# SCIENCE AND THE BIBLE

## BIBLE CONFERENCE

**by Carl W. Deems, Th. D.**

# THE BRIEF HISTORY OF MODERN SCIENCE

### INTRODUCTION:

In this lesson I give a brief history of "modern science." I begin my discussion at the time most historians view as the start of modern science, around the time of the Renaissance and the Reformation (1400-1700). First, I cover the controversy that the Roman Catholic Church had with Galileo in the early 1600's, as well as discoveries made by other astronomers such as Copernicus, Brahe and Kepler. Next, I describe how the science of the Reformation became one of experiment and observation as opposed to the old Aristotle method of reason and conjecture.

Then, I talk about Isaac Newton, who in the 1700's, formulated laws of motion but also helped sow the seeds of "naturalistic" science as well. I also, explain how, by the 1800's, Rationalism takes hold in Europe leading to an erosion of "Biblical" culture and science. I then describe how in the wake of Rationalism, "Uniformitarianism" and "Darwinism" follow in the mid 1800's to become the predominate "foundations" for science for the next 150 years. I show as the world approached the 20th century, that the scientific community was feeling very self-assured. Finally, I describe several discoveries, made by men such as Einstein, that put Uniformitarianism and Darwinism at risk.

### The Beginning of Modern Science

Most historians begin their history of "modern science" at about the time of the Renaissance and the Reformation (1400-1700 A.D.). The Renaissance brought about a "liberation" of the individual, while the Reformation brought about the liberation of the "believer." The Renaissance was basically a humanistic affair, the Reformation a theistic one. It was during this time period that the printed Bible became readily available throughout Europe in the language of the people. The invention of movable type, and therefore the printing press, started an "information" explosion that the Roman Catholic Church was unable to stop. It is estimated that after Gutenberg had invented the printing press in 1456, that 40,000 works were printed within a generation.

Today we take for granted much of what was unknown only a few hundred years

ago. For example, Scott writes that in 1600, the circulation of the blood was not understood. It was generally thought that it was pumped in and out like a tide. He quotes Aristotle who said, "If an artery is cut, does not the blood flow in spurts, rather than evenly? Therefore it must be going out and back." Scott also gives this example:

> "No one at that time had been able to solve Aristotle's problem in physics, 'How does an arrow work?' He had a simple theory about the fundamentals of mechanics, based on the fact that if something is dragged from place to place, the harder it is dragged, the faster it goes, and when the person pulling it stops, it stops. He argued, 'Imagine dragging a stone up the Acropolis in Athens to build a new temple. You pull it and the stone moves. You stop and the stone stops.' So a basic principle must be that velocity is proportional to force. Any slave who dragged a stone up the Acropolis was well aware of that principle. And what happened to the arrow? When it was fixed on the bowstring and pulled back, the arrow left the string with nothing pushing it. Aristotle could not solve that problem. Finally, he arrived at an explanation. He decided that the air which the tip of the arrow displaced fanned around the back and pushed it from behind. That was not a bad theory except that according to that, the arrow should have gone on forever. "

Fast forwarding a few hundred years to the Dark Ages brings us to the man who had the "best" understanding on this subject for his time, the French philosopher/scientist Jean Buridan (1300-1358). His idea was that when the string was pulled back and let go, an invisible force with weightless fluid called *impetus* ran from the string into the arrow and as the arrow sped along, the impetus slowly leaked away. Only when it was all gone did the arrow fall. Scott comments that this explanation may sound funny now, but it was not so different from the idea of kinetic energy, except that it was called "impetus" and thought to be a fluid.

## MODERN SCIENCE BEGINS TO STIR

One of the men who took advantage of all the volumes of information printed was Copernicus (1491-1506). Copernicus fit the definition of a "Renaissance man" in that he was educated in several disciplines such as the classics, law, theology, mathematics, metaphysics, languages, and astronomy. He went to many of the world's greatest libraries of his day such as those in Krakow, Bologna, Rome, Padua, and Ferrare. After reading about Ptolemy[1], Copernicus thought that it would be unworthy of the Creator to need so many circles to move the Sun, moon, and planets around the earth. In addition, he had come across some ancient Greek and Roman works that postulated a solar system in which the sun was the center (heliocentric). His work "De Revolutionibus," published after his death, gave the

details for a heliocentric model, showing that the closer the planets were to the Sun, the greater their "orbital velocity."

Observational astronomy was reborn through Tycho Brahe who lived at the latter end of the 16th century, and who devoted his entire adult life to making precise measurements of the positions and the planets. In the last year of his work, Brahe challenged his assistant, Johannes Kepler, to solve the problem of planetary motion. Using his mentor's copious notes, Kepler derived three laws of planetary motion that enabled Newton to formulate the laws of motion and universal gravitation.

