CAN SCIENCE REGAIN THE ABILITY TO INCLUDE SUPERNATURAL CAUSES?

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Abstract

The majority of the world's population believes that real events occur that are supernaturally caused, but are not regular or predictable. Science is committed to finding a network of explanation for real events that proceed in a regular predictable course of cause and effect – the natural world. Does this mean that science must reject the possibility of real supernatural events, even denying their existence? Can science only be embedded in the world view of naturalism/materialism)? Can we achieve an integration of natural events with supernatural events in an extended philosophy of science, so that science can help shed light on possible supernatural causes?

Recently, philosophers of science like Alvin Plantinga (a Christian), and Bradley Monton (an atheist) have urged that such an extension be developed soon. This paper suggests an extended philosophy of science that includes the current definitions. This change would return science to the philosophical framework it had as it developed during the European Enlightenment, freeing it from its narrow confines embedded in naturalism/materialism. A new category of events that are "possibly supernaturally caused" is proposed. Examples are given of how science can work with some aspects of possible supernatural causes and the resulting events. This change could greatly reduce the tension between science and religion that tends to detract from both.

For many people the tension seems strongest when science attempts to infer past events based on present data. The additional issues that reduce scientific certainty about the causes of past events are discussed. The crucial distinctions between current science and inferences about past events are discussed in light of the integration proposed.

1. Introduction

An unfortunate process has happened to Western science since it first began developing in the 1500's. Excluding the agnostic Laplace, the earliest developers of it were uniformly Christian believers: Descartes (1596-1650),

Copernicus (1473-1543), Galileo (1564-1642), Kepler (1571-1630), Newton (1642-1726), Pascal (1623-1662), and Leibniz (1646-1716) are well known examples. From the late 1800's until today many famous scientists were or are monotheists (Jewish, Christian, or Muslim).

Especially in the 16th and 17th centuries, biblical teaching provided the philosophical and metaphysical basis for science to develop in Europe. Galileo, Kepler, Newton, Boyle, Faraday, Maxwell, and many other key developers of science, clearly expressed their agreement with Scripture and were strongly guided by it. Here are some statements from those early scientists that support the accepted idea among historians of science that Christianity is the Mother of Western Science:

> **Galileo:** The Mind of God understands all of mathematics, which is infinitely more than we understand. But I believe that the small number of theorems our human intellect can grasp are just as objectively certain as they are in God's Mind, because we see their logical necessity, beyond which there can be no higher degree of certainty.
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> **Kepler:** *After discovering and publishing his three laws of planetary motion, Kepler said:* We see how God, like a human architect, approached the founding of the world according to order and rule and measured everything in such a manner. *Toward the end of his life he said*: I give you thanks Creator and God that you have given me this joy in your creation, and I rejoice in the works of your hands. See I have now completed the work to which I was called. In it I have used all the talents you have lent to my spirit.
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> **Newton:** This most beautiful system of sun, planets, and comets could only proceed from the counsel and dominion of an intelligent and powerful Being. … This Being governs all things, not as the soul of the world, but as Lord over all; … and Deity is the dominion of God, not over his own body, as those imagine who fancy God to be the soul of the world, but over servants.
>
> *Or, more recently from a Jewish perspective,* **Dr. Arno Penzias**, *Nobel Laureate, co-discoverer of the universal microwave background radiation:* Astronomy leads us to a unique event, a universe made out of nothing, with the precise fine-tuning which is necessary for life and which has, one might say, an underlying 'supernature' plan. I invite you to examine the snapshot provided by half a century's worth of astrophysical data and see what the pieces of the universe actually look like. … (Penzias, 1992, pp. 80, 82). The best data we have are exactly what I would have predicted had I had nothing to go on but the five books of Moses, the Psalms, the Bible as a whole (Browne, 1978, p. 1).

Starting in the late 17th century, prominent scientists included growing numbers of deists, agnostics and atheists. In particular, they increasingly sought to separate science from its comfortable home in monotheism (particularly biblical Christianity). They worked to identify it with the world view of naturalism/materialism. Today in Western culture that identification is nearly complete in public discourse. Some speak of "non-overlapping magisteria," (Gould, 2002) meaning science and metaphysical ideas are completely separate realms of explanation. Other scientists advocate "methodological naturalism," meaning that only purely natural reasoning and methods are allowed in doing science or in any public discussion of it.

