

**A COMPELLING CREATION:  
A SUGGESTION FOR A NEW APOLOGETIC**

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**ABSTRACT**

From our experience with quantum mechanics, chaos theory, and the ingenuity of the carnal mind, we know that it is not possible, by logical argument alone -- either from first principles or from observations of the natural world -- to arrive at the conclusion that the God of the Bible created the world. Solely logical arguments lead a person at best to a conclusion of the mind -- not the heart. Our apologetic should involve compelling arguments which remind a person what they already know in their heart (Rom. 1:20). A few compelling arguments from the creation are reviewed. Firstly, reinforced with the observation that the universe has low entropy as well as observations from chaos theory, the specified complexity found in observations which make up the anthropic principle provide compelling evidence that the universe -- from its basic lawlike underpinnings to the details of the earth's atmosphere -- has been fashioned for man by a transcendent, omniscient, omnipotent designer. Secondly, the language structure of DNA as well as the specified complexity, low entropy, and chaotic nature of biological systems argue compellingly that life was fashioned by an omniscient, omnipotent, communicating designer external to biological systems. Thirdly, thermodynamic and general relativity theories combined with observational data on galactic regression suggest that the universe had a beginning. From our experience with causality, there is compelling reason to believe that the universe began as the result of a conscious decision of a personal, immanent, transcendent, immaterial, changeless, eternal, omniscient, omnipotent being. These observations provide compelling argument not just for a god, but for the Creator God of Scripture.

**INTRODUCTION**

The Bible says, "...what may be known about God is plain to them [all of humanity], because God has made it plain to them. For since the creation of the world God's invisible qualities, His eternal power and divine nature have been clearly seen, being understood from what has been made, so that men are without excuse" (Romans 1:19-20). If Romans 1:20 is true, then observation of the creation leads inexorably to God and his attributes. Romans 1:20 and its context would further suggest that the creation's message is not only compelling to all people, but it has *already* convinced people. Those who reject the Creator are 'without excuse' (Rom. 1:20), or 'willingly ignorant' (II Pet. 3:5). This suggests that every person we meet -- believer or not -- has already been convinced that God is the Creator. The universality of the creation's message (see also Ps. 19:1-6) would suggest that it is ultimately a message independent of language, culture, scientific acuity, age, and even intelligence. The creation seems to provide a compelling message to the heart (not the head) of man. This in turn would suggest that logical rigor or scientific evidence or philosophical sophistication may not always be necessary components of the most compelling arguments for a Creator.

The implications and importance of these truths for evangelism and apologetics cannot be overstated. As we all know from personal experience, a person already convinced of something they are denying needs only to be reminded of it to be convicted very deeply and moved very powerfully. For all but the most hardened of people, logical proof or hard evidence is usually not needed. Rather, a loving reminder is often the most effective. When the supernatural work of the Holy Spirit to draw people to God is added to this, it is even more apparent that we should be about the loving presentation of compelling Truths, not necessarily the proving of Truth. In fact, arguing too strongly for something (*e.g.* trying to make a logically proven, brain-centered argument from a compelling heart-centered argument) might actually distract a person from listening to their heart.

Since the creation is said to speak so eloquently and convincingly of its own divine origin (Rom. 1:20), we ought to be able to find compelling arguments for the Creator in His creation. In this paper we would like to introduce a new apologetic and/or evangelistic mode. We would like to review a few patterns of the creation which seem to offer compelling reminders of the Truth that the God of Scripture created the universe and all things therein.

## THE LIMITATIONS OF MAN

### Biblical Claims

Unlike God, man is limited (*e.g.* Job 3:23; 13:27; 19:8; Ps. 139:5; Lam. 3:7-9). He is limited in such things as time (*e.g.* Ps. 90:10; Eccl. 8:8) mortality (*e.g.* Ps. 49:12; 78:39; 103:14; Isa. 2:22), power (*e.g.* Mat. 5:36; 6:27) and knowledge (*e.g.* Prov. 27:1; I Cor. 13:12; Jam. 4:14). Man is also fallen (*e.g.* Rom. 3:23). Man's fallen and finite nature means that *a priori* the acquisition of truth is a struggle at best and impossible at worst (Rom. 11:33; I Cor. 1:25). We would infer from this that man must be humble about any world view he develops on his own. Scripture, however, is not the only revelation which provides man with this warning.

