CHAPTER ONE

How Do You Know What You Know?

COURSE FOCUS: This course focuses on the question of how humans came into being, whether by divine creation or some form of evolution.

COMMON DECEPTIONS: Modern culture has indoctrinated many of us with three ideas relating to this question:

Visual #1-1

(1) Evolution is science but creation is religion,
(2) It doesn't matter what you believe because all religions are basically the same, and
(3) The scientific evidence overwhelmingly favors evolution.

CORRECT UNDERSTANDING: Each of these is false. The truth, instead, is that

(1) The creation/evolution controversy is a question of religion vs. religion, with each side claiming science supports it,
(2) What you believe about creation and evolution affects almost every other area of your life, and
(3) The scientific evidence overwhelmingly supports creation, but it has been withheld.

GOALS: The goals of the course are to

(1) Teach you how to think critically,
(2) Lay a solid foundation of trust in God's word, and
(3) Help you develop a love for the study of God's creation.

MAJOR ISSUES:

In order to accomplish those goals, the course will deal with three major issues:

Visual #1-2

(1) Where did we come from?
(2) How can we be sure? and
(3) Why does it matter?

We will start with the second question, how we can be sure we are right about *anything*. We will then consider the third question, why the creation/evolution issue matters, in Chapter Four. From Chapter Five onward, we will consider the scientific arguments having to do with where we came from.

Visual #1-3

It is obvious that creation has its roots in religious belief. It is less obvious that evolution (though often proclaimed to be proven scientific fact) is not science at all. It started as a religious belief and has continued to "evolve" in that direction.

Webster's Dictionary defines *Religion* as: "any specific system of belief, worship, conduct, etc., often involving a code of ethics and a philosophy." Religious belief is also usually held with great ardor. We will see that both evolution and creation fit these qualifications. First, let's be sure we understand exactly what the terms creation and evolution mean.

I. DEFINITION OF TERMS.

Those who believe in evolution are quick to point out the religious aspects of creation: W*ho or what started everything, why, and what does it all mean?* However, they try desperately to hide two facts: (1) Evolution must deal with exactly the same questions, and (2) There are also scientific aspects to creation.

In Chapter Four we will see how the religious aspects of creation and evolution lead to a battle between Christian and humanistic world views. For now, let's focus on the scientific aspects. These have to do with the question of *What were the conditions at the beginning?*

As we look at the universe, earth, and life, we see a great deal of complexity. The opposing concepts of creation and evolution lead to several scenarios or *models* that try to explain where this complexity came from. We can summarize the basic idea of evolution in terms of *initial disorganization*; we can summarize creation as *initial complexity*.

A. EVOLUTION - INITIAL DISORGANIZATION. 2 Major Models.

Visual #1-4

Evolution is the concept that the universe, earth, and life each began in a disorganized, primitive state. Later changes have produced a continual increase in complexity (also expressible as *information content*) ever since. This concept includes but is not limited to the belief that life originally arose from nonliving chemicals by natural processes, and that variability of living organisms is unlimited - that is, given enough time, one kind of creature can evolve to a completely different kind.

If we were to graph the development of living things through the earth's history, we would see what looks like a single enormous tree. At its base is the first simple cell; each of the millions of branches represents new types of organisms. Because of their common ancestry, all living things are genetically related to each other.

There are two major models of how evolution might have happened:

1. ***THEISTIC EVOLUTION.***

Visual #1-5

A relatively small percent of evolutionists consider themselves atheists. Most believe instead that a supernatural being (God) brought the universe, earth, and life into existence and has guided the process of increasing complexity ever since.

2. ***MATERIALISTIC (ATHEISTIC) EVOLUTION.***

Atheists believe that the universe, earth, and life came into existence by random chance and have steadily increased in complexity ever since, also by random chance. No supernatural explanations are allowed, but everything must be explainable by purely natural processes.

Both of these have two major sub-models dealing with the origin of living things: *Neo-Darwinism*, which says that they evolved slowly and gradually, and *Punctuated Equilibria*, which says that evolution happened in spurts. If evolution really did occur, it would have left exactly the same traces whether God or random chance was responsible. God "could" have used evolution, but the question is, DID He? We will see that the evidence argues strongly against the belief that evolution, whether theistic or atheistic, gradual or sudden, occurred at all.

B. CREATION: INITIAL COMPLEXITY. 3 Major Models.

Visual #1-6

Creation is the concept that the universe, earth, and life each began in a complex, mature state as a result of the action of an influence outside the realm of nature – a Creator. Later changes could produce diversification within limits (e.g. different breeds of dogs), but would not result in increased complexity or information content. In fact, since everything started at its best, change would not make things better but would probably tend toward deterioration. This concept includes but is not limited to the creation of distinct "kinds" whose members can never evolve into a different kind no matter how much time is available. See I Corinthians 15:39. If we were to graph the development of living creatures through the earth's history, we would see what looks like a whole forest of trees, each representing a kind. Diversification through time might lead to the appearance of new branches on the trees, but no branch would ever grow away from its tree and become attached to a different one. Some branches might end as kinds become extinct. The members of each kind are genetically related to each other, but not to the members of other kinds.

There are three major variations of the creation model:

1. ***RECENT RAPID CREATION.***

Visual #1-7

The process of creation was rapid and took place fairly recently, perhaps within the last 10,000 years or so.

