

Critical Review of Robert T. Pennock's *Tower of Babel, The Evidence Against the New Creationism*

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'And where might you come from, my fine lad?' said Mr. Enlightenment.

'From Puritania, sir,' said John....

'Puritania! Why, I suppose you have been brought up to be afraid of the Landlord.'

'Well, I must admit I sometimes do feel rather nervous.'

'You may make your mind easy, my boy. There is no such person.'

'There is no Landlord?'

'There is absolutely no such thing - I might even say no such entity - in existence. There never has been and never will be.'...

'But how do you know there is no Landlord?'

'Christopher Columbus, Galileo, the earth is round, invention of printing, gunpowder!' exclaimed Mr. Enlightenment in such a loud voice that the pony shied.

'I beg your pardon,' said John.

'Eh?' said Mr. Enlightenment.

'I didn't quite understand,' said John.

'Why, it's plain as a pikestaff,' said the other. 'Your people in Puritania believe in the Landlord because they have not had the benefits of a scientific training. For example, now, I dare say it would be news to you to hear that the earth was round - round as an orange, my lad!'

'Well, I don't know that it would,' said John, feeling a little disappointed. 'My father always said it was round.'

'No, no, my dear boy,' said Mr. Enlightenment, 'you must have misunderstood him. It is well known that everyone in Puritania thinks the earth flat. It is not likely that I should be mistaken on such a point. Indeed, it is out of the question....'

Lewis, *Pilgrim's Regress* (34-6)

For much of the era of modern science since Darwin, anyone expressing some form of William Paley's design argument, (i.e. that the clock-like contrivances in nature imply a designer just as a clock's contrivances imply a clockmaker), were treated just as Mr. Enlightenment treats John, in C. S. Lewis' *Pilgrim's Regress*. Any doubts we may have about the Darwinian account of the apparent contrivances of life are ill founded we are told, and can easily be corrected with a healthy dose of scientific education. Pay no attention to those wild-eyed Puritanian creationists, we are warned! Their flat-earth, god-of-the-gaps arguments are only meant to scare us all back into some kind of theocratic Dark Age. From Thomas Huxley to Richard Dawkins, a never-ending parade of 'Enlightened Ones' offered their assurances that science will one day find a naturalistic explanation for all the unanswered problems, at which time there will no longer be any gaps for God to fill.

Robert T. Pennock's sweeping, and often swiping, exposé of creationism adds little to the long litany of such parries to the design argument, except perhaps his straight-faced assurance that scientific naturalism really has nothing to say one way or the other about the existence of God.

Pennock has it that creationism is evolving, which makes for exciting times for "creationism-watchers" (2). Like the famed Tower of Babel, The creationist camp is in supposedly serious disarray. New creationist groups are vying for the same "niches" as the older "Young Earth Creationists" (YEC's), causing dissention in the ranks, and giving creationist watchers such as Pennock so much delight.

The internal schisms in "the Tower" divide along "old earth" and "young earth" lines, raising conflicts of Biblical interpretation, and according to Pennock, illustrate a number of key points. First, creationism like biological families, have a number of species and subspecies. Second, creationists' theological interpretations are the key to understanding the differences between the various factions. Third, these interpretations of theology drive the various creationists' views of science as well. And finally, creationists have a skewed view of evidence, using it only to bolster their particular

interpretation of the Bible. For the creationist, the Bible always trumps scientific evidence when an apparent conflict between the two arises (25-6).

The latest development in "the Tower" is the emergence of "a more powerful movement ... gaining strength ... and ... beginning to take the lead in the battles against evolution in the field," which he calls "Intelligent Design Creationists" or IDC's. Pennock refers to the individuals in the ID movement as the "upper tier" of creationists because they hold advanced degrees in various fields, (some holding several degrees each), and because they are "more knowledgeable, more articulate, and far more savvy." Included in the list are Walter Bradley, Charles Thaxton, Michael Behe, William Dembski, and, most notable of all, Philip Johnson (29-30).

