WHITEFIELD THEOLOGICAL SEMINARY
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A Christian Approach to Science

Class Paper for Christian Apologetics

Introduction to the Issues

Many people today believe that the fields of science produce incontrovertible facts. A popular modern television show had a brief exchange with a main character and his mother. His mother was portrayed as the crazy religious fanatic, while the main character portrayed the intellectual person of the day. Speaking of views on creation and evolution, the mother exclaimed, "Everyone is entitled to their opinion." To which the main character responded, "Evolution isn't an opinion, it's a fact!" Many today agree with the main character.[1]

On a more academic level the same sentiments are often found. Gordon Clark quotes two men in his work *The Philosophy of Science and Belief in God* that validate this point. The first is a quote from A.J. Carlson where he states, "[Science] is the rejection *in toto* of all non-observational and non-experimental authority in the field of experience."[2] Clark also quotes Hans Reichenbach stating that science teachers can teach, "with the proud feeling of introducing his students into a realm of well-established truth." and that science offers truth that is, "established with a superpersonal validity and universally accepted."[3]

This misconception is also propagated through the main stream with the common portrayals of debates as "Science vs. Religion," As a result of these beliefs many people think that only the non-intellectual can doubt the "truths" of science. People that reject scientific discovery as fact must be considered dogmatic, anti-intellectual bigots who are dangerous to society. Popular T.V. scientist Bill Nye

[1] From an episode of *The Big Bang Theory*.
[2] Clark, *Philosophy of Science*, 54.
[3] *Ibid.*

stated that if people do not accept the scientific fact of evolution in America, then the nation will collapse economically.[4] This is the common view which proffers that science produces facts which cannot be denied.

This paper will present a three-fold analysis of this belief. The first section will examine the claim that science produces non-controvertible fact. The second section will examine whether or not the procedures of science actually produce results that are based on observation alone. To be more specific, the second section will examine the empirical nature of science to determine if scientists are truly throwing out, as Carlson claims, "all non-observational and non-experimental authority." Included in each section will be some philosophical analyses of empiricism as it relates to common claims of science. The third and final section of this paper will present a Christian view of how science should be approached. Therefore, this paper does not only critique the common view with a negative analysis, but also aims to produce a positive construction of a more Biblical approach to science.

Section One

Does Science Produce Non-controvertible Facts?

The common view presented in the first three paragraphs of this paper hardly needs to be justified or documented. Anyone who has been alive for the last twenty years is well aware of the fact that many believe science has the last word on truth. Newtonian mechanics is largely responsible for the belief that science produces fact.[5] Newton thought that he could determine exactly how nature works, and even predict exactly where any material body in the universe would be in a future time, based on mathematics. This idea, which many hold today, is that the universe can be explained quantitatively by mathematics alone. In this view,

[4] See his debate with Ken Ham, which is available online.
[5] See Clark, *Philosophy of Science and the Belief in God*, 20-62 for his discussion of this principle. The material is summarized in this paragraph.

the universe is essentially a machine. Therefore, the goal of a scientist is to simply discover how this machine functions. This is thought to be the "truth" about the universe that the scientist discovers. Since these facts are true, they cannot be controverted. Copernicus was a precursor to Newton, and can also be considered a source for this common view that science produces fact.[6] When Copernicus developed his mathematical model for the motion of the planets, he was convinced that his model explained truly and actually how the planets *must* move. It was fact.[7]

The question of this section is, "Does science produce fact?" Has Newtonian mechanics produced truths about the universe that, once discovered, cannot be contradicted? I remember spending the first year of my B.A. in Physics learning the intricate details of Newtonian mechanics. I also remember being told by the professor that Einstein's "discoveries," ultimately showed that Newtonian mechanics were insufficient. The best we could say is that Newtonian mechanics gave decent approximations about how things worked. What then was I learning? Was I learning incontrovertible facts about how the universe works? On the contrary, and to the professor's admission, I was only learning approximations that have been shown to be insufficient to explain the universe as it really is. That suffices for an example from this writer's memory.

