

Science and the Truth of Nature

By Martin P. Sponholz

[Mathematics-Science Division]

Doctor Martin Luther College, finishing its first century and beginning its second, is teaching the sciences in a very pessimistic time. The world of science in our present age deliberately seeks at best to ignore God and His providence over nature, and at worst, even to deny a God of creation.

Earlier, the sciences, released to interpret nature as a side benefit of the Reformation, sought a world created with order and made profound strides in this search from the sixteenth century to the mid-nineteenth century. With such a philosophy as a base for science when DMLC opened its doors, a professor of philosophy could have been most optimistic about science and could have professed the marvelous laws of science as explaining the very ordinances with which God maintains the natural world. The complex unity of creation and the providence of the Creator maintaining His work could truly be seen through the works of Galileo Galilei, Isaac Newton, Rene Descartes, William Harvey, Robert Boyle and Gottfried Leibnitz. These men believed that God made all things. Their works showed it. In our century a new group of men, Ludwig Boltzmann, Steven Jay Gould, and Erwin Schroedinger, following the works of Charles Darwin, described nature as evolving by chance without God. In the closing decades of this twentieth century we see science as a human endeavor, steeped in human error and giving in to a human desire to eliminate God, who nevertheless made and still maintains His creation.

Science hopes to uncover subtle truths of nature but loses beyond recovery, all such hope by relying on the humanness of science rather than the wisdom of the almighty Creator of heaven and earth. Even with a knowledge of the eternal triune god and the great gift of reason given to mankind at creation, the Christian, who is nevertheless a sinner needing his Savior Christ Jesus, is denied the certainty of understanding the true natural world in the controlled laboratory and in the open field of nature. Oh how the theories and laws of men today mock our heavenly Father! And those church bodies which compromise God's truth to follow a theistic evolution are in danger of losing the realization of the need for a Redeemer in favor of an evolving self-satisfying science of lies. In the pessimistic darkness of these last days we pray more than ever that the Holy Spirit ignite the faith of our souls that we might be able to cling to the Word of truth in spite of the dominant belief in modern science.

The scientist professing so much by his own authority, building scientific interpretations on past traditions, and using his power to eliminate competitive ideas is much like Pilate, who scornfully asked, "What is truth?" A trained scientist today, alone, following his sinful heart, fails to see the embodiment of truth standing before him and stated long ago by Paul: "For since the creation of the world God's invisible qualities-his eternal power and divine nature-have been clearly seen, being understood from what has been made, so that men are without excuse" (Rom. 1 :20). Finally God will give them up to their own desires. These are indeed difficult times for science teachers.

One thing was very obvious for Pilate: Jesus was innocent. One thing is very obvious for us today: "In the beginning God created the heavens and the earth" (Gen. 1:1). Such simplicity needs no further explanation. Moses gives it no introduction. He simply tells us our God created all things. God created male and female above all other creatures. He created them with a soul. He commanded Adam and Eve to "be fruitful and increase in number; fill the earth and subdue it" (Gen. 1:28). He commanded them to rule over the fish the birds, and all land animals. These commands have been the vital substance for all science in all ages. Without God's created order, there could be no scientific explanation of nature. Without the command to fill the earth, there would be no lure to explore it and discover what is here. Without the command to subdue the earth, there would be no exciting impetus to discover new explanations for the mysteries of the universe, no hope to improve our understanding of how to increase food production, provide shelter, and improve health and

comforts. With the timeless truths embodied in the commands given to Adam and Eve one becomes very excited about science.

WHAT IS SCIENCE?

Science is an ever changing body of knowledge based on man's attempt to explain the natural world in which God has placed him. A most important aspect of science thus defined is to recognize that it is not a synonym for nature, nor is it a certain true explanation of nature. Old explanations, although no longer accepted by the practitioners identified as scientists, adequately described nature for a time. The history of science shows the ever-changing characteristic of science. It is the science textbooks at every level of education that are the first to be outdated. In a landmark work for this century, Thomas Kuhn's *Structure of Scientific Revolutions* shows science as a body of knowledge which accumulates within limited confines of paradigms, paradigms which scientists have imaginatively developed by requiring a complete overthrow and loss of accumulations between revolutions. Thus science is a limited body of knowledge, not expanding from one age to the next, only becoming different at each stage of revolution. Even the observations and facts collected and interpreted with a different worldview become different. What was thought to be important to try to understand in nature centuries ago is of no concern today; and the import of today was not dreamed of yesterday.¹ Fundamentally, the single most important item that separates science from nature is the practitioner, the scientist, the human. It is the very essence of a scientist's humanity that keeps him separate. The senses God gave mankind cannot see all, hear all, feel all, smell all, or taste all. And as a creature, the human cannot comprehend all his Maker has made or does in nature. Add the sinful desire to be as God, and science becomes only an attempted explanation.

These limitations are not responsible for the pessimism that haunts science today. Knowing that God knows all of nature and that God provides order gives the student of science a most optimistic hope that pervades all science. The Christian obedient to his Lord and knowing that order exists can provide a most positive influence in the laboratory. Even the non-Christian, ignoring God, but still seeking order in creation, can likewise pursue scientific explanations of nature somewhat optimistically. In a similar vain,

Luther did not condemn natural science, although he did ridicule its pretensions to wisdom. He has some words of high praise even for astrology, which he otherwise so vehemently rejected. Stripped of its superstitions, it is not to be condemned, for it is the observation and consideration of the works of God, 'which is the most worthy concern of man.' Man can in other words, find no better use of his talents than the study of nature.

Natural science is therefore a legitimate interest of man, and man may learn a great deal about nature through his own experience, by instruction from others and by divine revelation.²

Just as the world benefits from the civil righteousness practiced by the non-Christian, so it benefits from the research and discoveries of the non-believing scientist. Improved health, increased food production, and new and immense quantities of energy never before dreamed of have emerged. The sinful use of these blessings does not diminish these great gifts nor does it dampen the excitement of being involved with what Jacob Bronowski calls "this decoding of a highly imaginative, creative piece of guesswork . . . finishing with something which is only a gigantic metaphor for that part of the universe which we are decoding."³

The dark, death-enshrouding aspect of science so terrifying in these days is the concept that creation did not occur and that God plays no part in directing nature. These lies are also very much a part of science today. Of course, this is not new to the Christian who knows "every inclination of his heart is evil from childhood" (Gen. 8:21). Man in pride desires to be like God so much that he has eliminated his Creator and thus his Savior.

¹ Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago, Illinois: The University of Chicago Press, 1962), pp. 96 and 111-135.

² Siegbert W. Becker, *The Foolishness of God* (Milwaukee, Wisconsin: Northwestern Publishing House, 1982), pp. 61-62.

³ Jacob Bronowski, *The Origins of Knowledge and Imagination* (New Haven: Yale University Press, 1978), p. 70.

A main thrust of astronomy today strives to reach for intelligent life elsewhere in the universe. Many astronomers believe such communication will be made soon. With such encouraging belief billions of dollars are spent. Numerous massive radio telescopes are spread out over large grids to beam out signals as well as to listen. Yet detailed data from countless satellites return to earth, confirming again and again one more lifeless planet after another. The beautiful blue earth stands out alone as an island for life. When astronauts looked back at their home planet from the moon, they were so overcome with awe that they read the creation account in Genesis over their public communication system which beamed it back, to their nation. They were reprimanded for their action by their scientific overseers.

Instead of studying the wondrous, countless stars, men search for black holes. If such strange phenomena exist, they would truly be a marvel and confirm some predictions of Albert , Einstein and others. I do not take offense at this kind of research, but the search for black holes reminds me of the children's story of "The Emperor's New Clothes." Only the children were honest enough to acknowledge the king was naked. I pray that it is not true today that only the simple-minded have the wisdom to see the multitude of stars as God's handiwork, while the geniuses search and in time no doubt will interpret blackness.

A popular leading spokesman for astronomy today is Carl Sagan. He praises the Pythagoreans, particularly Philolaus (480-400 B.C.), for developing a system of planetary motions that included the earth as a planet. Aristarchus (310-230 B.C.), who first calculated the distances between the planets, is also a hero to Carl Sagan. Instead of being impressed with how close good reason can come to some Christian truths found even in some of the teachings of a heathen Plato (a universe created by God with perfection and purpose), Sagan blames both Plato and the Christian religion for disrupting the growth of human understanding by being skeptical of scientific observation and maintaining the concept of an incomprehensible universe. Instead of seeing God's hand in nature, he blames Christian beliefs for putting man's space exploration behind nearly two thousand years, the time lost between Aristarchus and Copernicus.⁴

In commemorating Charles Darwin's work *The Descent of Man* (1871),⁵ mathematician and historian of science, Jacob Bronowski produced the famous TV series in 1971 and two years later the book form with the same title *The Ascent of Man*.⁶ Both works, one hundred years apart, celebrated man's achievements in evolving from an ape to his present high intellectual state. Bronowski wrote:

The myth of Genesis was not destroyed by my generation of scientists; it was destroyed over a hundred years ago, in 1858 and 1859 when Darwin wrote and then published *The Origin of Species*. This really destroyed the belief of people in the literal account of the creation.

. . . and we could now say that what has really happened is that for the myth of creation, scientists have substituted the myth of creativity. And this gives us the sense that it is human beings who are peculiarly the creator.⁷

It is the norm that most brilliant scientists today have no compelling association with religion or an obedience to God their Maker. Francis Crick co-discoverer of the structure of the DNA molecule as a building block to life, believes religion to be the mistake of the past generation.⁸

The site of the first test of an atomic bomb near Los Alamos, New Mexico, called "Trinity," was blasted to smithereens. The leader of the project, Robert Oppenheimer, quoted the Hindu writings about death. Pearl Buck rightly captured the prideful arrogance of the scientist of this age by titling a historical novel about the development of the atomic bomb *Command the Morning*. God asked Job, "Hast thou commanded the morning since thy days" (KJV Job 28:12), knowing Job would humbly realize the strength, power, and wisdom of his

⁴ Carl Sagan, *Cosmos* (New York: Random House, 1980), pp. 188-189 and 209-210.

