his prediction has happened is a big deal. Forget "played out", it is debatable whether the DNA connections business has even gotten started. Instead of waiting for official scientific questioning of the genetics vision, you can simply look now at the big obstacles facing that vision.

Chapter 1 - The Quietly Unfolding Missing Heritability Problem

Arguably the ground floor of the modern intellectual point of view is science's material-only understanding of life. With the possible exception of those making inferences drawn from near-death experiences or parapsychological studies, the modern mechanistic paradigm enjoys thorough intellectual confidence. It would be a challenge to try to identify academic efforts in the last 50 years that have questioned this ground floor of science's vision, perhaps in particular that our deoxyribonucleic acid (DNA) "created us, body and mind" and therefore that our individual existences came against gargantuan odds. This view of DNA is made explicit in the title of Francis S. Collins' 2010 book about DNA, *The Language of Life*. This vision of life is of course nested within the modern scientific vision of the universe - vast and meaningless.

Some DNA Basics

Before considering some recent efforts to identify the DNA origins of particular characteristics of individuals, it is worth considering some relevant aspects of the DNA landscape. I start here with a somewhat detailed example to warm up to some evolutionary dynamics of DNA and their constituent genes. A relatively concrete and significant example of those dynamics was the development of color vision in our primate ancestors. As a result of that development humans and a number of other primate species differ from most mammalian species in our increased capacity to distinguish the visual spectrum. In particular, our eyes' retinas come equipped with three distinct visual pigments, one of which responds strongest to short-wavelengths of light and the other two respond strongest to longer wavelengths. Those responses of the three pigments correspond to the colors blue, green, and red, respectively. With their differing spectral sensitivities, these pigments together provide the necessary input so that our brains can provide relatively good color vision. Details of how the brain's basic visual processing occurs are still being worked out, but the evolutionary development and significance of our trichromatic vision (or trichromacy) appears to be understood. The relevant source here - a fine *Scientific American* article, "The Evolution of Primate Color Vision", by Gerald H. Jacobs and Jeremy Nathans - included a revealing picture of a frog as our trichromatic vision would see it and another from the corresponding typical mammalian dichromatic viewpoint [Jacobs and Nathan]. The article also pointed out that a consequence of our trichromatism "is that computer and television displays can mix red, green, and blue pixels to generate what we perceive as a full spectrum of color".

A pigment consists of a light-absorbing molecule derived from vitamin A together with a protein bearing a particular sensitivity to optical or light stimulation. Such pigments when housed in one of our retinas' cone cells can be stimulated by some light and that response is then relayed to the brain for producing an image. The specification for a visual pigment's protein is found in the DNA. It appears that the DNA specification for our shorter-wavelength pigment protein is essentially shared with many other vertebrates. Thus it appears that this DNA protein-specification (or gene) apparently had its origins a long time ago in evolutionary history.

It is with the DNA specifications for our two long-wavelength pigment proteins that some interesting history and the specific origins of our color vision can be found. These two genes - and the resulting pigment proteins - are very similar, and in fact, the two proteins differ in only 3 out of their constituent 364 amino acid elements. Many other vertebrates also have a single visual pigment similar to these but somehow in evolutionary history one or more primates got an update, an almost-duplication, resulting in a second long-wavelength pigment specification and with it an opportunity for improved color vision.

The initial step towards our trichromacy appears to have occurred over 40 million years ago in some primate ancestors and involved successive changes or mutations in the original long-wavelength pigment gene. These mutations left these primate ancestors with three variations (or alleles) amongst their long-wavelength gene which was located on their X chromosomes. Since there was only one such specification per X chromosome, though, the males in this group (having only one X chromosome) were still limited to two color-sensitive retinal pigments and thus some form of dichromatic vision. Some of the females, on the other hand, were fortunate in that their two X chromosomes bore different long-wavelength pigment genes and thus they experienced trichromacy. This original gender-dependent step towards trichromacy is still present in the New World primates of South and Central America.