Throughout *Tower of Babel*, Pennock relies heavily on inferences drawn from the various metaphors he offers for creationism. For instance, as mentioned, creationism is an evolving species of thought; it is a sociological power-seeking entity, which is in disarray, such as was the Tower of Babel. It's proponents, degrees and careers notwithstanding, are largely ignorant of science's true methods and philosophical underpinnings. Their arguments are almost exclusively negative, and fit into the "god-of-the-gaps" classification. Their arguments are no more scientific or believable than are those of the Raélians, a cult group who's leader, Raël (real name: Claude Vorilhon), teaches his followers that aliens told him the real creation of life story. These aliens, according to Raël, engineered life in their laboratories, and developed it into forms of ever increasing complexity. Creationists are also like Ben Hur (played by Charlton Heston) who see themselves as valiant defenders of God, fighting against the evil evolutionists.

Of course, Pennock's book cannot consist entirely of negative portrayals of creationism, so he offers a number of "evidences" for biological evolution (Ch. 2). First, we have "Darwin's own evolution" from the dominant creationist view of his day, to his inevitable conclusion, based solely on the empirical evidence, that all life on earth is explainable by common descent through natural processes. Then there is radiometric dating undermining the creationist's insistence that the earth is young, and the fossil record supposedly providing sufficient evidence to answer the charge that there are no clearly intermediate forms. Next, Pennock instructs us that the second law of thermodynamics does not apply to open systems, meaning that increases in order and complexity can occur naturally in systems (such as the earth) open to influxes of energy. Next we are told that Mendel's laws of genetics were "just what Darwin needed" to overcome specific weaknesses in explaining the mechanisms of evolution. By extrapolating genetic variation and natural selection over long periods of time, geneticists can account for vast changes in phenotypes. This new twist became known as the *modern evolutionary synthesis*. Then, when the structure and genetic role of DNA was figured out in the late 1940's, it too became evidence for Darwinian evolution. Here was the memory bank of life, supplying both the preservation of past mutational successes, and the seedbed of variations where innovations arise.

Another interesting line of "evidence" offered is the use of computers to engineer things such as airplane wings. In this case, engineers use special computer programs to randomly vary certain coefficients of the wing design. They then select out those variations that provide an aerodynamic advantage, and run the program again. In this fashion, an optimal design is approached using the Darwinian process of random variation and "natural" selection. We now (according to Pennock) understand how chance, coupled with the non-random process of natural selection, can create useful novelties. These developments, says Pennock, should have the creationists "squirming in their seats." After all, their "god-of-the-gaps" arguments keep shrinking with each new discovery of a Darwinian detail.

Finally, as perhaps what Pennock considers his trump card, he draws an analogy between the way languages evolve and the way biological organisms evolve. Here he hopes to accomplish two things: first to embarrass creationists who (ostensibly) believe that all languages are immutable, and originated at the tower of Babel; second, to use the evolution of language as a clear demonstration of evolution in general, and by inference, biological evolution in particular.

My thought is that it might help people see the weaknesses of creationist arguments if they could examine them in a context in which they did not already have a preference for the creationist conclusions. We could do this with any of the cases mentioned above, but instead let us look at another example in which the equivalence to the biological case is *especially clear* - the question of the *origin of languages* (119-20). [Emphasis mine.]

I will have more to say about the inference between linguistic and biological evolution later, but before moving on we should note that Pennock claims that he will show how ludicrous the creationist argument is by showing a clearly *equivalent* example of evolution in the *origin* of languages. What I will show is that the systems are not clearly equivalent. Pennock himself eventually admits this (144, 146). As to any demonstration of the *origin* of languages, Pennock offers only an excuse for not considering it after all:

Though the study of animal language remains controversial, it is fair to say that recent evidence has further supported Darwin's argument that the differences [between human and animal language] are of degree rather than kind. Despite the interest of this issue I will not pursue it here for a couple of reasons. First, much that has been written on the subject of glottogenesis, the origin of language, has been rather speculative, and it is only recently that good evidence has begun to accumulate. [For this claim he cites a 1988 book.]... The main reason, however, is that my purpose here is to draw a parallel with biological evolution, and the latter is typically taken to include not the origin of life but rather the development of new life forms from earlier ones (126).

