

**Institute For Christian Teaching
Department of Education
General Conference of Seventh-day Adventists**

**A BIBLICAL-CHRISTIAN APPROACH TO TEACHING
PHILOSOPHY OF SCIENCE : A PROPOSAL**

**By
Susan Thomas
Head, Department of Biology
Spicer Memorial College
Pune, India**

**435-00 Institute for Christian Teaching
12501 Old Columbia Pike
Silver Spring, MD 20904 USA**

**Prepared For
The 26th Faith and Learning Seminar
Held at the Geoscience Research Institute
Loma Linda, California, U.S.A.**

Introduction

We live in a world of change. In such a world, how can a teacher present Christian values to students. Can a Philosophy of Science teacher reveal Christ in an environment of academic pressure, secularism, and an indifference to the Christian worldview? There is a growing emphasis in the Christian community for a tolerance of others beliefs. The call to put aside doctrinal differences and become evangelistically effective is being taken seriously. It thus becomes every teacher's duty to nurture faith in the students enrolled in their institutions. The Philosophy of Science teacher is specially called to skillfully relate subject matter to contemporary ethical, moral and spiritual issues. As Seventh-day Adventists we believe we have been entrusted with God's truth and therefore the gospel commission is our duty. Proclaiming the three angel's message is our priority and hence the Biblical account of creation, of origins and of the Sabbath are important, as we reveal God's character of love.

"Because Christians are interested in the truth and because they are called to proclaim and defend their views to an unbelieving world, it is important for the believing community to think carefully about how to integrate their carefully formed theological beliefs with a careful evaluation of the 'deliverances' of science, especially in the area of creation and evolution" ¹

The philosophy of Science teacher invariably encounters students who can be broadly categorized as those who believe that thinking and reason are threats to faith, and those who are convinced that religion has nothing to offer to people with rational minds. Ellen G. White urges Christians to examine their beliefs carefully in order to deepen spiritual confidence and meet opposition and criticism.

Careful thinking can help us develop answers to questions, discover further evidence to support beliefs, increase understanding and deepen our commitment and strengthen our confidence. On the other hand there is a risk involved in rational inquiry, and there are many who prefer to refrain from entertaining doubts, which may lead to a lack of faith. It is the duty of the teacher to urge the believers in class to think, and encourage the thinkers to believe.

The worldview we have, shapes our philosophy and determines our approach to the goals, policies, curriculum etc. of our educational institutions. A person's philosophical outlook has a powerful influence on the way he interprets his observations and experiences. Hence, we are to guard against deceptive philosophy based on human thought (Col. 2:8, Eph. 6:12, Luke 18:8, Matt. 24:24,4). It is our duty as Christian teachers to be aware of the educational philosophies, which will shape the mind of our students, and influence their choices and ultimately determine their destiny. ²

Changes are going on in the philosophy of science however, science attempts to be open and objective. "No one really knows where philosophy of science is heading. In general, the philosophy of science appears to be abandoning the view that science can give us perfect knowledge. Science is viewed today as one of the many valid avenues of inquiry". ³

Science versus the Scripture or nature versus revelation, have a unique relationship of conflict and co-operation. A Christian believes that reality cannot be fully explained by science. Science provides no standard for answering moral and ethical questions. Faith and reason are needed to form a worldview. As more and more data are collected, a clearer

picture can be formed. For a Christian, faith is confirmed by reason and evidence, but more so when he experiences this in his personal life.

A current fashion in thinking is either to doubt almost everything, or to keep an open mind on most questions. Unfortunately many an open mind has revealed mainly a vacuum.⁴ Students are perplexed by the controversial issues in creation and evolution and are very often left to find answers they never seem to find. But there are many Christians, especially teachers of natural sciences who maintain views different from either of the two, because of their desire to maintain both Christian faithfulness and intellectual integrity.

The three main views with regard to origins are Young Earth Creationism, Old Earth (Progressive) Creationism, and Theistic Evolution. Students should be encouraged to bring together science and Scripture in their search for truth. We have ample Scriptural, scientific and experiential evidence and the Holy Spirit to direct our intelligent minds to the truth.

Although the creationist viewpoint provides a satisfactory explanation for many observations and patterns in nature, we must admit that there are areas where our understanding is limited. So we must be open to the voice of the Creator.⁵

How Should an Adventist Approach Science?

The fact that Seventh-day Adventists are opposed to evolution does not mean that they are opposed to science. They believe in scientific investigation and the careful collection and interpretation of data.