What about leading scientists in the field of physics? Perhaps the college professor referenced above held to a minority view that is rejected by most of those who work in the field. *Fundamentals of Modern Physics* by Robert Martin Eisberg was the textbook used in the following year of my Physics degree. On page one, Eisberg states, "the theories used to explain the phenomena with which these fields are concerned are startlingly different from the theories that were in existence before 1900."[8] On the next page, Eisberg gives a brief historical sketch of mechanical theories and states that by the end of the 19th Century "[p]hysicists were beginning

[6] Clark, *Philosophy of Science and Belief in God*, 29.
[7] *Ibid.*
[8] Eisberg, *Fundamentals of Modern Physics*, 1.

to feel quite self-satisfied, and it appears that the majority were of the opinion that the work of their successors would be merely to 'make measurements to the next decimal place.'"[9] Passing by the *fact* that if measurements could be adjusted with more accuracy, then the former description should not be called a fact, Eisberg writes in the very next sentence,

> *"The turn of the present century saw the shattering of this tranquil situation by a series of quite revolutionary experimental and theoretical developments, such as the theory of relativity, which demands that we reject deeply seated intuitive ideas concerning space and time, and the quantum theories, which make similar demands on our intuitive ideas about the continuity of nature."*[10]

If these theories "shattered" the older views and cause people to "reject deeply seated intuitive ideas concerning space and time," should anyone think that science had produced any incontrovertible facts before the 20th Century? If such a revolution can take place after hundreds of years of thinking on the ways in which nature works, do people have any reason to expect no other such revolution can take place? Do new theories that shatter the older theories now become facts that can never be controverted? This last question will be examined in a moment.

What about less complex truths of the universe? For example, you may recall learning as a child that our Solar System consisted of nine planets. You may remember seeing numerous models of the solar system with the nine planets orbiting around the Sun. Certainly scientists have the technology to *know* this *fact.* Subsequently, however, it was determined that Pluto actually is not a planet. Suddenly this seemingly incontrovertible fact about the Solar System was no longer a fact. Pluto was downgraded to a dwarf planet, thus the Solar System now consisted of eight planets. Soon David Aguilar wrote a book for children entitled *11 Planets; A New View of the Solar System,* published by National Geographic. Admittedly, the 11 planets mentioned fell into two categories; eight planets and three dwarf planets. Three years later Aguilar and National Geographic published a

[9] *Ibid*, 2.
[10] *Ibid.*

revision to this last book titled *13 Planets: The Latest View of the Solar System.* The same class distinction between types of planets was kept, but two additional dwarf planets were added to the list.

Some astronomers never agreed with the initial declassification of Pluto as a planet. Mark Sykes, the director of the Planetary Science Institute is one of them.[11] Sykes believes that the dwarf planets should be categorized as actual planets. He therefore holds to the view that the Solar System has 13 planets. Interestingly, Sykes makes this statement about the nature of science;

> *"Too often, science is presented as lists of facts to be learned from authority, instead of the dynamic open-ended process that it really is. The IAU [the International Astronomical Union] reinforced this misconception of science."*[12]

I agree with this statement. In any case, the question must be asked; what happened to the seemingly incontrovertible fact that the Solar System consisted of nine planets? What happened to the recently discovered fact that the Solar System had only eight planets? Would one be wrong to doubt if science has yet produced the facts of the Solar System? Would it be wrong to wonder if scientists will ever agree to what those facts are, or if these facts will ever stop changing? What then do people *know*? Do we know anything that should be called incontrovertible fact?