Using the supposedly strong analogy between language and biological evolution, Pennock goes on to demonstrate the weaknesses of creationist arguments. Their demand to "see" evolution in progress; the claim of "missing links"; the distinction between "micro" and "macro" evolution; the charge of many "explanatory gaps" in one or another proposed phylogeny; the failure of naturalistic explanations of the origin of life and languages; all these arguments are, in Pennock fashion, shown to be weak in the area of linguistics, and therefore by inference, weak in biology as well.

After spending half of the book refuting creationist arguments of the Young Earth variety, Pennock finally addresses what seemed to be the point of the book to begin with (as implied from the title): the case against the "new" (Intelligent Design) Creationists (IDC's). What one wants to see in a book claiming to refute Phillip Johnson's theism, William Dembski's logic, J.P. Moreland's philosophy and Michael Behe's chemistry, is arguments from theology, logic, philosophy and chemistry. Not a polemic against young earth creationism. Yet that, coupled with what appears to this reviewer as fallacies of logic and misquotations, is what dominates most of the rest of *The Tower of Babel*.

Beginning with Phillip Johnson, Pennock psychoanalyzes this new breed of creationists. He claims that Johnson, a law professor from Berkeley, beyond simply misunderstanding the distinction between the epistemologies of science and law, is using his considerable rhetorical skills to mislead the public in an intentional effort to sneak Christianity back into the public schools. Pennock accuses Johnson of: deception (194); being a postmodernist (211); making straw-man arguments (261); blaming God for crop failure (283) and "naturalizing" God (304-6) (i.e. reducing God's deity to something testable by science.) His dismissal of Behe and Dembski follows similar lines of reasoning, everywhere failing to address the essential points of these men's work.

Evolution as a Worldview:

Pennock's arguments for naturalistic evolution reveal its metaphysical nature. When a theory becomes paradigmatic, it explains everything but loses its tentativeness. This, even according to Pennock, is ground for dismissal as a scientific theory:

"Of course Popper was correct that science should rule out all-purpose "explanations" (this is just one of the reasons, as we shall see in chapter 6, that science does not consider the Creation hypothesis), but he was wrong to have thought that Darwinism fell prey to this problem" (100).

Yet, previously Pennock was praising evolution's ubiquitous explanatory power:

We should thus think of scientists not as simply using a collection bucket, but as using a flashlight. One tests a hypothesis as one tests a flashlight - by turning it on and seeing whether and how well it can illuminate one's surroundings.... Particularly powerful theories are like searchlights that shed a broad, bright, and sharply focused beam upon the world, allowing us to clearly see and distinguish its features. Evolutionary theory is such a searchlight.... It is the great explanatory power of evolutionary theory - that it accounts for so much data so well - that testifies to its truth (54).

But notice that a truly scientific theory, such as say, the law of gravity, does not have universal applicability to virtually every subject one can talk about. We do not explain macroeconomics with Einstein's theory of relativity. Yet throughout *The Tower of Babel*, Pennock illuminates everything from cosmology, to biology, law, language and even creationism with the search-beam of evolutionary theory. This reveals its *Weltanschauung* rather than scientific nature.

Linguistic vs. Biological Evolution:

Pennock's argument from linguistics and the evolution of language is weak for a number of reasons. First, he attempts to show that belief in the immutability of language is characteristic of creationists in general, but he only directly quotes Henry Morris (who is not a linguist), and only indirectly refers to two others who argue that the biblical account of the origin of languages is reasonable. There is, however, no substance to the charge that creationists insist on immutability, either of languages or of biology, and none of his actual quotes from Morris demonstrate it.