1. Adventists believe that all truth is God's truth and He will guide us into all truth (John 16:13). Since man's knowledge is relative and God's knowledge is absolute Adventists should not only use their reason in scientific study but also depend on the revealed Word of God and wait on the Holy Spirit to be guided to the truth. Only then will our endeavors to understand the mysteries in science be rewarded.
2. As Adventists we are called to proclaim the gospel message to a world groping in darkness. The Lord's coming is even at the door, and we Adventist educators need to be committed to our primary task of preparing our students for His appearing. In our presentation of scientific information every attempt must be made to avoid misinterpretation of data, which may lead to the loss of a precious soul.
3. In our search for truth, both science and the Bible complement and support each other. To find truth and meaning in the reality about us, we cannot ignore either one. Rather than asking the question "which is true, science or Scripture?" we should ask – "what truth do I find when I look at both science and Scripture?"⁶
4. We should guard against the tendency to mistreat and be discourteous to those, especially in the church, who disagree with us. We should avoid the tendency to permit pride to dominate our lives.
5. Science has its limitations and we should recognize this. Sometimes we fail to realize that certain things are not revealed in the Scriptures, nor is it necessary for our salvation to know them.

*"Many wander in the mazes of Philosophy, in search of reasons and evidence which they will never find, while they reject the evidence which God has been pleased to give. They refuse to walk in the Sun of Righteousness, until the reason of its shining shall be explained. All who persist in this course will fail to come to a knowledge of truth. God will never remove every occasion to doubt. He gives sufficient evidence on which to base faith, and if this is not accepted, the mind is left in darkness."*⁷

6. When conflicts between science and Scripture arise, it is usually due to differences in philosophical presuppositions. It would be unwise to use compartmentalization or exclusivity to avoid the tension. We are advised to re-investigate the issue in order to live with the tension.⁸

Theistic Evolution and Its Implications in Adventist Theology

Evolution has certainly had an effect on our way of looking at many things - origins, moral values, the nature of the world, the reason for our existence, the future and God's role in our life today. Theistic evolution is the result of mixing evolution and theology. It suggests that God created the initial forms of life billions of years ago, and through the process of evolution man came into existence.

How would accepting theistic evolution affect Adventist theology? Many of the doctrines of our church will be affected. We are to positively affirm that the Adventist Church cannot accept theistic evolution. "We do not worship a God who dragged us through a long process of evolution. Rather, we worship the God of creation, a personal God who desires to fellowship with us and dwell among us."⁹

1. If we accept theistic evolution instead of the Biblical creation, it would mean that the Bible has no authority, or that it has authority in the spiritual realm alone. It would also mean that the writers of Genesis did not intend to convey history but intended to use poetical form.
2. The Bible is the inspired Word of God. Theistic evolution suggests that the Bible is the evolving spiritual literature of certain ancient Near Eastern societies.
3. Theistic evolution affects our understanding of the relationship between the Bible and the natural world. The Bible would be interpreted from the understanding of nature. The Bible, science, history, tradition, philosophy and reason would all be at the same level, transmitting God's revelation.
4. Theistic evolution attempts to base its theory of origins in the power of science. But the Bible states that we accept creation by faith (Heb. 11:3), as a gift of God (Eph. 2:8) that comes by hearing the Word of God (Rom 10:17) under the power of God.
5. Theistic evolution does not regard Christianity as a divinely revealed religion, because religion is considered to be in the process of evolving. Christianity may be the evolutionary peak for the present, but something else will supersede it.
6. The Bible states that God spoke the world into existence, but formed man; breathed into his nostrils and man became a living soul. He was made in the image of God. Theistic evolution suggests that at some point in the process of evolution human beings received a soul. The concept of immortality of the soul is taught, as the body and soul are separate.
7. Man fell from the image of God when sin entered according to the Bible, but theistic evolution doubts sin, as humanity is in a process of improvement over time.
8. Theistic evolution challenges Adventist theology's understanding of the nature of God. It questions His intelligence, power and love. Would a God of love drag his creation through long ages of evolution and survival of the fittest?
9. God created us for a personal relationship with him, which was broken due to sin, but the plan of salvation seeks to restore that original relationship. If we

accept theistic evolution, the question is when did man become suited for this relationship.

10. If God communicates to us through the Bible, then how did He do it during the billions of years of evolution?
11. God's role in history, incarnation of Jesus, miracles in the Bible etc. cannot be explained by theistic evolution.
12. Themes of the great controversy and the plan of salvation are vital to Adventist theology, but theistic evolutionists would reinterpret them.
13. If humanity is in the process of progressive evolution, then there was no sin, and no need for a Saviour.
14. Theistic evolution undermines the concept of God's law. Law is in evolutionary development. Human beings determine their own laws by externally observing the laws of nature and by internally observing the laws of human personality. The Sabbath and marriage would not be divine institutions authorized by the law.
15. Theistic evolution nullifies Christ's ministry in the heavenly sanctuary, in His church and in the New Earth.
16. Theistic evolution would undermine the spiritual gifts that Christ gives the church. Mrs. White was given the gift of prophecy and she has written volumes of material on the six-day creation, flood, etc.
17. Theistic evolution would find it necessary to reinterpret Seventh-day Adventist eschatology. If God does not break into history in creation, then surely He will not do so in a literal, visible second coming. Since He does not create by the word of His mouth, will He re-create in the resurrection? And if He did not originally create the Garden of Eden, will He re-create the New Earth? Eschatology is not the decisive entrance of God into history, it is the continuing process of evolution for a better life. Something that humanity accelerates by bringing about a moral and just society through revolt, rebellion, redistribution of wealth, education and other means.¹⁰

Postmodernism in Adventist Higher Education

Postmodernism is the most recent concept with regard to the naturalistic and secular worldview. The postmodernists laid emphasis on rationality and the empirical method. Some establish their worldview on the basis of science alone but this is an incomplete worldview. Others ground their worldview on the basis of creation alone.