Above it was asked whether or not the new theories have produced facts. Many will say "it is true that older ideas have passed away, but that is only because our newer ideas are the facts that will never change." This idea will be critiqued by examining two related modern theories. These theories are those of Werner Heisenberg, and what is commonly known as the Copenhagen Interpretation of quantum mechanics. Only a brief summary of these ideas can be presented in this

[11] The summary of Sykes view was taken from this article; http://www.astronomynow.com/080813ThegreatPlutodebatecontinues.html at the Astronomy Now website.
[12] *Ibid.*

paper.[13] Essentially these views led to the idea that when a scientist studies nature, he ends up changing it. Clark summarizes Heisenberg's principle well;

> *"About 1930, Heisenberg convinced the world that if his experiments on particles used sufficient light to locate the object, its velocity could not be determined because the energy of the light itself affected the object. On the other hand, if the light were dim enough not to interfere with the velocity, the object could not be located."*[14]

In other words, in order for the scientist to study nature, he must change it. Under this theory can the scientist then discover how nature actually works and call it fact?

The Copenhagen Interpretation of quantum mechanics can be discussed as it relates to Erwin Schroedinger's famous thought experiment.[15] The best known aspect of Schroedinger's theory concerns an equation which mathematically can determine whether a certain cat in a thought experiment is alive or dead. If a cat is placed in a box, and a radioactive element is released into the box, the equation can determine a time at which the cat is mathematically both alive and dead at the same time. However, when someone opens the box at that time the cat will be either alive or dead. The Copenhagen Interpretation of this theory states that reality naturally exists as mathematical probabilities. Observation causes reality to collapse into one form of these probabilities.[16] Another alternative interpretation to this was posited by Hugh Everett. He proposed that at the moment of observation, multiple worlds or universes split from one another, so that all the mathematical possibilities can actually exist at the same time.[17]

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[13] I hope to be able to address the details of this section (and others) in more depth in a future paper or book.
[14] Clark, *Philosophy of Science,* 109.
[15] For a more technical and mathematical explanation of Schroedinger's ideas see Eisberg, *Fundamentals of Modern Physcis*, 164-211.
[16] http://physics.about.com/od/quantumphysics/f/schroedcat.htm. A more in depth article on the Copenhagen Interpretation can be found here; http://plato.stanford.edu/entries/qm-copenhagen/#5.
[17] http://physics.about.com/od/quantumphysics/f/manyworldsinterpretation.htm.

It should be clear at this point, that at least some of the modern theories of science do not produce any facts about nature at all. In fact, they posit that *a discovery of fact is not actually possible since nature is changed when it is observed*. This has led some scientists to hold to the Operationalist view of science. Although that view cannot be described in detail at this time, one can read a brief account of this approach to science in Clark's *Philosophy of Science and Belief in God*, pages 73-81. It will also be briefly described in Section III of this paper. It will suffice as a conclusion to the above discussion to say that it is not the nature of science to discover incontrovertible facts. Many modern scientists today reject the mechanistic explanation of the universe and reject that we can observe nature as it truly exists.

The last portion of this section will address the philosophical reasons science cannot produce truth. It is my conviction that the church and the world would benefit greatly if scientists were better philosophers. In modern debates it is common to hear secular and Christian scientists making statements that are explicit philosophical fallacies. From begging the question, to asserting the consequence, modern scientific discussions are filled with philosophical error. Time prohibits a more thorough examination at this point.

The most important philosophical issue that relates to the present topic concerns whether or not science can produce universal facts. David Hume is responsible for the development of this principle. Hume pointed out the philosophical problem behind inducing universal principles, or facts, from a finite amount of experience or experimentation. He posited that one cannot properly infer a universal truth or principle from a limited standpoint. Dr. Kenneth Talbot and Dr. Gordon Clark both use a helpful example to illustrate this point. If someone observes 99 crows that are black, he cannot philosophically infer that "all crows are black." It is possible that the 100th crow will be albino, or that many albino crows exist. The only way for one to know a universal would be to have an unlimited amount of experience, or in other words, be omniscient. Since all human beings are finite and have only a limited amount of experience or experimentation, they cannot

properly claim to have discovered facts about how the universe currently functions, always has functioned, or always will function. They can never know whether or not they will discover a "fact" on the 101st experiment that shatters their findings from their last 100 experiments. To bring this section full circle, they can never know, based on limited empirical data, if they are on the cusp of another, "revolutionary experimental and theoretical development," as occurred with physics in the twentieth century. Although scientists may insist that they are justified to say, "If my observation has provided the same result thirty times, I am justified to make a universal claim about the subject I am studying," to do so remains a philosophical fallacy.[18]

Section Two

Does Science Reject All Non-Observational Suppositions?