### Quantum Mechanics

Our observations in the world of the very small have led to profound claims both about the creation in general and about us in particular. Many of the observations about the macroscopic world we have come to feel comfortable with are challenged if not outright denied in the world smaller than the atom. The Heisenberg Uncertainty Principle denies us what seems like a simple request -- to fully describe (as we seem to be able to do in the macroscopic world) a particle and its state. Also, although for centuries scientists have assumed that the physical universe exists independently of human observers, invasion by humans into the sub-atomic realm led to a questioning of this premise. It seems as if light, for example, was a particle or a wave dependent upon what you looked for -- it behaves as a particle if you looked for particle characteristics; it behaves as a wave if you looked for wave characteristics. Another long-standing assumption of science was the law of cause and effect. In the world of the nanometer however, particles occasionally seem to arise without cause. The oddities of the world of quantum mechanics are many (see, *e.g.*, [11:93-116], [12:100-118], and [13:197-234]).

Whether or not different rules actually operate in the sub-atomic and macroscopic worlds, quantum mechanics has demonstrated that humans are very much limited. At the very least, we have insufficient technology at the present to properly see, manipulate, and understand the very, very small. At the worst we are inherently forever incapable of, or prevented from, understanding the world of quantum mechanics.

### Chaos Theory

Because of its name, many probably think a chaotic system is one without order. In contrast, a chaotic system is one that is very highly deterministic (see discussions, *e.g.*, in [13:30-62] and [28]). If one could both understand the principles that drive the system and the initial conditions of the system, it is generally thought that the outcome of a chaotic system can be accurately predicted. The problem is that some systems are so tightly constrained that slight errors in the understanding of the principles and/or the initial conditions will lead to radically incorrect predictions. In fact, less-than-perfect knowledge **assures** the unpredictability (*i.e.* the chaotic behavior) of the system. Any system which is so tightly constrained that humans cannot understand the operating principles and/or know the initial conditions is called a 'chaotic' system. Rather than being a comment on the chaotic behavior of the universe (as some think), chaotic systems are more a commentary on the finiteness of human power and knowledge [14]. As more and more of the creation's systems are identified as chaotic (and possibly all of the creation's systems are), human finiteness is underscored more and more.

## Discussion

Neither quantum mechanics nor chaos theory **prove** that man is finite or (if he is) that he always will be. The transcendentalist might suggest that man merely hasn't yet accessed all that he is capable of -- he has not 'tuned in' to the proper cosmic frequency, if you wish. The naturalist might suggest that man is finite only because he has not yet had enough time to learn all that there is to learn, but that since the total sum of knowledge is finite, he'll eventually get there. In spite of the lack of logical rigor, many have recognized the compelling evidence from quantum mechanics and/or chaos theory that man is finite. For example, Steven Kellert comments that "...many physical scientists speak of chaos as another realm where human knowledge runs up against limitations. These limitations may be spoken of with fascination or awe, but we often discern a lot of regretful humility, as Nature has decreed: 'Here you can go no further.'" [27:29].

Quantum mechanics and chaos theory also seem to show that we cannot follow an unbroken chain of logic from first principles and observation to a complete understanding of the universe. On the one hand, this seems to challenge the claims of some naturalists that naturalistic science alone is capable of arriving at Truth. On the other hand, this also seems to challenge the claim of some apologists that logical argument or apologetics alone is capable of arriving at Truth. We must deal with more than science and first principles. Realizing, and humbled by, our human limitations, we should not appeal to rigorous arguments or 'proofs' as if we possess sufficient knowledge to know such things. Rather, we should appeal to common experience and compelling arguments to draw others to the God of the Bible. What follows are a few suggestions of compelling arguments from science which might be included within such a 'compelling creation' apologetic.

## THE CENTRALITY OF MAN

### Biblical Claims

Scripturally, we know that man is unique in the creation. He was, for example, the last (the crescendo?) of the creation and appears to have been the only being created in the image of God (*e.g.* compare Gen. 1:26-7 with the remainder of Genesis 1). He was also given authority over the biological and physical creation (Gen. 1:28; Ps. 8:6) and even the angels were created to minister to man (Heb. 1:14). Furthermore, the curse which came as a result of man's fall (and not, *e.g.*, the fall of angels) seems to have affected the entire creation (Rom. 8:19-22) and the entire creation expectantly awaits man's glorification (Rom. 8:19). Man seems to be the only object of God's love and salvation and God Himself came in the form of man (John 1:14). A study of Scripture would suggest that man is central to God's creation. It should not be too surprising that a study of Creation also suggests that man is central to it.