Going a step farther, the "new atheists" regard religion, particularly Christianity, as positively destructive to the doing of science. For example, Oxford professor Richard Dawkins has said:

> Not only is science corrosive to religion; religion is corrosive to science. It teaches people to be satisfied with trivial, supernatural non-explanations and blinds them to the wonderful real explanations that we have within our grasp. It teaches them to accept authority, revelation and faith instead of always insisting on evidence (Dawkins, 2005).

2. Tension within modern culture between science and people of faith

Many people who believe that real supernatural causes do act in the world sense the marriage of science with naturalism in Western culture. They experience a kind of hostile tension with science as a result. The concepts of "methodological naturalism" or "non-overlapping magisteria" do not reduce the tension. For many, supernaturally caused events have been among the most important and precious experiences of their lives and those of their family and friends. Their sense of the objective reality of these events is often as strong as any events in ordinary life. Their perception that science is an enemy of faith is the inevitable result. It would be good to find ways to reduce this tension.

In the media, public science lectures, science publications, political statements, etc., Western culture makes the claim that science can only be associated with naturalism. But no amount of scientific progress can resolve the question of which metaphysical system best describes all of reality. The truth or falsehood of a metaphysical system must be approached in a different way. To recapture simple intellectual honesty, this science/naturalism identification should be repudiated publicly and frequently. Scientists, journalists, politicians, and others need to guard against pronouncements that mistakenly imply the identification of science with naturalism. These steps can help people welcome scientific results rather than distrust them. Then they will tend to support the scientific enterprise in general more strongly and accept its results more wholeheartedly.

Resolving the tension will also require people with a belief in the supernatural to make a distinction between the practice of empirical science, and

the world view with which it is being associated. Science literate believers in the supernatural can speak up publicly more to show how scientific work is consistent with their world view. This will level the cultural playing field for the competition of world views that can coexist with normal ongoing scientific work under present guidelines.

This article proposes a pathway that science could use to disassociate publicly with naturalism, and return to its original openness to world views that include supernatural reality and the natural world. Humans have thought about the relationship between science and religious descriptions of reality a great deal since 1500 AD. We can return to a wiser, more informed coexistence between the two than existed before, which is our task in this paper.

We will use Christianity as the representative of people who accept the reality of supernatural causes. Much of what we say applies to the other monotheistic belief systems, and some of it will apply to less familiar systems.

3. Discontent among philosophers of science

Prominent philosophers of science are encouraging the separation of science from naturalism. Two examples of their reasoning follow:

Alvin Plantinga (Prof. of Philosophy, Notre Dame, Christian):

> If you exclude the supernatural from science, then if the world or some phenomenon within it are supernaturally caused – as most of the world's people believe – you won't be able to reach that truth scientifically (Plantinga, 2006).

Plantinga argues that finding the truth about the world and its phenomena should be considered the highest goal of science. He argues that excluding supernatural causes decides this question in advance, ruling out documenting supernatural causes. For Christians the bodily resurrection of Jesus Christ is the definitive miracle in their faith. In the modern world we are strongly pressured to reject this possibility. Do you see how faith and science are brought into tension by the science/naturalism marriage?

Bradley Monton (Prof. of Philosophy, atheist):

> If science really is permanently committed to methodological naturalism, it follows that the aim of science is not generating true theories. Instead, the aim of science would be something like: generating the best theories that can be formulated subject to the restriction that the theories are naturalistic... I maintain that science is better off without being shackled by methodological naturalism (Monton, 2009, p. 58).

Monton also feels that deciding the question against the reality of supernatural causes begs the question, and possibly produces untrue scientific descriptions. For example, one biblical miracle report repeated in all four Gospels[1] says that Jesus began with five barley "loaves" and two small fish. (It was the lunch a mother had packed for her young son and he offered it.) The disciples observed the reality of the small amount of food before it was used to feed a crowd of more than five thousand people to satisfaction. Afterwards, the disciples gathered 12 baskets of usable fragments of bread and fish. The initial and final amounts of food were determined by empirical observation and recorded by two eyewitnesses: Matthew and John. Apparently the food multiplied as it was distributed by the disciples.

