

SOME COMMENTS ON SCIENCE, INFORMATION AND DESIGN

Disclaimer: This is incomplete, not proof read and is a work in progress.

In this essay we will examine some ideas about science and how it relates to information and design. We will do so in a way which we hope will offer a different perspective on intelligent design theory and how it relates to the known properties of life biology and correspondingly the S.E.T.I. Project (the so far fruitless search for extraterrestrial intelligence)

Science is essentially about the relationship between information and the physical world. Given information about an experiment or other physical situation, science is to inform us to a high degree of certainty about what can be determined about cause and effect in particular physical situations which are directed by the experimenter. Science then tells us what we can infer about future experiments/situations from the experiment(s) run to date.

Intelligent design (i.D.) Theory is about situations where that may indicate design as a cause (outside organizing influence) rather than natural causes. It is intended to tell us when we can infer that design is probably present and allows us to differentiate between natural causes and design when the probability of natural cause is very low. We will discuss herein the basic similarities of the effort and the need to separate effects in all experiments/observations in physics.

Certain scientists have no problem when such a theory is applied to analyzing signals coming from outer space to see if they can detect intelligence at work, but are unwilling to apply the same criteria to the signals found in all of life. It is obvious that they are biased against the possible finding of intelligence at the source/root of life.

Science is supposed to be about separating and characterizing natural effects which are brought out, from the design setup of an experiment or which can be observed in the natural world. (When one gets to the subatomic level in physics, the story is quite different but that does not affect the current subject.) Scientists have to separate experimental design effects from natural effects in such experiments.

Scientists design experiment generally to study cause created by the experimental setup and effect measured on something. When one observes an experimental setup most people would have no doubt that some intelligence put the setup together for a purpose of some sort to measure/analyze certain relationships. This is the case even though most observers would not understand the purpose or the details of the intelligence built into the setup. Examination of the experimental setup would also not allow more than a very general and limited description of the intelligence that designed the setup. That does not, of course invalidate the experiment nor hinder the separation of cause and effect nor the elimination or at least separation of setup effects.

Similar to experimental setups, when we find some artifact which is highly unusual relative to what we find in nature otherwise, in the information it contains, we again seem to know (of what we observe is specifically different enough from nature) whether it was designed or happened by undirected natural physical forces. This is now the subject of an investigation and theory (intelligent design theory) which is aimed at quantifying the "it was designed" or "not designed" decision. This again is similar in some ways to the separation of setup effects from the cause/effect of interest in an experiment.

This relatively new endeavor into "Design Theory" is of very significant merit, but it is not without controversy. A Designer World. (List of other links below.) The reason it is controversial is primarily that it will almost inevitably impinge on Darwinian evolution dogma and secondarily on Cosmology. Darwinian dogma assumed that all life is the result of survival selection from purely random processes (an assumption, not a proven science fact) and is not the result of design. Life seems to be far too complex and improbable to attribute only to natural causes. Cosmology is about the "design" of the universe (initial conditions and laws of physics governing the universe) The initial conditions and the tuning of the laws of physics to the requirements for life also seem far too improbable to attribute to chance alone.

The controversy has become intense because the deeper one looks, the more design one sees. Darwinian macro evolutionists, however, claim that the incredibly improbable information in the designs of life comes about by natural processes, while many scientists outside the field (including this author) see such claims to be far less likely to be valid than the "designed" alternative. This is true even at the lowest cellular level of life which is loaded with information. It is very reasonable and scientific to study "design" and to try to quantify it in some way because of this contention as a matter of scientific principles of open minded inquiry. It would not be scientific just to arbitrarily claim that design is not part of science. Intelligent Design theory is about "cause." Science is about "cause" and effect. Design is tied in with the laws of physics and information. We always access information in some physical form, which is where physics comes in. Certainly the information involved in design can be thought of as independent on the physical form, however, even when we access it, it is through some particular physical form. Design theory is essentially about information in some physical form that is very improbable from natural causes alone. Design theory is about evaluating a set of information in a physical form and determining whether or not the structure observed can be explained by unaided and undirected natural forces within a reasonable probability. The classic example is finding a watch laying on the ground and knowing in some way that it was designed and not simply the result of natural forces at work alone. That decision can be virtually certain (extremely more certain than the theory of macro Darwinian evolution) so why shouldn't science analyze such decisions. Is it scientific to not make such an analysis just because the designer is unknown? It certainly would not be consistent with what science is supposed to be, which is finding out about the unknown.