### Anthropic Principle

The foundation of the "anthropic principle" is a list of observations and an apparent inference derived from those observations -- namely that the universe **appears** to have been designed for man. A very incomplete list of observations foundational to the anthropic principle follow. First of all, for life to exist it seems that there must not only be causal regularities (*i.e.* 'natural laws') in the universe, but these regularities need to be simple in nature. At the same time there is no reason to believe that such laws have to exist or that they have to be simple ([30:50-1,58-9] and [45:173-4]). Nevertheless, simple laws do exist. Furthermore, although life requires simple laws, it also requires a complex universe. Among all the possible universes, there is no reason to expect any given universe to have ended up with laws **so** simple that they can be comprehended by man, but it seems to be true ([7], [23:21,238,284-5], [30:59], and [42:39]). Finally, so far as we can tell, there are a number of specific physical laws and principles which are essential to life. They include (but are not limited to) the baryon conservation principle [30:49,63], the gravitational inverse-square law [8:58], the Heisenberg Uncertainty Principle ([7:53,54] and [30:44]), the Pauli Exclusion Principle ([7:49-53,54], [9:63-4,149], and [30:43-4]), the quantization of atomic energy levels ([5:305] and [8:64,149-150]), renormalizability [30:61], the second law of thermodynamics ([8:100-1], [23:256-7], [24:151-2], and [30:63]), and special relativity ([30:62] and [38:116]).

There are also parameters of the physical laws of the universe which seem to require having the particular values they now have in order for life to exist. A value too much different from the present value -- up or down -- would appear to eliminate life. These apparently fine-tuned parameters include (but are not limited to) the half-life of the Pauli Exclusion Principle ([5:302-5] and [7:54-5]), the charges of the electron and the proton being opposite, but numerically equal ([8:62-3], [23:6-7], [30:44-5], and [45:180-1]), the strength of the electromagnetic force (*i.e.* the charge of the electron or the magnitude of the electromagnetic fine structure constant) ([3:128], [5:298,326-7], [7:218-221], [19], [21], [30:45-6], [35:123], [36:123], [37:161-2], [38:119], and [42:68]), the relative strength of the electromagnetic and gravitational forces [30:36-7,44], the mass of the proton [19], the spins of particles [30:53], and the efficiency of quantum tunnelling [38:116].

There are also characteristics of the universe which, if different than what they are observed to be, would seem to preclude intelligent life or life in general. They include (but are not limited to) the existence of particles of consistent type ([7:116] and [30:43]), the three-dimensionality of space ([5:12,15-16,247,259-275], [7:53-4], [8:19,58,94-100], [23:259-63], [24:163-5], [30:46-7], [39:32-3], and [45:174-6]), the metric signature of space [30:47], the topology of space [30:47], the mass density of the universe [30:32], the radiation intensity of the universe [7:98], and the temperature of the universe ([5:305-6] and [7:93-6,185]).

Atoms which have unique properties which appear to be essential for life's existence include (but are not limited to) carbon ([2:354], [5:143-4,545-8], [7:5], [8:103-4], [28:191-273], [40:120-2], [41:229], [44], and [45:170-1]), hydrogen ([5:143-4,541-5], [28:191-273], and [44]), nitrogen ([5:549-556], [8:104-5], and [44]), oxygen ([5:143-4,541-5], [28:191-273], and [44]), phosphorus ([5:553-5] and [8:104-5]), and sulfur ([5:553-5] and [8:104-5]). Molecules which have unique properties which appear to be essential for life's existence include (but are not limited to) ammonia ([5:550-2] and [28:263-5]), carbonic acid ([5:143-4,548] and [28:vi-vii,133-163,251-273]), carbon dioxide ([5:548], [8:103], and [28:133-163,251-3]), phosphoric acid ([5:143-4], [28:vi-vii], and [44]), and water ([5:143-4,524-541], [7:5,209-218], [8:105-8], [11:122], [20], [23:270], [28:vii-viii,72-132,164-190,251-273], [37:163], [38:120], [40:120-2], [41:228], and [45:171-2]).