The law of conservation of mass/energy clearly forbids such an event by natural means. So, as long as science is restricted to methodological naturalism, it must conclude that the account itself is untrue. But we could never go back in time and observe the event to do the scientific observations. How can we summarily reject the truthfulness of the account as describing a real event accurately? Alternatively, science may appeal to the existence of natural laws "that will surely be found someday" that describe the natural causes that operated. This second option is seldom recognized as a radical **faith statement** based on the metaphysical world view of naturalism.

A further opinion from another British philosopher who influenced Flew and held a similar view of what we can know of God is interesting also:

David Conway (Emeritus Prof. of Philosophy, Middlesex University UK):

> If the reasoning of the preceding chapter has been sound, there are no good philosophical arguments for denying God to be the explanation of the universe and of the form of order it exhibits. This being so, there is no good reason for philosophers not to return once more to the classical conception of their subject, provided there are no better ways to obtain wisdom (Conway, 2000, pp. 2, 3, 134).

What these philosophers of science are concerned about is very clear in comments on the Neo-Darwinian Synthesis by one of the world's leaders in evolutionary biology, Harvard geneticist Richard Lewontin, (emphasis is in the original) (Lewontin, 1997, p. 31):

> Our willingness to accept scientific claims that are against common sense is the key to an understanding of the real struggle between science and the supernatural. We take the side of science **in spite** of the patent absurdity of some of its constructs, **in spite** of its failure to fulfill many of its extravagant promises of health and life, **in spite** of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism.

[1] Matthew 14:15-21, Mark 6:35-44, Luke 9:12-17; John 6:5-13.

> It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our **a priori** adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, for we cannot allow a Divine Foot in the door.
> … To appeal to an omnipotent deity is to allow that at any moment the regularities of nature may be ruptured, that Miracles may happen.

Lewontin's comments illustrate his implicit philosophical bias against ideas like an origin of life that required intelligent causation, called intelligent design (ID), even if the evidence supports it. He honestly shows us his circular reasoning. He admits that this process yields a poor, but materialistic, explanation in the case of Neo-Darwinism. He explicitly rejects any possibility of a supernatural cause.

4. Natural and supernatural causes: science maps out the <u>natural world</u>

From the dawn of human history people have observed and used the fact that there is a web or network of natural cause and effect. Each effect becomes a potential cause of other effects in a regular, predictable, and controllable manner. Gradually humans have built conceptual models of what was going on in this network and realized that empirical observations, logic, and mathematics were the best tools to study it. This system gained the title "natural science," and the subject of its study "the natural world" or just "nature."

We can analyze the character of the processes and results in the natural world's network of cause and effect. They are **observable**, meaning that a set of measurements can be made to assign values to the variables in a given system. The causes and effects are **regular or repeatable**. They are usually **controllable** by changing key variables of the system and redoing the observations. The system seems **impersonal or machine-like**. Finally, the whole cause and effect network appears to follow **laws that are best stated mathematically**. For discussion purposes a schematic example of a network of natural cause and effect is shown in Fig.1.

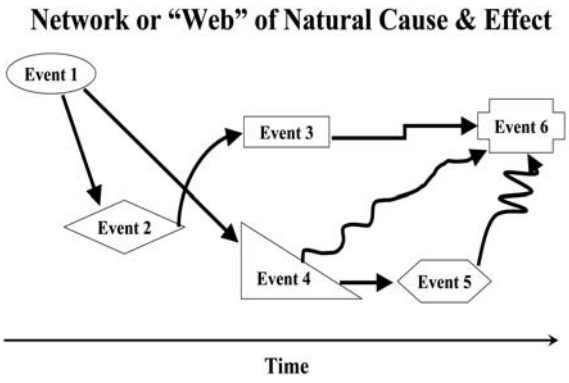

Fig. 1 Diagram of the causal network of 6 events with purely natural causes over time.

The definition of the task of science proposed here is to **discover the extent of natural cause and effect in the overall network of cause and effect by the established methods of empirical science**. Science is done by making a conceptual model of a system. The key observables are specified in the model and then measured or observed for the system. Mathematical relationships are sought until an actual set of mathematical laws can be formulated to which the system is subject. For example, in Newtonian mechanics we first define a point mass, identify its mass, m, as one observable and its position as a function of time, **x**(t), another. Then we systematically define "pushes" and "pulls" as vectors with the formal name of force, **F**. (Boldface denotes a vector.) Newton's law then says $\mathbf{F}_{net} = m\mathbf{a}$, where the acceleration **a** is the second derivative of the position with time, and $\mathbf{F}_{net}$ is the vector sum of all the forces acting on m. The mathematical system used is ordinary calculus, a version of which Newton invented to describe motion.