Another man who helped things along was Francis Bacon (1561-1626). He is called the father of the modern scientific method because of his belief in experimentation and induction from the data. He strongly opposed Aristotle's deductive methods for acquiring knowledge. A strong Bible believer (and a contemporary of King James), he wrote:

> "There are two books laid before us to study, to prevent our falling into error; first, the volume of Scriptures, which reveal the will of God; then the volume of Creation, which express his power."

## GALILEO GETS IN BIG TROUBLE

Modern science, based on a Biblical cosmology, was about to take the beach without resistance until somebody "made a phone call" by mistake to the Roman Catholic Church. The man who made that mistake was Galileo (1564-1642 A.D.). Galileo received a broad Renaissance education and in his early years focused mainly on physics and not astronomy. At the age of 46, (in 1610), he built his first telescope. He soon made discoveries that shook the foundations of the Aristotelian cosmos and the Roman Catholic Church. With the use of a relatively low power telescope, Galileo saw mountains, valleys and other features indicating change on the moon (previous to this, it was believed the moon had a smooth surface).

The biggest shock came when he observed the orbital motion of four of Jupiter's moons, now referred to as the Galilean moons. As a result of his observations, scientists could no longer say that heavenly bodies orbit (revolve) exclusively around the earth. He also observed the phases of Venus, which could only be explained by Venus orbiting the Sun and not the earth.

Unfortunately for Galileo, he had "documented" his scientific views supporting Copernicus as well as his Biblical views in a 1615 letter to the Grand Duchess of Tuscany (who apparently "ratted" on him) that became the basis of his first Church trial and censure. A major work published in 1632 resulted in Galileo's conviction on suspicion of heresy and a lifetime house arrest. He eventually recanted his findings when faced with the rack (or so the story goes).

In short, the Roman Catholic Church didn't take kindly to Galileo's findings or his explanations. What really got him in hot water first and foremost with the Roman Catholic Church was that Galileo, a mere "layman", had dared to question

the pronouncements and the edicts of the "church" concerning questions of "the Bible." (In other words, it was a question of Galileo finding out that the Roman Catholic Church had possibly made a mistake and this was seen as an attack on their already weakened credibility. (This was all happening around the time of King James and the A.V. 1611.)

But Galileo's problems found their root in a deeper issue. Galileo was attacking Aristotle's science and cosmology and the Roman Catholic Church was still attached to it. Said another way, because of its emotional ties to the science of 300 B.C., the Roman Catholic Church could not make a distinction between Aristotle and "Christian" teachings; and in that era, there was no separation of science from philosophy: if Aristotle was wrong, Christianity was wrong.

Dr. G. Thomas Sharp, founder of Creation Truth Ministries, also sees the dumping of Aristotle as key to the conflict. He points out that all the scientists that were making the earth-shaking discoveries such as, Copernicus, Galileo, Kepler, Newton, Linnaeus, and others were devout students of the Bible and "Christian" in the religious beliefs. So it wasn't the fact that they didn't believe the Bible that allowed them to make their discoveries, but just the opposite.

Sharp contends that today's view of the conflict (between science and "religion") is actually a "rationalist myth." Sharp gives a quote by Webster Hutton as an example how the Galileo incident is misreported today:

> "The men of science during the Renaissance, with the rekindling of Hellas (ancient Greece) shining in their faces, courageously withstood the entrenched arrogance of ecclesiastical dogmatism, and amidst the fanatical religious wars and persecutions of the sixteenth and seventeenth centuries, began the great assault upon the tyranny of religion and ignorance."

Evidence that Galileo thought highly of the scriptures and wasn't aiming to contradict them at all is found in a letter that he wrote to a Benedictine monk, Benedetto Castelli. In the letter he wrote:

> The Holy Scriptures cannot err and the decrees therein contained are absolutely true and inviolable. But…its expounders and interpreters are liable to err in many ways and one error in particular would be most grave and frequent, if we always stopped short at the literal signification of the words." (Fingerprint of God pg 20)

Galileo's argued that the evidences for the heliocentric theory of the solar system and the Biblical texts that express that the earth was stationary, have to do with point of reference and not a contradiction. Below are the verses Galileo used to make his point:

> Ps. 93:1 The LORD reigneth, he is clothed with majesty; the LORD is

> clothed with strength, wherewith he hath girded himself: the world also is stablished, that it cannot be moved.
>
> Ps. 104:5 Who laid the foundations of the earth, that it should not be removed for ever.
>
> Eccl. 1:4-5 One generation passeth away, and another generation cometh: but the earth abideth for ever. The sun also ariseth, and the sun goeth down, and hasteth to his place where he arose.

In short he was not trying to prove the scriptures or even the Roman Catholic Church wrong per se. Galileo tried to point out that the scriptures in question had an earthbound point of reference and that therefore the relative velocity of the earth would be zero. Unfortunately for Galileo, his explanations involved too much math for the Roman Catholic Church to handle.

