

A CHRISTIAN APPROACH TO SCIENCE

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Introduction

For thousands of years, the Bible was understood to be in harmony with the study of nature. Several of the psalms deal with God's activity in nature (e.g., Ps. 8, 104), and Paul wrote that nature reveals God's eternal existence and power (Rom. 1:20). However, the perceived harmony between nature and the Bible changed dramatically during the development of modern science. When Copernicus suggested that, instead of being the center of the universe, the earth moved around the sun, the result was open conflict between science and the church. God's activity in nature was not challenged, but the authority of the church to interpret scripture was. A few centuries later, Darwin's suggestion that species might have achieved their present state by evolutionary change rather than by special creation caused another major confrontation between science and religion in which God's authority in nature was questioned. The effects of this controversy are still being felt today.

Conflict between science and religion today is primarily focused on the teaching of creation and evolution in the public schools. Many thoughtful Christians are wondering whether evolutionary teaching may be undermining the basis for morality and robbing life of any ultimate purpose. Many people seem to be groping for meaning in life, seeking to understand man's place in the universe. If teaching evolution in the public schools has such destructive effects, it would be better not to teach it. At the very least other alternatives, especially creation, should be presented. This suggestion has been strongly resisted by the scientific establishment, who fear a return to domination by religious dogmatism.

Antagonism between nature and revelation seems unnatural to SDAs. Because God is the author of both nature and revelation, they should be complementary rather than antagonistic. It is important for SDAs to understand the basis for the present state of antagonism and to develop a rational and theologically satisfactory basis for harmony between the two sources of knowledge. In order to achieve this, it is necessary to understand and evaluate the claims of both science and scripture.

Two Ways of Knowing: Science and Revelation

Much of the disagreement between science and scripture can be traced to differing opinions on the relative reliability of two different ways of obtaining knowledge – experience and revelation. Some characteristics of these two sources of knowledge are described in the succeeding paragraphs. The terms "nature" and "experience" may be used more-or-less interchangeably here, with "science" having a similar but more restricted meaning. Likewise, "religion" and "scripture" may be used somewhat interchangeably, although "religion" is sometimes used to refer to non-scriptural church teaching. A person's worldview will be linked to his choice as to which source of information is accepted as authoritative.

The biblical worldview is based on certain assumptions. One **assumption** is that God is the creator of nature, and has ultimate control over nature. Nature therefore reveals something about God. However, sin has also affected nature and distorted it. The conflict between good and evil has resulted in a mix of good and evil in nature. This means that nature does not reveal God perfectly. Nevertheless, nature does speak of God, and should be studied to learn more of Him. To the enlightened mind, nature speaks of God's love.

Another assumption of the biblical worldview is that **absolute truth** exists in the mind of God. The scriptures are authoritative, being the record of God's revelation of truth. Through them we may obtain knowledge that is not available in any other way. Revelation is particularly helpful in explaining unique historical events such as creation. Because absolute truth does exist and is knowable as God reveals it, revelation and nature must ultimately agree. Apparent disagreement between scripture and science is due to our incomplete knowledge or incorrect interpretation of one or both sources.

Because **biblical knowledge** is obtained by revelation of God rather than by experience, knowledge obtained from it may not be testable. Humans are not able to experiment with God. A supernatural realm exists over which we have no control. Acceptance of the reliability of revealed knowledge thus depends on confidence in the reliability of the source rather than on demonstration or testing. The accuracy of the Bible has been confirmed many times, giving one a rational expectation of its reliability in areas where it cannot be tested. Confidence in the reliability of the scripture involves the reasoning powers, but it also requires the exercise of faith because some of the knowledge provided in scripture is not subject to any kind of empirical confirmation.

The biblical worldview has both assets and limitations. **Assets** of the biblical worldview include its broad perspective toward truth. Truth can be found in experience, where it can be tested, or through revelation, where it sometimes cannot be tested. Absolute truth of supernatural origin is thus possible. From this broad perspective, humans have opportunity to learn the meaning of their existence and to realize their worth in the sight of God. The existence of both good and evil is also explained, as well as man's position as steward of creation and his opportunity for salvation and restoration.