Earth-scale mechanics experiments can fulfill all of the requirements of the classical scientific method, and we consider Newton's law (and Einstein's extension of it to high speeds) as established natural laws. But in important fields of application for mechanics, conclusions cannot be so sure.

Today Newton's law is in question for very small accelerations. Its inability to describe the details of the rotation of galaxies in terms of observed mass distributions has led to the assumption of 80% dark matter in the universe. A competing suggestion actually agrees with much more galactic data with only one empirical parameter in a theory called Modified Newtonian Dynamics (MOND). The proposed formula is $\mathbf{F}_{net} = m\mathbf{a}\,[a / (a + a_o)]$, where a_o is very small, so that $\mathbf{F}_{net} = m\mathbf{a}$ when $a >> a_o$. In this equation **a** is the vector acceleration, a is its magnitude, and a_o is a very small acceleration constant. The modification of Newton's law can only be separated out and studied for very small accelerations typical of the rotation of stars in a spiral galaxy.

MOND gives superior predictions for a number of astrophysical effects. But, for other kinds of astrophysical observations, dark matter offers a more accurate and complete explanation. Eventually someone may show that both explanations come from a deeper principle expressed in different phenomena. But, for 10 years now, dark matter has been presented by the scientific community as an established fact. This example shows how explanation gaps can arise even in long established scientific laws.

Supernatural causes and the resulting real events have a different character, as described by those who have observed them. They are **singular, unpredictable, uncontrollable, often personally chosen**, and **not subject to laws**. The scientific method is powerless to study such events in anything like the normal way.

However, if supernaturally caused events really occur in the natural world, science can sometimes establish the objective conditions before and after they act. For the "feeding of five thousand" example above, at first you could observe the small lunch and within an hour or so everyone had eaten enough and the disciples gathered 12 baskets of usable leftovers. For those witnessing such an event these empirical facts could be observed directly. Science does sometimes help in

establishing a possible supernatural event. The Catholic Church requires such evidence to certify any claim of a healing miracle.

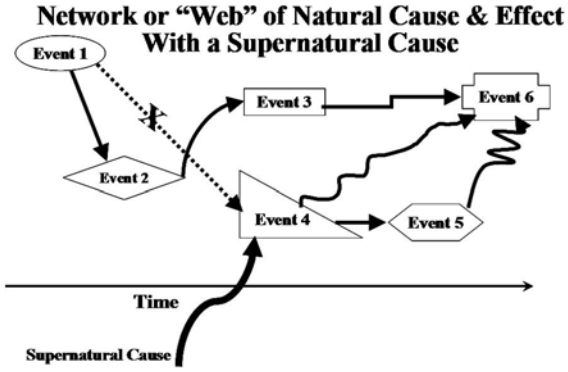

Fig. 2 Diagram of the causal network of 6 events over time with one natural cause replaced by a supernatural one. The effects of the supernatural cause fit in seamlessly with the flow of natural cause and effect afterwards.

Figure 2 illustrates how a supernatural cause can act in the natural world without disturbing the situation completely. The network shown is the same as the one in Fig. 1, except that Event 1 does not cause Event 4. Instead, Event 4 has a supernatural cause. But after the time of Event 4, the supernatural cause fits in smoothly with the flow of natural cause and effect – cf. *Miracles* by C. S. Lewis (Lewis, 2010, pp. 94-95).

Supernatural causes and the events caused can sometimes be empirically observed directly or using instruments. Since they are singular events, the prior condition of the system can often only be known from verbal reports of varying accuracy. Especially in medical situations, actual scientific observations occasionally precede healing events that seem to the doctors involved to be supernatural. In either case, the final condition of the system can be observed scientifically if people think a supernatural cause operated to produce the end result from the initial system.

For example, this author witnessed a case involving an 18-year-old football player from a local American high school team. He had used his head too much in tackling players and had ruptured a cervical disc. He had frequent shooting pains in his arms. A magnetic resonance image (MRI) of the ruptured disc confirmed the diagnosis, and the official radiologist's report describes the ruptured disc.