As was seen above, empirical scientists claim to reject anything other than that which is demanded upon them by observation alone. There is of course a philosophical problem to consider immediately. Has this determination been induced from observation alone? Is this not a non-observational supposition forced upon the scientist even before he begins observation? To put it another way, the logical positivists claim that in order for a proposition to be meaningful it must be mathematically or experimentally verifiable. But is that assertion mathematically or experimentally verifiable? Is not the starting proposition that supposedly demands observation alone, in reality a non-observational, non-experimentally verifiable proposition? In other words, has the empiricists really thrown off all non-observational authority?

It is important to look at some examples to determine whether or not they have done so. Dr. Gordon Clark gives a great example of the non-observational aspects of determining a law of nature (if such can actually be done, as was mentioned

[18] As will be seen, at times I use the terms philosophical and logical interchangeably in this paper.

above). The following paragraph is accommodated from his work.[19] He presents the process for determining the law of motion of a pendulum. He points out some interesting preliminary aspects of the law. The law describes a pendulum that has a bob with its weight concentrated at the very center and is evenly distributed, that it has a tensionless string, and swings on an axis with no friction. No such pendulum actually exists. So immediately a problem arises as to whether or not the law actually describes anything that has been observed or on which an experiment has been conducted. Further, the different periods of the swing are measured multiple times. Next, the scientist takes the average of the measurements. Here is another problem. On what experimental basis was it determined that the law should be based on the average of the measurements? Was the average value observed? This is a non-observational consideration by which the observational data is manipulated. It is not observation alone. Further, in order to determine the law, the scientist plots the findings on a graph and draws a curve. The function of the curve is the law. But, when the scientist graphs the results, he also graphs the variable error. This results in x and y values which are not points, but [square] areas on the graph. Essentially the points plotted result in multiple [square] areas on the graph. When a curve has to be plotted one must recognize that the precise curve drawn is a choice of the scientist. An infinite amount of curves can be drawn through numerous square areas. Which curve is the law? Clark points out that an infinite amount of curves could be chosen. The chances the scientist chooses the exact one is then one over infinity. Now the scientist (or computer) will usually draw the curve through the average points. But again, this isn't an observation. This is a choice. To summarize, the law describes a pendulum that does not exist, based on a non-observational average of a curve that at best approximates the actual observations. Has then the scientist produced a law based on observations alone?

Another example will be helpful from the present writer's undergraduate field of study. Almost everybody is familiar with the Big Bang Theory. The reliance on non-observational assertions found in discussions of the origin of the universe is

[19] Clark, *Philosophy of Science,* 56-62.

evident. It is common to hear the Big Bang represented as the universe expanding at a rate many times greater than the speed of light. This, however, would break the laws of physics as we observe them to function (i.e. matter cannot accelerate to or travel at the speed of light). To account for this discrepancy, some speak not of the matter and energy of the universe travelling at a velocity greater than the speed of light, but of *space* expanding faster than the speed of light. But has anyone ever observed space moving, let alone at a rate faster than the speed of light? This ignores the definitional problems of asserting that space expands into something else that is non-space. What is this non-space into which space is expanding? Has the definition of space been changed? What is the definition of space in such assertions? But the main problem to notice is that in order to hold on to a model that defies observed laws of physics (which is continually maintained as will be shown below) they must assert another non-observational proposition.