⁵ Charles Darwin, *The Descent of Man* (London: 1871), reprinted in *Darwin* (New York: W. W. Norton & Company, Inc., 1970), edited by Philip Appleman, pp. 197-276.

⁶ Jacob Bronowski, *The Ascent of Man* (Boston, Massachusetts: Little, Brown and Company, . 1973).

⁷ Jacob Bronowski, *A Sense of the Future* (Cambridge, Massachusetts: The MIT Press, 1977), p. 21.

⁸ James D. Watson, *The Double Helix* (New York: The New American Library, Inc., 1969), p. 48.

God. To that question today's scientist answers, "yes!" Today's scientist truly provides death and destruction with such boastful, foolish ideas.

Not all scientists are unbelievers; nor are all arrogant; nor are all so foolish. But all this unbelief is a real part of today's science when one sees science as it truly is, a composite work of many human beings meshing together beliefs and unbeliefs, truths and lies -- all of its practitioners building on successes, while hiding mistakes of the past. It should not seem strange to find many instances where scientific laws as developed and interpreted by men are not at all in agreement with descriptions of nature given by our Lord in His inspired word. Men of unbelief desire a world contrary to God. Their science will not embrace God's ways for nature.

It should be pointed out that my use of the term "scientific law"⁹ is not equal with the order God created. It cannot be. That it cannot be is obvious in the history of science. The scientist's signature is on all of his work. The genius of one age becomes the nonsense of the next age. When Martin Luther gave lectures on Genesis, the creation of the firmament between waters (Gen. 1:6) stood in direct contradiction to the standing laws of science.¹⁰ There was logical order to the elements earth, water, air, and fire. It was a scientific law that fire existed in the highest regions above the earth. It was scientifically impossible to have water in and above the fire region.¹¹ Today this contradiction is no longer an issue. Today many more similar contradictions exist.

As a student of science at the university, I was not troubled with the idea that I may have descended from an ape. Somehow that idea was too foolish for a mind prepared in Christian education. But when it became clear that every root and branch of science was imbibing the theory of evolution, then I too cried. "Help me overcome my unbelief" (Mark 9:2-1)!

Geology, biology, medicine, astronomy, physics, and chemistry all create problems for the soul of a believer. In geology, for example, the long eons of time and the extreme age of the earth are unavoidable. Time spans for earth crust changes, magnetic field shifts, continental drifts, and normal formation of sediments all calculate to hundreds of millions of years. If the dating is believed, the only room for harmony with the Bible is to lengthen the creation days, squeeze gaps between the days, or dismiss the creation account as a story given to simple-minded people who could not possibly comprehend the sophistication of modern science.

Biology impressively demonstrates great similarities from one species to another in the structure of organisms, of tissues, of organ functions, and of skeletal structures. The entire classification system dominant today is based on complexity, difference, and similarity of structure.

Modern medicine owes a great deal to evolutionary biology for the development of vaccines and useful drugs. Awesome similarities between humans and animals permit medical studies of habits, structure, immunities, and disease control.

Astronomy is saturated with the evolutionary development of the planets from the condensing of gases. It builds the entire classification of the stars on the evolutionary march through Hertzsprung-Russell diagrams. The creation of all elements is explained with burned out, recycled star material from the distant past.

The more basic scientific field of physics also touches evolutionary times of billions of years for the age of the universe as seen in the fundamental constants arranged in Eddington numbers. The explanation of nuclear processes supports the astronomer's concept of star development. Radioactive decay of nearly a thousand different isotopes provides a full spectrum of clocks to support strongly the geologist in his pursuit of measuring any magnitude of time that might be desired. The kinetic concept of matter, that all things are made of molecules with an infinite variety of coexisting motions, contributes to the chemist's notion of random chance

⁹ Martin P. Sponholz, "Changing Laws," a paper presented at an evening forum at Dr. Martin Luther College, New Ulm, Minnesota. Jan. 13, 1977; and "Two Towers: The Relationship Between Science and the Bible," a paper presented to the Minnesota District Pastoral Conference, St. John's Ev. Lutheran Church, Minneapolis, Minnesota, April 20, 1982.

¹⁰ Martin Luther, "Lectures on Genesis," translated by George V. Schick, in *Luther's Works* Vol. 1 (St. Louis Missouri: Concordia Publishing House, 1958), edited by J. Pelikan, pp. 26-27.

¹¹ Aristotle, *De Caelo*, translated by J. L. Stocks, in *Great Books of the Western World* Vol. 8 (Chicago, Illinois: The University of Chicago Press), Editor-in-chief, Robert Mannard Hutchins, pp. 357-405; and *Meteorologica*, translated by E. W. Webster; in *Great Books of the Western World* Vol. 8, PP. X3-494.

development through increased order among molecules. In turn, the kinetic concept aids the biochemist's explanation of the evolutionary development of the chemical building blocks of life.

It is in chemistry that modern evolution has transcended Darwin's survival of the fittest. Chemists have synthesized a number of critical organic substances, especially a few of the important amino acids, the building blocks of protein. The chemical molecular structure of DNA and RNA now provides the codes for the replication of genes showing hereditary duplication and changes. This explains possible species adaptation and alteration.

To the historian of science it is not surprising that modern atomic chemistry should be the cornerstone of evolution. The atomic theory of ancient Greece first recorded by Leucippus (475 B.C.), but better explained by his student Democritus, included the beliefs that atoms are eternal and atoms are uncaused. Thus, coming into existence and passing away are only rearrangements of the atoms.¹² The principles of modern evolution are in agreement with these ancient atomists.

This is part of the pessimism of today. What should be taught in chemistry when both the ancient and the current theories of atoms imply a world caused of itself without God and an existence of substance that is eternal? What should be taught when all of science is so saturated with such non-Christian teachings of a world without God, and without a Savior, a world existing eternally without sin, but evolving without end?

The impact that this science has had on our times has clearly been identified, but not from laureates of science. A Nobel Laureate of literature, Aleksandr Solzhenitsyn, in his famous Harvard commencement address of 1978, clearly stated:

. . . in early democracies, as in American democracy at the time of its birth, all individual human rights were granted because man is God's creature. That is, freedom was given to the individual conditionally, in the assumption of his constant religious responsibility Subsequently, however, all such limitations were discarded everywhere in the West; a total liberation occurred from the moral heritage of Christian centuries with their great reserves of mercy and sacrifice The West ended up by truly enforcing human rights, sometimes even excessively, but man's sense of responsibility to God and society grew dimmer and dimmer.¹³

In another address several years later the deported Russian cried, "The entire 20th century is being sucked into the vortex of atheism and self-destruction. We can only reach with determination for the warm hand of God."¹⁴ And more to the point regarding science, in his play *Candle in the Wind* he wrote:

Alex: What is science for?

Philip: . . . go down on your knees before it! You should worship science!

Alex: Oh, great science! That is the same as saying, "Oh, we great minds!" or even more precisely, "Oh, great me!" People have worshiped fire, the moon, and wooden idols -- but I'm afraid that worshiping an idol is not so painful as worshiping oneself.¹⁵

Facing such self-serving science as Christians, we must take the words of our Savior Jesus Christ, the same words which provided Solzhenitsyn with the theme of his drama, as encouragement in all that we do: "See to it, then, that the light within you is not darkness" (KJV, Luke 11:35).

¹² Cyril Bailey, *The Greek Atomists and Epicures* (New York: Russell, Inc., 1928), pp. 109-213.

¹³ Aleksandr Solzhenitsyn, *A World Split Apart* (New York: Harper, 1978), a commencement address delivered at Harvard University, June 8, 1978, p. 51.

¹⁴ Aleksandr Solzhenitsyn, a quote from an address delivered at Guildhall, London, where he received the Templeton Foundation Prize for Progress in Religion, Time, May 23, 1983, p. 57.

¹⁵ Aleksandr Solzhenitsyn, *Candle in the Wind* (New York: Bantam, 1974), originally titled *The Light That is Within Thee*.

A creation-less science is lost beyond recovery. It cannot be harmonized with God's Word. How can one encourage a bright young person, gifted in mathematics, to study, train, and devote his whole life to science when so much of its philosophical foundations deny the One who ordered it all in the first place?

This question I still tremble over. Now I am a professor at DMLC called to teach students who in turn will be teaching and giving encouragement to the scientists and engineers of the next age. But as a young man I too was such a scientist. Because of my achievement scores my teachers encouraged me to study science. The Lord blessed my work. As a scientist for the Office of Meteorological Research-Polar Group in Washington D. C. and also as an exchange scientist of the United States with Japan, I enjoyed a short career studying the physics of the atmosphere's first mile over Antarctica. I loved it. I returned to the University of Wisconsin for additional studies and will never forget a strange meeting between my Ph. D. committee and me. They had determined I should seek a proficiency in the Russian language. Although languages are difficult for me, I had previous training and did a little translation work while working for the government, so I had no real fear of this task. But being brash and young, I asked the reason for such an endeavor. Prof. Heinze Lettau, my advisor for my masters work six years earlier, smiled and answered for the committee, "The Russian language seems quite a natural choice for one who devotes his life to polar research" I have no idea what followed, what I said, what others asked, or what I answered. ". . . devotes his life..." was a battering ram to my midsection. Although I had not experienced conflict between Christian and evolutionary philosophies with these men, I could see my studies of the weather turning more and more downward and outward encompassing the entire glacier, the glacier formation, the evolution of its climate and beyond. I cannot look back and contemplate what might have been, but I did not finish my schooling. At one point in my life that was the all-important task. That afternoon I went home and wept. The next day I confessed failure in the office of the Wisconsin Lutheran Chapel and Student Center and received comfort from then Pastor Richard Balge. I still admire men like Professors Lettau and Schwerdtfeger, teachers who will hold my mind captive all my days. I love science and try to teach it without ceasing. But when is it time to keep studying and receiving the praise, the honors, the laurels, the degrees from this shattered philosophically wrong world, and when is it time to say no? I quit. The Lord called me to teach ninth-grade science. My conscience was at peace.