If one were to argue that it "Intelligent Design" can't be scientific since it cannot be falsified, the same would hold true to date for Darwinism in regards to macro differences (truly novel and discontinuous with other life forms) in life. Unless Darwinian macro evolution could be demonstrated in the laboratory in an unequivocal way, the evolution of life is inherently in the category of possible Intelligent Design.

In accessing the "design" and macro evolution questions, mathematics and especially the concepts of probability and chance come into play. Design theory is about evaluating the magnitude and type of information in a situation and assigning a probability to it and from that probability determining whether or not "design" is the probable explanation. Darwinian macro evolution is about explaining extremely improbable findings with a theory which says that extreme improbabilities arise from an unbroken series of less improbable (still very improbable, however) very small steps which produce the appearance of improbability and design.

If we have certain information, via science experiments, we are able to predict effects of actions (such as dropping an object, applying a voltage to cause electricity to flow through a wire, etc.) In effect, a scientist designs certain situations in a laboratory and measures the effects and develops a theory or uses an existing theory to predict the effects of changes in the laboratory setup (except for Darwinian macro evolution). Science then takes that information and predicts what we will see in the physical world in other situations (except for Darwinian macro evolution which does not make such predictions about the future).

Science is about interpreting and using information as it relates to the physical world, which can be measured or calculated in some way. With sufficient study and experiment, science comes up with theories in physics which underlies all of existence. These physics theories are models of physical relationships. The models generally enable the prediction of other effects. Intelligent Design Theory makes predictions some of which are similar to Darwinian theory and some of which are different.

Is Intelligent Design testable? Intelligent design is testable as much as Darwinian macroevolution is testable and the answer to each is a matter of probabilities.

In design theory we may not know where the design comes from but in science we do not know where the laws of physics come from. The origin of the laws of physics is inherently also not testable. Even if some scientist some day generates a mathematical model which implies that the laws of physics can only have certain properties, the question will still be, how did reality come to follow that model? Intelligent design is more testable than the origin of the laws of physics.

Science essentially develops models of how the universe processes information when that process is of a type and scale which is amenable to physical experiment. The models (typically mathematical) are not reality but only a coded representation of our understanding of reality. All coded information requires some encoding and some decoding to effect the physical world. Intelligent design is a mathematical probability approach to situations which are sometimes beyond laboratory experiment.

When a scientist finds and develops a theory (a type of code which relates input and output information) for a physical phenomena which is repeatable, the scientist does need to calculate a probability and does not need to invoke intelligence from some element in or beyond the

universe. (This is not surprising in the most basic sense because even the most basic of the sciences typically deal with very simple situations.) Intelligent design theory is an approach to look at the existence of complex information situations where probabilities enter the analysis and to decide when the situation can be ascribed to the simple laws of the universe and when that would represent an improbability beyond some reasonable limit.

The more complex the situation becomes, however, the less science can tell us about it unless science remains able to reduce the situation to the simple probable sum of the repeatable interactions of its basic simple components. If the behavior of the whole (a laboratory apparatus or even a living cell) cannot be deduced by simply adding up the sum of the part characteristics, science is eventually forced to rely much more on mathematics than on the ability of our minds to contain a model which "makes sense in terms of a mental picture" (such as visualizing the world pulling a dropped apple towards the earth (gravity can, however, actually very complex in fairly simple situations) or visualizing how magnetic attraction works.)

If the physical situation gets very complex and is one in which we can see the interdependence and coordination of parts with individual functions which can be pictured in our minds, we will at some level of complexity and improbability "see" intelligence at work even though there is no "intelligence" formula or function as such in science. If there is a lot of information in a situation that is patterned (subject to rules) at some level it becomes reasonable to invoke design as the source. All Intelligent Design Theory (IDT) is trying to do is to quantities that decision in mathematical terms.