Properties of our solar system and the earth's place in the solar system which appear to be essential for the existence of life on earth include (but are not limited to) a single sun ([8:111-2], [28:58-9], [35:129], [36:130], [37:166], [38:134,139], and [41:345-7]), the sun's surface temperature ([7:228], [8:75-6], [11:122-3], [35:130], [36:130,139-140], [37:166], and [45:185-6]), the type of sun [7:192-3], the particular gravitational interaction found between the moon and the earth ([8:112], [28], [29], [31], [35:130], [36:130], [37:168-9], and [38:138,141]), the eccentricity of the earth's orbit ([8:110-1], [28:52-3], [37:167], [38:140], and [40:123-4]), and the distance of the earth from the sun ([5:337-8], [8:57,110-1], [28:52-3], [34:6-7], [35:130], [36:130], [37:167,169], [38:135,140], and [41:247,344]). Properties of our earth which appear to be essential for the existence of life on the earth include (but are not limited to) the period of the earth's rotation ([8:112], [28:58-9], [35:130], [36:130], [37:167,169], and [38:136,140]), the earth's axial tilt ([8:112], [28:52-3], [33], [35:131], [36:130], [37:167,167], and [38:140]), the strength of the earth's surface gravity ([5:309], [8:78-9,80,112], [28:52-3,58], [34:6-7], [35:130], [36:130], [37:166], [38:135,140], [41:347-8], and [45:172-3]), the strength of the earth's magnetic field ([7:192-3], [8:110-1], [35:131], [36:131], [37:167], [38:140], and [40:125]), the earth's albedo ([8:112], [34:6-7], [35:131], [36:131], [37:167,169], and [38:140]), the atmosphere's carbon dioxide concentration ([5:548,567], [8:103,113], [35:131], [36:131], [37:168], and [38:141]), the atmosphere's electrical discharge rate ([8:113], [35:131], [36:131], [37:168], and [38:141]), the atmosphere's oxygen concentration ([5:567-9], [8:79,113], [20], [25:180], [36:131], [37:168], [38:141], and [45:172]), the atmosphere's oxygen/nitrogen ratio ([8:113], [35:131], [36:131], [37:167], and [38:141]), the atmosphere's ozone concentration ([8:113], [34:11], [35:131], [36:131], [37:168], and [38:141]), the upper atmospheric chemistry which destroys methane and ammonia ([38:135] and [43:43-5]), the atmosphere's concentration of water vapor ([8:113], [35:131], [36:131], [37:168], [38:141]), the distribution of continents ([37:168] and [38:141]), and the minerals in the soil of the earth ([37:168] and [38:141]).

Added to the above list are many more items which must be included if any of the various evolutionary theories are accepted as true (see, *e.g.*, [5] [7] [8] [11] [23] [30] [34] [35] [36] [37] [38] [39] [40] [42] [45]). Furthermore, the list of observations continues to increase in length as we learn more about the universe and its components. There is no indication that the growth rate of the list is slowing at all.

## Discussion

As in the case of all other cosmological arguments there are intellectual escape routes from the conclusion that God created the universe. Most discussions of the anthropic principle addend the foundational observations and inference with a reinterpretation of the observations to fit the world view of the one leading the discussion. The anthropic principle was initially suggested by non-theists. Therefore, the original interpretations and many subsequent reinterpretations are non-theistic. They vary from positing many co-existing universes (see, *e.g.* [30] and [45]), to positing many co-existing domains in a single infinite universe (see, *e.g.* [24]), to positing many previous universes in a repeating cycle of explosions and crunches, to mere chance. In spite of the non-absolute nature of its claims, however, the anthropic argument is quite compelling. Evidence for its compelling nature is seen in the relative commonness of non-theistic attempts to explain it (*e.g.* [5], [7], [23], [30], and [45]), as well as the forcefulness of some of the reinterpretations, as well as personal testimonies (*e.g.* see the quotations given by [38:121-4]). The characteristics of the universe really do appear to have been tinkered with to create not just evidence of design, but to specifically

allow for the existence of man. The Biblical claims of man's centrality in the universe seem to be compellingly confirmed by anthropic principle observations.

## CHAOS THEORY

In modern chaos theory chaotic systems are first of all deterministic systems. Given full knowledge of the rules by which a given chaotic system operates and the state of that system at any given time, all previous and subsequent states of that system should be predictable. So far, our experience with chaotic systems is that most (if not all) of them are based upon rules which are simple enough for humans to understand (an amazing observation of the anthropic principle, as mentioned above). However, humans appear to be incapable of gaining full knowledge of the state of a chaotic system at any given time. In fact, in the chaotic systems with which we are so far familiar, the behavior of the systems are so sensitive to conditions that virtually infinite knowledge seems to be required to predict the future and understand the past of those systems. This means that although chaotic systems are quite predictable in **theory**, they are unpredictable (or chaotic) in **practice**.

Chaotic systems not only exist, they seem to be ubiquitous. As investigations proceed, more and more systems are found to be inherently chaotic. It may be that all the systems of the universe are chaotic. There are at least four compelling deductions which can be made from chaos theory. First of all, as argued above, man is finite and limited. Secondly, the commonness of (deterministic) chaotic processes in the universe suggests that the universe's history is not random or even chaotic in the colloquial understanding of the word. The universe has been tightly guided through its existence. Thirdly, since order and predictability are neither necessary nor common consequences of chaotic systems, the current order and predictability of the universe suggests it is an improbable, very finely tuned, system. This observation can thus be added to the list of anthropic principle observations. Additionally, since many of the observations of the anthropic principle are based on chaotic systems, the already-observed fine-tuning deduced from the anthropic principle must be greatly enhanced when the chaotic nature of the systems is considered. Finally, if there is evidence of design (*e.g.* that the universe was designed for man as might be deduced from the anthropic principle), and if most of the universe's systems are chaotic (which they appear to be), then very severe constraints are placed on that which accomplished the design. In order to design a system at some point in the past **so that** there will be sufficient order to sustain human life long into the future, not only infinite or virtually infinite knowledge of the state of the systems is required, but infinite or virtually infinite manipulation of those starting conditions is required. Based upon our experience with chaotic systems, the designer of ultimate sustained order would almost have to be all knowing, possess all manipulative ability, and be all powerful.