But even this is a restricted outlook, and Scripture encourages us to learn from God's creation. A more satisfactory approach is to link science and Scripture. Creation makes a significant reasonable and satisfying contribution to the great questions of truth, meaning purpose, duty and our personal destiny.¹¹

As Christians, we reject the postmodernist claims that there are no truths on which to build our faith. At the same time, with God out of the picture, humans are considered as ultimate creators of reality. Modernism presents a difficult position for Seventh-day Adventists by its insistence that science and objectivity could provide answers to all our questions. A belief in God and His part in creating and sustaining the Earth, provides new direction for inquiry and new questions to ask. Postmodernism opens the way for multiple perspectives about the world and life through its emphasis on subjectivity, thus it limits our belief in a particular God, or set of truths.

Postmodernism blurs the distinction between reality and imagination. Modernism claims to be able to find ultimate truth through human endeavors. Gerhard Hasel reminds us that Seventh-day Adventists are not immune to the postmodern crisis in Christian theology.¹² In fact, many Adventists are passing through what Fritz Guy refers to as a crisis of belief – a critical moment when a change of belief is possible.¹³ Can we agree on exactly what the Bible means to us, and how it is to be heard and interpreted?

Some Adventists conceive of science – theology relations in terms of changes in our view of science prompted by the study of Scripture. Others advocate changes in our view of theology derived through the study of nature. Still others suggest a two-way interaction between the study of nature and Scripture that may change our view of both science and of theology.¹⁴

Adventist theology is postmodern in that it developed toward the end of the modern period and offers a solution to the contemporary science – theology problem. However, the place of Scripture in Adventist theology distinguishes it from other theological trends.

As Fernando Canale comments, authentic Adventist theology does not “utilize humanly originated philosophy at the detriment or plain rejection of the *sola scriptura* principle following the classical, modern, and postmodern trends in Christian theology.”¹⁵

Why Teach Philosophy of Science ?

Let us first define as best we can, the terms Philosophy and Science.

Philosophy

Philosophy is a term used to describe a very important human activity that has a long history. Philosophy was born when human beings started to ask the seven basic questions, which address reality. The questions are whence (origin), whither (destiny), where (space), when (time), what or who (concrete reality or product), how (abstract truth or pattern), and why (worthy value or purpose). Philosophy gradually developed into a systematic way of looking at everything – created, abstract etc.

Science

Science can be defined as a search for truth through repeated experimentation and observation.¹⁶

Philosophical views should be examined in the light of revealed truth of Scripture. Seventh-day Adventists believe that Satan lies behind the various forms of evolutionary theory locked into the confined worldview of naturalism. Mrs. White admonishes us to search the Scriptures diligently, so that the study of science will not lead us astray.

“In true Science there can be nothing contrary to the teaching of the Word of God, for both have the same author. A correct understanding of both will always prove them to be in harmony. Truth, whether in nature or in revelation is harmonious with itself in all its manifestations. But the mind not enlightened by God’s spirit will ever be in darkness in regard to His power. This is why human ideas in regard to science so often contradict the teaching of God’s Word.”¹⁷

A proper evaluation of the scientific method is necessary if we are to make maximum use of it as a tool for greater accomplishments. We need to be thorough in our investigation and less dogmatic in our conclusions.¹⁸

Our understanding of the nature of science, the scientific method, and the nature of scientific evidence influence our approach to the Bible and how they have shaped our

theological beliefs. Trust in God's Word, developed as a result of one's personal relationship with Jesus, along with evidence from science, are essential in forming one's worldview.

Seventh-day Adventist centers of education should provide education of the highest quality. The Christian teacher has a unique role to play in the process of producing graduates, who are committed to making a positive difference in the world. The issue of creation and evolution is important to the Seventh-day Adventist church, because of our belief in the seventh day Sabbath, as a memorial of creation, our confidence that the Bible is the Word of God and our commitment to the three-angel's message.

It is essential to address the questions that are raised, as topics are discussed in the class and stress the importance of integrating faith and learning in the philosophy of science class. Integration of faith and learning aims at ensuring that by the time the student leaves our Adventist institution, he will have internalized a view of knowledge, life values and destiny that is Bible-based, Christ-centered, service-oriented and the Heavenly kingdom directed.¹⁹

In the words of Ellen White, "A knowledge of science of all kinds is power, and it is in the purpose of God that advanced science shall be taught in our schools as a preparation for the work that is to precede the closing scenes of earth's history."²⁰

Curriculum For The Course Philosophy of Science

- I. Philosophical questions
 - 1. History of Philosophy
 - 2. Scientific methods of interpretation
 - 3. Worldviews
 - 4. Faith and Science
 - 5. Theories of evolution
 - 6. Biblical creation
 - 7. Intermediate views between Creation and materialistic evolution
- II. Time questions
 - 1. Origins
 - 2. Age of the Earth
 - 3. Methods of Dating the Earth
- III. Biological questions
 - 1. Microevolution and speciation
 - 2. Mega evolution versus informed intervention
- IV. Geological questions
 - 1. Flood
 - 2. Fossils
 - 3. Geological column
 - 4. Glaciation
- V. Questions on Man's origin
 - 1. Human evolution
 - 2. Sociobiology

This curriculum has been set for Spicer Memorial College.