The actual arguments against IDT all boil down to "who is the Designer when we find intelligent design written all over every form of life"? This clearly has implications about a belief in God. Survival of the fittest and origin of life theories also have such implications (at least superficially on the other side of belief) and that does not stop science. So why should the study of information as it relates to design not be equally a valid area of scientific study? Is it OK in the search for extraterrestrial intelligence (SETI project) and somehow not in the study of life that we know exists? Clearly that would represent a double standard. There is a need for a "design" standard, and if the origin and evolution of life meet that criteria, science should objectively accept that.

Even information itself, however, is difficult to define and science cannot measure intelligence or information in any direct way. The two are certainly related but science cannot directly measure the relationship either. Now, however, a mathematician has written a book "Intelligent Design Theory" which at least tries to bound the relationship and provide criteria where information and physical pattern demonstrate the probable presence of intelligent design.

The basic question the mathematician who started looking at the analysis of design is trying to answer is "when does a certain form and amount of information justify invoking intelligence as the source of that information?" We can all look at Mount Rushmore and know that intelligence was a cause, but how do we do that and can it be quantified or at least can line be drawn in situations which when passed makes it reasonable to invoke design as the probable cause? A book

has been written by a mathematics Ph.D. about what is call "Intelligent Design Theory". This theory proposes some criteria for answering the question about whether or not design is probably the best answer when one find a highly ordered set of information present in physical form.

Intelligent Design Theory is intended to provide some reasonable logic which can be used to know when a system is sufficiently complex, ordered in some definable way and highly unusual in some way related to information to say that the system has been "Intelligently Designed". The alternative it to prove that the simple laws of the universe working together with chance are a more probable or at least sufficiently probable explanation.

The idea that "design" can be in some way scientifically be known to exist is not new. For some time the SETI science project (Search for Extraterrestrial Intelligence) has been looking for electromagnetic signals from space which could be determined to have been designed by an intelligence and which could not have realistically been created by natural processes. If, for instance, SETI were to receive a signal from another galaxy which repeated a large number of digits of say Pi (the ratio of the circumference of a circle to its diameters (3.1415926 etc.) with enough digits, there would be no serious doubt it was sent by an intelligence and not by a natural process. A simple repetitive number such as three stars in orbit around one another modulating light and radio waves would be questionable as to its source but probably natural. A set of numbers which described listed the chemical formula for a protein (the periodic table of elements could be numbered and used as a code for a given element, such as Hydrogen = 1 and Helium = 2, etc.) it seems would probably be unquestionably even as certain a sign of life as the number Pi (Pi is random in subsets of its numbers, but taken as a how would clearly be an intelligent sequence. If the statement about the information in a protein is true, how can scientists look at the actual proteins and say they occur naturally?

Proteins are extremely improbable structures which would require a lot of information or a random chance occurrence of ridiculous improbability even given the right chemical conditions and billions of years of time and a whole universe filled with its constituent molecules. Science cannot explain with anything like a complete theory, how a protein could form with out DNA and all the molecular machinery found in cells and those cells to exist in turn depend on the pre-existence of DNA.

Another problem for science is that even more information is needed to make all the molecular machinery (themselves) needed by the cell to decode the DNA and all that information has to exist independently of the DNA. Without the DNA code proteins are ridiculously improbable molecules and without the proteins, DNA cannot be replicated. The is a very deep chicken and egg problem.

Still another problem is that science knows of nothing besides life which can generate and sustain such large amounts of information such as the DNA all life needs to begin with. Science assumes some set of processes which no longer exist started a chain of events which led to the first DNA then life. This is an assumption about generating and sustaining an ever increasing library of

information which had the potential to create and sustain every form of life once it got going, but it is no more than an assumption which raises more improbability issues. These assumptions are all about information and reject (without scientific fact) the possibility of intelligent design. Increasing numbers of scientists are questioning these assumptions.