Chaos theory is not a definitive argument for an omniscient, omnipotent creator God. One might hold out hope, *e.g.*, that the states of chaotic systems might ultimately turn out to be knowable. However, it is a rather compelling argument from experience. We don't know of an understandable chaotic system, so our experience would seem to require that the orderly predictability of a world of chaotic systems requires an omniscient, omnipotent designer, such as the Bible describes God to be.

## SECOND LAW OF THERMODYNAMICS

According to the current understanding of the second law of thermodynamics, the entropy of a closed system always increases. Because we know of open systems where the entropy of the system can **decrease** (*e.g.* developing organisms or factories), it would seem that the second law of thermodynamics is not so definite about the fate of **open** systems. However, the percentage of all open systems which actually show entropy decrease is very small. As a result, the second law of thermodynamics is generally presented as positing that the entropy of open systems **tends** to increase with time.

Since all closed systems show an entropy increase, it would stand to reason that energy from outside the system must be a necessary condition for entropy decrease. But is it sufficient? Although there does not appear to be any way to determine this from thermodynamic theory itself, [22] suggests that **three** things are found in all systems **observed** to decrease in entropy. Besides energy coming in from the outside (*e.g.* electricity to a factory), there is both a conversion system which changes the energy into a usable form (*e.g.* machines in a factory to convert electrical energy into the right types of mechanical energy) and a blueprint or plan (*i.e.* information) which indicates how that energy is to be properly utilized (*e.g.* product designs in factories to properly coordinate machines in the production line). Our common experience would suggest that all three things are necessary for a system to decrease its entropy. If this is true, then when a low

entropy system is found which lacks one or more of these things, then the missing elements were introduced into the system sometime in the finite past.

The fact that the universe's entropy is not maximized (evidenced, *e.g.*, in the existence of low-entropic beings such as ourselves), suggests that either the universe was initiated in a low entropic state or the entropy of the universe is being (or has been) reduced. Yet, if the universe contains all physical energy (which is what is generally thought) then the universe is a closed system. Furthermore, there is no evidence in the structure of the universe itself for an energy conversion process or for a blueprint or plan for the universe. Our experience with thermodynamic systems therefore, suggests that low entropy was infused into the universe by the introduction of appropriate energy forms and information from the outside. This would suggest a transcendent, powerful, intelligent designer for the universe.

An analogous argument can be made about the origin of life (see [6] and [42]). Every living organisms is a low-entropy system. Living organisms not only have access to external energy sources (sunlight, organic molecules, sulfur dioxide, *etc.*), but they have energy conversion systems (photosynthesis, respiration, chemoautotrophy, *etc.*), and information (DNA). They can not only maintain low entropy, they can decrease entropy during development. The origin of life, however, is a different matter. Although some of the same energy sources would be available, there is no known process outside of living things which can transform environmental energy into the forms necessary to construct life forms. There is also no known source of information outside DNA and RNA which is capable of organizing a living system. If our observations about entropy are correct, it would suggest that life was fashioned by an intelligent, powerful designer external to biological life.

Once again, the second law of thermodynamics does not provide an absolute argument. It could be argued that (although vanishingly improbable) low entropic states may have arisen spontaneously. It could also be argued that there is some self-organizing principle in the universe which we have not yet discovered, and/or that the three conditions of entropy decrease may not turn out to be necessary. Nevertheless, the argument is compelling that **according to our experience** a transcendent, powerful, intelligent God seems to have been necessary to create the universe and life.

### SPECIFIED COMPLEXITY

When a person digging a hole encounters a flat, rounded rock, he or she is predisposed to toss it aside with little a thought. His or her experience is that similar items can be found in creek beds, having been fashioned by natural processes of stream erosion. Yet if he or she happens upon an arrowhead, or a watch, or a stone engraved with a person's name and death date, he or she is predisposed to assume that humans fashioned these things. The watch is chosen for a similar reason that the flat rock is tossed, for whereas there is no experience with stream erosion (or any other non-human process) producing a watch, there is much experience with humans producing watches. By common experience, stones, sticks, and dirt are flung aside while watches, arrowheads, and headstones are kept as bearing witness of past human activity. Although such reasoning is fallible (for it could be that humans fashioned some of those flat stones and perhaps some natural process of which were are not yet aware can sculpt arrowheads), the reasoning is nonetheless compelling.