Limitations of the biblical worldview include the fact that revealed truth sometimes cannot be tested. Revelation may deal with events before human existence, or events outside of human sensory capabilities. Another difficulty with the biblical worldview is that it may sometimes take positions that seem contrary to experience. This is especially troubling to one who is not convinced of the existence of a supernatural realm. Miraculous events are particularly difficult for some to accept. Such events as walking on the water, turning water into wine, or raising the dead are all empirically falsified in our experience. A third limitation of scripture is that it does not address many areas of knowledge, such as technology.

The scientific worldview also rests on certain assumptions. Probably the most significant of these is the assumption that nature is ruled by its inherent properties. If God is active in nature, His activity is restrained by natural laws and therefore is explainable by the use of natural laws. Thus there is no need to postulate the existence of a supernatural realm not accessible to human inquiry. Truth can be known only as it can be demonstrated, or at least inferred on good evidence. Since human observation is potentially faulty, absolute truth may be unobtainable by any means.

Scientific knowledge is believed to be more objective than other sources of knowledge. In theory, science works in an orderly way, making observations, proposing explanations (hypotheses) and attempting to find support or disproof for each explanation. Untestable hypotheses may be of speculative interest, but are not considered to be worthy of confidence. Since explanations involving supernatural activity cannot be tested, they are considered unscientific. In theory, an unscientific hypothesis is simply one outside the realm of science. In practice, such explanations are frequently rejected as untenable.

One of science's greatest **assets** is that it works so well. The outcome of future experiments can be predicted on the basis of past results. Another asset is its applicability to a wide variety of subjects. Science has produced great increases in knowledge and improvements in technology which have made our lives longer and more comfortable. In addition, science provides an outlet for man's natural curiosity, encouraging man to explore the world and gain new knowledge.

Science also has certain **limitations**. Because humans are not perfect observers, different scientists may report different results. Personal and sociological factors sometimes influence the way events are interpreted or the decision of which conditions need to be monitored. Another limitation of science is that it cannot answer certain questions, such as the meaning of life or the existence of a spiritual realm. Unique, unrepeatable events are also outside the scope of regular scientific inquiry, at least as it is commonly understood. Another limitation is that science has difficulty dealing with events occurring under extreme conditions. This is because our experience with such conditions is very limited.

The term "science" is commonly applied to at least two types of activity. What most people mean by "science" is experimental science. **Experimental science** is based on observation of repeatable events under specified conditions. Experimental science is responsible for the technological advances that have

given science its reputation for success. However, the term "science" has also come to be used for explanations for historical events, some of which occurred only once. This kind of science can be termed historical science. **Historical science** uses much of the terminology of experimental science and the same laboratory equipment, and many believe it to be as reliable as experimental science; but there is a fundamental difference between the two: historical events cannot be repeated. Even if an explanation is plausible, one can never really know for sure if it is correct.

Reasons for Disagreement

In view of the differences in outlook taken by the biblical and scientific worldviews, it is **no surprise** that conflicts between science and religion have arisen. Harmony between the two requires both a recognition of the existence of a supernatural reality beyond the power of our senses and the validity of both science and revelation as sources of knowledge about God. The existence of a spiritual realm is often denied by science in practice, although not required by science theory. Limiting God's activity to only a spiritual realm produces a dichotomy between science and religion which naturally results in conflicts.

At least two other factors contribute to the conflict between science and scripture. One of these is the human desire for **self-authority**. This attitude can be seen on both sides of the issue. Both scientists and prelates have at times bent the evidence to suit their own opinions, sometimes taking unnecessarily dogmatic positions. The medieval church made a dogmatic defense of unscriptural positions regarding the universe. In the face of contrary evidence, the present scientific establishment has made an equally dogmatic defense of unlimited organic change.