2. ***THE GAP THEORY.***

The original process of creation was rapid, but it took place in the distant past, perhaps billions of years ago. All life was destroyed, then re-created recently, perhaps within the last 10,000 years or so.

3. "PROGRESSIVE CREATION" OR THE "DAY-AGE" THEORY.

This is not "creation" in the same sense as the other two models. It is identical to the Punctuated Equilibria version of theistic evolution. It says that the universe began in a primitive condition and has increased in complexity countless times through the intervention of God. The "days" of Genesis were creative periods lasting millions or billions of years.

The initial complexity/initial disorganization controversy is not limited to the study of living creatures. It also includes every aspect of the origin and development of the universe, earth, and life (Huxley, 1955, 272). The difference is that the initial disorganization models (evolution and progressive creation) predict a steady, inexorable, and irreversible trend toward *increase* in complexity for everything from one-celled organisms to galaxies, while the initial complexity models (creation) predict a steady, inexorable, irreversible trend toward *decrease* in complexity. We can use each model to make testable predictions about the universe, galaxies, stars, our solar system, life, the fossil record, and so on. Whichever model's predictions more accurately match what we find in nature would seem much more likely to be correct.

Visual #1-8

C. INTELLIGENT DESIGN vs. BIBLICAL CREATION.

We will deal with the concept of intelligent design in later chapters. For now, let us note that it is not the same as Biblical creation, which involves belief in Genesis, a young earth, the Flood, and so on. Many believe in both intelligent design and evolution.

II. CRITICAL THINKING SKILLS AND TECHNIQUES. Key Course Objective!

IF THE STUDENTS DON'T LEARN ANYTHING ELSE FROM THIS CLASS, MAKE SURE THEY LEARN THIS.

Let's look at something your students are likely to encounter in their day-to-day lives. Suppose a television report says that a group of scientists have dug up a pile of fossilized dinosaur bones which prove evolution. What should the student think about this report? Or, more accurately, HOW should the student think? When one sees such a report, it's fair to ask, "How do they know that?" After all, the scientists have no eyewitness accounts to tell them with certainty when the animals lived, if they lived together, or even if they died together. All they can say based on observation is that the fossils were found together. Anything else is just a guess - a belief. Yet many dogmatic statements about dinosaurs (and other things from the past) are presented as "proven scientific fact." The students need a way to evaluate such claims.

A. CATEGORIES OF KNOWLEDGE: How Do You Know What You Know?

Visual #1-9

The study of what it means to "know" things belongs to the branch of philosophy called *epistemology*. In light of movies such as the "Matrix" trilogy, we might wonder how we know anything at all for sure. Is there really a universe out there, or is it all just an illusion?

The noted French philosopher Descartes struggled with this question over 350 years ago. He wondered what, if anything, he could be absolutely certain about. After all, most people recognize that their senses are not always completely trustworthy. What if you are all alone in the universe and everything is just a figment of your imagination, made up either to prevent you from going insane or because you already *are* insane? (If this thought has ever occurred to you, you are not alone. It is common enough that it has a name, *solipsism*.)

If you follow Descartes' logic to its extreme, you must conclude, as he did, that the only thing you can be absolutely certain about is that you exist. As Descartes put it, "I think, therefore I am." In order for you to even question whether you exist, there must be someone to ask the question.

Beyond the certainty of your own existence, absolutely everything else you think

you know is based on a greater or lesser amount of faith. If you want to know whether your faith in anything else is logical, you might next wonder if any other entity exists besides yourself. Since you do not remember making yourself (unless you are insane), you could conclude either (1) that you have always existed, (2) that you made yourself and forgot about it, or (3) that someone else made you. If you choose to believe either of the first two, there is nothing anyone could say or do to persuade you otherwise. However, if it seems more reasonable to you -- by faith -- that you had a definite beginning, you would naturally conclude that someone or something outside yourself is responsible for your existence. Thus, there must be at least one other entity besides yourself. This could be either your concept of God ("Know ye that the LORD he [is] God: [it is] he [that] hath made us, and not we ourselves" Ps. 100:3) or else Random Chance.

If you are the result of random processes, those processes are not conscious entities so they could not deliberately make sure your senses constantly deceive you. Or if you take the step of faith to believe that there is a God, you would wonder: if He took the trouble to make you, is it likely that He wants you to be totally deceived about the nature of your own existence? If you choose by faith to believe so, you may be living in a Matrix-like illusion. The alternative is to believe -- again, by faith -- that God made you in such a way that, even though your senses may not be totally trustworthy, they are at least somewhat reliable. In that case, the world is real and you are not alone!

If you are not willing to believe that there really is a knowable, measurable universe then you might as well stop reading because this book really doesn't exist anyway. However, if you are willing -- still by faith – to admit that there really is a universe out there, how can you know things about it?

(The following was inspired by Michael Behe, *Darwin's Black Box*.)

Throughout our lives we hear people say they know something or other about things we can't verify for ourselves. But just what does the word "know" mean? Most people use it in any of six ways:

Visual #1-10

1. ***SENSE EXPERIENCE.***

   If you've ever been stung by a bee you know that it hurts. You may know how to drive a car.

   We gain this type of knowledge through the five senses or through a measuring device which we observe through one of the senses. Such sense knowledge has the potential to be duplicated so that anyone in the world with normally functioning senses could experience it in the same way.