When Dr. Martin Luther, a man with many degrees, could not find harmony between science and the Bible over the question of water or no water existing above fire in the firmament, he turned to Moses and concluded. "Here I, therefore, take my reason captive and subscribe to the word even though I do not understand it."¹⁶

Science was not always so broken. When Martin Luther translated the Bible into the common language of his country and thus placed God's holy Word into the homes of every person who could read, every saint had the full authority of God's Church within the Bible for himself. That freedom from oppressive dictation of lying authorities spun off into every intellectual endeavor including science. Freedom existed to observe nature and interpret observations in the light of God's Word and His divine order. His was an order that taught truth and judgment as well as grace and mercy. The Christian religion is a religion not only of some timeless future, but of the here and now. It deals with the human condition. God became a real child from the womb of a real mother. Jesus experienced a real death and a real resurrection from death. I take it to be most important that when Christ ascended, He was hidden by clouds, and not planets or stars. Although very much sitting on the throne of God in heaven, He is omnipresent, close by, and very much among us all. And when the people of Reformation Europe knew that, the rigid mathematics of the Islamic world, algebra, locked in to fixed solutions from a fatalistic following of Allah, broke open in a freely pulsating dynamic fashion which Newton called fluxions and Leibnitz called calculus.¹⁷

Science now had a new viewpoint from which to interpret nature in its changing dynamic state; they knew that all changes were under the providence of a changeless God. The science of Galileo and Descartes, held captive in Roman Catholic Europe, became free in Reformation Europe. The suggestions for planetary

¹⁶ Martin Luther, "Lectures on Genesis," p. 26.

¹⁷ Jacob Bronowski, *The Ascent of Man*, pp.176-187.

motion of Copernicus and Galileo turned into numerical law in northern Europe through the work of Tycho Brahe and Johannes Kepler. Momentum from Rene Descartes and acceleration from Galileo Galilei once defined under intellectual duress from raging inquisitions, broke free into one of the most unifying works of science in all history in Isaac Newton's *Principia*, 1687. The free spirit in Protestant England, encouraged by a strong belief in the continual guidance of God over all nature, led Newton to develop a science that interpreted all the motions of the entire universe. All things moved under universal gravitation following just three fundamental laws.

Nature under God's guidance gives immense hope to science. Men of science responded with enthusiasm and were encouraged with success after success for the next two centuries. Every field of science which involved motion or a change of any kind with respect to time and space impressed formulas on empirical data with powerful predictive values for nature. Motions of the moon, the planets, and the most distant stars created and guided by God could be understood and predicted by men. Mathematical applications gave satisfactory answers for tides, ocean currents, motion of the air, and cooling rates of volcanoes and the entire earth. The study of forces explained erosion of rivers, formation of landscapes, and the structure of rock layers. This mathematizing of so much of science did not give only simple little algebraic forms, but entire families of curves that could explain changes within changes and gave the scientists a medium of art to provide understandable structure for the most complex and varied aspects of nature. Today, with the same Newtonian hope, systems of partial differential equations let scientists model even the seemingly random eddy structure of a buffeting wind system or a turbulent ocean summing together accelerations now far more complex, but still very Newtonian in spirit. There remains a hope for an explanation of every ripple in nature!

Creation connects nature to God and the continual connection between nature and a God in control of nature is what permits this unifying science. Accepting God in nature, William Harvey searched for Aristotelian final causes. His search led to the discovery of blood circulation from the heart, through the lungs, back to the heart, to all parts of the body, and back to the heart. The heart suddenly was correctly understood as a muscular pump.¹⁸ Previously, science had provided a seemingly adequate explanation. Two kinds of blood were generated from food stuff. These bloods flowed outward without return as they were generated from their sources. Blood from the heart distributed vital spirits by arteries. Blood from the liver distributed nourishment by veins. Both bloods were used up by the body. The concept of a return flow was non-existent. Venous valves under the old system existed, but had no function.

To William Harvey all things created had to have a purpose. The existence of venous valves meant fluid motions were being controlled. The existence of these valves, therefore, became the convincing argument in favor of circulation. The structure of both ventricles of the heart were almost identical. If the structures were identical, then their purpose would be identical. Except for a slight color difference, the blood of the veins was identical to the blood of the arteries. They must be the same substance. Confidence in a circulation explanation grew.

The size and position of the lungs, close to and surrounding the heart, must have been important to the overall design of the creature. Harvey saw one system of arteries and veins serving the lungs and one system serving everything else in the entire body. This was a disproportionate design, unless there was a purpose. Putting arguments together, Harvey added innovative experiments on both dead and living animals. He could show that in the time span of only one hour more blood flowed past a given point than the weight of the entire animal. The world accepted Harvey's circulation system.¹⁹ Antony Leeuwenhoek's research with the microscope clarified the only weak link in Harvey's system by showing that arteries and veins were connected by capillaries.

Robert Boyle was another great scientist who recognized the necessity of knowing God's role in nature in order to know science. He is most remembered today for a narrowly defined, simplified relationship between volume and pressure for an ideal gas. His methods and invention of a pneumatic engine (a vacuum pump with a

¹⁸ Lois N. Magner, *A History of the Life Sciences* (New York: Marcel Dekker, Inc., 1979), p.126.

¹⁹ William Harvey, "On the Motion of the Heart and Blood in Animals," first published in Latin in 1628, English translation in *The Harvard Classics* Vol. 38 (New York: P. F. Collier & Son), edited by Charles W. Eliot, pp. 65-88.

bell jar) gave us the understanding that we live at the bottom of an ocean of air. The inconsistencies generated when others tried to reproduce his work showed pressure changes of a continental scale and led to modern meteorology, the science of the minute, but violent, changes in that ocean of air.

Robert Boyle forcefully argued the need of experimental science to include the relationship between nature and God, the Designer of nature. These arguments are written in *A Disquisition About Final Causes of Natural Things* (1664) and provides us with some reasoned standards. Boyle wrote: "There is no part of nature known to us wherein the consideration of final causes may so justly take place, as in the structure of the bodies of animals." Boyle saw the detailed search for mechanical structural explanations and the quest for understanding God's purpose for that design as complementary.²⁰ On the other hand, Boyle was skeptical about the probability of arriving at final causes for the physical sciences. He conceded that objects of the earth, like stones and metals, ". . . do not infer knowledge of intention in their causes." But never did he permit such concession to eliminate the Designer. He added: "To say we cannot know all the functions that God intended for a structure does not preclude our ability to design some functions."²¹

Modern critics desire to keep experimental science and one's religious knowledge separate. Such criticism rightly comes because the possibilities of speculation may be limitless. Boyle cautions that

We not be over-hasty in concluding, nor too positive in asserting, that this or that must be, or is, the particular destined use of such a thing, or the motive, that induced the Author of nature to frame it thus.²²

Boyle also warned against the danger of searching out final causes at the expense of learning the details of other causes closer to man's understanding.²³

The prospect of success in science while looking for divine purpose in nature was vividly displayed in Boyle's argument against the ancient concept of elements. He saw many living creatures, and even some nonliving substances, react with air, earth, and water. Generally speaking, mixing these things in proper ways produced good results. Plants absorbed minerals of the earth. All living things needed air and water. But fire destroyed all.²⁴ In this system of well-established scientific principles, Boyle saw the failure of showing a constructive purpose of the Designer for fire. Boyle was skeptical of the ancient concepts of matter. That skepticism showed the way to modern chemistry. It was truly an optimistic time for science.

The scientists' search for mechanical explanations for nature continued over two centuries with seemingly great success, but God's purposes were seen less and less by them. Today many are agnostics at best and some are fools. James Hutton's *Theory of the Earth* (1795) popularized in John Playfair's *Illustrations of the Huttonian Theory of the Earth* (1802) expounded the doctrine of uniformity which takes witnessed slow changes and extrapolates them over a distant past. Their description of the developing earth in a prehistoric past bore no relationship to the description of nature found in the Bible. The various layers of rock seen all over the earth were explained by many occurrences of flooding due to ocean changes. Observable changes in land forms permitted Hutton to describe an earth without a particular beginning or a particular end.²⁵

Georges Louis Leclerc in 1807 published *Epochs of the History of the Earth*. Using the laws of science of his day, Leclerc developed seven epochs that explained the formation of the earth developing from a molten liquid mass and going through stages of cooling. He determined the age of the earth to be 75,000 years. The

²⁰ James G. Lennox, "Robert Boyle's defense of Teleological Inference in Experimental Science," *Isis*, Vol. 72, Number 262, June, 1981, pp. 39-40.

²¹ Lennox, p. 41.

²² Lennox, p. 47.

²³ Lennox, p. 47.

²⁴ Robert Boyle, *The Sceptical Chymist*, first published in 1661, modern edition with introduction by E. A. Moelwyn-Hughes (London: Dent, 1964), pp. 90-93.