Second, the very use of language change as a defense of Darwinian evolution is dubious. Pennock's effort to make them appear equivalent is reminiscent of Ernst Haeckel's doctored embryo drawings attempting to show his recapitulation theory. Here is an example of Pennock's associations:

We observe the current variations of forms of speech and their patterns of regional distribution. We note the hierarchical, branched structure of subdialects within dialects within languages within language families. We further see variations over time - tiny changes of accent and vocabulary arising in our own lifetime and bigger differences emerging as we look at the available records of the near and more distant past. *The conclusion to be drawn is clear.* Even though the record of transitional sequences is quite incomplete, the evidence taken together clearly supports the thesis that the different linguistic kinds we now observe arose through gradual transformation from earlier, ancestral forms.

Thus, *exactly* the same sort of observations and reasoning allows both biologists and linguists to draw the basic evolutionary conclusion (132). [Emphasis mine.]

I would agree that biologists depend on just these kinds of associations in order to support the general theory of biological evolution, but what Pennock misses is that these associations are only convincing if one accepts, *a priori*, that naturalistic processes are the only means available for the origin of life in its many forms. But why should we accept the equivalence of linguistic and biological evolution, when it is abundantly evident that language changes are accomplished exclusively by intelligent agents. Pennock argues that the similarity between the two is valid because there are no good examples of intentionally designed languages (144-6). But this commits a genetic fallacy, for we cannot escape the simple fact that human beings are the ones who are making changes to the language they speak, and humans are intelligent agents. That languages change in serendipitous or accidental fashion is no solid grounds for denying that they are done without intelligent cause.

Cutting through the pretense, we see that Pennock struggles in his effort to draw strict parallels between the two evolving subjects, and so he must woo the reader away from getting bogged-down on such trivialities. For the essential mechanism of inheritance, Pennock asks the reader to allow a little abstraction: "Here I must ask you again to think like a philosopher and try to imagine the concept of inheritance at a higher degree of abstraction. Put aside the concrete instantiation of biological inheritance. Forget about cell division and DNA molecules. Think not of the specifics of how the genetic material gets replicated, but focus just on the concept of replication itself" (137).

In what sense then is language inherited? Children learn from each other, their parents, their teachers, and they also experiment with speech on their own. Parents have also been known to adopt speech patterns from their children (and babies!) So there are no clear lines of "inheritance," although there are transient speech patterns. We find Pennock making similar appeals for loose logic when he considers the mechanisms of variation (138) and selection (140). In fact, the similarities between biological and linguistic evolution are so contrived that if it weren't for the constant sniping at the creationists' supposed belief that languages are immutable (no direct evidence offered), it is unlikely that the reader would buy the line that languages actually evolve in tree-like, Darwinian fashion. At one point, Pennock even seems to acknowledge this. After insisting that the creationist idea that all modern languages derive from Babel is ludicrous, he practically *defends* that hypothesis:

The parallels between the evolution of species and of languages are impressive, but I do not want to suggest that the analogy is perfect.... It is possible that there is *more than one root* of language trees; linguists occasionally discuss the "monophyletic" versus "polyphyletic" hypotheses, but the origin of language itself, like the origin of life in biology is an exceedingly difficult problem to investigate. (144) [emphasis mine]

But if the evidence allows for a polyphyletic interpretation, then how is it a silly notion that many languages originated at Babel? Pennock offers no help here.

Another point: If language is to be compared to biological evolution, then what are we to do with the genotype/phenotype pattern? If we accept Pennock's analogy that the written word is to language evolution as the genetic code is to phenotypes (137-8), then linguistic evolution resembles Lamarckian rather than Darwinian evolution. Even if we ignore the "intelligent component" involved in choosing speech patterns, it is clearly the case that "environmental pressures" such as peer pressure, mimicking, career paths, etc. can not only affect, but *purposefully direct* an individual's speech patterns, but this is precisely what Darwinian evolution is *not*.