The Ph.D. in mathematics scientist (the science of manipulating information symbols according to rigid rules) has caused a firestorm debate essentially because his theory has raised the issue that essentially the same criteria for SETI to be scientific is usable when looking at the information in the design of living cells. This has in turn raised the hackles of atheistic scientists (and others who are concerned about science simply invoking God) who could live with the possibility of other intelligence in the universe, but not so much intelligence as to have created life. (There is no scientific reason to accept the existence of other intelligence and to then reject intelligence as having designed life.) In the case of SETI we have found no evidence of intelligence "out there in space" but in the case of life, we have found all the earmarks of intelligence at work. In the case of Intelligent Design theory, there are also many scientists who support the work.

Scientists essentially object to the idea of Intelligent Design of living cells because they have no other hard answer and because if one accepts that living cells were "Designed" that has theological implications. SETI would have nowhere near the theological implications, so it does not give atheistic scientists a problem. Scientists, of course, constantly seek explanations which do not require invoking God as an explanation. Science, however, never rules out God's existence in any way with any experiment.

Science merely shows that in simple situations, relatively simple rules of physics can explain occurrences in nature. It is not unscientific to say that something is "designed". Scientists design simple experimental setups all the time. Something is not scientific if design is involved. Science cannot rule out an intelligent cause without a complete proof that unguided events can provide the "design". This would actually require some type of complete sequence laboratory experiment and no experiment has ever shown more than a very tiny part of what would be required to explain life.

No scientist ever has either designed anything close to having the complexity of a living cell and no one can say that it can be done by simple laws of physics together with chance occurrences. Unless one observes any entire sequence of events, one can certainly never absolutely prove that at some point in the sequence, more than chance was involved. One can never prove that some rule/control was not at work. (We will later outline how this is true even for something as simple as coin tosses.) One can never prove that no rule is present is a complex information set/sequence since it is always possible that the rule has simply not yet been found. Even with what is now known, there is a question about how man will ever be able to fully understand the complexities of life.

No human can actually fully comprehend the difficulty required to design something that complex and indeed a mathematician named Casti has theorized that there is a limit to what humans can

comprehend. Most of those claiming to look at life and see less than optimum design have never designed anything complex and certainly never designed a complex system and, of course, are making up their own design criteria, when there is no reason to believe that they could fully comprehend the purposes of God.

Scientists would like to believe that all the information needed to build a living cell is contained in the DNA. The reality, however, is that it has become known that at least some of the information needed to replicate life is not located in the DNA*. It may even turn out that only a small part of the information is in the DNA and that the really complex information is in the RNA systems which makes Darwinian evolution even more questionable and design theory even more defensible when looking at life. In the book *The Bit and the Pendulum* by T. Siegfried on page 17 the author says (referring to a calculation

by S. Braunstein, a quantum physicist about the information in the human body it would require "...a bundle of CD-ROM disks that would take up more space than the moon."

One must imagine all that information for life is, in any case, supposedly packed into every nucleus of every cell in the body (not necessary if the cells in some way receive information from some sort of guidance field they may contain only part of the information!) It is virtually impossible, if the physicist's calculation is reasonably accurate, that all that information is in the DNA (there are good reasons to believe that such is not the case) and that that could happen simply by survival selection from chance mutations. DNA does not explain all of life.

We will try herein to summarize the key issues one runs into in analyzing Intelligent Design Theory and add a few observations not necessarily found as part of the debate but which we believe are important in understanding the debate. One should not expect simple answers and final conclusions in this debate. The best that will probably happen is to settle on probabilities which are reasonable and rules to use when looking for Intelligent Design.

Essentially the theory is quasi-mathematical based on the probability ideas and reasoning which we use often in life to decide if something we are seeing has been designed by an intelligence or if it is something which can occur via undirected natural processes. When we see something like an automated automobile manufacturing plant, no-one would ever conclude that it arose from natural processes. Yet when science examines the cells in living organisms they find cells which contain more motors than an automated factory. (A living cell can have possibly as many as 20,000 motors, molecular in size, and incredibly more difficult to make than large motors.) Each cell also involves a great deal of information encoding and processing, material handling, measurement and control, maintenance functions, and coordination with outside agencies (other cells.) Again this cellular complexity is on the order of, if not greater than, what would be found in a large very modern automated factory. How is science to view the living cells and is there a reason why intelligent design should not be considered as a possible explanation for the cell when it is clearly the explanation for an automated factory (even those which are much less complicated than a living cell.)