When a particular object is found which someone has never before seen (and thus has never been seen come into being), how is it that that person judges its human vs. non-human origin? It appears that the human mind does so on the basis of an estimation of the 'complex specified information' (*a la* [18]) or 'specified complexity' in the object. It turns out, for example, that order (as opposed to disorder or randomness) is neither necessary nor sufficient to infer intelligent design. On the one hand, although it carries a lot of information (and would lead people to conclude that intelligence was involved in its origin), the sequence of alphanumeric characters in the Declaration of Independence is not ordered -- without knowledge of the specified code of the English language it is actually a **random** sequence of letters. On the other hand, molecular patterns such as are found in crystals are highly ordered, but do not lead to the inference of intelligent design. Rather than order, complexity (which can be measured as complex information) is a necessary condition for design inference. The regularly spaced molecules in crystals make up a simple, non-complex system, since the system can be described with very few pieces of information. The alphanumeric character sequence in the Declaration of Independence, in contrast, has much internal complexity because it would require a lot of information to describe and/or reproduce the sequence. On the other hand, complexity, though necessary, is not sufficient as a condition for either information or design inference. This can be seen by noticing that **any** random sequence of alphanumeric characters would be

complex, but virtually no randomly generated sequences would actually carry information in the English language.

After complexity, then, the second necessary condition for design inference is specificity. It's a particular complex arrangement of parts which actually carries information in a given context [18]. As perceived by the brain of an English-reading person, for example, only certain sequences of certain alphanumeric characters actually carry information. Any other sequence (*e.g.* one which conveys information in German) and/or any other set of characters (*e.g.* one which conveys information in Chinese) appears to fail to convey information to the English-reading person. Similarly, only certain arrangements of machine parts would actually fulfil the complexity demanded of machines in particular factories. Other arrangements -- even if from machines which fit the specifications of other factories -- would fail to meet the complexity specified in that particular factory's context. Context, then, specifies what complex arrangements of what parts actually possesses the information and/or function required in given systems.

When the number of specified complex arrangements is an exceedingly small subset of all possible complex arrangements (which in our experience with complex systems is almost always the case), arrangements of specified complexity are vastly improbable outcomes of randomly-generated systems [18]. In fact, it is our experience that items with a complexity specified in a particular context were **designed** to be a part of that context. Watches, for example, have specified complexity because they fulfil the function of measuring time for humans that very, very few complex systems can fulfill -- in fact that no known non-human-engineered systems can fulfill. Similarly, arrowheads have specified complexity because they allow trajectories and penetrations that very, very few rocks can fulfill -- in fact that no known non-human-engineered systems can fulfill. Our experience, then, is that anything we find to have high specified complexity is likely to have been designed and fashioned to function in that capacity. Once again, the argument is not infallible, for objects with less than that specified complexity might have also been designed for a given system, and there might be some process yet undiscovered which can produce items exceeding that standard of specified complexity. Yet, it cannot be denied that people are virtually universally compelled to believe that objects of high specified complexity were designed and fashioned for the system in which they function.

A reconsideration of the anthropic principle suggests that specified complexity might be relevant. Of all the possible universes, of all the possible natural laws, of all the possible physical constants, of all the possible universe-, solar system-, and planetary- conditions, it would seem that very, very few would allow life. The specified complexity of the system appears to be sufficiently high to consider it likely that the universe and all its natural laws were designed and fashioned as a suitable environment for man. A consideration of specified complexity seems relevant in the study of living things as well. Proteins, for example, fulfil particular functions in a cell that very, very few molecules of any sort could fulfill. They seem to have very high specified complexity. The same could be said of cytochrome molecules and photosynthetic molecules and ribosomes and nucleic acids and cell membranes and organs and organ systems, *etc., etc.* Life seems to be saturated with countless examples of structures of sufficient specified complexity to suggest that organismal components were designed and fashioned to allow organisms to exist.

Once again, design arguments utilizing specified complexity are not absolute arguments. Nevertheless, compelling evidence is found in the specified complexity of the universe and our own bodies to conclude that an intelligent, powerful God such as is described in Scripture designed and fashioned the universe and life.

## LANGUAGE IN DNA

An extended message written on parchment displays sufficient specified complexity to infer intelligent design (as indicated above) ([6:197-203], [15:6-7,56-8], [16:7,56-8], and [42:210-2]). However, we infer more than just intelligent design when a language is encountered. In our experience not only are all languages a consequence of intelligent design, but all languages are a consequence of a **communicating** intelligence. This deduction is (again) not conclusive, for after all, the order-intoxicated beings that we are might misinterpret a randomly-generated sequence of symbols as a language). However, it is compelling enough that we continue to spend money 'listening' for messages from outer space (in the SETI project) and that we placed a binary message on the solar-system-exiting Voyager spacecraft for other intelligent, communicating beings to read and interpret.