2. ***RELIANCE ON AUTHORITY.***

   I know the Mississippi River begins in Minnesota because the map says so. I know the sun is 93 million miles away because astronomers say so. I know Jesus died for me because the Bible says so. I know when I was born because my mother told me. I know she really is my mother because she told me that too.

   When we say we know something in this way, what we mean is that someone told us something and we decided to trust them.

3. ***LOGIC.***

   I know a trillion plus a trillion equals two trillion, even though I've never counted that high. I know that the measures of the angles in any triangle add up to 180°, even though I haven't measured every triangle that could possibly exist.

   When we say we know something in this sense, what we really mean is that we figured it out logically.

4. ***FEELING OR INTUITION.***

   I know she's the one I want to spend the rest of my life with. I know God has called me to the ministry.

   This is a different type of personal experience than that gained through the five

senses in category (**1**). Dreams, visions, feelings and the like are unique to the individual and cannot be experienced in exactly the same way by anybody else.

There are also two other ways by which people say they know things, but these are not really knowledge:

5. WISHFUL THINKING.

I just know I'm going to win the lottery! I know if I show up at my favorite movie star's house with flowers, she will leave her husband so she can be with me.

This category includes things that we really want to be true, and perhaps we hope they will come true with enough positive thinking.

6. BLUFFING (LYING).

You should buy these tickets from me because I know this team is going to win the Super Bowl this year! Trust me, evolution is a fact - I know what I'm talking about! Please, teacher, I know I can finish this project if you just give me three more days.

When someone says he knows something in this sense, he doesn't even believe it himself. He is simply lying in order to persuade others so he can gain some sort of advantage.

B. SCIENTIFIC KNOWLEDGE VS. FALSE LOGIC.

Once we realize that we ourselves use the word "know" in all these ways, we ought to ask: *why should I believe the things other people try to persuade me that they know?* Is it because (1) they claim to have personal experience, or is it because (2) the authority they cite seems trustworthy, or is it because (3) I have checked out their logic and found it reliable? Or is it just because (4) I am willing to believe their intuition, (5) wishful thinking, or (6) bluffing?

Visual #1-11

Let's consider which of the categories of "knowledge" can be considered scientific. Since the scientific method requires observation, a scientific statement must ultimately be based on an eyewitness account, either from the speaker or an authority the speaker cites. It has to belong to one of the first two categories above. Even a nonscientific statement is much more trustworthy if it falls into one of these rather than logic, intuition, wishful thinking, or bluffing. Suppose you hear someone say they know something having to do with evolution. Does it fit into the category of knowledge by personal experience, that is, has any living person seen humans evolve from apes? Of course not. Well, then, can we say we know because a reliable authority told us, that is, do we have any authoritative accounts from the past in which someone recorded evolution happening? No, because even if our ancestors did evolve from some apelike creatures, they wouldn't have been intelligent enough to write down what they saw!

Visual #1-12

Though evolutionists try to hide it, just about anything anyone ever says they know about evolution is actually a statement based on logic, not scientific experimentation.

C. HOW TO EVALUATE CLAIMS OF KNOWLEDGE.

People often try to persuade us to believe something that they say they know. We would be foolish to blindly accept every such statement. Instead, we ought to ask questions such as the following. (This is not a list to be memorized, but a set of tools to help the students learn to think critically. Students will get more practice in Chapter Five.)

1. WHO SAYS THEY SAW IT?

("Were you there?") If it's supposed to be an eyewitness account, how reliable is the alleged eyewitness? If there is no eyewitness account, the statement is neither scientific nor historic, but only a statement of belief.

Visual #1-13

2. WHAT DID THEY ACTUALLY SEE?

Is it enough to justify the conclusion? Scientists routinely *extrapolate*, that is, they draw conclusions which go beyond the available data. (This is how we determine the sun's distance, for example.) A certain amount of extrapolation is reasonable. How-

ever, many times scientists make wild claims that go far beyond what the data will justify. In our example of a statement about dinosaurs, all the scientists found were some bones. They didn't find anything evolving.

3. ***WHAT ARE THEY NOT TELLING US?***
   For instance, what assumptions are they making? How reasonable are they? (We will discuss the major assumptions of evolution and creation in Chapter Five.) Is somebody deliberately withholding evidence? Is there some sort of bias involved?
4. ***HOW COULD WE TEST WHAT THEY ARE TELLING US?***
   If there is no way to test it, it's not science.
5. ***DOES IT AGREE WITH THE WORD OF GOD?***
   For Bible-believing Christians, the Word is the final authority. God was there and knows everything; the scientists were not, and do not. The Bible instructs us not to believe every spirit, but to test the spirits to see if they are really from God (1 John 4:1). This principle applies to anything that might affect our faith, including statements made in the name of science. Any time someone tells us about something we haven't seen for ourselves we should test what they say. Such questions as these give us a way to do it.

   It is not likely that students will remember everything they hear in this course. It is more important that they learn HOW to think than WHAT to think, so that they can deal with any future challenges to their faith. The above questions can be invaluable in separating true science from mere storytelling.

III. DIFFERENCE BETWEEN SCIENCE, HISTORY, AND BELIEF .

One of the most important objectives of this course is to teach the students how to think critically. They need to be able to tell the difference between science and storytelling.

