Philosophy Pathways, Issue 146, 19 August, 2009. http://www.philosophypathways.com/newsletter/

A review of

Signature in the Cell: DNA and the Evidence for Intelligent Design S.C. Meyer, New York: Harper One

S.N. Salthe

This is a well-written text, for the most part clearly argued in an engaging, relaxed style. What there is to the Intelligent Design (ID) hypothesis seems to me to be well presented in this book.

We must accept that there is currently no known spontaneous physico-chemical process that could explain the origin of the genetic apparatus in living systems. This – the "DNA enigma" -- might be said to be an outstanding challenge to science.

That is, *if* we consider that origins of anything are genuine scientific questions. Science typically works with existents -- with the world as it is now, or as the world was, given that it was earlier much as it is now. Change, including evolutionary change, can be accepted as a bonafide scientific problem, but I think origins inherently resist systematic investigation.

Much of this book is devoted to examining various attempts that have been made to understand the origin of life within the current physico-chemical framework, and the book is valuable for this critical exposition alone. A chapter on the popular 'RNA World' hypothesis is especially useful. Meyer shows that physico-chemical suggestions on the origin of life using chance or necessity, alone or together, have so far been unable to construct a convincing scenario for this supposed originary event.

Yet, even so, some scientists continue to wish to produce a plausible explanation using nothing more than known physico-chemical principles, abetted by chance. The latter involves historicism – here it would be, a concatenation of physico-chemical events influenced by multiple contingencies (combining chance with law). Such a sequence of contingencies may be where the Intelligent Design program ought to be pitched. Since the origin would presumably be unrepeatable and so untestable as such, it might be useful to point to other unexplained sequences of events that would have been originary in a similar way. Meyer

briefly mentions the 'anthropic principle' of cosmology. If one could find several more such enigmas, the collection together might seem to have more explanatory power than just one or two examples.

Meyer claims that the only agency known by us today to produce "specified information" is the human (it should be 'Western technological') imagination, which he calls "intelligent".

He suggests that, since physico-chemical attempts at understanding a spontaneous origin of the specified information associated with life have so far failed, then the only remaining possibility would be an intelligent agency (left unspecified).

Meyer has little discussion of how this intelligent construction would have been carried out beyond suggesting supposed parallels with the creation of informational structures in computers. This seems a bit too glib. He does not attempt to give us a picture of the intelligence-mediated origin in anything like the detail presented in discussing various physico-chemical attempts (where he delights in pointing out how the intelligence of researchers intruded here and there as adjustments in the experiments). As Meyer says in another context, "sauce for the goose is sauce for the gander'! This leads one to suspect that in fact there is no imagined scenario for the intelligence-directed creation of life. Would it have been too ineffable to describe? It seems possible (likely?) that any clear description of that process would be as easily criticized as he shows the physico-chemical attempts to be. If the implication is that we do not have sufficient intelligence to imagine the originary process, then one suspects that there might be a deity 'waiting in the wings' (note that his Chapter 16 is entitled "Another Road to Rome!)

In any case, pitting a non-testable one-sentence claim (e.g., "Life was designed by an intelligent agent that existed before the advent of humans") about the origin against forty or more years of failed conceptual, laboratory and computational efforts seems a bit unbalanced!

Meyer's approach also begs the question of whether in fact the information embodied in, and carried by, the genetic apparatus is in fact "specified" information -- that is, information meaningful to the cell. Or, more to the point, that it was "specified" at its origin (to do or inform what? – he does not tell us). Presumably early metabolism would have been simpler and vaguer than what we find in the cell today. Meyer is well aware of, and describes, the elaborate manipulations carried out by the cell in the process of using the information in DNA. In hardly any case is a DNA sequence used 'as is'. The specifications useful to the cell are generated de novo in an elaborate process of cutting, stitching,

and chemical modification. In what sense, then, can the information DNA holds be said to be 'specified'?

Meyer insists upon the logical structure of the genetic apparatus without considering that it is we, Western scientists, who in our models work hard to try to impute logical organization to that inordinately complicated system.

Science is founded upon a simple logical foundation, and its models are all based in logic. But we have no assurance that the world is based in or informed by logic, allowing it to be intelligible. Scientists implicitly take that 'on faith', and so does Meyer. In this sense he conflates the 'map' with the 'territory'! In science this conflation has proven fruitful as a support for the construction of technology. That is, science 'works' in the short run as a basis for limited pragmatic activities. But questions of origins go far beyond the pragmatic.