After the separation of the New and Old World primates (via the moving apart of South America and Africa) about 40 million years ago, there appears to have been a rare error in the production of a subsequently fertilized egg cell within the Old World primate lineage of Africa and Asia. That error apparently occurred in the chromosome-swapping (or recombination) process used to form an egg cell and occurred in a female with DNA that bore two different long-wavelength pigment genes. The particular error apparently left two distinct long-wavelength genes on one X chromosome. Thus, that resulting egg cell's DNA became a ticket for its offspring to possess trichromatic vision regardless of their gender.

The resulting vision update was likely helpful to those primates including with their efforts to distinguish ripe fruit. Over subsequent generations then this dual long wavelength gene package spread widely to provide the trichromatic vision that is now standard equipment amongst Old World primates including humans. The original arrangement with only one longer-wavelength pigment gene on the X chromosome would have fared poorly under natural selection, and thus was eventually lost from the Old World primates' gene pool.

The evolutionary dynamic exhibited by this development of trichromatic vision in Old World primates was perhaps somewhat complicated with its sequence of mutations followed by a recombination error. But the underlying changes over time in DNA blueprints and then the subsequent response of natural selection - in this case positive selection - was not unusual. Thus as is currently understood, by happenstance a gender-independent trichromatic DNA specification was come upon long ago in the Old World primate lineage and it was a natural selection-winner so that over subsequent generations that trichromatic specification became the norm. (A subtle point being glossed over here is that the mammalian brain - as demonstrated in experiments with mice - apparently can readily incorporate the additional input of a second long-wavelength visual pigment and thus utilize a trichromatic opportunity).

What is of general note here is the very elemental, undirected, and long term nature of the color vision evolutionary process. Another example of such a process can be found with the receptors responsible for our sense of smell which were cumulatively built over time and involved about a thousand genes. Each of those genes was acquired during evolutionary history and each produces a distinct protein which is used as chemical receptor in our nose and then also as a guide to ensure that the corresponding neural connection is correctly made in our brain [Pinker 2002, p.93]. Like the addition of the third visual pigment gene, the additions of each of these smell receptor genes was likely helpful in a reproduction-and-survival sense (perhaps in helping to distinguish a threat), and thus spread widely.

One additional complication associated with the genetics of our color vision, though, is that it is imperfect. Most significantly, there is some evolution-given variation in the two long wavelength genes found within the human genome. As a result of that variation about 1 in 12 males of European ancestry suffers from some form of deficiency in their ability to distinguish within the red-to-green light spectrum. Because these genes are located on the X chromosome, females are less likely to experience this condition and for the corresponding female population the deficiency figure is only about 1 in 200 [Columbia, p.626]. For other groups the occurrence rates appear to be lower. This second genetic dimension, involving DNA defining the differences between individuals within a species is of course important in and of itself, and is also fundamental to the ideas considered within this book.

Some other examples of DNA's confirmed individual import were given in David M. Kingsley's *Scientific American* article, "From Atoms to Traits" [Kingsley]. Kingsley pointed out several physical traits and their confirmed DNA origins. Sometimes these origins simply involve single element (or letter) changes in the DNA as in the case of short-versus-tall pea plants. In another example it entailed a big singular change involving the substitution of an 800-base-pair sequence into a gene of a pea plant resulting in wrinkled pea skins in place of smooth ones. The effects of these DNA variations had been noted by Gregor Mendel in the mid-nineteenth century. Along these lines Kingsley also pointed out that:

> bigger muscles, faster running ability or improved ability to digest new foods have all arisen from simple new arrangements of atoms in the DNA sequence of ... dogs and humans.

Amongst physical traits the DNA connection is increasingly being confirmed.

But it is also worth noting, though, that how an elemental DNA dynamic - like that found in our color vision history - could have formed something like complex instinctive behavioral tendencies is not easy to see. As Rupert Sheldrake pointed out:

> [g]enes are not selfish and ruthless, as if they contained gangster homunculi. Nor are they plans or instructions for organisms. They merely code for the sequences of amino acids in protein molecules [Sheldrake, p.163].