A. SCIENTIFIC METHODS.

Visual #1-14

The word "science" seems to have lost its meaning. It used to refer to such disciplines as physics, chemistry, and biology, in which we could do repeat- able experiments to test our ideas. Nowadays we also use the terms "social science" and "political science." Some even refer to the sport of boxing as the "sweet science." In this book we will use the word in the traditional way. When we refer to science, we mean those areas of study in which we can use *scientific methods*.

Different authors express scientific methods in different numbers of steps. No matter which description we use, all share certain key elements.

1. ***DEFINE THE PROBLEM.*** What is it you want to know? For instance, we might ask, "Does music affect how plants grow?"
2. ***GATHER INFORMATION*** on the subject. In our example, we might investigate what a plant is, what music is, which kinds of plants might be good subjects for an experiment, and which kinds of music we want to use. We could also search the scientific literature to see if others have already studied the subject.
3. ***FORMULATE A HYPOTHESIS.*** Make a reasonable prediction about what you think might happen. That is, you need to know what you're looking for so that you can see if you are right. In our example, you might predict that soft classical music will encourage plant growth while loud rock and roll will discourage it.
4. ***DEVISE A WAY TO TEST THE HYPOTHESIS.*** Design an experiment. You might put two groups of the same type plants in different rooms with the same environmental conditions - except that one room has Mozart playing over a loudspeaker, and the other has "heavy metal" music.
5. ***PERFORM THE TEST AND OBSERVE THE RESULTS.***
6. ***ANALYZE THE DATA.***
7. ***REPORT YOUR RESULTS AND CONCLUSIONS*** so that others can repeat your work.

By applying the scientific method to the creation/evolution controversy we will be able

to see just how much science is on each side and how reasonable each belief is.

B. DEMONSTRATION.

Following is a simple yet powerful demonstration that EVOLUTION IS NEITHER SCIENCE NOR HISTORY, BUT IS ONLY A BELIEF.

1. SCIENCE: PRESENT , REPEATABLE, OBSERVABLE.

At the appropriate time during class, tell the students you are about to demonstrate a science experiment. Take an object such as a pen out of your pocket. Go through the steps of the scientific method.

Visual #1-15

(1) You can ask, "What happens when we put a pen on a table?"

(2) Tell them they can study to find out what a pen is, what a table is, what experiments have been done, etc.

(3) Formulate a hypothesis such as "If I put a pen on a table then it will stay there."

(4) Devise a way to test the hypothesis. An easy way to do this is to set up a table on which you can place the pen.

(5) Perform the test and observe the results by putting the pen on the table as the students watch. Repeat the process as many times as you want. Point out the fact that you can vary the experiment: use the left hand, reach around behind your back, have somebody else put the pen down, tilt the table, etc.

(6) They can now report their observation that a pen stays on a table when you put it there, as well as their conclusions about why it stays (friction, gravity, etc.). If they were writing a report, they would give as many details as possible so that others could repeat and build upon their work. For instance, others might want to see how far the table can be tilted before the pen slides off.

Though this is a ridiculously simplified example, this is how science works. You have performed a REPEATABLE action; you can put the pen down over and over and it acts the same every time. This action takes place in the PRESENT in the presence of OBSERVERS. Make sure the students see that these are necessary characteristics of science:

a. Observable.

Science requires one or more OBSERVERS who use their senses (sight, hearing, etc.) or some sort of mechanical means to observe what happens.

b. Repeatable.

The processes or events are REPEATABLE so they can be tested.

c. Present.

Because we can neither observe nor test the past (we can't put it in a test tube and experiment on it), science can deal only with PRESENT processes and events.

2. HISTORY: PAST, NON-REPEATABLE, EYEWITNESSES.

Knowing things about the past is different. Ask your students who was the first president of the United States. When they say it was George Washington, ask them how they know. After all, none of us was there. We only believe it because we have eyewitness accounts. Point out the fact that we are now dealing with a PAST event that is NON-REPEATABLE. We can't put it in a test tube and experiment on it! Since the events that made George Washington president cannot be repeated, we cannot make scientific statements about them. However, the fact that there were OBSERVERS allows us to make *historical* statements about what happened. Make sure your students understand these characteristics of history:

a. Eyewitnesses.

History requires at least one eyewitness OBSERVER. Before we decide to believe the statements of the alleged eyewitnesses, we must judge how trustworthy they are or were.

b. Past.
It deals with PAST processes or events.

c. Non-Repeatable.
Since the events occurred in the past, they are NON- REPEATABLE and thus untestable.

3. BELIEF: PAST, NON-REPEATABLE, NO EYEWITNESSES.

Try to obtain a rock that contains some small fossils. If you don't have one, you can use any manufactured object such as the projector you are using for this class. Ask the students how the fossils got inside the rock, or how the parts of the projector were assembled. They will probably have caught on and will say "We don't know." Emphasize the fact that the fossils arrived in the rock or the parts were put together in the PAST, which is NON-REPEATABLE – so you are not dealing with "science." Also remind them that there are NO EYEWITNESS ACCOUNTS, so you're not dealing with "history" either.

Make sure that they see that the best they can do is make an educated guess – that is, come up with a belief. They can examine circumstantial evidence (analyze the minerals in the rock, dust the projector for fingerprints, etc.), but without an eyewitness account, they can never really be sure they are right about what happened. Even if they come up with a way to put fossils inside a rock, they can't be sure their process is the same one that happened to *this* rock. Likewise, there are several ways to put together a projector - by hand using all sorts of different wrenches, by various types of machines, etc. The way they come up with may not be the same one that happened to this projector.