In fact, language traits are so fluid and transient that it is hard to make any lucid comparison between biological and linguistic evolution whatsoever. It is not even clear that there is an increase in the complexity of languages over time. Les

Bruce Jr., a PhD candidate and teacher of Linguistics and Wycliff Bible Translator's Summer Institute of Linguistics, describes changes that increase linguistic complexity (restructuring) and those that simplify it (streamlining) as having a net effect of zero. (I offer this quote from a Creation Research Institute publication, to demonstrate that there is no dogmatic assertion from the Young Earth creationists that languages are immutable, as Pennock repeatedly asserts):

As far as I am aware no linguist seriously purports that the restructuring process of language overrides the streamlining process resulting in a qualitative positive development of language. If we decide that language did originally develop, possibly evolving from animal communication, we can only do so assuming evolution to be a universally valid principle. This type of a priori reasoning was the basic fallacy of pre-Nineteenth Century 'speculative grammar' which was pre-scientific in the modern sense of the word. (Bruce.)

A quick internet search on the subject yielded ample evidence that linguists who postulate evolutionary models of language origin and development, assume biological evolution as a necessary premise. For example, I found an in-depth and well-sourced article on the subject of the origin of language which included the following comment: "*If we assume the continuity of nature (and hence of life), and the evolution of man as part of a general evolution, then we will not expect any distinct origin of particular human forms or functions. Language development would be a continuum from the simplest form of inter-individual communication to a more and more complex one*" [Emphasis mine.] (Allott, Intro ¶13).

Pennock's portrayal of linguists and biologists as coming to this conclusion (that languages have evolved in the same fashion as biology) in an unbiased, empirical fashion is naive at best.

Pennock's Ethics:

Pennock insists that morality has a positive basis whether or not God exists. His explanation of why this is true, however, falls between two stools. First, he tells us that people do find meaning in their lives, apart from whether or not they believe in God. For instance they might find worth and meaning in their children, or in their work, or in building a new home. Then he simply acknowledges that this is not a solid basis for morality and worth, for we might "expect more." Beyond mere "feeling of value," we may want "values that are justified"(329). One wonders just what point the example was making. He states, "On this point the philosopher and the creationist can agree - by itself the simple identification of individual psychological value does nothing to justify those values. We would not want to fall into a form of subjective relativism, which is antithetical to the most basic meaning of morality" (329).

In what seems like an attempt to mask the desperation of his case, he tells us that there is a vast history of ethical theory justifying morality and values apart from God's existence (what that body of thought actually says on the subject he leaves out). The issue is so simple though that he sees the need to only "briefly note one solution to the (creationist's) existential crisis." The solution? Existentialism itself. Pennock elaborates:

According to the existentialist, we are right to feel worried about meaninglessness because *the world really is meaningless*. We are moral beings in an amoral world, so it is quite understandable that, thrown into such an absurd situation, we might wonder whether life is worth living. Nevertheless, let us not give in to despair ... for as moral beings we have the freedom to interpret the world as we will, and thereby to impart meaning to life. If we are not given a purpose, we can generate our own purposes. We can thumb our noses at meaningless and rise above the amoral contingencies of the world, creating value as we go, by the choices we make and the actions we take. This is a philosophy that challenges us to be masters of our own fate and to carry on in the *face of hopelessness*" (330). [Emphasis mine.]

To summarize: The angst that creationists feel results from their perceived need to ground their existence in God's existence. But this is really unnecessary. There is abundant meaning in a universe without God. On the one hand, we can ground our significance in the baseless feelings of purpose we have in our relationships, our material things, and our occupations. Or, we can just set our jaw, accept the real meaninglessness of our existence, and then conjure up our own meaning. Well, perhaps some of us may be forgiven if we still "expect more."