Another factor contributing to the problem is the human desire for knowledge. Humans want to know, to be **certain**. We are generally quite uncomfortable with uncertainty. In the absence of true knowledge, we often make up explanatory stories which may or may not be regarded as true. We may be more comfortable with stories we know are unreliable than with the knowledge that we do not know. The result of this tendency is to deny our uncertainty, but this leaves us without any method for ascertaining truth. People will naturally arrive at conclusions based on their differing worldviews, and disagreement will inevitably result.

Dealing with Conflicts In Science and Religion

We have noted that conflicts between science and religion seem **inevitable** when scientific and scriptural worldviews are based on such different presuppositions. Disagreement is most intense in the area of human origins, an historical event which cannot be repeated or tested by experimental science. The scriptures identify the involvement of supernatural activity in the origin of humans, thus challenging the legitimacy of scientific inquiry into the question. Historical science infers that the available evidence is not compatible with the biblical record. The two positions are irreconcilable, and conflict results.

It is useful to compare viewpoints to understand why disagreement exists. Differences between the biblical and scientific descriptions of earth history are summarized below.

Points in the biblical description of earth history:

- a. God is the Creator and Master of nature.
- b. Creation was a supernatural event.
- c. Creation of life forms was accomplished in one week.
- d. Man was created in the image of God.
- e. A supernaturally caused worldwide flood destroyed the original world. (The geologic column is believed to be largely a record of this flood.)
- f. Life has existed on earth for a relatively short time.

Points in the scientific description of earth history:

- a. Nature is controlled by laws, which are due to inherent characteristics of matter and energy. Whether God is active in nature is not relevant.
- b. Creation was a natural process governed by natural laws.
- c. Creation is continuous, has taken millions of years.
- d. Man evolved from lower animals.
- e. The geologic column is a record of earth's history and was produced by natural events.
- f. Life has existed on earth for long ages of time.

The central point of difference in these two descriptions of earth history has to do with the process of creation. It should be understood that one's view of creation is tied directly to one's view of fossils and the flood. The geologic column, with its different layers containing different kinds of fossils, was either deposited rapidly in a worldwide flood, or slowly over long ages. If it was deposited quickly, creation must have been accomplished in a short time and life on the earth must be relatively young. If the fossils were deposited over long ages instead of by a flood, then different kinds of organisms must have been present at different times, and "creation" came about slowly. This is why discussions of creation must include an explanation of how fossils were formed.

The importance of the issues in the conflict between science and religion compels one to attempt some kind of resolution. Three different ways of dealing with conflicts between science and scripture will be considered here. They can be called "compartmentalization", "exclusivity", or "integration-dominance". These are briefly described below.

Method 1. Give them equal authority (Compartmentalization).

Some individuals feel that scripture is authoritative in speaking about God, while science is authoritative in speaking about nature. Since they deal with different areas of human experience, there is no need to try to integrate them. This approach breaks down when one deals with areas addressed by both sources in conflicting ways, such as in the area of origins. Some individuals attempt to compartmentalize the two sources, accepting both even where they are in conflict. But this is not a stable position, and eventually it yields to one of the other positions.

Method 2. Ignore one or the other (Exclusivity).

Some persons accept the authority of science and essentially ignore the contributions of scripture. Others do the reverse, accepting scripture and ignoring science. Those who hold one of these views tend to regard the rejected source with suspicion, either as a tool of the devil (science) or as a mark of bullheaded ignorance (scripture). Although either of these positions is stable, neither of them is satisfactory to one who is looking for fully integrated, internally consistent worldview.

Method 3. Attempt to harmonize them (Integration-dominance).

Those who take the scriptures seriously expect to find agreement between revelation and nature. If both sources of knowledge could be perfectly integrated, the conflict would be resolved. This should be the goal of those who study in the "area of overlap". However, there are areas where scripture and secular science do not agree. Here one must choose which is dominant: science or scripture. Both types of philosophy, "scripture-dominant" and "science-dominant", are widely accepted.