Thus, if an alleged event had the following characteristics:

a. No Eyewitnesses,

b. Deals with ***Past*** processes or occurrences,

c. Non-Repeatable and thus non-testable,

the best we can do is come up with a BELIEF. If we try to use this belief as a unifying principle for many phenomena it becomes a BELIEF SYSTEM. If we use it as a guide for living, it may even develop into a RELIGION. So where does evolution fit? Past + no eyewitnesses + non-repeatable = BELIEF SYSTEM.

Visual #1-16

Let's consider dinosaurs as an illustration of this point. Everywhere we look, from museums to movies to magazines to fast food restaurants, we see pictures of dinosaurs in action. How scientific are these pictures?

- There are **NO EYEWITNESSES** who can verify that dinosaurs really behaved the way the pictures show that they did.
- Dinosaur fossils exist in the present, but living, active dinosaurs existed in the **PAST**.

Visual #1-17

- We **cannot REPEAT or TEST** the lives and activities of the dinosaurs. Fossils are simply pieces of mineralized bone, etc.; when we dig them up, we don't find pictures or biographies with them.

All the elaborate museum, movie, and television scenes of how dinosaurs lived and died are NOTHING BUT MADE-UP STORIES. *Emphasize this point as strongly as you possibly can!*

***** Things We Can Test, Things We Can't. *****

We need to be careful not to "throw the baby out with the bath water." There are some things that have to do with the past but can be tested at least *indirectly*. These include:

Visual #1-18

(1) Trends and tendencies in nature that have continued until the present;
(2) Observable processes that have continued until the present; and
(3) Processes and events that left direct evidence.

Other things simply cannot be tested. These include such things as:

(1) The identity, personality, or motivation of whoever or whatever brought the universe into existence,
(2) Meaning and morality, and
(2) Specific details such as the names and personalities of the first humans, what kind of food they liked to eat, etc.

Make sure your students understand that some statements they hear about past events may be a mixture of science and storytelling. For instance, suppose a paleontologist digs up a bone. By comparing it to other known fossil bones, he decides that it probably came from a dinosaur and makes a guess about what the complete skeleton will look like. He also says that it had a nasty disposition and bad breath. Can we repeat and test any of what he says, in the presence of observers? Yes! It may not be easy, but if we dig up enough bones we can test his prediction about the structure of the complete skeleton. That part is science. (Notice, it doesn't have to be right, just testable, in order for us to be able to use the scientific method.) The part about the dinosaurs' behavior, though, is pure fiction. There is no way to test it.

Fossil digs: Visual #1-19-1-21

If we pay careful attention to the elaborate stories we read and hear about dinosaurs we will discover that many paleontologists play the part of both scientist and storyteller. Despite what they tell us, all we really *know* about dinosaurs is that they existed, that their bones display certain anatomical features, and that great numbers were buried and fossilized. We have no eyewitness accounts of how they lived; all we have are fanciful stories from people who weren't there. They present their BELIEF SYSTEM about how dinosaurs lived as if it were science. It is nothing but a made up story.

We will see later that dinosaur fossils are as compatible with creation as they are with evolution. The evolutionary stories made up about them have nothing to do with science. They are just a small part of the evolutionary belief system. But evolution is more than a belief system; we will see that it is a philosophy of life which is held to tenaciously despite all evidence to the contrary. It has "evolved" into a RELIGIOUS belief.

How about creation? Past + AN EYEWITNESS + non-repeatable = HISTORY. Or, if one rejects the Bible, no eyewitnesses = BELIEF. Creation is held to tenaciously despite any evidence that seems contrary. It, too, is a RELIGIOUS belief.

C. EYEWITNESS ACCOUNT REQUIRED FOR CERTAINTY

Suppose you were able to devise an experiment that made animals evolve from one basic kind to another. Or suppose you were able to devise an experiment that could cause an animal to come into existence from nothing. Could you be sure that the process you had invented was the same process that happened in the earth's distant past? No. Perhaps your process is the one that took place, or perhaps you just got lucky and were able to produce the same results by a different method. You have no way to know.

Because there is more than one possible explanation, we can only be sure of drawing correct conclusions about what took place "in the beginning" if we start with the testimony of someone who was there and knows all the details of what happened.

1. CREATION: Based on Revelation.

Though there are a number of creation accounts around the world, the one presented in this book comes from the book of Genesis in the Bible. Genesis claims to be the eyewitness account of the One who did the act of creating. If it really is, the Creation narrative is history; if not, it is only a belief. Creation claims to be a religion based on REVELATION.

Visual #1-22

2. EVOLUTION: Based on Speculation.

Evolution is based on the ideas of men who were not there at the beginning and who

can only guess at the details. Evolution is a religion based on SPECULATION.

a. No Possibility of Eyewitness Account of Evolution.

We can never hope to obtain an eyewitness account of evolution. Our primitive apelike ancestors would not have been intelligent enough to write down what they saw.

b. Source of Human Logic According to Evolution.

If evolution is true, our brains evolved from ape brains. If our brains evolved from ape brains, our logic evolved from ape logic. HOW DO WE KNOW IT EVOLVED RIGHT?