The Origin of Life Itself:

Pennock accuses "creationists" of "quickly" dismissing the assumptions and results of origin of life experiments:

Creationists usually cite the Miller-Urey experiments and then quickly dismiss both the assumptions and the results to date of all such research as insignificant.... Of course, they are right to suggest that the origin of life remains largely a mystery, but they do not seem to be interested in contributing to the ongoing laboratory work ... that is slowly uncovering initial pieces of the puzzle and leading to further understanding (161-2).

He goes on to directly quote only one source (Friar and Davis, *A Case for Creation*), and allude to Percival Davis and Dean Kenyon's textbook supplement *Of Pandas and People*. He calls Kenyon an "erstwhile" origin of life researcher, and fails to even mention the book's Academic Editor Charles Thaxton, who co-authored a major critique of origin of life experiments entitled *The Mystery of Life's Origin* (Lewis and Stanley, Dallas, 1984). To ask these scientists to continue looking for evidence that life arose by chance and necessity would have been like asking Louis Pasteur to continue to look into the theory of spontaneous generation after showing its error, or to complain that the Patent Office no longer issues patents for perpetual motion machines. When the likes of Thaxton and Kenyon are convinced on theoretical grounds that life cannot arise from inanimate matter through natural processes, it is rather absurd to sniff that they "are not interested in contributing to ongoing laboratory work. ..." Had Pennock offered any examples to show why Kenyon's or Thaxton's critique of origin of life research is flawed, his barb would have some effect. As usual, though, he just moves on to some other charge.

2nd Law of Thermodynamics:

One of the most fundamental subjects to master in engineering is Thermodynamics. It has broad applicability throughout the sciences, and its laws can be expressed in a number of ways. Perhaps the most often quoted, and misrepresented is the 2nd law, or the "law of entropy." This law refers to the general trend of energy in the universe to transition from states of higher to lower potential. Increases in entropy are equivalent to reductions in potential, or "useful" energy. Another way of putting the second law is that things tend toward 'disorder' or randomness, although this way of expressing it can be somewhat misleading. A better way of putting it is to say that a closed system tends toward thermodynamic equilibrium, or a more even distribution of thermal energy. The study of the flow of energy through physical systems is the subject of thermodynamics. Both sides of the creation/evolution debate appeal to thermodynamics to make their points, with limited success. The Intelligent Design theorists have re-fashioned the argument to include the flow of *information* through physical systems, a crucial innovation.

Biological systems have marvelous mechanisms for converting energy and doing work with it. In fact, they do it very efficiently. Mammals for instance, metabolize energy at just a few degrees above ambient temperature. But the mechanisms of biology are law-guided systems, which in principle cannot generate new information. Bill Dembski presents the theoretical basis for this claim in his book *The Design Inference*, and more briefly in chapters 5 and 6 of his more popularized work, *Intelligent Design*. The proof is too long and detailed to go into here, but the idea is that chance and law can be modeled by stochastic processes, which are demonstrably incapable of generating complex specified information (CSI). Chance can produce random functions (e.g. modifications to existing biological systems) but these "new" functions (or biological systems) will not have new information that is both more complex and specified.

As an example, researchers who experiment with the genes of *drosophila melanogaster* (fruit flies) have observed many unusual, randomly (and non-randomly) generated mutations, such as variations of wing size, number and location of eyes, number and location of limbs, etc. This is a good example of chance producing derivative functions (limbs, eyes, etc.) yet without new information being added. The complexity and specificity of the "new" organs is equivalent to (or less than) the original organs. As Dembski put it, the stochastic processes (e.g. producing the new forms of fruitfly) are merely conduits of information, not producers of new complex specified information.

Complex Specified Information:

What actually characterizes the Intelligent Design project is the study of the presence of Complex Specified (and contingent) Information (CSI) in the universe. Dembski has described a method for accurately detecting meaningful CSI (*Intelligent Design*, 127-39), and it is necessary to understand the principles involved if we are to see through Pennock's dismissal of the ID project.