What Galileo proposed is very simple. If the earth were orbiting the sun, then its own velocity relative to itself would have to be zero. An example would be that of person flying in an airplane who is not aware of the speed of the plane until he looks out the window. Only when the plane accelerates or decelerates does he have the impression of motion.

Another example would be that of the stars and planets that are "seen" in a planetarium. A planetarium is based on the projections of light moving across a darkened dome, not on the person in the planetarium being spun in his chair. In fact all modern celestial navigation systems work on the assumption that the earth is stationary and everything else is "moving." Even the astrophysicist of today admits that there is no way of knowing whether the solar system is heliocentric or geocentric unless one were able to be on the outside of the universe "looking in." Sir Fred Hoyle, who was knighted for his cosmological expertise said this in 1975:

> "We know that the difference between a heliocentric theory and a geocentric theory is one of relative motion only, and that such a difference has no physical significance."

In summary, all Galileo was trying to show was how important it was to establish the frame of reference when conducting scientific or Biblical study, in other words, "what is the context."

Galileo's persecution by the Roman Catholic Church was one of the watershed events between science and "religion." Ultimately, the result of the "persecution of Galileo" was for the Roman Catholic Church, and by default, the Bible and Christianity to get a black eye.

In time new observations from other astronomers poured in, and the evidence grew supporting a Copernican view. The Roman Catholic Church leadership looked like fools, and took tail and ran. To the man on the street, the Galileo affair was evidence that the free pursuit of truth became possible only after science

liberated itself from the "theological shackles" of the Dark Ages. (The Galileo case is still used today to knock Christian and Biblical views)

## MODERN SCIENCE TAKES OFF

But in spite of the treatment of Galileo, the acceleration of "science" continued, for it was during the 17th century, that "modern science" really began to take off. In fact, it basically exploded with new findings and discoveries.

Scott notes that by 1700, Kepler had worked out in detail the "orbit" of Mars; Galileo had drastically revised Aristotle's theory of mechanics; and Newton had reworked the entire field of astronomy and mechanics, using the powerful tool of his new techniques of Calculus. Also by 1700, Otto von Guericke in Germany performed his experiments with air pumps, and demonstrated work with vacuums and the evacuated sphere, which teams of horses could not pull apart. In France, Pascal had discovered what is known as Pascal's Principle[3]. In Italy, Torricelli did research which led to developing the barometer and the measure of air pressure. Soon afterwards in England, Boyle discovered what is known as Boyle's Law, which is one of the basic principles of gases: the volume/pressure relationship.

Hooke (a rival of Newton's) formulated the basic laws of elasticity, which meant that thereafter a spring balance could be used with confidence because this law could estimate the proportionality of spring and balance. Halley, another associate of Hooke and Newton, became involved in identifying the recurrent appearances of comets. Halley's Comet was named after him because he identified and predicted its return.

## ISAAC NEWTON AND THE LAWS OF MOTION

Isaac Newton, according to Scott, was a very complex figure who believed he would be remembered for his books on prophecy and his work in inventing milled edges for coins (to prevent dishonest people from filing edges from sovereigns to make illegal money). But instead of being remembered for those things, Newton is remembered as a scientist. Firstly, to Newton is credited the ability to explain the complex in terms of very simple forces. The story is widely known of Newton sitting under an apple tree and an apple falling on his head. Whether or not this is true, it is true that Newton made incredible deductions based on things that were happening around him. It was from these observations, and a keen mathematical mind that he was able to derive his calculations for motion.

Two things happened as a result of the explanations offered by Newton and others. First, it produced a tremendous confidence in the power of human reason. (This was not a good thing, because there lies the seeds of naturalistic science) The poem, 'Nature and nature's laws lay hid in night; God said, "Let Newton be!" then there was light,' may sound extreme but it describes the magnitude of Newton's impact.

Second, Newton who believed in God but not the trinity, concentrated on

developing explanations based on calculation and observation. Scott contends that Newton, as a scientist, never went beyond that. In a way his philosophy said, "God created it. I describe how it happens." In fact, he took as one of his mottos, "Hypotheses non fingo" (i.e "I do not make hypotheses, I just think God's thoughts after Him.") God was the great watchmaker, as it were, and Newton had the task of finding out how the watch ran.

As the Reformation grew tired at the end of the 18th century, a new kind of world had arrived. Scott says that it was a world in which there was growing confidence in the capacity of human beings to understand the physical world around them. Knowledge was starting to divide into two branches, that of subjects hard to comprehend, such as theology, and the sciences, where experiments could be carried out without any presuppositions, where "real" discoveries could be made by human minds.

## RATIONALISM TAKES HOLD

The 18th century was in many ways a period of optimism, particularly in France, where it is often referred to as the "Age of Enlightenment" ("enlightenment" meaning: "Now we can think as free human beings!). Voltaire, the French philosopher and literary critic, is an example of the thinkers of this period. He said, "Let us be reasonable and rational and let us not commit ourselves to anything other than that." A few years later, according to Scott, at the time of the French Revolution, Robespierre actually tried to install an official worship of the Goddess of Reason.