²⁵ John Playfair, *Illustrations of the Huttonian Theory of the Earth* (New York: Dover Publications, Inc., 1956), first published in 1802.

different epochs paralleled to some degree the seven creation days, but no declared attempt was made by Leclerc to conform his theory to God's Word.²⁶

Charles Darwin's *Origin of Species* (1859) saw no creation and no continual care by God for His creation. Instead, he saw one species turn into another by natural selection, again over very long periods of time. He did explain some problems other scientists were failing to solve. Several scientists hung on to the theory that species were unalterable. Recorded history in agriculture showed that such rigidity of science simply did not exist in nature. Some species did indeed adapt and change. But when *The Descent of Man* in 1871 identified man himself as part of the world of mammals, an ape in the distant past, a global furor erupted at once. The scientists divided into two warring sides, one croup following in the footsteps of Robert Boyle and the other putting its trust entirely into the mechanistic explanations of nature without final cause. The life sciences were in turmoil.

For the physical sciences, the same nineteenth century saw a similar concentration on mechanistic explanations, at least as expressed in the scientific literature. The physical sciences could easily avoid the sensitive issues of origin and especially the relationship between man and his place on earth and his God. Thus, able to avoid spiritual controversy, physics enjoyed a great success, building laws upon laws all founded on Newton's mathematical principles of natural philosophy. It climaxed with James Clerk Maxwell's explanation of electric-magnetic fields carrying light, responding equally and oppositely to light propagation throughout all the universe through luminiferous ether.

In 1875 when Max Planck applied at the university for studies in physics, the chairman of the physics department told him that physics was a branch of knowledge complete. All the important discoveries had been made. Just a mop-up job remained to find one more decimal place for precision of the constants.²⁷ The laws of science seemed fixed. I am sure for several decades after this time many people taught and believed that the known, unalterable laws of science were the very ordinances of God which govern the nature He created. Science falsely could be looked at as rigid and certain, pursuing careful measurements with a knowledge of what is being looked for. Science, falsely believed, could explain all things. Man's pride was complete. He felt he knew it all. He did not want to see the difference between God the Creator and himself the creature. This false confidence did not last long.

Two separate problems in physics emerged at the end of the nineteenth century that brought the scientific house, built on sinking prideful reason, to a great fall. A new science was, of course, constructed quickly on the lot next door.

From 1881 to 1887, Albert Michelson, at first alone and then together with Edward Morley, tried to make a routine, somewhat unexciting measurement of the earth's speed in the ether of space. It was unexciting from the standpoint that all the results were known before the apparatus was developed and measurements taken. The speed of light was known; the motion of the earth was known in fine detail; the structure of light was known to be made of electromagnetic waves -- all this meant space was known to have a structure of substance that responded to momentum and energy changes of which light was the communicating factor. The laws of science had spoken. Michelson and Morley's measurements were to be just one more set of data necessary to the tradition of improving the known constants. To everyone's amazement these measurements came up with exactly the same figure for the speed of light in every conceivable direction while it displayed no additive factor for the earth's motion at all.

This was a totally unacceptable result, but it quickly had confirming duplication throughout the world with amazing precision. The whole of physics was in turmoil at least until 1919, when solar eclipse observations could be interpreted according to Albert Einstein's general relativity. The new theory did not just correct only some items of Newtonian physics; it overturned it entirely. Absolute measurement gave way to

²⁶ Georges Louis Leclerc, "Epochs of the History of the Earth." in *A Source Book in Geology 1400-1900* (Cambridge, Massachusetts: Harvard University Press, 1970), edited by Kirtley F. Mather and Shirley L. Mason, pp. 65-73.

²⁷ Barbara Lovett Cline, *Men Who Made a New Physics* (New York: The New American Library, 1969), p. 34.

relativistic lengths, masses, and times. The force of gravity was no more. In its place was curved space with tensor differential geometry to describe a changing space and preserve planetary motions.²⁸

The second just as turbulent overthrow in physics occurred in the same time frame, from the end of the nineteenth century to the first quarter of the twentieth. Under the guidance of the same certain and unalterable laws of physics in the 1880's, energy was known to be continuous. But theoretical solutions for black body radiation, if built on the laws of energy and waves, led to the ultraviolet catastrophe. Substances raised to higher and higher temperatures gave off light at higher and higher frequencies so that, at the ultraviolet frequencies, bodies gave off energy without limit. In order to overcome that contradiction. Planck developed a system of mathematics that forced results in agreement with observable black body radiation. By 1900 Planck was promoting the concept of quantum energy, that energy consisting of discontinuous bundles. With this new concept Einstein could develop a mathematical model which explained Brownian motion as giving a kinetic-molecular interpretation for all matter. Quantum energy and matter brought the deterministic laws of thermodynamics down. The first law, conservation of energy, now had to include the idea of a transformation between matter and energy. The second law, entropy, had to be reinterpreted to include all of the random motions of the molecules. Entropy no longer always increased in every energy exchange. Entropy "most probably" increased. "Most probably" is not "always." That meant sometimes entropy decreased and molecular order increased. Energies in black body radiation were scattered in unequal ways among the frequencies so that at higher temperatures not all the energy goes to the shortest waves.²⁹ Order in biology struggled for cause. The laws of motion and energy of the physical sciences were torn asunder. This was the time at which DMLC started as a small teacher's college with quietness and trust in God.

Throughout the world debate raged in scientific research laboratories. With contradictory ideas emerging in all subject areas of science, the scientists were showing their true universal character, their intolerance toward different schools of thought. The struggle against Darwin's mechanical development from lower to higher species had its greatest advocate in the person of Louis Agassiz. Tragically, he lived to see his struggle lost to the followers of Darwin.

Agassiz, an immigrant from Switzerland, gave his life to science and, in particular, to American science. Agassiz created the American Association for the Advancement of Science, established the National Academy of Science, and started the first school or college of science in America at Harvard. He sacrificed his own personal prestige to educate the American masses in science with nationally popular speaking tours and prolific writings. Of him, Oliver Wendell Holmes wrote:

I look with ever increasing admiration on the work you are performing for our civilization. It very rarely happens that the same person can take at once the largest and deepest scientific view and come down without apparent effort to the level of popular intelligence. This is what singularly gifts you for our country ... You have gained the heart of our purpose; you have taken hold of our understandings by your familiar lectures and writings, and you are setting up standards for them which will gradually lift the student of nature among us to its own level in aspiration if not in performance. I did not think it necessary to say these ... words, but I wanted the privilege, because I feel them sincerely.³⁰

As a world authority on fossil fish, Louis Agassiz used a different classification system than the one used by Darwin. Here is where human artistry plays such an overwhelming role in forcing nature into a scientific mold. On the surface there is nothing wrong with teaching about different species starting from the simplest and working toward the more and more complex. It is a system at least as old as Aristotle's *Animalia*. But it is a human invention. And it fits so well into Darwin's idea of evolution. Today after more than a century

²⁸ Robert H. March, *Physics for Poets* (Chicago, Illinois: Contemporary Books, Inc., 1978), pp. 96-152.

²⁹ Cline, pp. 48-58.

³⁰ Edward Lurie, *Louis Agassiz: A Life in Science* (Chicago, Illinois: The University of Chicago Press, 1960), p. 309.

of beating the data into submission, most scientists naturally and easily accept evolution as law. But with his different classification system Agassiz argued:

There is a manifest progress in the succession of beings on the earth. This progress consists in an increasing similarity to the living fauna, and among the vertebrata, especially, in their increasing resemblance to Man. But this connection is not the consequence of a direct lineage between the faunas of different ages. There is nothing like parental descent connecting them The link by which they are connected is of a higher and immaterial nature; and their connection is to be sought in the view of the Creator himself, whose aim, in forming the earth, in allowing it to undergo the successive changes which geology has pointed out, and in creating successively all the different types of animals which have passed away, was to introduce Man upon its surface In the beginning the Creator's plan was formed, and from it He has never swerved in any particular To . . . study the succession of an animal in time, and their distribution in space, is therefore to become acquainted with the ideas of God himself.³¹

Agassiz sailed on the steamship *Hassler* retracing Darwin's voyage on the *Beagle*. His conclusions were that the Galapagos Islands were of a recent origin and therefore it could not have taken "such unspeakably long periods" for changes in the species between the Islands and the mainland. He also claimed the most primitive forms of life existed in both the distant past and present, thereby denying the developmental scheme of Darwin. Those claims he wrote just before his death on December 14, 1873. But the tide of evolution had swept over him a decade before, Agassiz lost influence at Harvard with the appointment of men like James Dana, Asa Gray, William Rogers, and Charles Eliot -- all younger scientists following the teachings of Darwin. The 1860's saw his college of science at Harvard teaching evolution: the mechanical development of one species changing into the next and the survival of the fittest. The worst personal blow to Agassiz was the change to an evolutionary classification system in the Museum of Comparative Zoology. That museum had been the physical embodiment of all his beliefs.³² In the revolution of the life sciences of the mid-nineteenth century, Louis Agassiz had *ipso facto* ceased to be a scientist. The new paradigm of evolution had swept over him and left him behind.

The revolution in physics similarly rolled over another giant, Albert Einstein, and ignored him in his later life. It saw the confirmation of Planck's quantum physics and Einstein's relativity. But with this confirmation came deeper interpretations than could be foreseen by the original innovators of theory. Substance could only be expressed in degrees of randomness and probabilities. Heisenberg's Principle of Uncertainty is a fundamental law today, and Schroedinger's orbitals, regions of space where electrons probably exist, is the embodiment of modern chemistry. Opposing this new science, which came eminently from his own work, Albert Einstein, like Agassiz, waged a lonely war for a nature of order and determinism. He refused to accept a natural world operating according to chance by writing:

. . . that in the long run, it should be possible to frame one great field theory in which the traditional concept of causality would re-emerge I differ decisively in my opinion about the fundamentals of physics from nearly all my contemporaries, and therefore I cannot allow myself to act as a spokesman for the theoretical physicist. In particular, I do not believe in the necessity for a statistical formulation of the laws I can, if the worst comes to the worst, still realize that God may have created a world in which there are no natural laws. In short, a chaos. But that there should be statistical laws with definite solutions, i.e., laws which compel God to throw the dice in each individual case. I find highly disagreeable.³³

³¹ Louis Agassiz and A. A. Gould, *Principles of Zoology* (Boston: Gould and Lincoln, 1858), p. 237-238, accessible on microfiche, The Microbook Library of American Civilization (Chicago, Illinois: Library Resources Inc., 1972).