Complexity is equivalent to low probability, so that when an event is highly improbable, it is also complex. There are many complex things in the universe that are produced by chance, such as weather patterns or rock formations. Intelligent beings also produce complex things, such as symphonies or airplanes. Thus, complexity is a necessary, but not sufficient condition for detecting intelligently caused events.

A second condition is that the event be *contingent*. Contingency indicates that there exists a large field of choices among which the event in question is just one. For instance, if you grab a handful of cut flowers, hold them above a vase, and drop them, the "arrangement" that results will be complex (i.e. unlikely). If you repeated the action, it is improbable that you will get that particular arrangement again. But there is nothing about that arrangement that cannot be explained by the laws of gravity acting on cut flowers. If, on the other hand, you arrange them so that they are all inserted into the vase stems first, then that arrangement will reveal both complexity and contingency. The orientation such that all stems are down, all flowers up, is one choice out of many, and it seems that a choice was actually made. Dembski points out that this fits the etymology of the word 'intelligent': "*Intelligent* derives from two Latin words, the preposition *inter*,

meaning between, and the verb *lego*, meaning to choose or select. Thus according to its etymology, intelligence consists in *choosing between*. For an intelligent agent to act is therefore to choose from a range of competing possibilities" (144).

The third necessary condition is *specificity*. Specificity indicates that there exists an independent criterion, or target pattern for the event. I have on my shelf a couple of books instructing on the finer points of floral design. There have been developed over the years, well-defined techniques for arranging flowers in beautiful ways. One technique is to arrange the flowers in a 'three-tiered' hierarchy of flower clusters. If you study these books, you can train your eye to notice when it is done well. Similarly, patterns exist for graphic arts, music, poetry and so forth. The key here is that there exists an *independent* pattern, to which a particular event is compared. When a close match is identified between the target and the event in question, then it is said to exhibit specificity. Taken together, complexity, contingency and specification are sufficient conditions to infer that an intelligent agent produced the event that exhibits them.

This understanding of CSI was implicit in Dr. A.E. Wilder-Smith's description of the genetic code, in his book *The Scientific Alternative to Neo-Darwinian Evolutionary Theory*. Dr. Wilder-Smith explains that code consists of concepts (constructs of mind) that are associated with arbitrarily chosen symbols by a language convention. The example he uses is an SOS message, indicated by one or another physical arrangement of three dots, three dashes, and again three dots (... - - - ...). We can arbitrarily represent this message by knots (for dots) and double knots (for dashes) on a length of rope. The key is that there is no causal relationship between the symbols chosen (or the physical form they assume) and the concepts associated with them. Such coded messages are characterized by sequences of these symbols according to a language convention (in this case, the Morse code). The number of symbols is therefore much smaller than the number of concepts they can, in principle, represent. A final point Wilder-Smith makes is that the concepts necessarily precede, and account for (entail) the code that carries them (73-79). In principle it is not necessary to know what particular concepts are being carried, so long as it is obvious that the above holds. For instance, until the discovery of the Rosetta Stone (1799) archeologists could not decipher many of the Egyptian hieroglyphs. Yet no one doubted that the hieroglyphs were intelligently caused, because they bore all the distinctives of code. Now let's look at one of Pennock's criticisms of the Intelligent Design Creationists.

In chapter 5 of *Babel*, Pennock turns to the positive evidence for design offered by the ID people. Much of his argument hinges on his claim that there is no clear cause to associate the code on the DNA molecule with code that we associate with intelligent agency. To show this, he quotes from the SETI (Search for Extra-Terrestrial Intelligence) web site: "How shall we know what the signal means? ... [A] message from another civilization would probably use a language based on universal mathematical and physical principles. Signals that a civilization uses for its own purposes may be difficult to decipher. Such emissions may have no detectable message content" (254). Pennock concludes from this that even if the code on the DNA molecule was intelligently caused, that is not something science can detect because we have no pattern to compare it to:

This is generally true for inferences about purposeful design. Unless the purposes are of a kind with our own ordinary ... purposes, they will be invisible to us.... To draw an analogy between such patterns of information and the patterns of information found in DNA is to make an unwarranted leap. Information-rich as DNA might appear, this is not sufficient to conclude that it is a sign of intelligence. The information in DNA can be attributed to natural causes (254).