Many reasons exist for properly recognizing DNA as a true language (*e.g.* [6:204-9] and [10:153-5]). The amino acid nucleotide coding sequence has long been described as a 'genetic code'. The 4 (or 5 if you count uracil on RNA) DNA nucleotides which code for the 20 biologically important amino acids, which in

turn code for the thousands of proteins, which in turn (somehow) build the virtually unlimited variety of organisms on the earth are strongly analogous to the 2 (or 3 if you count pauses) Morse Code characters which code for the 26 letters of the English alphabet which in turn code for the over 400,000 words of the English language which can in turn specify a virtually unlimited number of concepts. There are even hints of genetic phenomena analogous to commas, periods, semicolons, and linguistic rules. Sequences found in genetic and protein systems are 'mathematically identical' to the sequences found in human, written language [46:16]. The information content in DNA is analogous to the information content of a book. The information in the DNA of a single human cell is thought to exceed the combined information content of all 30 volumes of the Encyclopedia Britannica [17:17-18]. This extreme specified complexity seems to provide compelling reasons for concluding that the genetic system was designed and fashioned for life. Although not a definitive argument, it also provides compelling reason to conclude that the designer utilizes language to communicate -- that the designer is a communicator.

## CAUSALITY

It is our common experience that every event has a cause (the law of cause and effect). Even in quantum mechanics where things **appear** to occur without cause, many scientists believe that cause and effect still operates. For example, although atomic particles seem to appear and disappear spontaneously, one understanding of this process is that because all such particles behave as waves, the appearing and disappearing is merely an artifact of that particle's wave function. Although there is very little compelling evidence that events occur without causes, it can be claimed (and it is by some) that events can and **do** occur without cause. The law of cause and effect is thus not an absolute law, but the common experience of most people is that the law is valid. As a result, common experience would suggest that every observed event has a cause.

### The Universe Had a Beginning

There are several scientific reasons for concluding that the universe had a beginning (see, *e.g.*, [4], [12:9-24], [24:35-51], [25:101-24], [35], [36], and [37]). The universe is not only a closed system (by definition), it also has a finite entropy. The second law of thermodynamics would then provide compelling reason to conclude that the universe had a beginning in time. Additionally, measurements of the cosmological constant (which indicate it is zero or close thereto) along with conclusions from general relativity theory seem to require the universe to be non-static (*i.e.* either expanding or contracting). This, along with observational evidence for increasing redshift with galactic distance suggests that the universe is actually expanding (or at least was in the past, as evidenced in the galaxies we see). Since the universe has a finite density, expansion would seem to have been going on only a finite time, which would suggest that the universe had a beginning in time. If, these inferences are true, then the beginning of the universe is an event in the past. As an event our experience (the law of cause and effect) would suggest that the universe's beginning had a cause. What is the nature of the cause of the universe's beginning?

### The Nature of the Cause of the Universe

If (as is usually the case) the universe is assumed to contain all of space, time, and matter, then the cause of the universe's beginning must be independent of space, time, and matter. As such, the universe's cause would be immanent, transcendent, immaterial, changeless, and timeless. It is also our experience that not only does every event have a cause, but every cause possesses a sufficient measure of relevant characteristics to bring the event to pass. If our experience on this matter is accurate, then the cause of the universe's beginning must, for example, possess sufficient energy and manipulative ability to bring the universe into being.

One principle of information theory derived from common experience is that information is only derived from other information. Information is not spontaneously generated. Information in a book was placed there by the author; information in a computer program was placed there by computer programmers, *etc.* It is another observation that information is lost in every transfer of information. Every book contains less information than the author possessed; every message contains less information than was available to the sender, *etc.* The implication of these two principles is that if information is detected, then based upon our common experience, that information can be assumed to have come from a source of greater information. From these observations it can be concluded first of all that at the universe's beginning it had more information than it has at present. It can also be inferred that whatever caused the universe's beginning possessed more information than even that -- *i.e.* possessed all information (or knowledge).

Further implications about the cause can be deduced by analyzing the nature of causes we observe in our experience. The Arabs (see, *e.g.*, [1]) classified causes into personal causes and impersonal causes.

Impersonal causes are physical phenomena which pre-exist the event they cause and exist in space and time in a continuous fashion up to a direct contact with the event itself. Personal causes (*e.g.* people causing thoughts), in contrast, are free wills which do not have to pre-exist the event or be in continuous space/time contact with the event. Since the beginning of the universe is supposed to be the beginning of space and time, the cause of the universe's beginning is precluded from existing before and in spacio-temporal contact with the event. This would suggest that the cause of the universe is a "...personal being who freely chooses to create the world" [9:149-153].