Examples of Theories on Earth Origin and History

Various theories have been devised to explain the origin and history of life on the earth. Four examples are described below. These include the most widely held beliefs concerning creation and evolution, and illustrate the three methods described above for dealing with conflicts.

Naturalistic evolution is an example of scientific exclusivity. This theory holds that nature is controlled by natural processes. The existence of God is not relevant, because if He exists, He is restricted by the laws of nature and therefore He cannot intervene in any supernatural sense. Truth is determined only

by logic and observation. In this approach, scripture is given up in favor of science. I assume that a Christian could not accept the basis of this theory.

Medieval ecclesiastical creationism was a religious-exclusivity type of philosophy, with all knowledge obtained from the (Catholic) Church. Biblical statements were interpreted according to Church tradition. A serious difficulty with this approach was that some of the Church's interpretations (geocentric universe, flat earth, fixity of species) were actually derived from secular sources (Greek philosophy) rather than from scripture. The Church's failure to recognize this led to a series of embarrassing confrontations from which it has still not fully recovered. The religious-exclusivity position is no longer tenable, although it is still implicit in the teachings of the Church. Despite this, some modern creationists essentially ignore science and hold an "exclusivity" kind of philosophy. Such an approach may protect one against the errors of naturalism, but it leaves one in a precarious position when challenged by new ideas. I assume most Adventists believe that nature can tell us something about God, and would not accept a religious-exclusivity type of creationism.

Theistic evolution is an example of science-dominant integration. According to this view, God is active in nature, but chiefly by directing events within the limits of natural laws. Supernatural activity is allowed in this philosophy, but only in areas which are not within the normal range of scientific inquiry, such as the spiritual nature of man. Theistic evolution shares with medieval ecclesiastical creationism the fault of incorporating secular ideas into a religious framework, subverting the authority of scripture while claiming to defend it. Because it substitutes human authority for the Bible, it could be called "modern ecclesiastical creationism". Theistic evolution is presently a popular view, having been adopted by the Catholic Church and many "mainline" Protestant churches. Even some Adventists are advocating this theory. Because at its core it is incompatible with SDA doctrine, it represents a serious threat to the integrity of Adventism.

Biblical creationism is the position of the Seventh-Day Adventist Church, as well as many other Christians. Many variations exist, but I believe our position to be a "Bible-dominant Integration" type of philosophy. God is seen as the Creator, not only of nature, but of natural laws. As such, He transcends natural law and sometimes intervenes in nature. Nature is seen as the handiwork of God, but corrupted by sin. Therefore the scriptures are accepted as more reliable than science than for finding ultimate truth. Nature is to be interpreted in the light of revelation. This is especially important with non-repeatable historical events identified in scripture as involving supernatural activity. Rightly understood, science and scripture are in harmony.

Suggestions for Achieving Harmony

Disagreement between science and revelation seems to be centered around the issue of supernatural activity. There can be no agreement between the two unless supernatural activity can be identified. **But science is not equipped to recognize supernatural events.** Scientists are interested in explaining events in terms of natural laws. Supernatural events cannot be reproduced at the will of the scientist, and hence cannot be explored scientifically. Such events cannot be explained by scientific methods.

Scientists are justifiably **skeptical** of claims of supernatural events. The large number of obviously fraudulent claims of extrasensory experiences has understandably resulted in skepticism toward the idea of the supernatural. The impossibility of verifying supernatural activity makes it difficult to convince anyone else of its reality. Many phenomena that were once believed to require God's direct intervention have been explained by natural processes (e.g., planetary motion, blood circulation). For these reasons, scientists tend to ignore claims of supernatural events.

If supernatural activity is outside the realm of scientific inquiry, as all scientists would presumably agree it is, then science cannot be used to determine whether or not an event is supernatural. The only method for determining God's activity is through His revelation of Himself, such as in the Bible. Once God's activity has been identified, it should be possible to move toward resolution of apparent conflicts between science and Scripture. I suggest the following steps be used in dealing with data, particularly historic data, that present problems in interpretation:

Step 1. Determine whether the event involved supernatural activity. Since science is unable to answer questions of supernatural activity, one must look to the Scriptures for this determination.