A few months later, a group of 5 Christians laid hands on him and prayed for healing of the ruptured cervical disc. At the start the student reported that the shooting pains were present in his arms. Over the next 10 minutes they disappeared and never returned. A few months later another MRI showed no ruptured disc. The young man was authorized by his doctors to resume playing football if he wished. This proves that they were sure his neck was completely normal after the MRI, because Americans frequently sue doctors for malpractice. The doctors are therefore very cautious about authorizing resumption of dangerous activities. The family was known to this author, and he asked for and obtained copies of the MRI reports. The second report says the disc is **completely normal.**

In this example we find **acceptable scientific evidence** of the initial and final states of the young man's neck. Out of curiosity, this author has asked about 6 orthopedic surgeons he has personally consulted or met socially if spinal discs ever

heal completely. They have uniformly answered that they may stabilize and the symptoms may disappear, but you can always see the rupture on MRI scans. Though the sample is small, these doctors help us realize the extent of **natural** cervical disc healing. Therefore, this healing event seems to have had a supernatural cause. The example helps to shed light on ways to begin allowing a place for supernatural causes in scientific work.

Subsequently, as suitable opportunities have occurred, this author has begun deliberately asking experienced and reputable medical doctors if they have ever seen healing events they believe were supernatural. Of about 8 doctors he has asked, every one said, "Yes." A few even proceeded to describe one example that they personally observed. In other words, if doctors feel safe in giving either answer, the majority of the 8 seem to have witnessed supernatural causes. And in matters of healing in their specialties, they must be considered experts on the possible scope of healing by natural means. The reader might be interested in trying this experiment by asking doctors this question, as circumstances permit. If any of you are doctors, this author would appreciate hearing your answer to it (<rcarhart@uic.edu>).

5. A proposal for integrating supernatural and natural causes in science

Having rejected methodological naturalism and non-overlapping magisteria on the advice of at least three philosophers of science, we can affirm that **the purpose of science is to explore how much of the cause and effect we observe can be explained by the network or "web" of natural cause and effect**. Science is an open pursuit, and events we cannot explain now may in the future be explainable by known laws or by new ones we discover. Therefore, any claim that a given cause was supernatural must be provisional.

The proposal made here for improving our philosophy of science is to separate events into two categories instead of only the category of **events that have natural causes**. The second category will contain "**possibly supernatural events**." As science progresses, an event in this category may need to be moved to the category of events with purely natural causes. Also, over time it should be possible to move events to the "possibly supernatural" category if the gap in explanation for them widens sufficiently, with "How much is enough?" as part of open scientific discussion. Figure 3 illustrates this proposal in a simple diagram.

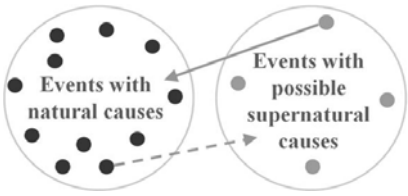

Fig. 3 The added category is on the right. Naturalism rules it out, but theism does not.

During the Middle Ages lightning and thunder were believed to be a direct supernatural act of God. Now that we understand meteorology, we know it has natural causes, at least in the cases studied so far. Originally a lightning strike was a "possibly supernatural event." Now we have moved it to the category of naturally caused events as in Fig. 4.

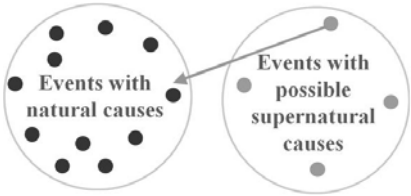

Fig. 4 As science understood meteorology, a lightning strike was moved from "possible supernatural causes" to "natural causes."

Both the initial category choice and the transition should be acceptable and civilized activities in science. Different scientists need not agree, and we could have scientific discussion of the status of events during the entire process. With these changes, science will no longer be seen by many as adopting a too-restricted metaphysical belief system. **The primary job of science to discover how much of reality can be described by a network of natural cause and effect remains untouched.**

The other interesting case is events whose scientific explanations become more and more elusive as scientific knowledge in the field advances. Old explanations are seen to be inadequate, and newer suggested explanations fail one after another over a long time. At any one time it might be too early to be sure without a proven theorem forbidding natural causes, but a scientist would be allowed in an article to suggest that the event's cause may have been supernatural as a reasonable explanation. At a later time scientific progress may close the explanation gap with a new natural explanation. This should be an acceptable sequence of events that can be discussed openly by scientists. Our proposal's main goal is to free scientific discussion from slavery to naturalism and allow world views that include supernatural causes to participate freely.