If living cells were simple (as believed in Darwin's time) then it would be just a matter of invoking chance in a large and relatively old universe for a cell to have formed somewhere. The very large magnitude of information in a cell, however, is the issue, however. Atheistic scientists (and probably some non-atheistic scientists) believe that natural selection can generate such information while other scientists see that there is no evidence in the natural world of any natural process which generates any encoded information let alone information of such incredible magnitude.

A simple coin toss situation can illustrate some of the question of the origination of information and the problems associated with it. If we take a perfect coin and drop it perfectly aligned with the pull of gravity on a perfectly flat and horizontal surface we would expect that with a large enough number of drops, the coin would approximately settle down to 50% heads and 50% tails. We would not be too surprised if it came up 45% heads and 55% tails. We would be very surprised, however if we did more than a few drops an every time it came up all heads or all tails. Why would we be surprised? There is a finite chance that we could drop the coin a thousand or even a million times and have it always land on the same side even if there is no bias in the physical situation to "cause" that to happen. If a very unusual sequence did occur, we would, of course expect that some rule/bias effect was at work rather which would be much more probable than some extremely improbable chance event.

Even if we examined the physical situation in detail and found no apparent bias, it would always remain possible that we had missed something which was biasing the situation. We would probably run another set of tosses and if again it came up all or almost all one side of the coin, we would be even harder pressed to assume a chance occurrence and probably assume we have missed some bias in the test.

The best examples of the problem of separating design from chance are in the origin and evolution of life.

Anti-Evolutionists, The Design Inference

Beyond the design inference present in all life down to the cellular level, one can never look at a pattern/design and be absolutely certain that it is the result of random chance. This is fundamentally true of any set of apparently random information. Conversely, one can never see a pattern (even Mount Rushmore for example) and say for certain that it was created by an intelligence. There can only be probabilities of knowledge of cause (near certainty at times, but never absolute certainty.) The question must be reduced to "how do we come to a near certainty of causative bias in a situation or a cause resulting from intelligent action." How do we make a probability decision?

We make probability decisions base on our understanding of the situation and the laws of physics as we have experienced them. This is true whether or not we have ever run a laboratory experiment.

We have now come back to the basic laws of physics, but the only law of physics which has probability inherent in it is quantum mechanics and quantum mechanics only results in uncertain results in experiment in very simple subatomic situations. In thermodynamics (the dynamic relationships of heat and energy determined by the laws of physics for a large number of molecules), statistical probabilities and uncertainties become determinate. (For example, we never find all the cold in one corner of the refrigerator since we are near certain to never find all the molecules of cold are in one corner of the refrigerator, though that is in fact possible just like with the coin toss situation.) The Mount Rushmore situation is analogous to the cold molecules of air in the refrigerator. There is a very low probability that all the little bits of rock on Mount fell off or hung together to cause the recognizable patterns of presidential faces.

If we had grown up alone in the wild and had a short nose and had never looked into a pool of water to see our face, etc. etc., would we recognize (decode) the pattern in the rocks of Mount Rushmore? This is a profound question in a way and one which cannot be answered with certainty, but we would probably recognize a difference between those mountains and others we had seen, especially since there is more than one face on the mount and we would probably detect a repetition/a pattern. To do that would, however, require intelligence on our part or at least some very sophisticated information processing.

Information processing may or may not require intelligence (a starfish has no brain as such but certainly processes information about its environment in moving, eating, and defending itself.) One can design a simple electrical circuit which will process signals (information) according to certain rules. While the starfish would leave evidence of its existence, we would not say that the starfish designed the evidence. The design is clearly in the starfish nerve circuitry and not in its environment. (In fact, there is far more design evidence in the cells of the starfish than in the starfish as whole (although the hydraulic mechanism of starfish locomotion is very sophisticated.)

The design of the starfish nerve system is evident/encoded in its physical body, but without the animation of the vital whole of the starfish, that information would not be decoded and would thru natural processes disintegrate and be lost to the universe. It is life which hangs onto the information. Life does this by taking in energy which makes it an open system able to sustain the information against the second law of thermodynamics.