It is a compulsory course for Graduate students from the departments of Education and Theology, and is a three hour non-lab upper division course.

The Under-graduate Biology, Botany and Zoology majors and minors will be required to take pre-requisites (General Zoology, General Botany, Earth Science and Genetics).

Teaching Strategies

Teaching strategies may vary according to the academic level of the students. They could include

1. Devotionals presented by students bearing personal testimonies of experiences of faith
2. Class discussions or group discussions
3. Reading reports on current issues in the church
4. Term papers and class presentations
5. Guest lectures, video shows, field trips etc.

Philosophical Questions

Science is inadequate to answer basic philosophical questions. "He who studies most deeply into the mysteries of nature will realize most fully his own ignorance and weakness."²¹

The controversy that has been in existence for a very long time is what is called theistic science and methodological naturalism. There is no real controversy, since the topics do not involve how to practice science (which requires familiarity with instrumentation, procedures etc.), but how to define science and distinguish it from non-science.²²

The Philosophy of Science class should be taught to think, analyze, evaluate, and integrate the information they receive. Our students are often confused with questions that seem to have no answers. If they analyze the issues in the class from a Christian perspective with the Word of God as guide, it can help them cope. A discussion of the critical issues with a humble open mind will impress our students and create in them the desire to learn more. As they build their faith, they will gain more confidence to face the challenges of the scientific world.

Worldviews

Every person forms a worldview, which is a set of assumptions related to life and the world in which we live. Our decisions, priorities and destiny depend on our worldview.

The three major worldviews are theism, pantheism and naturalism. The philosophy of Judaism, Christianity and Islam are based on theism. There is a personal God who is Creator, Sustainer and Sovereign of the Universe. He is a God of love and giver of justice. Pantheism identifies a deity who controls nature. According to naturalism physical elements, forces and processes are responsible for the existence of everything. They are based on laws of nature. This view implies an evolutionary explanation of origins.

Our worldview shapes our philosophy, and this determines the Institutions approach to the mission, objectives, administration, uses of finances, selection of teachers, curriculum, location and lay out of our campuses, co-curricular activities, discipline etc.

The philosophy of Science class plays a role in the formation of a Christian worldview. Thus as teachers, we are responsible in shaping the minds of our students, influencing their choices and to a certain extent determining their eternal destiny.

Scientific Methods of Interpretation

The Scientific process includes collection of data and the interpretation of that data. There is a difference between data and interpretation and this should be strongly emphasized in the class. Data are actual measurements and observations. Interpretations try to explain

what is measured and observed. Interpretations change as the database changes. This is how science progresses.²³ Since scientific interpretations are subjective there could be bias. Elaine Kennedy suggests that it is particularly vital that science educators refrain from using scientific arguments (which are tentative) in the classroom to support the biblical narrative, which is based on faith.²⁴

In a class, textbooks provide information usually in the form of interpretation rather than data. Students should be taught to identify the data in the books and analyze it. A student of science should be taught to ask questions and then decide what kind of data would help to answer them. Thus an experiment is devised. If all the relevant data is collected a hypothesis or theory can be developed. A good theory should help in the progress of science, and should be testable, repeatable and should predict results of the experiments. We interpret and test data to see if they are reliable. Some things, which are mentioned in the Bible, may not be subject to scientific tests due to human limitations.

Some of the limitations include size of the sample chosen for study, experimental design and non-quantitative data, which may result in misleading results. Data can be interpreted using logic. In the scientific search we need to apply both inductive and deductive reasoning. Science is limited by time and space and cannot do experiments to test the supernatural.

Correct interpretations must deal with both divine and the human dimensions of God's revelations. Because the special revelation of Scripture is divine, it is more accurate, authentic, attractive, true, inspired, ancient, comprehensive, wonderful, instructive, and interesting than any other book.²⁵

Theology built on reason will fall because reason apart from God has limited usefulness. However, reason is a useful resource that we should not separate from faith. Rather, we should exercise a reasonable faith and a faithful reason. Reason can be a work of faith that is faithful to God's Word. Faith is not a leap into the dark – it is a leap into the light of God!²⁶

A proper evaluation of the scientific method is necessary if we are to make maximum use of it as a tool for greater accomplishments. We need to be thorough in our investigation and less dogmatic in our conclusions.²⁷

Time Questions

“Time poses one of the most contentious questions between the commonly understood scientific and scriptural view points. . . The Bible speaks of a recent creation most likely less than 10,000 years ago, while evolution suggests the development of life for many thousands of millions of years”.²⁸ Other time questions are how rapidly trees can petrify, how rapidly coal can form and how rapidly the earth's magnetic field can reverse itself.