Visual #1-23

If evolution is true, we have a problem! Everything we think we know about science, philosophy, and religion came from modified ape brains. There is no way to know if our thoughts about these subjects are meaningful or absurd. We can't even be sure we're asking the right questions. We may only be thinking modified ape thoughts, but we have no way to be sure of even that.

III. SCIENCE AND THE EXISTENCE OF GOD.

EVOLUTION HAS NO SCIENTIFIC ADVANTAGE OVER CREATION.

Science has historically involved the search for answers to many deep questions regardless where the search might lead. However, in their pursuit of knowledge, many great scientists of the past were willing to admit that not all truth was scientifically verifiable. They recognized their own limitations and never dogmatically ruled out any possibility, but instead weighed each on its own merits. They realized that some things might be beyond the scope of science but true nevertheless. For instance, you cannot scientifically prove you love your mother, but that doesn't make it any less true. Likewise, if there is a God then there is a God whether we can prove His existence or not; if there is NOT a God then there is not a God whether we can prove His nonexistence or not.

In recent years many scientists and educators have tried to change our perception of what truth is. They have largely succeeded. Nowadays students and the public are led to believe that scientific truth is the only truth. Since science deals only with measurable phenomena, they claim that only naturalistic answers (evolution) can possibly be correct. Because creation requires the intervention of a supernatural being, they refuse to even admit it as a possible thus cannot possibly be true. This lie is used to hide the fact that evolution requires an exactly parallel influence whose existence cannot be scientifically demonstrated either.

Visual #1-24

Atheists scoff at creationists and theistic evolutionists alike, because both hold beliefs which depend upon the existence of God. An atheist will often say something like, "I can't believe in something I can't see." But what he doesn't realize, or won't admit, is that he DOES believe in something he can't see. Creation and theistic evolution both require us to believe in something outside the realm of science - but so does atheistic evolution.

A. CHARACTERISTICS OF CREATIONIST'S GOD.

Creation requires a God who has certain characteristics:

1. He cannot be seen directly. His presence can only be detected by what He does. He is ***INVISIBLE.***

2. If God established the laws of nature, He is obviously not subject to those laws. He is above nature, or ***SUPERNATURAL.***

Visual #1-25

3. He has existed since before what we call "time" began. He is ***ETERNAL.***

4. Where is God? Everywhere. His influence extends throughout the universe. He is ***OMNIPRESENT.***

5. If God brought matter and energy into existence and then brought about laws to govern their operation, then He is either directly or indirectly responsible for everything that has ever happened. He is all-powerful, or ***OMNIPOTENT.***

6. Who made God? Nobody. He is ***SELF-EXISTENT.***

B. CHARACTERISTICS OF THEISTIC EVOLUTIONIST'S GOD.

It would seem that the creationist is in trouble. After all, he needs to appeal to something invisible, eternal, supernatural, omnipresent, omnipotent, and self-existent in order to justify his belief. But evolutionists are no better off! The vast majority believe that evolution occurred under the guidance of God (*theistic evolution*). Since this belief depends upon the existence of God it has no scientific advantage over creation. It seems that atheistic evolutionists hold the only truly scientific position. Or do they?

C. CHARACTERISTICS OF ATHEIST'S "RANDOM CHANCE."

For the sake of argument, let's assume that the atheists are right. We'll rule out God. If this is the case, how did the universe get here? Call it "Mother Nature," accident, quantum fluctuation, or whatever you will, but the universe would have to be the product of a collection of forces, processes, and events operating for billions of years without any particular purpose. Let's call the whole collection Random Chance for short, with the understanding that Random Chance is not a tangible thing in itself but is a term used to describe the whole series of forces, processes, and events. Following are some of the characteristics that logic demands it must have.

Visual #1-26

1. It cannot be seen directly. Its presence can only be detected by what it does. It is ***INVISIBLE***. (You can turn the tables on your atheist friends and ask them, "You mean you believe in something you can't see?")

Visual #1-27

2. If Random Chance established the laws of nature, it is obviously not subject to those laws. It is above nature, or ***SUPERNATURAL***.
3. It has existed since before what we call "time" began. It is ***ETERNAL***.
4. Where is Random Chance? Everywhere. Its influence extends throughout the Universe. It is ***OMNIPRESENT***.
5. If Random Chance brought matter and energy into existence and then brought about laws to govern their operation, then it is either directly or indirectly responsible for everything that has ever happened. It is all-powerful, or ***OMNIPOTENT***.
6. "Who made Random Chance?" Nobody. It is ***SELF-EXISTENT.***

Neither Creation, Theistic Evolution, nor Atheistic Evolution has any scientific advantage over the others on this point. All require us to believe in something invisible, eternal, supernatural, omnipresent, omnipotent, and self-existent.

THERE IS NO POSSIBILITY THAT GOD DOES NOT EXIST! You may call your God Jehovah, Yahweh, Allah, or Random Chance, but you HAVE TO believe in some sort of a god. Even the most determined atheist has no choice but to admit that he, too, has a god - Random Chance. Since the Bible tells us that "Whoever would draw near to God must believe that He exists..." (Heb. 11:6 RSV), the greatest service you can do for your atheist friends is to confront them with the realization that it is impossible NOT to believe in a god of some sort. By lovingly confronting your atheist friends, you may start them on a quest which will ultimately lead them to the REAL God.