An excellent example of the expanded framework offered here is the question whether the structure of living organisms argues for intelligent design (ID). This discussion has been very heated and, inappropriately for science, very emotional. In the USA, "career murder" has been the well-documented response of much of the biological community to anyone suggesting that life's origin or development required ID. Biologists can easily see that any causal influence that shows intelligence would have to be supernatural in origin.

The famous atheist professor **Antony Flew** documented his intellectual journey over his professional lifetime up to 2007. By that year he had accepted ID and the existence of God, as described in his book, *There is ~~no~~ a God* (Flew, 2007, pp. 147, 155).

> … this philosopher seeking to "follow the evidence wherever it may lead. … I must say again that the journey to my discovery of the Divine has thus far been a pilgrimage of reason. I have followed the argument where it has led me. And it has led me to accept the existence of a self-existent, immutable, immaterial, omnipotent, and omniscient Being.

To our knowledge he did not accept the full Christian picture of God, but in this statement he goes beyond simple Deism by giving 5 attributes of God. He had come to believe that a God of this type was the Creator of everything, i.e. the Intelligence of ID. For Professor Flew at least some steps in the origin and

development of life were supernatural, although he accepted the ideas of the Neo-Darwinian Synthesis within smaller groups like species, families, or genera.

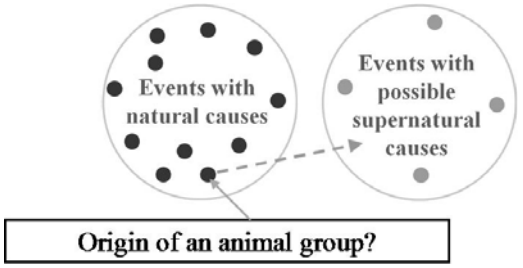

Fig. 5 A growing explanation gap over time may motivate a transfer from natural to "possibly supernatural."

So Flew would move an event like the origin of the first living cell from the category of naturally caused events to the category of events with possible supernatural causes as shown in Fig. 5. Please remember that the proposed integration of natural and supernatural causes within science would not have prevented Flew, should he have lived, from later seeing persuasive evidence of a purely natural explanation. And then he would have moved the origin of the first cell event back into its original category.

The value of our integration proposal is that **the origin of life may have had a supernatural cause in reality**. There is no way to reject this idea. A backward extrapolation of natural causes may be permanently unable to explain this event. In the absence of a theorem forbidding natural causes for the event, we could not be sure the best explanation was a supernatural intelligent cause. The proposal would also allow civilized and rational discussion among scientists in journals, speeches, and other forums, of possible points of supernatural intervention, particularly in scientific studies of past events.

6. On proofs of limits for functional information production

Having mentioned the possibility of such a theorem, let us discuss it briefly. The question is how much information unguided nature can produce. At the lowest level is simple **entropy** governed by laws of thermodynamics. In signal transmission the concept of **Shannon information** was defined, and theorems governing its production and preservation during signal travel through an environment were proven.

The kind of information that nature must generate in the origin of a living cell is of a still higher order. Molecular biologists call it **functional information** (FI). A cell is a collection of molecular machines, all present at the same time and in the right places, which move and operate in a very precise and coordinated way. The "functions" of the "system" are to allow the cell to move, eat, respond to its environment, and reproduce. Biologists can also focus on smaller scale functions like enabling the Krebs cycle to function. Even organelles in a cell show FI. A number of articles have appeared in refereed journals recently attempting to define functional information and to find any laws that its production from unguided nature must follow.

Taken as a group, these efforts use several different definitions. None has yet produced equations that predict limits on natural causation of FI. But, the efforts are very interesting and promising. If theorems limiting FI production are found, we will have a way of saying the causes **must** have been intelligent. Until then, it is only reasonable to say they are **possibly intelligent**. Since we would still be doing historical science, we could not call such a theorem a proof. But we could say that the action of an intelligent causal agent outside unguided natural cause and effect is the **best explanation** for the origin of life (and maybe the origin of major groups of life forms.)