Seventh-day Adventists accept Scripture as inspired based on their personal faith relationship with Jesus. Genesis 1-11 can be used to calculate the chronology of life on Earth. Based on the chronological data from the Septuagint (LXX), which is a translation of the Hebrew Pentateuch into Greek, Creation week is placed at 5665BC and the flood at 3403BC. From this data we can conclude that life has been on this planet for approximately 7,700 years.²⁹ On the other hand scientists seem to agree that the age of the earth is close to 4.6 billion years old.

Origins

One of the most intriguing and emotionally charged topics is the beginning of life. With the questions of how and where did life begin, come concerns as to How, why and where life will end. Often one's choice of belief concerning beginnings can influence one's perspective on endings.³⁰ Our model of life's origin also impacts our worldview and religious beliefs.

With today's technology and human reasoning at an all-time high, the most appealing theory to many concerning the origin of life is some form of evolution. The successes of science tend to strengthen the belief that evolution is the correct theory of origins.³¹

As Adventists what principle should be the core of our paradigm of origins? The options are naturalism or macroevolution with its belief that chance played a major role in life's origin. Then there is the option of a God who creates, leaving no place for chance. The data related to the origin of life favor the idea of a mastermind and a directed nonrandom process involved in the creation of life on earth.³²

Dating

To determine the age of the earth, several models based on uniformitarian principles have been proposed and studied.³³ The models include rates of erosion and /or sedimentation, rate of cooling of the earth, rate of build-up of the ocean salinity, rate of production of volcanic ejecta, and growth of human population. Later methods used included uranium time clock, ore-lead method, meteorite method, fluoride dating etc.

The slow rate of disintegration of unstable radioactive elements forms the basis of these methods. The carbon 14 and potassium-argon methods are commonly used. Radiometric age dating is based on the ability to accurately determine the amount of radioactive parent element and its stable daughter product present in the sample. The ratio of parent to daughter and half life of the parent can be used to calculate the age of the sample being investigated.³⁴

The date is considered reliable only if several different radio-metric isotope systems give the same approximate date. There are discrepancies between C14 dates and other time clocks. To determine a C14 date, the proportion of C14 present at the time of incorporation into the organism under test should be known. C14 dating indicates that the earth is much older than the approximate 10,000 years accepted by creationists.

There are possible explanations for this. The changes in C14 could be due to

1. A larger carbon reservoir diluting C14 before the flood.
2. A stronger magnetic field before the flood, deflecting the cosmic rays that produce the C14
3. A rate of mixing of C14 into the oceans after the flood that would affect both atmospheric and oceanic concentrations of C14.
4. Change in intensity of the source of cosmic rays that create the C14.³⁵

The radiometric age assigned to inorganic minerals associated with a fossil is more a reflection of the characteristics of the source material than an indication of the age of the fossil.³⁶

As a Bible-believing Christian it is necessary to maintain confidence in the validity of Genesis 1-11. However, we must realize that there is no way that we can proceed directly from the radiometric data to a fiat creation within the past 10,000 years and a worldwide flood

some 5,000 years ago. These are religious concepts that are accepted on the basis of faith in the same manner as is Salvation.³⁷

BIOLOGICAL QUESTIONS

Life itself provides evidence that there must be a Designer. Many biological systems are too complex for a spontaneous origin by random events. Important examples include a system for protein synthesis that provides information through a genetic code, and then decodes it during synthesis. There are also complex gene-control systems and complex editing systems for correcting errors in DNA copying. It does not seem possible that they could arise spontaneously.³⁸

The complex functions of the living cell point to an intelligent Creator as the best explanation for their existence. The strong arguments for a Creator should not be mistaken for absolute proof.

A Christian's approach to Biology is significant as it can provide a basis for hope, as an effort is made to restore the broken relationship with God. The creationist worldview will help us recognize that life has a meaning and purpose, and hence we will live a healthy life style, as life is a precious gift from the Creator. We will cultivate respect for others, as we all belong to the family of God. We will take care of the Environment as it is God's gift to us to tend and benefit from.

A Christian biology teacher, especially one teaching Philosophy of Science, has unique opportunities to spread the Gospel. He can contribute to the enrichment and purpose of the lives of his students, and impart to them an understanding that will strengthen their Christian faith, through a Christian approach to Biology.³⁹

Microevolution and Speciation

The evolutionary theory can be broadly divided into microevolution, speciation and mega evolution.

Microevolution refers to relatively small evolutionary changes within the species of organisms.

Speciation is the development of a new species.