The second law of thermodynamics is simply the observed fact that information tends to break down. Information is the existence of a pattern (code) and patterns tend to break down. (Mount Rushmore will at some time in the distant future no longer even be a mountain.) Life forms are the only known mechanisms by which significant amounts of information can be generated.

Basically, information is lost unless the information is part of a system which takes in energy from its environment. Is it possible for any system to create information which is quite different from simply maintaining and using information?

We will define Information (capital "I") operationally as the generation of a code which can be used to create order with in energy input and see where that leads. Information need not have repetition and a possible example of such information is the number Pi (ratio of a circles circumference to diameter.) We can use Pi to determine (to any desired degree of approximation) the circumference of a circle if we know its diameter. The numbers of a truly random sequence (considered by some definitions of information random number sequences contain the maximum amount of information, but cannot, on the other hand, be used to an purpose nor used to create a related operational pattern (code.)

Meaningful Information can be generated by an infinite number of possible codes. The simple laws of the universe (which are a form of code (the laws of physics can, however, generate only simple and limited patterns (tornados have limited forms which they can take, all the molecules in earths atmosphere generate a very small number of patterns compared with the quasi random and nearly unlimited shapes of clouds, etc.), by themselves without some form of decoding mechanism are not operational (no use will be made of them..) One can, for example, obtain very little information from the detailed shape of a cloud. Only the overall shape of the cloud is closely correlated to the laws of physics. (The laws determine the positions of all the molecules in the cloud, but at a molecular level, the macro (large scale laws are not determinant.)

Intelligence, on the other hand, generates codes of high complexity. Mankind is, however, probably just now in the 21st century reaching the level of designing anything approaching the very high order of complexity of the basic living cell.

Intelligent can generate codes which can be decoded without being lost in the statistics of large numbers. Human intelligence can generate codes which seems to be nothing but random numbers but which have a deep code which can only be detected by supercomputers. It is entirely consistent with science, to know that the information which generates life may be dependent on a code (hidden order in the history of the evolution of life, which might not be readily detectable even with supercomputers even if all the information of the history of life could be entered into such a computer. Keep in mind that DNA is the language of the code and DNA contains only that part of the code which still exists in life living today. One can think of life as analogous to a message which has been encoded into living organisms which have the decoder within them also. When our government intelligence agencies decode encrypted communications, they start with information which is encrypted (compared to life's codes) in a very simple way, which contains almost all of the information in the total message. Even then, the task is difficult with codes involving information far simpler than that contained even in the simplest forms of life.

Those who believe that the repeated use of the DNA code in different life forms proves that either one is descended from the other or that they have a common ancestor. This ignores the possibility

that a common code is the result of a common design and/or possibly just that the laws of physics require a particular code which has certain properties. (It also turns out that now it has been determined that the mitochondria use a different DNA code and also that the same exact DNA can code for at least two different proteins. Ref. the book, "Unraveling DNA" by Frank-Kamenetskii. Both of these findings make an already extremely improbable Darwinian explanation for all of life even more improbable.

While design theory is open to questions, it also is worth ongoing scientific analysis and is Darwinian macroevolution which is open to far more questions when it tries to explain all of life and the massive information it embodies. Refer to the excerpt below* as to how even the basic DNA dogma is crumbling which will essentially point reality even more in the direction of design.

Here is a link to another somewhat similar viewpoint.

[Link to discussion of evolution as historically based science and intelligent design theory.](#)

Since this essay was originally written (part of essay that follows), articles in Scientific American magazine have confirmed our basic statements about the limited meaning of knowing what proteins our DNA codes for. It turns out that DNA can code for more than one protein! Even for the proteins themselves, DNA cannot be the whole story. The Scientific American articles talk about the failures of the simplistic DNA dogma to explain the real complexity of life. In the October 2004 issue of Scientific American, the article The Hidden Genetic Program of Complex Organisms on page 61, states "Assumptions can be dangerous, especially in science --Eventually, if the volume of troublesome information becomes unsustainable, the orthodoxy must collapse." (The author is referring to biology dogma about DNA containing all the information which is needed for complex life.)