7. Why does the greatest tension occur in the historical sciences, "the science of past causes?"

For this topic the author is indebted to Chapter 7, *Of Clues to Causes*, by Dr. Stephen Meyer in *Signature in the Cell* (Meyer, 2009, pp. 150-172). He calls historical science, "…the science of past causes…" Examples come from cosmology, astrophysics, geology, archaeology, paleontology, and the biology of the history of life on Earth. One has to reason from present data, which Meyer calls "clues," to the events that must have happened in the past to cause the data to exist today. This type of pursuit is much more tentative than normal laboratory science, by which much of the "clues" or data are obtained.

Many of the tension areas between scientific research results and the Christian Bible involve "facts" established by doing historical science. The account in the biblical book of Genesis of the creation of the Earth, life, and the first humans is in conflict with results of historical science in the eyes of many Christians. The account of the Tower of Babel and the Flood in Genesis are further examples of apparent disagreement for many people.

Many comparisons exist by now of archaeological studies and historical statements in the Bible. Increasingly, most are being resolved in favor of the accuracy of the biblical text. For example, when this author took a university course on the Old Testament of the Bible 56 years ago, the professor stated that the ancient city of Jericho had been excavated and there was no layer of destruction with burning at harvest time as stated in the Bible's historical book of Joshua.

A Christian believer, the author was deeply disturbed by this claim. However, instead of giving up his belief in the historical accuracy of the Bible, he decided to wait for further facts to emerge. Years later archaeologists discovered the ancient Hebrew city of Jericho 4 km away from the excavated Hellenistic city. Excavations at the ancient city confirmed all the facts of the Joshua narrative except for its date. Pottery dating of that level of old Jericho has significant uncertainties and is still disputed.

This example shows how the tension can develop. It shows that science should not always present results of historical science as "proven facts." They are **best explanations within an assumed world view of naturalism based on what is known at the time**.

At present science assumes that it can recover the facts about past causes and events from present data using the laws of the natural world and the uniformitarian assumption. Laboratory science has a high degree of epistemological certainty. We can usually follow the classical scientific method completely for events studied in the laboratory. But, when we turn to extrapolation of past events, we lose ability to carry out important steps. We cannot do direct observations of the events we believe must have happened. We cannot repeat the "experiments," and therefore cannot vary conditions or choose which data to take. We must rely on the present residue of data that did, or may have, come from the events we reconstruct.

The whole process is like a criminal court case. The question before the court is whether the defendant carried out the crime charged at a time in the past. Some of the evidence can be verified objectively. At the end of testimony, a set of objective data and human testimony exists that both the prosecutor and the defense attorney will use to argue their case. Using common data, both of them will seek to show that the past criminal act either did or did not occur. There will be two plausible reconstructions of the past, but no amount of additional observation or experimentation will be possible. There cannot be the level of certainty that normal science requires to call the events factual in either reconstruction. At best, the jury will be asked to determine whether the defendant did the crime "beyond reasonable doubt."

One further difficulty in finding truth about past causes is that seldom are equal amounts of scientific resources devoted to alternative versions of past events once one paradigm or direction has gained wide acceptance.

An excellent current example is the reexamination of some data supporting the Big Bang Cosmology based on possible scattering of light from cosmic dust. This research is appearing in high quality refereed journals. This alternative has received little study and minimal funding in the past, but is now being studied vigorously with more resources focused on it.

Another example involves the "proven facts of the Neo-Darwinian Synthesis (NDS)." In a recent review of the status of epigenetic research, Prof. **Denis Noble**[2] of Oxford (Noble, 2013, pp. 1235-1243) said,

> The central assumptions of the Modern Synthesis [Neo-Darwinism] that are relevant to this article are fourfold … First, genetic change is random. … Second, genetic change is gradual. … Third, following genetic change, natural selection leads to particular gene variants (alleles) increasing in frequency within the population. … Fourth, the inheritance of acquired characteristics is impossible. … All these assumptions have been disproved in various ways and to varying degrees, and it is also important to note that a substantial proportion of the experimental work that has revealed these breaks has come from within molecular biology itself. **Molecular biology can now be seen to have systematically deconstructed its own dogmas**. [emphasis added - RAC]

[2] Prof. Noble is in the Dept. of Physiology, Anatomy & Genetics, Oxford, UK.