Mega evolution is not a common term, but refers to evolutionary change, which produces major groups of organisms including new families and any other taxonomic group above the family. Macroevolution a more commonly used term is evolution above the species level.⁴⁰

Both the creationists and the evolutionists recognize that there are micro-evolutionary changes occurring today. The major components of the micro evolutionary process can be summarized in four steps:

1. **Overpopulation** – more offspring are produced than can survive.
 2. **Variation** – no two offspring are ever exactly alike because of mutation and recombination.
 3. **Natural selection (survival of the fittest)** – those individuals with variations that give an advantage in competition are more likely to survive and reproduce.
 4. **Inheritance of fitness** – variations giving an advantage are passed on to offspring.
- A species as defined by a biologist is a population or group of populations of animals that interbreed among themselves, but do not breed with other populations.⁴¹

The development of new species is believed to occur through the processes of

1. **Geographical isolation of populations**

2. Adaptation of the population to new environments through natural selection and
3. Reproductive isolation, as populations become different in structure and behavior and hence do not interbreed.

The question that arises is whether a creationist can believe in the micro evolutionary process. We can have class discussions and bring out points like

1. All species may not have been created as they exist now (variation is visible in the different breeds of dogs or chipmunks) – the genetic system is capable of considerable change. Complexity in plants and animals was the result of intelligent design with the capacity for generating genetic variability to adapt through microevolution and speciation to new habitats and climatic change.
2. The question related to the origin of parasites, loss of flight in birds, loss of sight in cave insects. Parasites have reached their present form through degeneration –loss of genetic information. Natural selection slows down the loss by eliminating defective weak individuals but does not produce increase in complexity by generating new genes and organs.
3. The phrase “after his kind” was most likely intended to indicate that offspring would be similar to their parents. In Genesis 1:11-12, the phrase is an order to multiply. It could also be translated as God made the various kinds or categories of plants, birds, sea creatures etc.
4. Obviously one pair of each of the present day species of land animals and birds could not have fit in the ark. Hybridization since the flood has produced almost endless varieties of species of animals.⁴²
5. Micro evolution is accepted by creationists, but origin of major groups of organisms by mega evolution is not.

Mega evolution

The theory of mega evolution states that existing as well as extinct plants and animals have evolved over billions of years from single celled ancestors. The changes are by processes like microevolution and speciation. In any Philosophy of science class the teacher is expected to present the scientific data, which are considered as evidences in support of mega evolution but the class can discuss these from a Creationists point and evaluate them. The evidences include embryology, homology and analogy, vestigial organs, fossils, biochemistry, and biogeography.

Geologic Questions

Observed rates of erosion, volcanism, and mountain uplift seem to be too rapid to be accommodated into the standard geologic time scale of thousands of millions of years for the development of the earth’s sedimentary layers and the evolution of the life forms represented in them.

One question that repeatedly comes to mind as we consider the present rates of erosion and mountain uplift is why so much of the geologic column remains if such processes have been occurring for the thousands of millions of years. In a flood context the relatively slow rates of erosion, volcanism and mountain uplift that we now observe may represent lingering remnants of that catastrophic event.⁴³

The flood, the fossils and geologic column can be used to create several views. The data found in the stratified crust of the earth can be interpreted in different ways based on the

assumptions of the investigator, which are influenced by their personal experiences and philosophy of life. Since there is no model as yet, which can answer all the questions, we are to be careful in our choice of beliefs. We must keep in mind the fact that the processes that took place in the past have no counterpart in the processes that are taking place on the Earth's surface today.

Fossils

Fossils are fascinating and have much to reveal about the origin of life and its history. They lie near the core of the science-Scripture controversy. The study of fossils is a challenge.

Based on the method of preservation fossils can be classified into four types:

1. Petrification, which involves impregnation or replacement of material in the specimen, as in petrified wood.
2. Carbonization, where the other elements have disappeared and carbon is left as in coal.
3. Molds and casts, which are hardened impressions like footprints
4. Unchanged, where hard or soft complete specimens are preserved.⁴⁴

Fossils appear almost exclusively in sedimentary rocks such as limestone, shale, sandstone, or conglomerate. They are completely absent in many rock formations and abundant in few localities.

The sequence of fossils in the rocks apparently is real. Whether we prefer catastrophic geology or conventional geology, the geological column is still a valid description of nature's history book.⁴⁵ The order of the fossils found in the geologic column is crucial to any interpretation of past life. Fossils can give us clues regarding the environment in which they lived and the origin of the organisms they represent.

Evolution necessitates a change from one species to another up the increasingly complex progression from the first cell to human beings. If that in fact happened, we would expect to find remains of transitional forms between the evolving species. But we can search the fossil record at every level and find no such evidence.⁴⁶ When Darwin realized that the fossil record did not support his theory, he did not give up his theory, but instead blamed the fossil record for the absence of transitional forms.

The Flood

It is difficult for scientists to imagine a universal flood, covering and destroying the whole earth except for the ark and what was preserved in it. There are many who accept that science has shown that the Biblical flood never happened. Since the flood story is an integral part of the Biblical record of history, the claim of scientific disproof is a serious challenge to Christian faith. Students raise questions with regard to the source of such a large quantity of water, the survival of animals and plants, fossil sequence in the geologic column, re-appearance of plants and animals in different continents, mass extinctions etc.