Step 2. If the event seems to have been a natural event, it should be amenable to scientific analysis. There should be no conflict between science and scripture in this case.

Step 3. If scripture describes an event as involving supernatural activity, the scriptural account is accepted, taking care not to read into the scripture more than is intended. Scientific methods may be used to investigate whether the processes controlling the event can be discovered, but it would be inappropriate to attempt to use science to test whether supernatural activity was involved.

Step 4. If an event seemingly can be explained by natural processes, it may or may not have involved supernatural activity. Supernatural activity may include control not only of processes, but also of timing, location, and extent of an event, or foreknowledge of any of these characteristics. A scientific explanation of process does not preclude supernatural involvement.

Living with Uncertainty

As noted previously humans often feel uncomfortable when knowledge is lacking. However, many things are unknowable. The Bible emphasizes the importance of having faith in God, even in the absence of demonstration. However, it is an **intelligent faith** that we are called to, a faith based on evidence that appeals to our reason. And evidence in the area of origins is available. Although many things may never be demonstrated to our satisfaction, we do have evidence on which to base our faith. Three examples of scientific evidence that supports faith in God's word are described below.

The Bible describes the **origin of life** as due to God's creative power. Science has tried diligently to show that a Creator is unnecessary in order for life to arise. Many theories have been devised, and many experiments performed in this effort. The results have been disappointing to those who wish to show that God is unnecessary. Not only have the experiments failed to produce life, but theoretical considerations make such an outcome seem impossible. These results render implausible any suggestion that life could originate spontaneously without intelligent design. In this example, science does not directly confirm the Bible, but it has provided convincing evidence against all proposed alternatives.

The **origin of diversity** is another issue on which creationists and evolutionists disagree. Creationists hold that God created diversity from the beginning. Evolutionists hold that diversity is the natural result of the process of evolution. In this case, it appears that evolutionists are partially correct: diversity does increase as a result of changes in species, but the changes are minor and not relevant to the origin of all the various groups of living organisms. Experimental evidence with breeding stock has demonstrated in every case that changes in species are limited. The fossil record is also consistent with this view. The evidence directly contradicts the evolutionary contention that diversity is exclusively the result of natural processes.

The **Yellowstone fossil forests** were once believed to be a problem that creationism could not explain, but a reasonable explanation has been found. In Yellowstone National Park, USA, many layers of fossilized tree trunks are found, superposed one above the other. Organic zones containing leaves and debris often lie below the bases of some of the trees. The trees are covered with volcanic ash and breccia. Evolutionists have interpreted these layers as representing the destruction of successive forests by volcanic eruptions, the organic layers representing soil layers and the upright trees standing where they once grew. It has been estimated that an average minimum of 500 years would be required for the growth of each fossil forest. Since there are more than 40 different layers of fossil trees, the time required for just this series of fossil layers would far exceed the amount of time suggested by the Bible record of earth history. This situation has been pointed to as evidence that the Bible was not reliable.

However, research by Drs. Harold Coffin, Clyde Webster and others has shown that the organic layers are not soils at all, and that the trees were not buried in situ. Comparison with Spirit Lake near Mount

St. Helens in the northwestern USA has provided an **alternative explanation**. The Yellowstone "fossil forests" were probably formed in a large lake near some active volcanoes. As trees and debris settled on the bottom of the lake, they were covered by a series of volcanic eruptions. Logs may also have been carried into the lake by debris flows. The organic layers are probably debris that accumulated between eruptions, and the upright trees apparently settled on the bottom in that position until they were buried. Thus the Yellowstone "fossil forests" are evidence of large-scale water activity rather than long ages of time.

Despite these successes, there are several issues for which creationists do not have complete understanding. These issues include the mechanisms involved in the flood and the apparent lack of fossil pre-flood humans. I do not completely understand the events of the fourth day of creation. We may never have the answers to these questions in this life. Other issues could also be mentioned, but the point is that although our faith rests on evidence, it does not rest on complete demonstration. There will always be room for freedom of choice.