Prof. Noble is not arguing against the evolution of life forms, but only against the NDS. Beyond his article, there is the complete mystery of biology's "Big Bang" in the Cambrian explosion of life forms. Also, the fossil evidence for many years has supported the idea of relatively sudden introduction of species categories, possibly at the genera level. Species groups come into existence suddenly, remain stable over long times, and often become extinct quickly. There are almost no believable transition pathways. Most such connections are shown as "hypothetical."

The author has collected some of these fossil charts from strongly pro-evolutionary publications in the second half of the 20th century. They are no longer published because they support the hypothesis of sudden creation, rather than the NDS. Why, then, has it been so violently forbidden even to suggest this possibility in serious academic publications? In actual fact, the introduction of the precursor of such a group of species may have been due to "possible supernatural causes." Here we are suggesting that both explanations can coexist among serious biologists as further research is pursued.

8. Of primary and secondary causes: Is the natural world thoroughly natural?

Naturalism/materialism assumes that the network of natural cause and effect is the uncaused cause of all things. In philosophical terms this means that the structure of cause and effect is the primary cause of all things. Cambridge prof. **Stephen Hawking**, an atheist, expresses this view when he says (Hawking & Mlodinow, 2010, p. 180)[3],

> Because there is a law of gravity, the universe can and will create itself out of nothing.

"There is a law" states the presupposition that the laws of nature collectively are the primary cause. The causes and events themselves are secondary to the lawful structure. Science has identified conceptual models, logic, and mathematics as the ultimate language for best expressing the laws. Nobel Laureate physicists Eugene Wigner (Wigner, 1960, pp. 1, 14) and Richard Feynman (Feynman, 1998, p. 23) have used the word "miracle" to describe the usefulness of mathematics, a mere construct of the human mind and its logical functioning, in expressing these laws. Neither man was a believer in a supernatural Entity that could "do the miracle."

But is self-existent natural law the ultimate reality, the uncaused cause of all things? Alternatively, the Hebrew/Christian God identifies Himself in answer to Moses' question in Exodus 3:13-14, "Tell me Your Name." God responds, "I am Who I am." He is the only Being identified by eternal self-existence. He is

[3] Though they do not mention them, the authors are including quantum field theory and all the other laws.

the Primary Cause of all else. The **network of natural cause and effect is a created structure**, a network of **secondary causes**.

> In the beginning was the Word (λογος ~ logic), and the Word was with God, and the Word was God. He was in the beginning with God. All things were made through him, and without him was not any thing made that was made. … And the Word became flesh and dwelt among us, and we have seen his glory, glory as of the only Son from the Father, full of grace and truth. (John 1:1-3, 14, English Standard Version)

In the Bible, the human mind is also held to be created in the image of God's Mind (Genesis 1:26-27). It is a real, but lesser, image. If true, this explains why the workings of the human mind can penetrate the structure of the very Creation that arose from the Mind of the Creator. Christianity explains why mathematics works so well in describing the natural world in a clear and simple way, though it is unexplainable to Wigner, Feynman, and other naturalists. This is what Galileo meant in saying, "God is a Mathematician …"

Philosophers consider the **explanatory power** of a world view to be a measure of its truthfulness as a description of reality (i.e. as true.) By this measure Christianity does much better than Naturalism. The latter has a well-known problem in justifying the use of human conceptual modeling, logic, and mathematics in discovering the truth about reality. If blind chance and necessity gave rise to humans, why should we consider our thinking process a reliable path to truth about reality? An origin in a Personal Uncaused Cause gives a much better foundation for all intellectual, emotional, and aesthetic pursuits.

The interested reader may want to read the lengthy discussion by Prof. C. S. Lewis of Oxford of why God would create a natural world for us to live in, but retain the power to act causally in it in additional ways by His own choice (Lewis, 1961, pp. 17-22). This author found his discussion very helpful as background for this paper.

9. Conclusion

So, our current proposal is a type of return to the original world view. We would do science within the larger reality where supernatural causes can originate. We would acknowledge that we cannot produce them, nor control them. But, we would focus science, as now, on the task of mapping out the full extent of the network of natural cause and effect.

We would be free to have reasonable discussions within science whether our study of nature, especially the distant past, shows possible supernatural intervention. In so doing, we would not discourage the search for natural explanations of the past in any way. This is the more peaceful and reasonable environment in which science arose. We are older and wiser now. Let's go back there and enjoy the ride!

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