Whichever choice we make, we must take a step of faith. Suppose we choose to believe in the God of the Bible, and live accordingly. There are two possibilities: either we are right or wrong. (Some of your well-read students may recognize the following as "Pascal's Wager.")

Visual #1-28

1. If we are right, at the end of our earthly lives we are headed to a glorious eternity in heaven.

2. If we are wrong, we will live a life of joy and expectation, come to our death- bed fully expecting to meet our Savior, lose consciousness at our death, and never know we were wrong. Meanwhile, we will have lived a happy and fulfilled life -- so we're no worse off.

Suppose instead that we reject the possibility that God exists. Again, we may either be right or wrong.

3. If we are right, we will live a life filled with the constant certainty that we will one day die. We may try to do good while we are here on earth, but what's the point? If there is no God, then all the stars will one day burn out and all life will become extinct. All our good deeds will have counted for nothing.

4. If we are wrong, we will go to our deathbed expecting to simply lose consciousness, then, at the moment of death, we will suddenly become aware of the presence of a dreadful being -- the God whose existence we denied -- to whom we must give an account for our lives. The Bible says that "...he that cometh to God must believe that he is..." (Heb. 11:6) -- that is, there will be no atheists in heaven. You will be headed for an eternal hell.

Atheists sometimes ridicule those who believe in God, saying that we believe in "an invisible man in the sky" who made everything. Let's take it a step further. Before Jesus became a man, He was always an intelligence. One might therefore say that we believe in an invisible intelligence in the sky that is so powerful that it (He) is responsible for all the parts of the universe in all their complexity, from the largest scale (cosmology) to the smallest (subatomic).

Visual #1-29

What alternative does atheism offer? Atheists believe in an invisible NON-intelligence in the sky that is so powerful that it is responsible for all the parts of the universe in all their complexity, from the largest scale (cosmology) to the smallest (subatomic). And yet they claim that they are the only true scientists!

An atheist's step of faith moves him toward an impersonal god that doesn't know he exists and doesn't care about him. Our step of faith moves us toward a personal God who knows how many hairs we have on our heads and loves us so much He sent His Son to die for our sins. If atheists are right nothing matters anyway and we believers are no worse off than they are. If we're right, we're headed for heaven but atheists are headed for an eternal hell. Which step of faith is more reasonable?

IV . THE USEFULNESS OF AN IDEA DOES NOT DEPEND ON ITS ORIGIN.

Some object that creation cannot be scientific because it came from the Bible. However, an idea does not have to have a scientific origin to be useful, or correct.

A. BOTH CREATION AND EVOLUTION BEGAN AS RELIGIOUS IDEAS.

1. EVOLUTION DATES TO GREEK PHILOSOPHERS.

Evolution did not begin with Darwin. It began as a pagan religious doctrine and can be traced at least as far back as Aristotle and other polytheistic Greek philosophers (Osborn, 1918, ix-xi), who believed humans evolved from fish.

2. CREATION CAME FROM THE BIBLE.

Visual #1-30

Though many cultures have creation legends, creation as presented in this book obviously began as a Biblical doctrine.

B. MANY USEFUL IDEAS HAVE HAD UNSCIENTIFIC ORIGINS.

1. THE SEWING MACHINE.

Elias Howe invented the sewing machine after dreaming he was threatened by a vicious tribe brandishing spears with eye-shaped holes near their tips (Murchie, 1984, 81).

2. BENZENE.

Over a century ago, Friedrich August Kekulé was searching for a way to mass produce the chemical benzene. He succeeded only after discovering the circular structure of the benzene molecule in a dream in which he saw a snake eating its own tail (*Science Digest*, 1984a, 70).

3. FIBER OPTICS.

Physicist Amnon Yariv developed a method to successfully transmit information

through optical fibers by phase conjugate optics, attributing his inspiration to the Pacific surf (Goldberg, 1985, 47).

4. ***SELF-STARTING ELECTRIC MOTOR.***
   "The idea for the self-starting electric motor came to Nikola Tesla one evening as he was reciting a poem by Goethe and watching a sunset." (Briggs, 1984, 76)
5. ***ASTRONOMY.***
   Many discoveries of astronomy happened by accident. "Radio galaxies, quasars, pulsars, and the microwave background are classic examples of why serendipity in scientific discovery now claims almost a monopoly of the research in radio astronomy and indeed of astronomical research in general." (Lovell, 1984, 94)

These are not the only examples. The point is, it does not matter in the slightest how unscientific the inspiration of an idea is; the important question is how useful it is. Likewise, the unscientific origins of both creation and evolution are irrelevant. Rather than asking where the idea came from, one should ask which model does a better job of explaining and predicting the data, rather than having to explain them away.

C. THE RELIGIOUS ROOTS OF SCIENCE.

Science itself has its roots in religion. There are two main groups of religions in the world: Western (Christianity, Judaism, Islam) and Eastern (Hinduism, Buddhism, and the like). As we will see in the next chapter, Eastern religions believe that the physical universe is an illusion. In some branches of Hinduism, for instance, the whole universe is part of a dream being dreamed by the great god Vishnu. You and everything around you are merely parts of his dream. If this is the case, there would be no point in trying to study and measure it, because we -- who are dreams ourselves -- would be studying and measuring a dream.