The author goes on to define all the ways in which complex life is dramatically different in kind from simple life like bacteria as it relates to genes. The article outlines the existence of numerous information control systems beyond DNA which exist in all complex life forms and which are necessary for complex life to function at all. The reality is that as with other numerous recent and ongoing findings of science fact, Darwinian macroevolution and other simplistic views of the origin and evolution of life are becoming untenable as more of the innate complexity of life becomes apparent.

The finding that complex life is totally dependent on multiple complex control systems raises another red flag for Darwinism. There is what is known as the law of requisite variety which says, "The variety in the control system must be equal to or larger than the variety of the perturbations in order to achieve control". This means that the control system must contain more information than there is in the rest of the system it is to control. (In other words, there must be more information in the control system than there is in the rest of the system if there is to be control of the system.)

This means that if Darwinian evolution is to explain such complex systems as are found in all complex life above the bacterial level, Darwinism would have to explain how the control system came to evolve before the system it was to control, as part of a total organism, came to exist to be controlled or how the organism survived until the control system evolved. Certainly, the author still invokes evolution as an explanation for all this complexity of control systems, but does not offer any explanation for how evolution could account for such extremely complex systems. Evolution is not just a matter of adding together the pieces (molecules) or bricks of life that happen to occur by random variation. Control of the dynamics of life is necessary and much more information intense.

The author of the October 2004 article says on page 65, "To build a house, one must specify the needed bricks, boards and beams, but one must also have an architectural plan to show how they fit together."

The reality is even worse for the DNA dogma than the house analogy since a house is not dynamic or living. In any case, we agree with the point of the analogy and before the article was written, this page already was using the analogy as something easy to visualize. The author then assumes that all that information is in the DNA despite outlining the opposite in most of the rest of the article. (This is after starting the article with the statement "Assumptions can be dangerous, especially in science.") On page 62, he makes a statement which is a fact and not an assumption when he says that "DNA in a genome does not correlate well with the organism's complexity. It seems highly probably if not certain that if all the information needed by a life form were in the DNA, there would be a correlation. If DNA actually contained all the information, how could it be the fact that as he says on page 62, "Some amphibians, for example, have more than five times as much DNA as mammals do, and astonishingly, some amoebae have 1,000 times more."

Could anyone believe that some amoebae need 1,000 times as much information as a mammal? One wonders if in making the statement about DNA and information, the author realized that he had to bow to the DNA dogma to get the article published in Scientific American which is quite dogmatic when it comes to evolution. In fact, science does not know how much information is in fact required for any particular life form and consequently cannot know if all the information needed is in the DNA, or DNA plus RNA systems or is somehow obtained from a field of some sort to which the DNA or RNA couples and correlates which has simply not been discovered yet. On page 61 the author (who should be saluted for the intellectual courage he has demonstrated in writing the article at all) says, speaking of science, "Assumptions often graduate to articles of faith." The article discusses how prokaryotes and eukaryotes are fundamentally different and while he does not say it directly, this discontinuity in cell design is another show stopper for Darwinian evolution as the whole explanation for life. In the November 2003 issue of the same magazine in another article about DNA, this article's author makes some astounding admissions about the failure of the science community to separate dogma from fact. Parts of this article are quoted below and commented on. We should note, only clarifications, no fundamental changes, to our essay have been needed as a result of our improved understanding from this and the above referenced Scientific American articles. Much of what follows below in capitals was written before any of the referenced Scientific American articles were published.

On page 49 in the article about the now admitted fact that the DNA in the genome cannot fully explain life, the article's author says, "I think this will become a classic story of orthodoxy derailing objective analysis of the facts, in this case for a quarter of a century." Mr. Mattick goes on to say "The failure to recognize the full implications of this--particularly the possibility that the intervening noncoding sequences may be transmitting parallel information in the form of RNA molecules--may well go down as one of the biggest mistakes in the history of molecular biology." This writer is compelled to add that those outside the peer pressures the biological sciences have seen this fact for some time.

On page 48 the author says, "there is no longer any doubt that a new theory is needed to replace the central dogma that has been the foundation of molecular genetics and biotechnology since the 1950s." This is an astonishing statement for a scientist in the field to be making in a reputable science publication. We commend the author for his intellectual courage and wonder if the editors of the magazine understood the full implications of the admission about the basic failure of the science community and system to separate dogma and orthodoxy from fact.