Meyer handily knocks down various 'demarcation arguments' that were made by philosophers of science in order to show that ID is not a bonafide scientific enterprise. He spends a good many words on the historical sciences (his own is historical geology), and how they choose between various theories using abductive reasoning, on the basis of which one tries to choose the "best" explanation of some current phenomenon. It is here that he claims that ID comes out best *because* the various physico-chemical proposals have not been able to explain the origin. But, unless I missed something, I did not see in these pages a proposed layout of the ID process of origination. ID seems at present to be just words.

Meyer attempts, with varying success, to show nevertheless that ID -- as a scientific theory should -- has inspired some testable models. But, insofar as ID remains at base an opinion or intuition about logical structure ("specified information"), it remains itself untestable, as such, and, perhaps, self-evident grammatically. Is the ID hypothesis for the origin of biological information a substantive hypothesis or merely a vacuous *faut de mieux* attending the deconstruction of some physico-chemical attempts that used chance and/or lawfulness to understand the origin of life?

It might be worth pointing out here that there is no logical way to distinguish between a chance event and an arbitrary (creative) action – that is, an act not assimilable to one or another of our theoretical expectations. Since physico-chemical approaches mediated by chance have failed to deliver a convincing story of the origin of 'specified information', that, it seems to me, impugns the design hypothesis as well. That is, if it were found that specified information could be mediated by chance, then that would be a good argument in favor of design!

So design is not "beyond the reach of chance" -- for outside observers design could look like chance. An intelligent procedure which we view ignorantly from

outside would look random to us upon doing a statistical analysis. External statistical analyses will show that ensembles of creative acts conform to various probability density functions. Creativity is an internalist mood, not accessible as such to external investigation. We might note that internalism and externalism require different grammatical constructions – respectively, First Person, present progressive tense versus Third Person, universal present tense. These can never directly mix together. In Meyer's book the erstwhile physico-chemical attempts are in the Third Person, while ID, lacking definite description, is implicitly in First Person.

At one point Meyer raises the possibility of self-organization. But he does so in a very mechanistic, bottom-up manner that would better be labeled 'self-assembly', following various natural laws. At other points he refers to the evident hierarchical structure of the world. In that perspective, self-assembly takes place amid various constraints imposed top-down from higher, including larger scale, levels. That scenario would increase the degrees of freedom for self-assembly, given that this would depend locally upon, e.g., temperature, pH, density of various molecular species, and so on. The increased degrees of freedom in this context might suggest to some that self-assembly could get incorporated into a more flexible self-organization. But, to others it might suggest the possibility of a deity manipulating boundary conditions (given that this agent would be of larger scale or level of organization).

The hierarchy connection leads me to think about information as detected in scales much higher than the cellular. In particular, one might note that the widespread occurrence of convergent evolution has no neoDarwinian interpretation, as it conflicts with their 'descent with modification' conceptual program. Evolutionary convergence is hardly mentioned by anyone any more. It has no doubt become unfashionable and old-fashioned, and that leads me to guess that there is conceptual gold to be mined there.

In truth, the opposition of most scientists to ID is at base ideological. They will have none of it simply because it doesn't play by their rules, which in the context of the origin of life would be to present an explicit scenario suggesting how it was done.

We may note that scientists have been trying to construct the cell, just as any other investigated system, as a machine. This metaphor, not surprisingly, invites the notion of design and thus implies designers. I think that scientists ought to take note that it is their own philosophical mechanicism that has conjured up the possibility of design. But what if the cell is not a machine? Then scientists would

have no basis for fully apprehending it with logical methods, and – to boot – ID would no longer have even a fingerhold (as in this book) on the problem of its origin either. All scientists -- IDers or not -- implicitly credit the aphorism 'In the beginning was the word.'

It seems clear that Meyer is yearning for a re-enchantment of the world, something that has largely been destroyed by the hegemony of logic and science as deployed by various 'interests' in our culture. A quote on Page 450 from Bertrand Russell describes well our current spiritual malaise. But the likelihood of co-option of Meyer's proposed route to a renewed enchantment by ancient religious traditions is a major impediment to serious minds.