Other problems exist in standard Big Bang Theory models. It is commonly asserted that the universe is homogeneous.[20] This presents a problem since the universe is believed to have expanded at a rate that is too quick for this to have occurred. To "solve" this problem (and others) physicists speak of an inflation of the universe that occurred at the earliest stages of the universe. They speak of a certain energy that must have existed to account for the observable data that the universe is homogenous. The following is a quote from a government science website;

> *"For this inflation to have taken place, the Universe at the time of the Big Bang must have been filled with an unstable form of energy whose nature is not yet known."*[21]

In other words, they know nothing about it other than the fact that postulating its existence solves some problems with inflation. This energy has never been observed, and it appears, based on other statements about the nature of the time

[20] Again, the nature of this paper prevents a more technical discussion at this point. It suffices to say that homogenous means that it is the same throughout.
[21] http://science.nasa.gov/astrophysics/focus-areas/what-powered-the-big-bang/

period in which it is supposed to have existed, it may forever remain unobservable. Here is another quote from the same source;

> *But all this leaves unanswered the question of what powered inflation. One difficulty in answering this question is that inflation was over well before recombination, and so the opacity of the Universe before recombination is, in effect, a curtain drawn over those interesting very early events.*[22]

The existence and nature of this energy remain outside of the bounds of testable experimentation. Yet, this is no stumbling block for those who believe in it. It continues to remain a key aspect for many in Big Bang Theory models. Yet they continue to claim to hold to a purely empirical scientific method.

Another point concerning the origins of the universe should make the thesis clearer. It is commonly asserted that the matter of the universe, in its earliest stages, both existed in a form, and behaved in a manner, contrary to all observed laws of physics and observed particle characteristics. This popular way of reasoning is exemplified in the following quote from a popular science website:

> *Summing up the big bang theory is a challenge. It involves concepts that contradict the way we perceive the world. The earliest stages of the big bang focus on a moment in which all the separate forces of the universe were part of a unified force. The laws of science begin to break down the further back you look. Eventually, you can't make any scientific theories about what is happening, because science itself doesn't apply.*[23]

This is a not so veiled admission that scientists believe that at the very inception of the universe, the laws of science and the nature of matter existed in forms that defy observable physics. How then can these scientists then turn around and claim that science is "the rejection *in toto* of all non-observational and non-experimental authority in the field of experience"? Somehow they continue to assert that in order to be scientific, non-observational considerations must be abandoned. Well,

[22] *Ibid.*
[23] http://science.howstuffworks.com/dictionary/astronomy-terms/big-bang-theory.htm

by that definition, much that is stated concerning the Big Bang Theory is not scientific. The more important point to see here is that scientists do not, in fact, reject all non-observational authority. The Big Bang Theory forces empirical scientists to accept a sort of super physics which ironically can be called metaphysics; the very thing they seek to deny.

One last, slightly different, example will be given. Many are familiar with Richard Dawkins and his book *The God Delusion*. In this work, he admits that the chances of life coming about in the universe are extremely low. He offers a few different explanations for why this isn't a problem for him. One of them is the Multiverse Theory. Some scientists today are positing the idea that multiple universes exist at the same time. They say that there may be an unlimited amount of universes that exist. If there are an unlimited amount of chances for life to exist in any one of these universes then the argument against evolution (or the Big Bang Theory) from chance falls away. These scientists exclaim that the chance of life is low, but since life has an infinite amount of chances because of an infinite amount of universes (or a multiverse) then we simply live in the one that produced life. It must be immediately asked, has anyone ever observed one of these other, hidden universes? Has observation alone forced scientists to conclude that an infinite amount of universes exist that remain invisible to us?

At this point, someone might object, "But it *is* the observations that demand that we believe in these unobservable postulations!" Is this, however, the case? Consider the example of the proposed energy of inflation. Was it not introduced precisely because the observations of the universe did *not* fit the standard models of the Big Bang? The non-observational method of positing the existence of theoretical and unobservable substances in order to explain why the observations (or mathematics) do not match the predictions of an initial model should be apparent. If another theoretical proposition is needed to explain a theory, how can it be asserted that all non-observational authority has been abandoned?