Scott says this about Voltaire's attitude towards traditional theism:

> "He neither believed in God, nor in what the theologians had to say, and considering what some of them were saying in the early part of the 18th Century, it is understandable he couldn't believe them. On the other hand, however, if one looks at the cynical comments he made, it is astounding that this 'autonomous' man could look God in the face, as it were, and laugh. For instance, consider Voltaire's statement on prayer, 'I have made but one prayer to God. It was a simple one: 'Lord, make all my enemies look ridiculous,' God answered my prayer."

Also at about this time in France, Diderot published a massive "Encyclopedia." It recorded what Diderot considered to be real knowledge, primarily, knowledge derived from "sense experience and reason." In other words it was the "new" knowledge of the sciences. The Age of Enlightenment was an age in which reason was "enthroned as the ultimate."

Within a century of Newton's day, science had taken a step further done the naturalistic road. By 1800 there were people trying to explain the universe without appeal to an outside Creator. The French mathematician Pierre Laplace worked out what is known as the Nebula Hypothesis[5]. This became accepted as an explanation for the largest object, the sun, being in the middle with smaller ones

close to it and some farther out. It seemed a "reasonable" explanation to many scientists at the time. When Laplace was introduced to Napoleon, who also was interested in mathematics, the French Emperor was fascinated with the hypothesis. Napoleon asked, "But where does God fit in?" Laplace replied, "Sire, I have no need of that hypothesis." Thus, Laplace, explained things solely in terms of what he could see happening around him (i.e. he took the "naturalistic" view of science).

In summary, Laplace, using the known laws of physics, tried to explain the unknown universe. Although he believed God had created the universe, to his mind the two worlds were quite different. The science of Newton and of those who followed him, encouraged this separation by explaining as much as possible in terms of known laws currently being observed.

## KANT'S COSMOLOGY

A history of the rise of "naturalistic science" would not be complete without some mention of Immanuel Kant because he is one of the main scientific "thinkers" that helped put God "on the bench" so to speak when it came to science. Kant's views on theology and cosmology have had an influence over western thought for over 200 years.

Astronomers and physicists, not aware of Kant's underlying presuppositions rarely question his axioms and corollaries. In fact, as a result of Kant, astronomers and physicists tend to treat cosmology as a purely scientific discipline without any theological or philosophical roots or implications.

Kant proposed a purely mechanical mode for the "evolution" of the universe. Encouraged by a "positive" response from this supposed achievement by his friends in academia, he systematically (albeit through circular reasoning) supposedly argued away Christianity's "irrefutable" arguments for the existence of God. Of course, these "irrefutable" arguments came from such church "Fathers" as Augustine and Aquinas, who obviously were not "all-stars" when it came the Bible in the first place. (Fingerprint of God pg 27)

Using his own cosmological model, he concluded that the universe must be infinite in both time and space (which means he believed in the eternity of matter). It was because of Kant's arguments, and the continually growing complexity of the mathematics required in the realm of astronomy, that many theologians began to step back and leave the theorizing on the beginnings and makeup of the universe to Kant indoctrinated scientists.

Furthermore, as if to add insult to injury, the advances in technology enabled observable astronomy to further support the hypothesis of Kant, that the universe was infinite. Scientists with the aid of better telescopes were seeing stars and galaxies that they were calculating to be so many light years away that they could not, in their minds, fit within the 6000 years of Genesis. (Of course they also weren't aware that when space is stretched at incredible speeds that it messes with time, but that had to wait until Einstein. Schroeder, an "applied theologian" with undergraduate and graduate degrees from the Massachusetts Institute of Technology gives an explanation of this possibility in Chapter 9 of his book "The Science of God." Nor were they apparently aware that if God

wanted to make the universe with a history, He was totally within his power as God to do so.) As a result, Kant's ideas not only began to dominate cosmology and theology, but they also had an impact on culture as a whole, spawning many of the "isms" (e.g. communism) of the 19th and the 20th centuries.

Kant's most directly stated axiom is that knowledge can be obtained "only through the human senses of sight, hearing, touch, taste, and smell." In other words, Kant's cosmology and science is totally naturalistic. That is, only sensory things can be apprehended. A corollary to this axiom, first stated by David Hume, is that a cause can "never" be proved from its effect. Another corollary is that there is "no existence beyond the humanly experienced dimensions of length, width, height, and time can be known."

Kant rejected the possibility of absolutes, though, ironically, he proposed his own axiom and corollaries as absolutes. In his early writings he denied that time and space, in and of themselves, are real entities. In one section of his critiques on "antinomies" (opposites) on pure reason he stated "no experience of an absolute limit, and consequently no experience of a condition which is itself absolutely unconditioned, is discoverable."