³² Lurie, pp. 252-390.

³³ A P. French, editor, *Einstein: A Centenary Volume* (Cambridge, Massachusetts: Harvard University Press, 1979), p. 6.

Einstein, like Agassiz, lost. So much of modern science wants to deny the presence of God governing nature and the reality of His creation. Evolution, randomness, and chance are now the framework placed on the laws and the substructure of all unifying theories in modern science.

In our own lament over this trend, we nevertheless cannot go back to Newtonian physics, to older biological classification systems, or to older non-molecular structures of matter as the temptation to return to simple understandable explanations might warrant. The old systems all had their problems. We must hold fast to the knowledge that true science in every age is linked to human beings. Those ideas of great men of science who were committed to search for God's order in nature did fail. Failure is not what makes science pessimistic. Failure is what we all experience. We are human beings. We are sinners. The order God gives nature gives the pursuit of science hope in spite of human failure. The science of these times is pessimistic because that hope is lost to the mainstream of scientific thought. Until such a hope is restored, a hope to see God's order, what can be correct? The Christian, who tries to see God in nature, and yet who must use the laws of science from the market place, may be taken out of the scientific community as were Louis Agassiz and Albert Einstein. St. Paul's words to the Philippians are good for us:

I know that you stand firm in one spirit, contending as one man for the faith of the gospel without being frightened in any way by those who oppose you. This is a sign to them that they will be destroyed, but that you will be saved -- and that by God. For it has been granted to you on behalf of Christ not only to believe on him, but also to suffer for him (Phil. 1:28-29).

Many did not stand firm. So many church bodies caved in that it troubled even Jacob Bronowski, a strong spokesman for evolution. He wrote:

For 1800 years and more, the dogmas laid down by the Christian churches, their predecessors, and their rivals were advanced as matters of literal truth. To fly in the face of Genesis was throughout those centuries held to be as outrageous as to fly in the face of gravity; and was in fact a great deal more dangerous. Now the dignitaries tell us, with beatific charm, and with a smile of tolerance at our foolish materialist obtuseness, that all this meant nothing. The churches have changed their mind. They no longer believe the biblical stories -- indeed, some of them plainly find the existence of the Bible an embarrassment It is, I have said, annoying of the traditional faiths to shift their ground like this. But once they have done so, it is useless for us to behave as if they had not.³⁴

Some fought in court. The Scopes "Monkey" trial of 1925 saw William Jennings Bryan argue against the teaching of evolution in the public schools by a high school biology teacher, John Thomas Scopes. A local judge in Dayton, Tennessee, decided against the biology teacher. More recently similar trials have been held in courts in Alabama, Louisiana, California, and Arkansas. I believe they are not a measure of hope, but hopelessness. Science of any kind cannot be conducted in a court room. The lab is a good place to start, and finally all ideas in science must be tested in the open, uncontrolled realm of nature. Never in court rooms!

Creation science today tries to fight scientific reasoning with more reason. Such a procedure may not be bad. The struggles of science should be held in the lab and the scientific journals. Others struggle for a science with certain answers. They believe that God reveals truth in two distinct ways, in His Word and in science. They argue that, if laws of science can be found to contradict evolution, the Bible is vindicated. The motives for such pursuits may be correctly hopeful, but lack an understanding of the human element in science that has always existed. Henry M. Morris is recognized as a current leader for creation research and is given credit by the American Association for the Advancement of Science for trying to put creation concepts on a scientific

³⁴ Bronowski, *A Sense of the Future*, p. 251.

footing.³⁵ An examination of his blend of the laws of thermodynamics and Scripture is an example of what I find disagreeable. He argues:

Creation actually has been accomplished by means of creative processes which are now replaced by the deteriorative processes implicit in the second law [of thermodynamics]. The latter are probably part of the “curse” placed upon the earth as a result of the entrance of sin.³⁶

We can see now that the two basic laws of science, the first and second law of thermodynamics, are merely man’s scientific statements of two revealed facts of: (1) a creation originally completed and now sustained by God’s power, and (2) the curse of decay and death superimposed on creation by its Creator because of man’s sin.³⁷

Such is a Calvinist’s approach to a problem. All doctrines must have a rational explanation. A world fully created and working “very good” must be in thermodynamic equilibrium, so that all energy changes remain in perfect balance and are conserved. That is the Calvinist’s first law. But sin came by man, and following sin came the curse which must be a trend toward more and more thermodynamic disorder. That is the Calvinist’s second law. I fear too much is being added to Scripture with these arguments. I know God created all things “very good.” And sin disrupted all things, so that the earth is now wearing out like a garment; but what have these got to do with statistical math functions describing molecular motion undergoing heat transformations occurring in steady state equilibrium constraints? The very nature of the mathematics of thermodynamics displays the human artistry in science. All the mathematical constraints on the process being modeled limit the applications of these statistical laws. General conditions in nature, free and uncontrolled, are utterly complex and beyond the mathematical modeling for the present state of the art. This is why we must always keep science separate from nature. The application of the second law to all biological processes, always showing more and more disorder and therefore no evolution of order to a more complex orderly state is simply wrong. It may have had that application when heat was believed to be caloric fluid (a substance without weight or even with negative weight), but today thermodynamics must be applied to molecules in kinetic motion. It is possible to have improved order among the molecules coming out of less order at times, especially under non-equilibrium conditions. For such work Ilya Prigogine received a Nobel prize in 1977.³⁸

The statistical laws of thermodynamics have been useful for the study of structures of crystals. They have been used to establish pressure versus temperature functions at the freezing points of crystals. They have given the explanation for the peculiar expansion of water at freezing. They have given chemical affinities and specific heats of materials. Statistical thermodynamics overcame the paradox of two specific heats for gases, gave heats of chemical reactions, and established the third law of thermodynamics, that the curves of the free energy and the total energy are tangential at absolute zero.³⁹ Surely a perfectly created world full of life cannot be at maximum order in a thermodynamic sense. If it were, the Garden of Eden would be in a timeless, frozen state at -459° F. That is what statistical molecular order means. It is a humanly structured mathematical system with some arbitrariness which gives numerical value to molecular structure. I don’t know what that had to do with sin. It may help understand a little about molecular structure. Knowing the limiting constraints of mathematics on any model will not tell the complete picture of molecular motion. And that is why I must keep insisting science is different from nature.

³⁵ R L. Numbers, “Creationism in 20th Century America,” *Science*, Vol. 218, No. 4572, November 5, 1982, pp. 538-544.

³⁶ John C. Whitcomb and Henry M. Morris, *The Genesis Flood* (Philadelphia, Pennsylvania: The Presbyterian and Reformed Publishing Company, 1961), p. 224.

³⁷ Henry M. Morris, *A Biblical Manual on Science and Creation* (San Diego, California: Institute for Creation Research, 1972), p. 15.

³⁸ Ilya Prigogine, “Time, Structure, and Fluctuations,” lecture to the Nobel Foundation, Stockholm, Sweden, 1977, reprinted in *Science*, Vol. 201, No. 4358, September 1, 1978, pp. 777-785.

³⁹ Peter Clark, “Atomism Versus Thermodynamics,” in *Method and Appraisal in the Physical Sciences* (Cambridge, London: Cambridge University Press, 1976), edited by Colin Howson, pp. 41-105.

It is the role of increased entropy, a decrease in crystalline molecular order, that gives water its peculiar properties of expanding when freezing, that the solid of water floats in its own liquid, and that water has a maximum density at 39° F, seven degrees above freezing. It is these special properties of water that permit and sustain life from a physical point of view. To insist that the second law of thermodynamics exists as a result of sin is folly. Surely we know God provided life and sustained it before sin. If, in fact, the second law truly describes nature, then I am fully convinced that it existed and was operative under God's verdict. "It was very good."

I don't wish to condemn scientific efforts at finding errors in science. That is the essence of science. It is the desire of every scientist that his descriptive models and classification systems best illustrate nature or further new understandings of nature. It is also the essence of inductive science to place limits on its generalizations. As a former scientist I would like to see the overwhelming sweep of evolution thwarted. It won't be accomplished by applying thermodynamics. Without a doubt, in spite of some of these shortcomings, some creation science research has kept many an evolutionist struggling. Of course, the evolutionist has his shortcomings. I believe them to be very extensive. We cannot ever feel certain about creation science. Because it is science, it is no better than science. Science is, not nature, and we must keep remembering that, lest we fall into the sin of pride as do many scientists who dismiss creation and accept their own explanations as truth. Such pride is also very much part of science.