WE HIGHLY RECOMMEND THE BOOK, "IT AIN'T NECESSARILY SO, THE DREAM OF THE HUMAN GENOME AND OTHER ILLUSIONS" BY RICHARD LEWONTIN, FOR A REALISTIC VIEW OF THE HUMAN GENOME FINDINGS WHICH WAS PUBLISHED BEFORE THE SCIENTIFIC AMERICAN ARTICLES WE REFERENCE HEREIN. YOU MAY ALSO WANT TO SEE OUR ESSAY ON DNA REPLICATION. On page 191 of his book, Mr. Lewontin says, "Knowing all the genes of a human being doesn't really tell us what we want to know." On page 152 he says, "A deep reason for the difficulty in devising causal information from DNA messages is that the same "words" have different meanings in different contexts and multiple functions in a given context, as in any complex language." These facts are supported by the referenced Scientific American articles and many other references.

DNA does not in any linear (the whole is just the sum of the parts) way define how to build an organism from simple cellular bricks. As Mr. Lewontin says on page 152, "A deep reason for the difficulty in devising causal information from DNA messages is that the same "words" have different meanings in different contexts and multiple functions in a given context as in any complex language."

It is like English where "cat" can be an animal but it can also be the first three letters of catwalk, or of catastrophe, or catalytic, etc. DNA is not just linearly copied to form proteins which then move by natural forces to add together to make life. That is not how the DNA decoding works even in the simplest cells of life. The processes of life and its building blocks (bricks) are both far more complex than scientists make known to the general public. Life is far more than just the sum of a bunch of chemical building blocks. Life is not just a stack of living bricks. On page 152, Mr. Lewontin gives an example of this nonlinear DNA decoded world can be. He says, "The code sequence GTAAGT is sometimes read by the cell as an instruction to insert the amino acids valine and serine in a protein, but sometimes it signals a place where the cell machinery is to cut up and

edit the message, and sometimes it may be only a spacer, like the periphrastic "do" the keeps other parts of the message and appropriate distance from each other.

Obviously, there is no unique definition of at least some of the DNA code words! This is a very profound finding. Multifunction genes or other concentrated information elements in life present major problems for the proponents of Darwinian macroevolution. In fact, the finding that genes control other genes and that genes have multiple functions is another major problem for Darwinian evolution. The genes is becoming the hopeful monster. That is, the complex function gene is becoming something that is not explainable by gradual evolution. Making a more general statement on page 93, Mr. Lewontin points out that in science in general, there is a principle which says, "There is no unique way to describe or study a natural object. We begin always with a problem that sets the conditions of our description." In such cases, the descriptions depend on the conditions which the scientist sets to begin with. Sadly that is especially true in evolutionary biology and the study of DNA and life and this is not recognized (or at least admitted) by most biologists. "The Case For A Creator" is a book we highly recommend which in Chapter 9 discusses information involved in life and which in total, the book makes a good case for design referenced to many aspects of science. The book is written by a Christian.

[Why the Case for Intelligent Design is Important Darwin and Design](#)

[Intelligent Design and Evolution Awareness Center The Intelligent Design Hypothesis](#)

[Intelligent Design Theory in Public Schools?](#)

[Intelligent Design in Public School Science Curricula: A Legal Guidebook](#)

[Christian Apologetics Related to Science, Intelligent Design as a Theory of Information](#)

[Intelligent Design and Evolution Awareness \(IDEA\)](#)

[ClubnewCreationism](#)

[Design watch blog](#)

[Life is information processing](#)

[Design Inference Website](#)

[Detecting Design](#)

[Another Way to Detect Design?](#)

[Design is a reasonable topic to research](#)

[Refuting the Wind: A Tolerant, Thoughtful Darwinist Who Misunderstands Intelligent Design](#)

[Refutation of an argument made against Irreducible Complexity. \(Note how the original quotes-to be refuted-are based on assumptions.\)](#)

[Another rebuttal](#)

[Intelligent Design Theory and the Relationship Between Science and Religion](#)

[Creation/Evolution headlines with comments on Intelligent Design](#)