Visual #1-31

Western religions, on the other hand, believe that the physical universe is real and that we can study and measure with some degree of accuracy. (Atheists recognize this as a reasonable belief and follow it also.) There is no way a follower of Western religion can prove to a follower of Eastern philosophy that he is wrong, or vice versa. Either school of thought requires a step of faith.

The logical outcome of Eastern religions: there is no point in studying the physical universe because it isn't real anyway. The logical outcome of the Western school of thought: the scientific method! If not for Western religions there would be no such thing as science.

D. BOTH CREATION AND EVOLUTION HAVE SCIENTIFIC IMPLICATIONS.

Remember that the basic concepts of creation and evolution are:

- *Creation:* initial complexity with later deterioration, versus
- *Evolution:* initial disorganization with later increase in complexity and information content.

Each of these has strong religious implications.

We cannot directly test either idea. However, because each also has scientific implications, we can test them indirectly. We can make predictions in many areas of science - astronomy, physics, chemistry, biology, geology, paleontology, etc. - about what evidence we should find in nature if initial complexity is correct, versus what evidence we should find if initial disorganization is. (As an example: initial complexity leads us to expect a tendency in nature toward deterioration, while initial disorganization leads us to expect a tendency toward increasing organization.) We can get a good idea which model is more reasonable by comparing these predictions with what we actually find in nature.

We will use the above approach from Chapter Six through the end of this book. But first, we'll look at the religious aspects of the controversy to see why it matters what you believe.

CHAPTER 1 REVIEW

I. As used in the Bible and in this book, the word *Creation* implies initial complexity and subsequent deterioration. *Evolution* implies the opposite: initial disorganization and subsequent increase in organization and complexity. The two are mutually exclusive. If God used evolution, Genesis is wrong. If Genesis is right, evolution is a lie.

II. The word "science" as used in this book refers to those areas of study to which we can apply the scientific method.
- *Science* takes place in the Present, can be Repeated and Tested, and requires at least one Observer.
- *History* took place in the Past, Cannot be Repeated, but had at least one Eyewitness.
- If something is supposed to have happened in the Past but Cannot be Repeated and had No Eyewitnesses, all we can say about it is our *Belief*. We can examine circumstantial evidence to see if our belief is reasonable, but we can never be absolutely sure it is correct.

Evolution is a Belief - a religion based on *Speculation*.
Creation is either History or a Belief - a religion based on *Revelation*.

The word "know" can mean different things to different people: (1) personal experience, (2) reliance on authority, (3) logic, (4) feeling or intuition, (5) wishful thinking, or (6) lying.
If someone says they know something we cannot verify for ourselves, we should ask:
1. Is this an *eyewitness* account? How reliable is the alleged witness?
2. What did they actually *observe*? Is there enough evidence to justify their conclusion?
3. Can their observation or conclusion be *repeated* and *tested*?
4. What assumptions does this depend on?
5. How does this compare with the Word of *God*, who was there and knows everything?

III. Both God and Random Chance would have to be:
1. Invisible.
2. Supernatural.
3. Eternal.
4. Omnipresent.
5. Omnipotent.
6. Self-existent.

IV. Both creation and evolution originated as religious ideas.
1. An idea does not have to have a scientific origin to be useful.
2. Though the creation/evolution controversy is ultimately a battle of religion vs. religion, both creation and evolution also have scientific implications.
3. Science itself is the result of Western religious thought.

CHAPTER 1 REVIEW QUESTIONS

1. The basic idea behind evolution is initial disorganization, or _____ to _____.
2. The idea that evolution progressed slowly and steadily is known as _____ _____,
3. The idea that evolution progressed in sudden jumps is known as _____ _____.
4. The basic idea behind creation is initial complexity, or _____ to _____.
5. Recent Rapid creation says that the process of creation occurred within the last 6 to 10 _____ years.
6. The Gap Theory says that the original creation was brought into existence millions or billions of years ago, but was completely _____ and God started over in Gen. 1:1.
7. Progressive Creation or the Day-Age Theory says that the "days" of Genesis 1 were actually creative periods that could have lasted _____ of years.
8. Identify four potentially legitimate ways of knowing things.
   a. _____ b. _____
   c. _____ d. _____
9. Identify two ways people say they know things which are really not knowledge at all.
   a. _____ _____ b. _____
10. What are the three legitimate types of knowledge used in science?
    a. _____ b. _____
    c. _____
11. When someone makes a claim that is supposed to be scientific, we should ask:
    a. Who says they _____ it?
    b. _____ did they actually see?
    c. What are they _____ telling us?
    d. How could we _____ what they are telling us?
    e. Does it agree with the Word of _____?
12. What are the three characteristics of SCIENCE identified in the chapter?
    a. _____ b. _____ c. _____
13. What are the three characteristics of HISTORY identified in the chapter?
    a. _____ b. _____ c. _____
14. What are the three characteristics of BELIEF identified in the chapter?
    a. _____ b. _____ c. _____
15. Even if evolution had occurred in the distant past, why would it be impossible to obtain an eyewitness account? _____
16. What six characteristics would have to be true of either God or Random Chance?
    a. _____ b. _____
    c. _____ d. _____
    e. _____ f. _____
17. Creationists believe in an "invisible intelligence in the sky." Atheists must believe in an invisible _____ _____ in the sky.
18. Creation and evolution each have a mixture of _____ and _____ implications.

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