Kant flatly denied the comprehension of anything supernatural. Although Kant was not an atheist, he wasn't much of a theist either. He freely admitted to being awed by the starry heavens above and by the living things around him. He defined God, however, as "the moral disposition within man which is the basis and interpreter of all religion."

The moral disposition of Kant had nothing to do with God-ordained standards of right and wrong, or of good and evil, but credits man with doing good for his own benefit, in other words, for his own survival. Miracles to him were imagined since they involve "the possibility of our overstepping the bounds of our reason in the direction of the supernatural (which is not, according to the laws of reason, an object of either theoretical or practical use)."

Basically, after one sifts through all the rhetoric, Kant's believed the following:

1. Man's knowledge is limited to that which he can obtain through the five human senses.
2. A cause can never be proved from its effect.
3. Man has no innate ideas.
4. No existence beyond the humanly experienced dimensions can be proved.
5. No absolute can ever be established to exist.
6. Miracles are illusory and cannot be proven.

And therefore,

1. The development of the universe is strictly mechanistic.
2. The universe has not beginning in time.
3. The universe is infinite in extent.
4. Time and space are strictly relative.
5. Everything about and in the universe can be explained by the laws of physics.

As a result, Kant believed that the question of God's existence was beyond the reach of man's ability to know. If God could not be "sensed" than he couldn't exist. (Of course the

Bible judged Kant 1700 years before he was born):

> Rom. 1:17-22 For therein is the righteousness of God revealed from faith to faith: as it is written, The just shall live by faith. For the wrath of God is revealed from heaven against all ungodliness and unrighteousness of men, who hold the truth in unrighteousness; Because that which may be known of God is manifest in them; for God hath showed it unto them. For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse: Because that, when they knew God, they glorified him not as God, neither were thankful; but became vain in their imaginations, and their foolish heart was darkened. Professing themselves to be wise, they became fools,

## THE BIRTH OF UNIFORMITARIANISM:

Towards the end of the 18th Century came a Scottish farmer from Berwick, named James Hutton, who was a geologist, chemist, and naturalist. He was initially attracted to chemistry but ended up studying law at the University of Edinburgh. In time, he became interested in medicine, as it closely resembled chemistry, but finally decided to become a farmer so that he would have time to study rocks and be able to pursue his interests in geology.

He formulated what at the time were controversial theories on the origin of the earth and of atmospheric change. His theories paved the way for the paradigm found in modern geological science today called "uniformitarianism." He was controversial because his view of geology stood in direct opposition to the Genesis account of creation and the worldwide flood of Noah's day. For in the Bible, the geologic history of the earth isthat the earth we see today is in large part the result of a total worldwide flood (catastrophe).

The view of uniformitarianism, on the other hand, is that the earth we see today was produced from geological processes that we can observe today. In other words, the geology on the earth today was formed over many thousands and millions of years, in a gradual manner. Hutton is famous for his quote, "The present is key to the past."

To Hutton, the unknown was explained in terms of the known. Hutton said,

> "Scientists asked ‘What geologic forces were operating when the earth was made?’ and one answer they discovered went something like this. ‘Take erosion and a winding river. Look at weathered rocks. Note the slow upheaval of the coastlines of continents. These things will explain everything that has happened in the past. That is how the world became the way it is now. The past can be explained in terms of present forces."

The Bible clearly says that Hutton's type of geology is false. As a result, as Hutton's view became more mainstream, modern science continued its drift away from its original roots:

> 2 Pet. 3:3-6 Knowing this first, that there shall come in the last days scoffers, walking after their own lusts, And saying, Where is the promise of his coming? for since the fathers fell asleep, all things continue as they were from the beginning of the creation. For this they willingly are ignorant of, that by the word of God the heavens were of old, and the earth standing out of the water and in the water: Whereby the world that then was, being overflowed with water, perished:

Towards the end of his life, Hutton came under attack from those who realized where his "thinking" would lead. (In other words, uniformitarianism would cause civilization to throw out the Bible, throw out God, and turn society as a whole into a morally bankrupt jungle society. Those that criticized Hutton ended up being right.)

Several groups, including the Royal Irish Academy, accused him of what they called "practical atheism." Apparently, Hutton had no idea where his ideas were taking him and he grew so distraught over the whole issue that he suffered a nervous breakdown and died. What Hutton had been saying was this, "Human reason can think this thing through. These are the forces operating now so let us see how they have made the world the way it is." Of course human reason and God don't always mix.

Next came a man named Charles Lyell who further "developed" Hutton's uniformitarianism. In 1830 his "Principles of Geology" was published and this book is still referenced today. When Lyell wrote it, he simply assumed the "Principle of Uniformity" was correct. For example, in one of his examples he referred to sediment 125 cm thick made of fine mud, and attempted to calculate how fast mud could be deposited in a lake. At the rate of 1 mm a year, it would have taken about 1000 years per meter.