Danger exists, perhaps more so with creation science, because of the inevitable intertwining of faith and reason. A work I really enjoyed as a young student of science was *The Flood* by Alfred Rehwinkel published in 1951. It still remains a most interesting description of the actual occurrence of the global disaster, the flood, at the time of Noah. The book is especially enjoyable reading, but is more descriptive than technical. I believe the author accepted the Scriptural account as I. What I must say is surely not the fault of the author, but several years after I had read *The Flood*, I became more troubled by this book than I was helped. While a student I was particularly challenged with respect to my beliefs about natural events mentioned in the Bible and the possibility of an Ice Age. Rehwinkel discouraged the acceptance of ice ages. He argued, using correct physics, that an ice age of long enough duration and of sufficient cold to produce ice thick enough to cover the northern Midwest of the United States and move up-hill for some of the distance traveled would have to have been many thousands of feet thick at the source. He claimed correctly that such a thickness of ice would melt of its own weight. Geographical knowledge truly showed that no such thickness of ice existed anywhere on earth. Based on the knowledge of Greenland and Antarctica in 1951 such thick glaciers were not known.⁴⁰ Rehwinkel wrote before the International Geophysical Year. In the decade that followed, scientists from many nations crawled all over the ice caps of Greenland and especially the international open territory of Antarctica. I was one making footprints in these snows. An ice core was taken and preserved from Byrd Station, Antarctica. Its base was slush. The unmelted ice was 7,100 feet thick. I lived on ice 11,000 feet thick at Plateau Station. An ice thickness of 14,000 feet was recorded with radio soundings through the ice from a surveillance aircraft near Sovetskaya.⁴¹ Truly an ice dome covering a large continent was very much under my frozen feet. I had trusted human wisdom to support my faith in the truth of the Bible. My error, my sin, was to trust the science of men. This too is part of science, that it frequently goes wrong. Where I might try to harmonize science and the Bible, I would be introducing too many of my own explanations. My scientific tracks in the desert snow are wind-blown and gone.

What is science? In its most optimistic sense it contains the hope of understanding the subtle truths of nature. That hope is really only to the extent that science includes the knowledge of our Lord, who created all things and continually, actively maintains them. The order that our Lord provides, though perhaps never fully

⁴⁰ Alfred M. Rehwinkel, *The Flood* (Saint Louis, Missouri: Concordia Publishing House, 1951), pp. 298-327.

⁴¹ Anthony J. Gow, "Deep Core Drilling at Byrd Station," U. S. Army Terrestrial Science Center.

G. Robin, C. Swithinbank and B. Smith. "Radio Echo Exploration of the Antarctic Ice Sheet." Scott Polar Research Institute, Cambridge, and British Antarctic Survey.

These papers and others were presented at the International Symposium on Antarctic Glaciological Exploration, Dartmouth College. Hanover, New Hampshire, September 3-7, 1968.

understood or even seen, can be the only order governing nature. The pursuit of this truth, God's order, is the embodiment of optimism in science. But science is not nature. Science is entirely a human activity. With that activity come human demands for human understanding: I must understand; I will not be satisfied until I know; I will not believe until I see. Oddly enough, sometimes God does let man see. Christ subjected His resurrected body to the full observational scrutiny of Thomas.

More often the Christian in the world of reason must use ideas collected in the marketplace of science, ideas which bear the errors of unbelief. But amidst the sinful pride of man's understanding nature as God, above God, without God, and instead of God, no fact, theory, or law of science generated through interpretation of mankind can be certain. This is the pessimism of science in our time. It should not be strange to us that contradictions between science and our beliefs are real. Science today has lost sight of God's purposes. Of it Siegbert Becker writes:

It professes to know more than it knows. In reality it can find only material and formal, or instrumental causes, but in its ignorance it imagines that it has found efficient and final causes. It is this attitude which is behind the "scientific" assertion that diseases cannot be caused by devils because they are caused by germs, or that God cannot answer prayers for rain because rain is the result of the interacting of complicated meteorological factors. Man with his reason can only deal with phenomena, and he ought to be conscious of the limitations which this places on all his investigations. Reason has no way of pressing behind the phenomena to find the real efficient cause, which controls and determines them.⁴²

Science can never reach a perfect understanding of nature. Science on this side of heaven cannot escape its human connection, whether pursued by believer or pagan. Historically science changes continually. Science may appear to increase the scope of human understanding between the major changes of scientific thought. It is in these changes of revolution that the old is cast out, and the new interpretations of observation, law, and theory are rebuilt from a different base of understanding. These sciences leave us in a quagmire of pessimism. We cannot know true science. In a completely different problem Job could not understand why he was given a life of suffering. He was given an answer, but not to his question. He was shown that the natural world surrounding him was far beyond his own human understanding; God alone understands His own ordinances of nature. That is still an immensely true comfort in this century of science.

OF NATURE WHAT IS TRUE?

Laws of science have come and gone in a long train of human ideas. Nature remains nature as truth is truth. The truths of nature mentioned in the Bible are true whether accepted by leaders in science or not. God's Word remains the only certain truth we have, whether church bodies hold it true or not. That Word simply states: "In the beginning God created the heavens and the earth" (Gen. 1:1). There is no discourse to prove or demonstrate the feasibility of such an event. How such a magnificent event occurred is explicit: by God's Word. The demonstration of power and wisdom during the week of creation by our Triune God is beyond imagination. It is captured in His words of the Bible in Genesis 1 and 2 and referred to in many places of both Old and New Testaments by the prophets, the apostles, and Jesus. The magnificence of this creation is sung of many times in Old Testament song and poetry. All of the created wonders lead to the climaxing events of the special creation of man and woman. The overwhelming purpose of this record shows God freely creating man and woman holy for the glory and pleasure of God. Created in God's image, they freely communicated with their Creator. Created as the crown of creation with the gift of reason, they were given the entire earth for their domain.

The tragedy that befell our first parents, the tragedy of God's people as they murmured against Him, the sickening tragedy of our own repeated denial of our Lord with repeated sin, and the similar tragedy of our

⁴² Becker, *The Foolishness of God*, p. 66.

children after us -- all these clearly contrast with the record of creation's perfection that our dull consciences might see the ugly ravage of sin. The creation account with all things created perfect is a loudly heralded answer to all those arguments blaming God for corruption, illness, war, and death. The answer for all the trouble of this unwilling, groaning, travailing-in-pain earth (Rom. 8:19-22) is our sin. Quickly God revealed His grace to man. That promised Seed of the Woman, the Light of the World, the Lamb of God, Jesus saved us from the final consequences of our sin. Our sinful depravity contrasted with a perfect creation clearly demonstrated the need of a Savior. By God's grace we seek our Savior. By His grace we receive forgiveness through our Savior. Now in faith we long for the life without sin, the direct communication with our Creator, the new heaven and new earth (Rev. 21:1, Is. 66:22). It is the tree of life we reach for. Once Adam and Eve were driven away from it. In life everlasting we behold it again (Rev. 2:7, Rev. 22). Thus the Christian's life can be entirely embodied in the creation story. Paradise was lost. We hope for a new paradise when we will once again walk with God in perfection.

Are the details of creation, the exact sequence of events, the duration of those events less important? Separated from the big picture, showing us our salvation through faith in Jesus Christ, they may not be necessary, but as details in any testimony, the details God provides of the creation display His credibility. Just as Jesus would not have had to perform miracles to demonstrate that He was the Son of God, so God would not have had to give us the details of the miracles of creation. The prophecies that Jesus would perform miracles and the testimony that He did perform them helped those who heard and saw and now help us to accept Jesus as our Savior from sin. We are grateful for His details of creation. If God had not told us through His writer Moses, we would not know He created all things in six days. We would not know how important a woman was to God and to man had we not been told how tenderly she was taken from Adam's side.

There are precious few people on earth today that do not have access to these records. The creation record is also very clear and simple. One does not need to understand physics to know the difference between light and darkness. All people know the difference between sky, sea, and land even though the structure of these keeps the meteorologists, oceanographers, and geologists constantly in the research game. It may be difficult to comprehend how the sun, moon, and stars were sent to catch up to the day and night, but everyone recognizes these three light-giving objects in our sky. We may ever flounder because of an inability to develop a classification system capable of labeling all of God's creatures, but we know of their magnificent variety and beauty. Who can give thanks enough for his own body and life?

The details of creation are telling us some of the wonderfully beautiful things we could not know otherwise. God indeed asked Job. "Where were you when I laid the earth's foundation?" (Job 38:4). We could not know these truths except by being told. Of course, creation is not scientific in the sense that it can be observed. But if modern science is ever to break its bondage to the pessimistic concept of nature without creation, without order, with randomness and chance, then science must accept the only true record. We find that truth in Genesis. That is why we are told "things too wonderful to understand" (Job 42:3). Without that record sinful man would dream up every foolish notion. And he does. Nothing, however, that man's foolish mind will invent can alter the truth given to and recorded by Moses. The clever cliché of the geologists, "The present is the key to the past" perhaps is the best man can do. When it comes to truth, however, the reverse is correct: The past is the only key to the present.

Of course, the eternal God could have created a universe over a time span of twenty billion years. Of course, the all powerful God could have created a world in an instant. The truth is what He told us:

God saw all that he had made, and it was very good. And there was evening, and there was morning -- the sixth day. Thus the heavens and the earth were completed in all their vast array (Gen. 1:31-2:1).

For in six days the Lord made the heavens and the earth, the sea, and, all that is in them . . . (Ex. 20:11).

It is not a big question of interpretation either. How much time exists between an evening and a morning to the next evening and morning? A normal day! And for our unbelieving age they are even counted for us. To claim anything different from a normal day as Moses knew it or as we know it is to claim something not in the Holy Scriptures.

The refusal to accept these details is but one example of the countless number of Scriptural accounts not believed even in many church circles. Men of the past generations argued for the unity of the whole Bible and warned of the consequences of passing judgment on what is true and what is myth in the Bible. To give up creation as it is presented by Moses challenges the authority of the entire Scriptures. If evolutionary science triumphs over creation, then maybe other miracles in the Bible are without divine providence. Soon Christ has lost His divinity. I then have no Savior. If I have no Savior, I would desire not to be accountable for my sin. Then it is best just to have a world evolving progressively, and I can turn my sins into flashbacks of an animalistic age lingering by chance in my DNA. I would be proud of my race's evolution. Jesus would be a good man to follow as an example. He died as I will. I too might then dedicate my works: "in the vastness of space and the immensity of time, it is my joy to share a planet and an epoch with..."⁴³ a loved one. This scenario was laughed at a century ago. This scenario has come true in many, many church bodies in our time.