If the Biblical record of the flood is accurate and if it was as violent as depicted physical evidence that would support such a claim must exist worldwide. Such evidence does exist it includes widespread sedimentary deposits, large-scale geological changes, and massive burial and preservation of plants and animals.⁴⁷

With a global flood producing the major portions of the geologic column subsequent to the creation week, the Bible student may confidently believe the historicity of the six-day creation week and the origin of the human race by a loving personal Creator.

The Geological Column

The geologic column refers to a composite columnar representation of what would be the complete sequence of rock units in Earth's crust. The geologic column has simple organisms in its lower portions. Most animal types appear suddenly in the "Cambrian explosion", then in succeeding rock layers various plant types, reptiles, mammals, and flowering plants appear.

Creationists and evolutionists view the fossil record from contrasting perspectives. Evolutionists see the record as representing the gradual development of life forms over long periods of time, while creationists view it as a record of burial during the deluge. To the evolutionists it represents evolutionary advancement, but to creationists it represents sudden destruction.

Some creationists attempt to meet the challenge of the geologic column by pointing out that at some localities the column is out of order, with older fossils above younger ones. We should recognize however, that these are found in mountain areas, which have shown crustal disturbance like thrusting.⁴⁸

Another creationist explanation for trends in the fossil sequence of the geologic column rests on a proposed ecological distribution of organisms before the flood. This is known as the ecological zonation theory.⁴⁹ The ascending progression from simple to complex need not reflect gradual development. Motility and buoyancy could cause some seeming progression in a global flood.

Conclusion

A Christian pursuit of knowledge is not passive. We have a Christian ethic, a Christian calling, a Christian profession, a Christian responsibility and also a Christian mind, which we can surely put to optimum work.⁵⁰ Mrs. White, encourages thinkers who allow the Spirit to direct their minds.

"When the human agents shall exercise their faculties to acquire knowledge, to become deep thinking men; when they as the greatest witnesses for God and the truth, shall have won in the field of investigation of vital doctrines concerning the salvation of the soul, that glory may be given to the God of heaven as supreme, then even judges and kings will be brought to acknowledge, in the courts of justice . . . that the God who made the heavens and the earth is the only true and living God. . . All nature will bear testimony, as designed for the illustration of the Word of God. . .

The author of nature is the author of the Bible. Creation and Christianity have one God. All who engage in the acquisition of knowledge should aim to reach the highest round of progress. Let them advance as fast and as far as they can; let their field of study be as broad as their powers can compass making God their wisdom, clinging to Him who is infinite in knowledge, who can reveal the secrets hidden for ages, who can solve the most difficult problems for minds that believe in Him".⁵¹

In our teaching of Philosophy of Science, we must project the sovereignty of Christ. We must make sure that our students realize that Science has its limitations. A balanced view of Scripture and science should be maintained, so that we always keep faith. Our students must be taught that true humility will help them in their search for wisdom and truth.

It is our duty to warn our students to guard against the tendency to mistreat and be discourteous to those who disagree with us. Although we believe we are right, we must practice the golden rule even with those we believe are wrong. We are called to manifest integrity and justice in all our dealings with others. This I believe will make us effective witnesses.

As we direct the minds of our students to the design in everything around us, the amazingly complex and intricate make up of all aspects of life and the environment, the numerous variations and incredible inter-relationships that exist, I believe the veil which covers the eyes of unbelievers can be removed. They can get a glimpse of our mighty Creator and His plan for their lives.

The Philosophy of Science class is an earnest effort to instill in our students faith and a desire to search the scriptures and find the truth. If we are successful in sowing seeds of curiosity and eagerness in our students, so that they want to search for answers to the philosophical, scientific, and geological questions and questions on time and origins, I believe the gospel can be spread faster and the Lord's second coming hastened.