Morris says this about Lyell:

> "To the high priest of uniformitarianism, the very thought of catastrophism in nature was abhorrent. He insisted that the strata of the earth were laid down over inconceivably vast periods of time by extremely gradual processes of erosion and sedimentation, and that 'the present is the key to the past.' Charles Darwin found Lyellian uniformitarianism to the perfect environment for his theory of evolution by natural selection and the survival to the fittest, for he recognized that a tremendous span of time was of supreme importance in theorizing that the only real 'proof' that organic evolution is a historical fact is found in the story of the fossils in the sedimentary rock strata of the earth, which have been interpreted in strict conformity to the uniformitarian principle."

Unfortunately for those who hold the Genesis account literally, uniformitarianism has dominated geology to this present day. In addition, uniformitarianism is the foundation for modern naturalistic science because it paved the way for Darwin and atheistic scholarship. Below is a quote from a high school textbook used in public schools today, quote:

> "The uprooting of such fantastic beliefs [that is, those of the catastrophists -author] began with the Scottish geologist, James Hutton, whose Theory of the Earth, published in 1875, maintained that the present is the key to the past, and that, given sufficient time, processes now at work could account for all the geologic features of the Globe. This philosophy, which came to be known as the doctrine of uniformitarianism demands an immensity of time; it is now gained universal acceptance among intelligent and informed people."

A comparison of "uniformitarianism" and "creationism" is given below. One can see from the comparison that they are "diametrically" opposed to each other. Just as different as day is from night:

**BIBLE**

Matter created by God in the beginning
Earth before the sun and stars
Oceans before the land
Light before the sun
Atmospheres between the two hydrospheres
Land plants, first life forms created
Fruit trees before fishes
Birds before insects ('creeping things")
Land vegetation before the sun
Birds before reptiles
Man before woman (by creation)
Man before rain
Creation completed
Man, the cause of struggle and death

**UNIFORMITARIANISM**

Matter existed in the beginning
Sun and stars before the stars
Land before the oceans
Contiguous atmosphere and hydrosphere
Marine organisms, first forms of life

Fishes before fruit trees
Insects before birds
Sun before land plants
Reptiles before birds
Woman before man
Rain before man
"Creative" processes still continuing
Struggle and death necessary antecedents of man

## HERE COMES DARWIN

In the mid-19th Century Darwin did for biology what Hutton and Lyell had done for geology, and what Newton had done for physics. In other words, Darwin explained certain things in terms of presently known forces. In a ship named The Beagle, Darwin made his famous voyage around the world observing islands, finches, etc. Back home in England he grew a garden of weeds and saw which weeds choked others and counted population changes amongst weeds. Actually, Darwin wasn't too much of a scientist.

Darwin's evolutionary model rested on two key elements. Firstly, there are changes and variations in a population, and secondly, that there is some kind of a "survival of the fittest" going on. Darwin's theory then was yet another that sought to explain in terms of presently observable forces, and like others, it rested on the assumption that human reason aided by present observation can give an ultimate explanation.

Julian Huxley said, "Darwinism removed the whole idea of God as the creator of organisms from the sphere of discussion.[6]" Huxley went on to say in the same meeting that:

> "The broad outlines of the new evolutionary picture of ultimates are beginning to be visible. Man's destiny is to be the sole agent for the future evolution of this planet… It is only through possessing a mind that he has become the dominant portion of this planet and the agent responsible for its future evolution: and it will be only by the right use of that mind that he will be able to exercise that responsibility rightly…he must face it unaided by outside help. In the evolutionary pattern of thought there is no longer any need or room for the supernatural…Evolutionary man can no longer take refuge from his loneliness in the arms of a divinized father-figure whom he has himself created…Our feet still drag in the biological mud, even when we lift our heads into the conscious air. But unlike those remote ancestors of ours, we can truly see something of the promised land beyond…Our new organization of thought - belief system, frame-work of values, ideology, call it what you will - must grow and be developed in the light of our new evolutionary vision…The only way in which

> the present split between religion and science could be mended would be through the acceptance by science of the fact and value of religion as an organ of evolving man and the acceptance by religion that religions do and must evolve.

Below is listed a comparison between "what the Bible teaches" and what "evolution teaches." Note that what the Bible teaches is "God" centered and what evolution teaches is "man" centered:

The Bible teaches:

1. Man was made in the image of God
2. Man is a lost sinner
3. Man needs pardon for sin and reconciliation with God
4. Each person has great value in the universe and the sight of God (i.e. enough
   that Christ would die for him)
5. God has a definite plan for human history
6. Man has an eternal soul that will live somewhere forever
7. A proper understanding of the supernatural

Evolution teaches:

1. Man was made in the image of beasts
2. Man is the pinnacle of evolutionary perfection
3. Man is the master of his destiny
4. The individual is of little value
5. There is no purpose and no direction in man's history
6. Man ceases to exist when he dies
7. The supernatural does not exist