Most people desiring to abandon the literal acceptance of the creation account argue that God spoke to an age that could not comprehend time as science does today and so presented man with a mythical picture of truth.⁴⁴ I'm not so sure today's scientific comprehension of time is so awesome. But Moses, educated in all the wisdom of the Egyptians (Acts 2:22) surely understood time, a day, seasons, a year, a lifespan of 120 years; the Egyptians had the best calendar of the ancient world.⁴⁵

When the Word of God is as clear as the creation account, it is difficult to comprehend the rationale for encouraging interpretations to the contrary. If we are impressed by the number and worldly prestige of today's scientists, then pressure from science to abandon the truth of creation is indeed strong. There is likewise strong pressure from science to abandon the truth of man's resurrection. Science shows death and decay after life, and no more. A strength for my life is that "I know that my Redeemer lives, and that in the end He will stand upon the earth. And after my skin has been destroyed, yet in my flesh I will see God; I myself will see Him with my own eyes -- I, and not another" (Job 19:25-27). These are words of truth about nature that God maintains. These words of truth also confront modern science. These words also are very clear. Everyone reading them can understand what they say. But what is there to life if God's Word doesn't mean what it says? Why should I, a wretched failing creature, continue to live if my Redeemer is not my Redeemer? What hope have I in life everlasting if the phrase "with my own eyes" does not refer to my resurrected body? I know He means me! This is true of nature.

Why is there pressure against the time-honored truths from short-lived modern science? A good study of the history of science is paramount to comprehending what science has been, is, and most likely will continue to be. Two hundred years ago it used to be taught that the substance phlogiston emerged from a burning candle. The laws of science so constructed correctly predicted that a candle would go out when a glass was placed over it, since the air under the glass would become saturated with phlogiston. By breathing fresh air, with less phlogiston in it, a person expelled from his lungs the bad air loaded with phlogiston. Fully phlogistonated air could not support life. These ideas collapsed with the discovery of oxygen, but even oxygen was first interpreted under the old laws: What happened to the trust in phlogiston? That system was coolly dismissed with no thought of apology by an age of educated people. The new was boasted. The old was ignored as though it never existed. Today we teach that the flaming candle will go out under a glass because all the oxygen is used

⁴³ Sagan, *Cosmos*, dedication page.

⁴⁴ Richard W. Berry, "The Beginning," in *Is God a Creationist?* (New York: Charles Scribner's Sons, 1983), edited by Roland M. Frye, pp. 54-55.

⁴⁵ O. Neugebauer, *The Exact Sciences in Antiquity* (New York: Dover Publications, 1969), pp. 80-81.

up. By inhaling, we draw oxygen into our lungs. Gases without oxygen cannot support animal life. Yet the old system worked quite well in its time.⁴⁶

The deterministic laws of thermodynamics were developed with the guiding wisdom that accepted caloric fluid as the substance of heat. Those laws were most powerful and led to all sorts of inventions of energy producers and exchangers. Yet by today's belief caloric fluid cannot possibly exist. Something as simple as limitless heat generated by friction paved the way for a molecular understanding of all matter.⁴⁷ The sharp vision of hindsight can see that the rejection of both phlogiston and caloric laws were brought on with the difficult concept of negative weight. What if matter and antimatter concepts of governing the fundamental atomic structure today were to result in a similar fate?

Pursuing investigations of electricity, Ben Franklin wrote, "In going on with these Experiments how many pretty Systems do we build, which we soon find ourselves oblig'd to destroy!"⁴⁸ I don't know what is true in science. The truth is that nature does not change; science does. Many Scriptural teachings in this controversy are untestable. Many scientific principles in this controversy are untestable. The men and women trained as teachers at Dr. Martin Luther College this past century could not boast of their command of the world's understanding of science. They did not seek an alliance to find harmony between science and the Bible. They taught the little children, "in repentance and rest is your salvation, in quietness and trust is your strength" (Isaiah 30:15). These teachers quietly, trustingly taught the creation story, the Christmas story, the Easter story. Confidently many parents still want these same Scriptural truths taught to their children the next century.

The strength that God gives to His people, this quietness and trust that God provides, has been brought out in the teachings of the church for some time:

Certain philosophers, it is true, did get a glimpse of the truth amid the fog of their own fallacies and did try to build it up to solid conviction and persuasiveness by means of carefully worked-out argumentation-such truths, for example, as God's creation of the world, His providential governance of it, the excellence of virtue, of patriotism, of loyalty in friendship, of good works and all other things pertaining to morality. They saw these things even when they did not know to what final end, or how, they were to be referred. But in the City of God these truths are found in the words of the Prophets -- God's words, even though spoken by men. And they were not driven into her people's heads amid the tumult of twisting and turning argumentation, but simply delivered to them. And those who heard them trembled, for they knew that if they despised them they were despising not the wisdom of man, but the word of God. (St. Augustine)⁴⁹

No reason is so firm that it cannot again be overthrown by reason. There is no counsel, no matter how wise, no thing, no edifice, no matter how magnificent or strong, which cannot again be destroyed by human counsel, wisdom, and strength. And this can be seen in all things. Only the Word of God remains to all eternity. (Luther)⁵⁰

The charge is indeed valid that in our efforts to lead the present unbelieving generation back to faith we make no attempt to demonstrate to the world the harmony of faith and science. But we

⁴⁶ James Bryant Conant, "The Overthrow of the Phlogiston Theory: The Chemical Revolution of 1775-1789," in *Harvard Case Histories in Experimental Science* (Cambridge, Massachusetts: Harvard University Press, 1957), pp. 65-115.

⁴⁷ Duane Roller, "The Early Development of the Concepts of Temperature and Heat: The Rise and Decline of the Caloric Theory," in *Harvard Case Histories in Experimental Science*, pp.117-214.

⁴⁸ Benjamin Franklin, Letter to Peter Collinson, August 14, 1747, in *The Writings of Benjamin Franklin* Vol. II (New York The Macmillan Company, 1905), p. 325, accessible on microfiche, The Microbook Library of American Civilization (Chicago, Illinois: Library Resources Inc., 1972).

⁴⁹ St. Augustine, *City of God* (New York: Doubleday & Company, Inc., 1958), translated by Gerald G. Walsh, Demetrius B. Zema, Grace Monahan and Daniel J. Honan, p. 412.

⁵⁰ Martin Luther as quoted by Siegbert W. Becker, in *The Foolishness of God*, p. 38.

see no reproach in this charge; rather we glory in it; and we will not, by the grace of God, permit anyone to rob us of this glorying. For we are very certain that it is not possible to help the present apostate world with the lie that the divinely revealed truth is in perfect accord with the wisdom of this world; only the preaching of the divine foolishness, of the old unaltered Gospel, can help the world. Paul as well as the history of the church of all ages and of every Christian testified that the “foolish Gospel” is the power of God unto salvation to all that believe, to the Jew first and also the Greek (Rom. 1:16). A person who has been won for Christianity by showing him that Christianity can pass the sharpest probe of science is not yet won; his faith is no faith. (Walther)⁵¹

It is this that man must learn that true knowledge can be found only in God’s revelation, and God’s revelation is to be found only in Scripture. Because of man’s total depravity and blindness, he can never read the revelation of God in nature fully nor draw conclusions correctly and with certainty. God must come to our aid, but because of man’s weakness and sinfulness, the majesty of God must hide behind the masks in order to reveal itself. Men should take care lest in sinful pride and presumption they are offended by the lowliness of the masks and by the simplicity of Scripture. It is the crib in which we find the Lord Christ. And only as we find Him there, and God in Him, can we know all creation correctly. (Becker)⁵²

In a series of educational monographs of the Wisconsin Synod (1955) a consistent Scriptural picture of the role of man’s reason in comprehending nature is given. Wisdom separated from God’s true Word is no wisdom at all. Even the facts are clouded:

Now it may be contended that purely geographic facts can be taught and learned from a neutral point of view, without specific Christian or anti-Christian bias [the same may be said for scientific facts]: Facts are facts, it might be said, without regard to the glasses through which they are viewed. However, that, too, is an erroneous notion. Facts, knowledge, ideas, if they are true, are creatures of God as truly as are the fowls of the air and the plants and herbs of the field. If these “bare facts” are separated in any fashion from their origin, divine creation, that very circumstance causes a distortion which makes of them something false and misleading. For origin is always an absolutely essential factor in any essence; and if that is clouded or denied, the entire picture is out of focus and thus becomes false and misleading. Only that can be true altogether that conforms in every part to the truth, the Word of God. (H. A. Sitz)⁵³

Where God has spoken, reason must bow in submission, every thought must be subjected to the obedience of Christ. In this wise is our approach to all things directed and our attitude conditioned. This attitude is the result of faith that we have in Christ Jesus as our Savior, faith that has been created by the Holy Spirit through the Sacrament of Baptism and the preaching of the Gospel of salvation. It is not a result of an ability to reason, it is in fact entirely unreasonable. We make confession of that in the Third Article of our creed. “I believe that I cannot by my own reason or strength believe in Jesus Christ, my Lord, or come to Him, but the Holy Ghost has called me by the Gospel, enlightened me with His gifts, sanctified and kept me in the true faith.” All the forces and influences that are involved in the creation of our faith are foreign to our

⁵¹ C. W. F. Walther as quoted by Franz Pieper, *Christian Dogmatics* Vol. I (St. Louis, Missouri: Concordia Publishing House, 1951), translated by Theodore Engelder, John T. Mueller and Walter W. F. Albrecht, p. 164.

⁵² Siegbert W. Becker, “The Antirationalism of Lutheran Theology,” a dissertation for the degree of Doctor of Theology, Northern Baptist Theological Seminary, Chicago, Illinois, May, 1957, p. 89.