An additional philosophical, or logical, error is often made at this point as well; namely the fallacy of *asserting the consequence*. That is, scientists may say that they believe in unobservable energies, universes and laws of physics based on observations like "the universe is expanding today", or "the universe is homogeneous." They would then be committing the fallacy of *asserting the consequence* since these observations can have *other* causes than the Big Bang Theory models as they are described. This is like saying "if a thief stole Bob's credit card, then Bob will not be able to find it when he looks for it; observation validates that Bob cannot find his credit card, therefore a thief must have taken it." There are many other reasons Bob might not be able to find his credit card (i.e. he left it in his coat pocket, he dropped it on the floor of his bedroom, he left it at the last store he visited, etc.). The handful of observations that do fit the common Big Bang models can fit other models just as well.[24]

Based on all of this, one may rightly suspect that it is *the underlying (or overriding) non-observable and experimentally unverifiable philosophies to which scientists adhere (or do not adhere) that are the real authorities; not observations alone*. One may legitimately wonder if perhaps these theories were developed to explain life in certain ways because the scientists had *a priori* discounted the Biblical explanation. Perhaps they are the result of the speculations of men who have approached theories of life and the universe with a *presupposition* that assumed the Bible cannot explain the origin of the universe. Whatever the motivations behind these theories may be, it is clear that scientists do *not,* in fact, throw out all non-observational data. They come to their observations with presuppositions that determine their theories and interpretations.

One last philosophical consideration will be discussed. Scientists have claimed to consider only those things forced upon them by observation and experimentation. Again it must be pointed out that science would be in a much better place if

[24] Gordon Clark briefly addresses the way *asserting the consequence* is found in scientific discussions in *Philosophy of Science and Belief in God*, 71. Also see Clark's *A Christian View of Men and Things*, 150. For examples of alternate models that explain these phenomena, the reader is encouraged to peruse various articles at the Institute for Creation Research.

scientists were better philosophers. From a philosophical standpoint, empiricism results in nothing but skepticism and chaos. Empiricism asserts that all knowledge is determined from sensation. The problem is, in order to sense any object, a person must have a concept of space and time. That is, a person must be able to distinguish one object from another object. They must know that many sensations are coming from one area of space and are being produced at the same time. However, how does one gain the concepts of space and time from observation alone? In order to have a concept of space a person must be able to compare two objects and recognize a distance between them. They also need objects to compare to one another in order to form a concept of time based on those objects (the way the hours of a day are determined by the rising and setting of the sun). So in order to have concepts of objects they already need a concept of space and time, but in order to have a concept of space and time they need to already be able to comprehend objects. The conclusion is, that based on observation alone, no observations can be observed.

Kant tried to formulate a philosophy that escaped the problem mentioned above. He posited that all human beings have innate categories through which they perceive reality. He said that knowledge is produced only when a sensation combines with these categories. As an example, we have knowledge when we visibly perceive a sensation which our concept of space interprets to be coming from an object at a certain distance. Kant's philosophy did not solve the problem. A major problem with his theory is that if knowledge is only produced when sensation and the forms work together, how did Kant know humans have these forms if they are not perceived by the senses? Apparently he cannot know his own philosophy about how he has knowledge.

For these reasons many scientists simply posit that we know objects as they really are. This is called Common Sense Realism. We simply have the categories by which we understand and conceive of the objects we perceive as they really exist. Some will say that evolution produced the categories through which we understand our perceptions over a long period of time. Evolution gave us the

categories that allow us to understand space and time and so forth. But this is another philosophical fallacy. This is begging the question and assuming the very thing they need to prove by observation alone. Further, it is inconsistent with their philosophy. To assert that they only accept observational data, but then assume a starting point that has not been observed in order to understand anything, is to admit that they do not accept observational authority alone. They actually aren't empiricists, although they claim to be. Presuppositions color everything that they do. The problem is with their presuppositions.

Section Three

A Christian Construction of a Philosophy of Science

At this point it is important to positively construct a philosophy of science. So far the poorly constructed philosophy of science, namely empiricism, has been undermined. Now, attention must be turned to how a Christian should approach science.