What Darwin really managed to do with evolution, was to give the unregenerate sinner a "scientific" reason to throw out God, and by default the Bible. As a result, evolution as a "science" eventually "morphed" itself into a religion. Morris has this to say about evolution as religion:

> "Since evolution has not been scientifically proved and, in fact, cannot even be tested, in the long-range sense, it must be accepted on faith. Even so-called micro-evolutionist, or variation, which presumably can be tested, has so far failed to exhibit an "upward" trend, and thus has failed the test. The mechanism of evolution, if such a mechanism really exists, is still 'central mystery'. Many evolutionist have been highly vocal contending that creationism (even scientific creationism) is inherently religious, since it is a basic tenet of Biblical 'fundamentalism.' It is, of course, true that religions based on the Bible (whether Protestant, Catholic, Jewish, or even Islamic), are

> monotheistic and thus inherently creationist. It is equally true, however, that religions which are basically polytheistic, pantheistic, humanistic or atheistic, must be based on some form of evolution. Thus, not only do all atheists and humanist believe in evolution, but also so do Buddhists, Confucanists, Taoists, Hindus and animists, not to mention Marxists and Nazis, and even the "liberals" in the nominally monotheistic faiths.

## DAWIN REPLACES THE BIBLE

After Darwin, from a biblical Christian point of view, everything went downhill. With respect to "mainline" "National Academies" and "institutes of higher learning," God was kicked out and "need not apply." In a way, evolution became the "new" religion that, like dogmatic Roman Catholicism, was not to be questioned. Huxley, evolutionist and biologist, stated his faith in evolution this way, "For my own part, the sense of spiritual relief which comes from rejecting the idea of God as a supernatural being is enormous… Darwinism removed the whole idea of God as the creator of organisms from the sphere of rational discussion."

Even one of their own made the claim recently that belief in evolution borders on religion. Dr. Michael Ruse, a well-known Canadian science philosopher, who has in fact written a book against creation science, shocked his audience by appearing to admit that evolution is based upon " dogmatic exclusion of a miraculous creation/creator," in effect, a "faith commitment to naturalism." Ruse was quoted as saying:

> "At some very basic level, evolution as a scientific theory makes a commitment to a kind of naturalism, namely that at some level one is going to exclude miracles and these sorts of things, come what may."

He went on to defend this unprovable assumption by the fact that, in his view, it works. Nevertheless, said Ruse:

> "Evolution, akin to religion, involves making certain a priori or metaphysical assumptions, which at some level cannot be proven empirically."

As a result, billions of dollars of research over the next 100 years went into looking for "how we got here and how did it all begin" and in devising an educational system that turned the Western World into one big Sodom and Gomorrah. As secular science writer Richard Milton admits:

> "An important factor in bringing about the universal dominance and acceptance of Darwinian evolution has been that virtually every eminent professional scientist appointed to posts in the life sciences in

> the last 40 or 50 years, in the English-speaking world, has been a convinced Darwinist...These men, as well as occupying powerful and important academic teaching positions, were also prolific and important writers whose influence has been widespread in forming the consensus."

The Scopes "Monkey" trial in 1925 was the last nail on the coffin for anyone who even thought the Genesis account was going to be acceptable. Granted there were still folks that "believed the book" from cover to cover, but they were likened to ignorant "hillbillies" and the traditional southern "redneck."

When the anti-evolution Butler Act was passed in Tennessee (March 1925) forbidding the teaching of evolution in Tennessee public schools, the American Civil Liberties Union (ACLU) launched a campaign seeking someone to challenge it. George W. Rappleyea of Dayton read an ACLU advertisement and decided that the potential publicity generated by such a challenge would be a good way to attract businesses and industries to his town.

Although John Scopes, the accused, was never actually sure he taught evolution (he was a high-school coach who had substituted for the biology teacher during the last few weeks of the school year), he volunteered to challenge the law which made it "unlawful for any teacher in any of the … public schools of the state…to teach any theory that denies the story of the Divine Creation of man as taught in the Bible, and to teach instead that man has descended from a lower order of animals."

William Jennings Bryan was called in to assist the prosecution, while famed defense lawyer, Clarence Darrow, led the defense. The trial began on July 10, 1925 and lasted several days, "amidst piano-'playing' monkeys and a carnival like atmosphere." A team of scientists and even "theologians" traveled to Dayton to help the Scopes' defense (although their testimony was not part of the trial, it is recorded in the transcripts) and proclaim that evolution was true and the law should therefore be struck down.

After Darrow questioned Bryan on the witness stand, and before Bryan could do the same to his counterpart, Darrow decided to have Scopes plead guilty in order to avoid being examined by Bryan on the stand. Scopes was fined $100 but the damage had been done, the ACLU (American Civil Liberties Union) had gotten the publicity it needed to help kick God out of the American classroom. (This conviction was later overturned on a technicality[8].) Doug Linder, professor of law at the University of Missouri in Kansas City, states:

> "The trial probably had its greatest effect in the success of Darrow in turning the trial into a national biology lesson through the prepared statements of his scientific experts, which were distributed to the press, and he succeeded in reversing momentum toward bans on teaching evolution."