As with the other arguments causality arguments are not absolute. It can be claimed, for example, that events can and do occur without a cause, or that finite systems can lack a beginning, that the universe *doesn't* contain all matter, *etc., etc.* It can be claimed that there are causal principles which which we are currently unaware which are responsible for the origin of things. Nevertheless, from our **experience** with causality, it would seem that a decision of the will of a personal, immanent, transcendent, immaterial, changeless, timeless, omniscient, omnipotent being brought the universe into existence.

## CONCLUDING DISCUSSION

Each of the patterns observed in this paper are compelling when they stand alone. Combined, they are especially powerful. In the case of the anthropic principle, for example, there is compelling evidence from the observations alone to conclude that the universe seems to be designed for man. However, when the concept of specified complexity is added, it is recognized that the features of the creation are not only complex, but are complex in a particular manner specified by the features needed by man to exist. This underscores the conclusion that some intelligence external to the universe designed the universe with man in mind. Entropy observations further suggest that the designer introduced appropriate forms of energy and information into the universe. Thus the designer is not only intelligent but also powerful. When one further realizes that many of the systems examined by the anthropic principle are chaotic systems (and all of them may be), then it is realized that in order for the system to have been designed at some time in the past to ultimately be an habitation for man, there is a need to not only know, but set, all the conditions for the universe with infinite precision. This would seem to require knowing all there was to know about the initial universe. This in turn would lead to a knowledge of all there was to know about the universe for every moment thereafter (*i.e.* omniscience). It would also seem to require infinite precision at manipulating the laws, constants, and initial states of the universe (*i.e.* omnipotence). The combination of these factors suggests that the designer of the universe was omnipotent, omniscient, and had man in mind.

Similarly, the low entropy of biological systems argues compellingly for a non-biological, intelligent, powerful designer. When one considers the high level of specified complexity in living systems the intelligence and design is further emphasized. Adding the fact that many (if not all) biological systems are chaotic, suggests, as in the case of the universe as a whole, that infinite precision and thus omniscience and omnipotence was required to design a persistent, low-entropic, biological form. Finally, the language structure of DNA not only confirms the non-biological, omniscient, omnipotent nature of the designer, but it also adds that the designer is a communicator.

Thermodynamic and general relativity theories combined with observational data on galactic regression suggest that the universe had a beginning. Then, from our experience with causality, there is compelling reason to believe that the universe began as the result of a conscious decision of a personal, immanent, transcendent, immaterial, changeless, eternal, omniscient, omnipotent being.

The similarities among the three combined arguments above (*e.g.* of a transcendent, omniscient, omnipotent designer) not only encourage the combination and reinforcement of the separate arguments, but also suggest that the same designer is being considered (*e.g.* for the universe and life). Combined, there is an extremely compelling argument for the universe and life being designed as a conscious decision of a personal, immanent, transcendent, immaterial, changeless, eternal, omniscient, omnipotent, communicating being who had man in mind in the process.

A time-, matter-, energy-, and space- independent being is inconsistent with the naturalistic world view which understands space, energy, and time to be all there is. A personal, transcendent being is inconsistent with any transcendental world view (*e.g.* Buddhism, New Age). The consistent pattern found among all the arguments is inconsistent with the idea of multiple creators (*i.e.* inconsistent with polytheism). On the other hand, the limitations of man compellingly argued from our experience with chaos and quantum theories as well as the nature of the designer of the universe and life compellingly argued from a number of different directions is uniquely consistent with the claims of the Bible.

According to Romans 1:18-23, unbelievers are rather strongly motivated to take the Truth about creation (which they know in their hearts to be true) and re-interpret that Truth in a fashion which deliberately rejects God as Creator. Since man is rather intelligent and creative (a consequence of being created in His image), unbelievers find rather ingenious ways of reasoning their way **away** from the conclusion that God is Creator. This can be seen, for example, in the ingenious ways which man uses to get around the arguments discussed in this paper (*e.g.* multiple universes or domains in a single universe to avoid the anthropic principle; positing self-organizing principles to avoid the universal consequences of entropy, *etc.*). This, along with the humbling evidence of man's limitations from quantum mechanics, chaos theory, and Scripture, prevents any argument from being absolute. It is simply not possible, by logical argument alone -- either from first principles or from observations of the natural world -- to arrive at the conclusion that the God of the Bible created the world. As Christians we need to avoid framing our arguments in such ways. Even if we were 'successful' at such an argument it would only convince the person's mind. A person does not accept Christ, or even the truth of God as Creator except through a decision of their heart. In contrast, we would suggest that compelling arguments (such as those discussed above) are arguments which tug at truths accepted in the heart of the hearer and should be preferred over purely logical arguments.

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