Unfortunately, some creationists are not content to accept the Bible on the basis of the available evidence. They want more evidence, and if such evidence cannot be easily found, they feel they must provide it. Sometimes the result is that **preconceived opinions** are read into the data in an irresponsible manner. When the claims of such creationists are examined carefully, they are seen to be false. Several interpretations of so-called creation science have turned out to be incorrect. The claimed existence of human footprints mixed with dinosaur footprints in Texas, and the more recent claim concerning a change in the speed of light are examples of attempts to support creation using incorrectly interpreted data. The resulting embarrassment makes it appear that all creationists are not careful.

Although the desire to provide support for the Bible may be commendable, one must be careful. **The Bible does not need scientific demonstration**. Those who attempt to prove the Bible scientifically may not realize how fragile any supposed scientific "proof" is. The world of science is full of competing theories, and it is surprisingly difficult to validate or disprove a theory. Human deviousness and the shortcomings in human memory and powers of observation are demonstrated daily in our courts of law. It is futile to attempt to remove all uncertainty. This is especially true when one realizes the existence of a reality beyond the sensory ability of humans. It is more productive to be careful with data and cautious with conclusions, and to admit there are many areas where information is not available.

The Christian and Science

The Christian recognizes that **knowledge comes from God**. God appeals to our reason (Isa. 1:18), and calls upon us to use reason to test what is true (1 Thess. 5:21). He provides evidence that appeals to our reason (1 Jn. 1:1-3). However, our knowledge can never be complete, and faith will always be necessary (Heb. 11:6). This necessary faith includes faith in creation (Heb. 11:3). By examining the available evidence, we have a rational basis for faith and trust where evidence is not available.

The Christian who practices science has certain **advantages** over one who rejects scripture. He has the advantage of the information contained in the Bible. This information can be useful in organizing data into a unified whole, including both scientific and nonscientific sources. It may save his wasting time on such pursuits as attempting to create life in the laboratory. It may suggest hypotheses that a secular scientist would not have considered. Finally, the Christian who studies science may have the enjoyment of learning more of God through His handiwork.

But the Christian who practices science also has **extra responsibilities**. As a Christian, he is expected to be careful and honest in his handling of the data and in his relationships with his colleagues. Recognizing that the Creator has entrusted the world into his care, he should exercise good ecological stewardship. He should also show respect for life, both of the organisms he may use in his experiments and the lives of other people.

Conclusion

Although scripture acknowledges revelation as a more reliable source of truth than nature, it is through the power of reason that God appeals to us. God speaks to our heart, but He does so through our minds. Therefore science, with its rational basis, is a legitimate activity. However, because it cannot deal with supernatural events, it is not complete in itself. Because science has deliberately been restricted to naturalistic explanations, it cannot even determine whether an event is supernatural. However, this can be determined from revelation. Because of its limitations, science cannot be considered reliable unless it is interpreted in the light of revelation. Rightly understood, there should be harmony between the two.

Because Christians recognize the reality of supernatural activity, they should be able to practice science more efficiently. As a scientist, a Christian can make observations, search for patterns, and draw inferences using the same methods as secular scientists. The Christian's scope of possible explanations will be broader because he has the insights provided by the (admittedly abbreviated) biblical account of divine activity in nature. However, the Christian must avoid the twin pitfalls of invoking divine intervention whenever a problem arises in his understanding, or of misusing the scriptures to support his own preconceived opinions. He must also guard against becoming so accustomed to thinking about the world in terms of naturalistic mechanisms that he confuses the model for reality. The Christian scientist must accept that complete knowledge is unobtainable through human efforts. A degree of uncertainty will always remain, and faith will always be necessary. The understanding of nature obtained through the enlightened practice of science can help to form a rational basis for the Christian's faith. In the process, he may gain a greater appreciation for the power and love of God.

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