## "HOUSTON, WE HAVE A PROBLEM"

Throughout the nineteenth century, the reliability of Newton's laws of mechanics of motion and Maxwell's equations for electromagnets was demonstrated so repeatedly and widely that scientists believed them applicable to all natural phenomena. Near the close of the century, physicists were feeling rather complacent and confident. The majority of scientists believed that all that was left for their successors was merely to "make measurements to the next decimal place."

But three unexpected discoveries put a dent in their confidence: experiments in heat transfer by radiation, a gravitational potential paradox, and the Michelson-Morley Experiment. The implications of these experiments "shewed" that something was not exactly "right" with the universe.

First, in the 1880's two scientists working independently (Stephan and Boltzman) did some experiments in heat transfer. What they observed was that in general, radiant energy is both emitted from and absorbed by the surface of a body. The difference between the rates of heat emission and absorption is simply the rate of heat transfer. It then follows from the laws of thermodynamics that, given enough time, a body will assume the temperature of its surroundings and, therefore, radiates away as much energy as it receives. This finding implies that the universe cannot be infinitely large and infinitely old as it stands.

Second, in the year 1871 a scientist named Johann Friederich calculated the gravitational potential within an infinite "Newtonian" universe. He demonstrated that at any point within an infinite, homogeneous universe the gravitational potential would be infinite, a conclusion at odds with all observations. (What scientists did with this finding was to do the mathematical equivalent of "brush it under the rug" by adding an exponential factor to modify Newton's equations in such a way as to generate "cosmical repulsion" at large distances. In science, when you can't explain something, add a constant.)

Third, this next "bombshell" had to do with the propagation of light. Based on Maxwell's equations, physicists in the late 1880's were convinced that light propagates with a fixed velocity to "an all-pervading ether." Observations however from astronomy showed that this "ether" could not travel with the earth because they observed apparent shifts in the position of the stars. Based on this discovery, two scientists, Michelson and Morely, set out to find the speed of the earth through the ether by measuring the light going in two different directions and different positions of the earth in its orbit around the sun. To their astonishment, the experiment failed to reveal any motion of the earth at all.

## EINSTEIN:

It was only until Einstein's formulated his theory of special relativity ($E=mc^2$)

that the reason for these observations began to become clear, or at least explainable. According to Ross, Einstein is to be credited more with audacity than with genius. The special relativity theory Einstein proposed could have been followed within months, or at least a year or two, of the Michelson-Morley experiment. However, to suggest an entirely new way for describing phenomena within the universe would have been considered "impudent" because of Newtonian and Maxwellian physics, and the view of the universe that they supported. In other words, the emotional resistance of the scientific community kept Einstein's theory at bay.

In a few short years, Einstein expanded his special relativity theory into his general theory of relativity. Basically the general relativity theory says that there can be only three possibilities with respect to the universe, all of them say that it is expanding or it has expanded in the past:

1) The universe is increasing definitely with time.
2) The universe is increasing yet ever more slowly.
3) The universe is increasing to a maximum value and then decreasing.

Of course what this means is that the universe had to have a "beginning." The instant of time, when the universe was just a tiny little dot of infinite density and mass, is what physicists call "singularity."

Einstein's reactions to his mathematical findings are an indication of how he may have thought he was proving the existence of "God." Before he published his cosmological findings, he searched for a way to "fix up" his own equations, so as to permit a "static" solution, in other words a universe free of expansion or deceleration. His solution, since he didn't want to face God, was to add a constant that he called the "repulsive force constant." Of course, this constant was later rejected. Einstein, the genius that he was, should have known better.

## CONCLUSION:

In this lesson I gave a brief history of “modern science.” I began my discussion at the time most historians view as the start of modern science, around the time of the Renaissance and the Reformation (1400-1700). First, I covered the controversy that the Roman Catholic Church had with Galileo in the early 1600’s, as well as discoveries made by other astronomers such as Copernicus, Brahe and Kepler. Next, I described how the science of the Reformation became one of experiment and observation as opposed to the old Aristotle method of reason and conjecture.

Then, I talked about Isaac Newton, who in the 1700’s, formulated laws of motion but also helped sow the seeds of “naturalistic” science as well. I also, explained how, by the 1800’s, Rationalism takes hold in Europe leading to an erosion of “Biblical” culture and science. I then described how in the wake of Rationalism, “Uniformitarianism” and “Darwinism” follow in the mid 1800’s to become the predominate “foundations” for science for the next 150 years. I

showed as the world approached the 20th century, that the scientific community was feeling very self-assured. Finally, I described several discoveries, made by men such as Einstein, that put Uniformitarianism and Darwinism at risk.