⁵³ H. A. Sitz, “The Teaching of Geography: An Approach from the Christian Point of View,” an educational monograph, Wisconsin Synod (Milwaukee, Wisconsin: Northwestern Publishing House, 1955).

nature. They negate our natural volitions and militate against the natural inclinations which reason would require us to follow. Reason has been dethroned and faith in Christ enthroned as the guiding principle in our lives. This is the attitude with which we approach all things in life and therefore science also. (P. Eickmann)⁵⁴

Paul Eickmann continues in this monograph on science with an attack on the scientific method as an approach to certain truth and rejects its use of showing values and a way of life.

These have been the teachings of our fathers through the ages of Lutheranism. That certain truth, even of nature, cannot be found separate from God's Word, has been a strong construction block of Lutheran education since Luther. Human artistry within theories or laws from human intellect, with all of its tainted error, has been readily recognized by our educational fathers. To them, there never was a controversy. They truly believed, taught, and confessed a life in all ways by faith alone. As long as the Lutheran church existed, there has been a proper lack of enthusiasm for finding harmony between theology and the scientific explanations of men.⁵⁵

The present-day teachings in science at Doctor Martin Luther College continue to pass on to the teachers of the future this same strong conviction of our Fathers:

Where is true science? Do we not continue to see through a glass darkly in both spiritual and physical matters?⁵⁶

When science is recognized as a framework of evolving concepts and contingent methods, we begin to appreciate its very human character. We see that we cannot be sure of a true science. The intricacy, beauty, and size of a universe made by God then truly should impress us and declare the glory of its Maker to us. (Boehlke)⁵⁷

THE RELATIONSHIP BETWEEN SCIENCE AND THE TRUTH OF NATURE

Faith alone shows us the truth our heavenly Father desires us to know of the natural environment into which He placed us. He created it. This we are obliged to pass on from generation to generation. This must be part of the kind of science we teach, and when we do this, science touches truth. God maintains all of nature. He maintains it as He said He would: ". . . all things God works for the good of those who love Him" (Rom. 8:28). While these things cannot be seen or demonstrated in the scientific lab, the Holy Word tells us with certainty, "Now faith is being sure of what we hope for and certain of what we do not see" (Heb. 11:1) and "By faith we understand that the universe was formed at God's command, so that what is seen was not made out of what was visible" (Heb. 11:3). The fact that science has difficulty with these truths does not eliminate them from reality. Creation and God's providence over nature remain unalterable truths of nature and likewise must be a part of science if science desires to explain nature.

In our understanding of the relationship between science and the truth of nature, we must also remain frank and bold to teach what is false about science. Without a doubt, the world's accepted laws of evolution permeating every branch of science are wrong. The Scriptures speak quite plainly where man's wisdom errs. A universe evolving of itself denies God. This teaching is a sin against the First Commandment. Evolution denies beginning with a perfect creation. This teaching robs God of His power and wisdom. Evolution denies that all mankind descended from one set of parents. Evolution denies sin and man's accountability to his Maker.

⁵⁴ Paul G. Eickmann, "Science, An Approach from the Christian Point of View," an educational monograph, Wisconsin Synod (Milwaukee, Wisconsin: Northwestern Publishing House, 1955).

⁵⁵ Robert D. Preus, *The Theology of Post-Reformation Lutheranism: God and His Creation* Vol. II (St. Louis, Missouri: Concordia Publishing House, 1972), pp. 222-249.

⁵⁶ Paul R. Boehlke, "The Nature of Science: Implications for Creationists," *The Lutheran Educator*, Vol. 18, No. 4, May, 1978, p. 9.

⁵⁷ Paul R. Boehlke, "Science: Philosophy and Objectives Based on Scripture," a paper presented to the School Visitor's Workshop at Dr. Martin Luther College, New Ulm, Minnesota, Aug. 2, 1978.

Evolution denies God of His Justice. It denies God His mercy and grace. Evolution robs man of the knowledge of his need for a Savior. These “laws of Satan” turn us from Christ. These are the issues, not the placement of a fossil in a geological time scale. I believe, when an evolutionist is brought to the knowledge of his God and Savior and grasps the miracle of Easter, it will not be long before he will accept the miracles of Christ and the miracle of creation recorded in Genesis.

The scientist, the doctor, and the engineer in our midst will always believe that what they struggle to discover brings the hope of grasping a little understanding of the truth of nature. In the market place of science certainty will be non-existent but the Christian will comfort himself with the truth that his Creator God knows; that is sufficient for him. Here the relationship between science and truth fades in the fog of human limitations. A number of confusing attempts have haunted men in the past, haunt them in the present, and inevitably will continue to haunt them in the future. Men of the church have tried to purify science. Men of science have tried to interpret scientifically the doctrines of the church.

In the past, for example, scientists insisted that there were no changes in the region above the earth. The church became so committed to such an idea through its own Thomas Aquinas that it lost face with the telescopic witness of changing, corroding mountains on the moon. Today in a stand against evolution, the church must not rule out all evolutionary changes. Some such changes do occur among God’s creatures. No matter what those changes are, they do fit the guidelines given by each kind reproducing after its own kind. Another old idea, to hang on to an Aristotelian gap between biological matter and non-living matter, might be an unwise dogmatic insistence. God took the dust of this earth (physically a non-living substance) and formed man, obviously living. It would not surprise me if in God’s grace to mankind, He permits the synthesis of living tissue for our benefit. In the past religious leaders insisted such a synthesis of any biochemical was impossible. The evolutionist had a heyday when the first biochemical was synthesized.

The church need not continually be on the defensive if it would let God be God over His creation and let scientists slug it out in the marketplace without making doctrinal pronouncement on non-doctrinal issues.

Out of love for science, I must appeal for time. The marketplace must be given time to work. Some creation science research has been worthwhile. The continued persistence of exposing the errors in the fossil record⁵⁸ and the failure to document mechanisms for major changes in the evolutionary trees of animals or plants⁵⁹ have indeed pushed the modern evolutionist toward catastrophism. Stephan Jay Gould now expounds sudden changes with punctuated equilibrium, abandoning the gradualism of Darwin.⁶⁰

Maybe mainstream science will never return to tying its explanations of nature to efficient and final causes as Robert Boyle once encouraged. There are pitfalls whenever man’s reason is applied, and so Boyle’s warning against speculation in such explanations, especially the physical sciences, is to temper enthusiasm. Yet without such an understanding of God’s role in nature, the hope for a grasp of a true understanding is not possible. Perhaps pride developed by the discipline of science in training students to control all things in the lab and to define all terms no longer lets the human performing science see God, but only science. If science in the future becomes so corrupted as to see only itself, then other gifts our Lord provides will cry out for truth. Aleksandr Solzhenitsyn cried out in his Nobel lecture: “live not by lies.” He suggested that the world’s writers and artists can do more: “They can vanquish lies! In the struggle against lies, art has always won and always will Lies can stand up against much in the world, but not against art.”⁶¹ I believe that this is true because art is permitted a freer reign; it can express itself without the rules and forms to which science binds itself with the paradigms of the age in which it labors. Art perhaps also speaks to the creation process. In the act of creation the artist knows that his art does not occur by chance. A cathedral, a great bridge, a painting, a novel, a poem, a song, a symphony all require active creativity by a designer.

⁵⁸ Duane T. Gish, *Evolution: The Fossils Say No!* (San Diego, California: Institute for Creation Research, 1973).

⁵⁹ Roger Lewin, “Evolution Theory Under Fire,” *Science*, Vol. 210, No. 4472, Nov. 21, 1980, pp. 883-887.

⁶⁰ Stephan Jay Gould, *The Panda’s Thumb. More Reflections in Natural History* (New York: W. W. Norton & Company, 1980), pp. 179-193.

⁶¹ Edward E. Ericson, Jr., *Solzhenitsyn: The Moral Vision* (Grand Rapids, Michigan: William B. Eerdmans Publishing Company, 1980), p. 16.

Science, as a proper gift used by man with all of its limitations, provides us with one great beautiful truth clearly identified by Ben Franklin while studying electricity: “If there is no other Use discover’d of Electricity this however is something considerable, that it may *help to make a vain man humble*.⁶² This must be a true relationship between the human activity of science and pursuing the truth of nature. Failing on our own is truly humbling. In humility we cannot trust our science as we trust our Lord. Instead, we must praise our Lord for all of nature. In songs of praise here on earth we still hear sounds of unbelief:

Many live as enemies of the cross of Christ. Their destiny is destruction, their god is their stomach, and their glory is their shame. Their mind is on earthly things. But our citizenship is in heaven. And we eagerly await a Savior from there, the Lord Jesus Christ, who, by the power that enables him to bring everything under his control, will transform our lowly bodies so that they will be like his glorious body (Phil. 3:18-21).

With the optimism provided by our Lord, who controls all nature, in these pessimistic times of our scientific age let us search out what we can teach the next century in science. St Paul writes:

- | | |
|------------------------------|--|
| ... whatever is true | (The science we teach must show, as told us through Moses, how our Lord made all things. As the staffs fall from heaven in the final Judgment, our Lord will come for us.), |
| ... whatever is noble | (Science must show man and woman were created superior to the animals and were given dominion over all creation.), |
| ... whatever is right | (Science must be used to comfort the injured and the sick and search for ways to provide shelter and food for the homeless and the hungry, knowing God alone can perform the good work), |
| ... whatever is pure | (Science must aid in the struggle against pollution and waste.), |
| ... whatever is lovely, | (Science must protect the wilderness.), |
| ... whatever is admirable | (Science must imitate nature in its designs.)- |
| ... if anything is excellent | (Science must promote life.) |
| ... or praiseworthy | (Science must learn to appreciate nature as a declaration of God’s glory.)- |

think about such things (Phil. 4:8).

This is the stuff of science as close to truth as it can ever be.

⁶² Benjamin Franklin, Letter to Peter Collinson, August 14, 1747.

REFERENCES