In Lecture 5 of Dr. Kenneth Talbot's class *Apologetics II* at Whitefield Theological Seminary, he address three categories of thought; knowledge, judgment and opinions. He explains the Reformed Theological principle that all knowledge can be based on God's Word alone. Christians must base everything they know on Scripture. Talbot explains that a finite mind cannot produce eternal truth. Thus, God is the source of all truth since He alone is infinite and omniscient. If Christians are to know anything as a fact, they must do so because they have understood Scripture properly. The Bible, properly interpreted, is the source of all knowledge and fact. God has graciously revealed truth to us in His Word.

Where does science fit into this schema? The conclusions of science should at best be placed in the category of judgment. This category consists of any proposition that cannot be validated by God's eternal Word. If God has not given us His Word to validate a proposition, then the Christian should not assert it as truth or fact.

Only those truths that can be verified by Scripture, explicitly or implicitly, can be known in an absolute sense of fact. Science may indeed cause people to make certain statements about the Earth, Solar System or universe. However, if these statements cannot be proven from Scripture, people should hold them lightly. These judgments may end up being true but such cannot be known on this side of eternity. It is also possible, as has been shown above, that even some of the best, most repeatable observations can lead to a proposition about the nature of the universe that will one day be destroyed by a later discovery. This means that many assertions made from science should be considered good judgments about the universe at best. The least they may be is nothing more than a mere guess. Therefore, science can produce opinion about how the universe "works" but not knowledge, unless that opinion can be validated by a proper interpretation of Scripture. Science then should be viewed, according to Dr. Talbot, as answering the questions of "how" something functions, and "how" its operations can benefit mankind in the context of the cultural mandate given by God to take dominion over His creation. Science, states Dr. Talbot, cannot tell us "why" something is as it is, but it can by observation and experimentation tell us "how" it should function and work.

Now on to the last point in Clark's thought. Christians would do well to adopt the Operationalist method of science. Gordon Clark explains Operationalism in some depth on pages 73 – 90 of his work *Philosophy of Science and Belief in God.* Briefly, Operationalism is the view that science does not determine truth about the nature of the universe as it actually is, but instead is a set of procedures the scientist uses in order to manipulate nature for his purpose. Scientists learn how to govern nature, so to speak, and use it for their purposes. In this sense, science can be just another tool for mankind to take dominion over the world; to use nature for the glory of God. Through science human beings develop better medicine, better machines by which to travel and preach the Gospel, better ways to store food and produce crops, etc. In short, science is the manipulation of nature for the blessing of man and for God's glory.

Both of these possibilities maintain science as a good thing for mankind. The debate is not really "Science vs. Religion" as is so often asserted. The debate is over a proper philosophy of science; one that is consistent with itself and with God's Word, which is the only source of truth. May God expose the poor philosophy of science that is so popular today and cause people to return to His Word alone as the source of all knowable facts. May men recognize that science cannot, by its own nature, contradict God's eternal Word. Science can allow men to make judgments concerning the world that must be held with a loose fist. May men learn through science how to further use God's creation for His glory.

Bibliography

Book Sources

Clark, Gordon. *Philosophy of Science and Belief in God.* Jefferson, MD: The Trinity Foundation, 1996.

Clark, Gordon. *A Christian View of Men and Things.* Unicoi, TN: The Trinity Foundation, 2005.

Eisberg, Robert Martin. *Fundamentals of Modern Physics*. New York. John Wiley and Sons, 1961.

Audio Sources

Talbot, Kenneth. *Apologetics II* [MP3]. Lakeland, FL: Whitefield Theological Seminary.

Web Sources

About.com. http://physics.about.com/od/quantumphysics/f/schroedcat.htm

About.com. http://physics.about.com/od/quantumphysics/f/manyworldsinterpretation.htm

Astronomy Now.com. http://www.astronomynow.com/080813ThegreatPlutodebatecontinues.html

How Stuff Works.com. http://science.howstuffworks.com/dictionary/astronomy-terms/big-bang-theory.htm

Science.nasa.gov. http://science.nasa.gov/astrophysics/focus-areas/what-powered-the-big-bang/

Stanford Encyclopedia of Philosophy. http://plato.stanford.edu/entries/qm-copenhagen/#5