-
- ¹ J.P. Moreland & John Mark Reynolds. 1999. *Three Views on Creation and Evolution*. Zondervan Publishing House. P.8
 - ² Humberto, M. Rasi. 2000. *World views, contemporary culture, and Adventist Education*.
 - ³ Ariel A. Roth. 1998. *Origins*. Review and Herald publishing Association. P. 332.
 - ⁴ *Ibid.*, p 42
 - ⁵ Clyde L. Webster Jr. 1995. *A Scientist's Perspective on Creation and the Flood*. P. 3
 - ⁶ Ariel A. Roth. 1998. *Origins*. Review and Herald publishing Association. P. 58.
 - ⁷ E. G. White. 1958. *Patriarchs and Prophets*. Pacific Press Publishing Association. P. 432.
 - ⁸ L. J. Gibson. *An Adventist Approach to Science*. *Christ in the Classroom* Vol. 17. p. 390.
 - ⁹ Zinke, Edward. E. 2000. in John T. Baldwin, ed., *Creation, Catastrophe and Calvary*. Review and Herald Publishing Association. P. 166.
 - ¹⁰ *Ibid.*, p. 159 – 166.
 - ¹¹ Ariel A. Roth. 1998. *Origins*. Review and Herald publishing Association. P. 363
 - ¹² Gerhard Hasel, "Scripture and Theology", *Journal of the Seventh-day Adventist theological Society* 4 (Autumn, 1993, p 47
 - ¹³ Fritz Guy. 1972. *Contemporary Adventism and the Crisis of belief* Spectrum 4 No. 1. p. 21
 - ¹⁴ Martin F. Hanna. 2000. in John T. Baldwin, ed., *Creation, Catastrophe and Calvary*, Review and Herald Publishing Association. P 179.
 - ¹⁵ Fernando, Canale. *Revelation and Inspiration. Methods for a new approach*. P. 182.
 - ¹⁶ Leonard Brand. 1997. *Faith, Reason, and Earth History*. Andrews University Press. P. 2.
 - ¹⁷ E. G. White. 1950. *Testimonies for the Church*. Vol. 8. Mountain View, C A. Pacific Publishing Press Association. p. 258.
 - ¹⁸ Harold, G. Coffin. 1969. *Creation – Accident or Design?* Review and Herald Publishing Association. P. 377.
 - ¹⁹ Humberto, M. Rasi. 2000. *World views, contemporary culture, and Adventist Education*.
 - ²⁰ E. G. White. 1953. *Fundamentals of Christian Education*. Mountain View. Pacific Publishing Press Association. P. 186.
 - ²¹ E. G. White. 1952. *Education*. Mountain View, C A. Pacific Publishing Press Association. P. 133.
 - ²² J.P. Moreland & John Mark Reynolds. 1999. *Three Views on Creation and Evolution*. Zondervan Publishing House. P.17.
 - ²³ Elaine Kennedy. 2000. *Data versus Interpretation*. 26th Faith and Learning Seminar. P. 4
 - ²⁴ Elaine Kennedy. 2000. *A Biblical Approach to Geology*. 26th Faith and Learning Seminar. P.5.
 - ²⁵ Frederick J. Harder. *Revelation, a Source of Knowledge as conceived by Ellen G. White*. P. 190.
 - ²⁶ F. M. Hasel. *Theology and the Role of Reason*. PP. 172 – 198.

- ²⁷ Harold, G. Coffin. 1969. *Creation – Accident or Design?* Review and Herald Publishing Association. P. 377.
- ²⁸ Ariel A. Roth. 1998. *Origins*. Review and Herald publishing Association. P. 233.
- ²⁹ Clyde L. Webster Jr. 1995. *A Scientist's Perspective on Creation and the Flood*. Geoscience Research Institute. P. 21.
- ³⁰ *Ibid.*, p. 7.
- ³¹ *Ibid.*, p. 9.
- ³² Ariel A. Roth. 1998. *Origins*. Review and Herald publishing Association. P. 77.
- ³³ Ariel A. Roth. 1986. *Some Questions about Geochronology*. *Origins*. 13. pp. 64-85.
- ³⁴ Clyde L. Webster Jr. 1995. *A Scientist's Perspective on Creation and the Flood*. Geoscience Research Institute. P.22.
- ³⁵ Brown R. H. 1979. *The interpretation of C14 dates*. *Origins* 6. pp. 30 – 44.
- ³⁶ Clyde L. Webster Jr. 1995. *A Scientist's Perspective on Creation and the Flood*. Geoscience Research Institute. P.25
- ³⁷ *Ibid.*, p. 25.
- ³⁸ Ariel A. Roth. 1998. *Origins*. Review and Herald publishing Association. P. 142.
- ³⁹ Jim Gibson. *A Christian Approach to Biology*. Vol. 11. p. 254.
- ⁴⁰ Ridley. M. 1993. *Evolution*. Blackwell Scientific Publications.
- ⁴¹ Mayr. E. 1970. *Population, Species and Evolution*. Belknap Press.
- ⁴² E. G. White. *Spiritual Gifts*. 3. p. 75.
- ⁴³ Ariel A. Roth. 1998. *Origins*. Review and Herald publishing Association. PP. 20 – 27.
- ⁴⁴ Harold, G. Coffin. 1969. *Creation – Accident or Design?* Review and Herald Publishing Association. PP. 154, 155.
- ⁴⁵ Leonard Brand. 1997. *Faith, Reason, and Earth History*. Andrews University Press. P. 240.
- ⁴⁶ Norman R. Gulley. . 2000. in John T. Baldwin, ed., *Creation, Catastrophe and Calvary*. Review and Herald Publishing Association. P. 145.
- ⁴⁷ Clyde L. Webster Jr. 1995. *A Scientist's Perspective on Creation and the Flood*. Geoscience Research Institute. P. 15.
- ⁴⁸ Ariel A. Roth. 1998. *Origins*. Review and Herald publishing Association. P. 163.
- ⁴⁹ *Ibid.*, p. 170.
- ⁵⁰ John M Fowler. 1991. *Building a Christian World View: A Christian Approach to the Study of philosophy*. *Christ in the Classroom*. Vol. 2. p. 70.
- ⁵¹ E. G. 1953. White. *Fundamentals of Christian Education*. Mountain View, C A. Pacific Publishing Press Association. Pp. 374 – 375.