The flaw in Pennock's reasoning is now clear. He confuses knowledge of the message itself with knowledge that an intelligent agent caused the message in the first place. Just as with Egyptian hieroglyphs, we do not need to know the concepts carried by a string of arbitrarily chosen symbols in order to recognize that that is what they are. In the case of DNA, we see that it is the sequencing of four nucleotides (adenine, thymine, guanine and cytosine) that carries concepts that the cell interprets when constructing biopolymers according to those concepts. There is no law-like relationship between the individual symbols (the four nucleotides) and the CSI that informs the cell. It is their sequence alone (Complexity), which necessarily follows a language convention (Specification), which bears the concepts (Information).

Furthermore, and in contradistinction to the code that the SETI people are looking for, the purposes underlying the DNA code are available to us. Biochemists can and do discover the meaning of genes, making their discoveries much more like the discovery of ancient human language conventions than Pennock would have us believe.

Mount Improbable:

Michael Behe shows in a practical sense what Dembski presents in theoretical form: Complex specified information cannot arise from chance and natural law. In his book *Darwin's Black Box*, Behe demonstrates that there are insurmountable complexity thresholds that prevent even living things from, as Richard Dawkins describes it, "climbing mount improbable." He does this by exploring a few of what he calls "Irreducibly Complex" systems in the cell. If there is sufficient

informational distance between one presumably ancestral system, and another, both irreducibly complex, then chance and necessity will not be able to account for the advent of the new system on the theoretical grounds presented by Dembski. This is just what Behe demonstrates in his book Darwin's Black Box.

Interestingly, Pennock does not attack Behe's example of an irreducibly complex system in the simple mousetrap, a common approach among evolutionists. Perhaps this is because Behe and other's do a good job of defending it (http://www.arn.org/behe/mb_response.htm). What Pennock does is try to undermine Behe's assertion that the distance between irreducibly complex systems cannot be crossed in gradual fashion: "Remember, [Behe's] analogies are intended to function as criticisms of gradualistic Darwinian evolution.... However, according to evolutionary theory it is not individual organisms but populations of organisms that evolve"(169). This is a misleading claim, for the population is not going to acquire any novel trait by chance, unless it enters that population through one individual. It is only when a particular mutation occurring to one individual confers some advantage to it, that the new trait will spread throughout the population. The idea that several mutations can accumulate without any net influence on survival, until a new trait arises that does confer reproductive advantage has the same statistical and CSI problems that Dembski illuminates. Thus, we are left with the fact that Darwinian evolution does hang on mutations that happen to individual organisms. Further, the chapter in Darwin's Black Box that Pennock is referring to ("Road Kill") actually discusses the conceptual difficulty of the step-by-step evolution of basic chemical building blocks such as AMP. Behe points out that no biochemist has yet proposed any actual Darwinian scheme for gradually producing the ability to synthesize AMP. If Pennock is going to refute Behe on this point, he would be better served to pull out a paper showing the theoretical work making the emergence of AMP synthesis plausible. Picking apart Behe's analogy (which is what Pennock attempts to do) even if successful, would do little to discredit the Intelligent Design implications of Behe's biochemical arguments.

Conclusion:

Much more could be written on the particulars of Robert Pennock's case against the "new creationism," but these examples should suffice to demonstrate the kinds of arguments he uses, and their weaknesses. Though a number of points he makes against the "Young Earth" creationists seem to have some validity, nothing that he wrote in Tower of Babel will have the ID folks "shaking in their boots." If Babel holds any value for the ID crowd, it will be to anticipate some of these misconceptions as they write and speak in the future. For at least that service, ID advocates may feel a sense of gratitude to Pennock, even if his tone is condescending and his arguments miss their mark.

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