Darwin Day

February 12, 2009 is being promoted internationally as Darwin Day. Aside from being Abraham Lincoln's 200th birthday it is also Charles Darwin's 200th birthday. It's not too difficult a guess to say that the emphasis on Darwin is due in large part to the continuing success of groups around the world arguing that Darwinism is not all that it has been made out to be.

In America 40% of the general public still does not accept that a purely naturalistic process is responsible for all we see in the living world. This drives the community of evolutionary biologists and all humanist and atheist groups positively bonkers. They all but blame the decreasing enrollments in science programs in this country on this continuing reticence to accept Darwin.

Some see the need, therefore, to increase education on all things Darwin on the occasion of Darwin's anniversary and all the contributions of the man and the idea. We will hear how Darwin revolutionized biology. The often repeated quote of Theodosius Dobzhansky, a mid-20th century evolutionist, that "nothing in biology makes sense except in the light of evolution," will be repeated ad nauseum.

There is no doubt that Darwin made impressive contributions about the ubiquitous nature of small scale changes in biological populations over time. Not all things Darwin are to be considered suspect. But separating the good from the bad can be a daunting challenge at times.

The recent documentary film, *Expelled: No Intelligence Allowed*, received howls of protest at the accusation that Darwinism made a contribution to the Nazis' eugenics program and ideas of racial purity. Never mind that these connections have been considered historical facts for decades. Richard Weikart's excellent book, *From Darwin to Hitler: Evolutionary*

Ethics, Eugenics, and Racism, makes the case in great detail from the German literature of the early decades of the twentieth century. But casting aspersions on Darwin in a very public setting just isn't tolerated. People might get the wrong idea, you see, that Darwin is anything less than THE saint of modern biology.

You should also pay no attention to the fact that when the great Supreme Court Justice, Oliver Wendell Holmes, finished his soldiering in the Civil War, he became a convinced Darwinist after all the suffering he witnessed and participated in. This led to his rethinking about law in general. He soon realized that since all things biological change over time, so should the law that we govern ourselves by. Holmes was the original activist judge, making law instead of interpreting law. He firmly believed that law was a product of evolving cultures and traditions.{1}

The innovator in moral philosophy of education John Dewey was decidedly Darwinian. The originator of the still popular Values Clarification moral approach believed that moral values evolve just like biological features, and students must be free therefore to arrive at their own values. We simply can't know if our values are better or preferable than another's. When given a choice, most parents prefer their children be taught a clear system of right and wrong but most teachers prefer to teach a values clarification approach.{2}

If we're going to be bombarded with Darwiniana this month and for the rest of the year (since 2009 is also the 150th anniversary of the publication of Darwin's *On the Origin of Species*) let's appeal for some balance. Since even Abraham Lincoln is being reevaluated as perhaps not the great President many have idolized him to be, why not Darwin?

Check out Probe's numerous articles on the various problems with Darwinian practice and thinking. Also stop by the Discovery Institute's website at www.discovery.org/csc to keep

up with the latest news through articles, podcasts, and news briefs.

Let’s teach more Darwin for sure. But let’s try to tell the whole story and not just the laundered propaganda of the evolutionary elite.

Notes

1. Nancy Pearcey, *Total Truth* (Wheaton, IL: Crossway Books, 2004), p. 228-229, 237.
2. Ibid., 238-242.

The Texas State Board of Education and Public School Content

The Facts

The Texas State Board of Education is a group of fifteen individuals, representing various districts in Texas. One of their roles is to decide on standardized, statewide guidelines on public school contents for grades K-12. These guidelines are delineated in the Texas Essential Knowledge and Skills (TEKS), which dictate the content for every subject for every grade level that students must master in order to graduate from a Texas accredited public school. Importantly, these guidelines also dictate what textbooks are approved for classrooms and selection criteria for universities. While these guidelines are not enforceable in the private school setting, private schools that are college preparatory must

consider these guidelines in determining student advancement and subsequent collegiate eligibility.

The old draft of the TEKS, which was approved in 1998, states that students are expected to "analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information."{1}

The new draft of the TEKS, set for final approval in March 2009, states in the parallel section that students are expected to "analyze and evaluate scientific explanations using empirical evidence, logical reasoning, and experimental and observational testing."{2} This line is in the introduction to the Biology class content under "scientific processes." The content portion of the biology class has various topics listed, and what students are required to master within each of these topics. Topics include *Cells and Cellular Processes*, *Molecular Genetics and Heredity*, *Evolution and Populations*, *Classification and Taxonomy*, *Biochemistry*, *Systems and Homeostasis*, *Ecosystems*, and *Plants*. Under each of these topics are specific items that students need to know.

The Contentious Issues

Those are the facts of the issue as best as we can describe them. However, these changes have created more than a little uproar from various groups that have a vested interest in how evolution is taught. The lines divided as such: advocates of the unquestioned teaching of evolution in public schools who were in favor of the new wording, and advocates of questioning certain aspects of evolutionary theory who were in favor of keeping the wording "strengths and weaknesses" within the TEKS. Many people that were for the new wording said that there were no weaknesses to evolutionary theory, or accused the other side of using this language of "weaknesses" to somehow smuggle creationism into the classroom. Many people who wanted to keep the strengths and weakness language intact

accused the other side of censorship and subversively teaching an ideology and abridging academic freedom.

The Texas State Board of Education hosted a public hearing on Wednesday, January 21 (2009), where they welcomed testimony from individuals. The hearing would close at 12:40 p.m., no matter how many testifiers were left on the schedule. With a list of nearly a hundred, the Board only got through thirty testifiers. Some provision was made for trading up and testifying earlier, and the Board members invited select individuals to testify at the public hearing. However the majority of people there to be heard, including me (spot thirty-nine), and my husband (a science teacher who has taught both in public high school and private middle school and was spot sixty-three) went unheard. While each testifier had a three-minute time limit, an obviously divided Board asked several questions, either for clarification or to be on public record for having asked.

Whatever one may read or hear in the media, most of the testimonies on both sides were articulate and intelligent, and the testifiers fielded their questions remarkably well. If you look at the audience, you might think it looked like a rally; the room was a bit of a zoo. But the testimonies were certainly at a higher level than some kind of emotionally-charged, rah-rah pep rally. Whether we agreed with them or not, we thought each testifier made good points.

Testimonies

While we do not necessarily agree with everything below, we have summarized the main points presented by each side.

For the Proposed Wording and Against "Strengths and Weaknesses" Wording

- *The old wording does not provide guidance to teachers, especially new teachers.*

• Students are not necessarily capable of analyzing evolutionary theory, or are not necessarily capable of evaluating the current research.

• Academic freedom refers to the university level, and students do not have the same freedoms of speech as adults.

• The current draft has more specific wording.

• There is a possibility of litigation as has happened in other states.

• Students could fall behind if they are taught supposed weaknesses in evolutionary biology.

• "Strengths and Weaknesses" wording would block the publication and adoption of good textbooks. In fact, it could result in the adoption of subversive Creationist books designed to exploit this flaw in educational guidelines.

• These weaknesses are pseudoscience, or these weaknesses are from sources that engage ifn pseudoscience (no satisfactory definition of pseudoscience was given).

• The word "weaknesses" has changed in meaning due to the use of it for P.R. by certain Creationist groups, and therefore should not be included in the TEKS.

• Warning that people may doubt the integrity of Texas education if strengths and weaknesses are allowed.

• "Strengths and weaknesses" is inaccurate because there are no weaknesses. These supposed weaknesses are false and misleading information. Teaching weaknesses is likened to teaching that Grant surrendered to Lee.

• It's better to get your information from the National Academy of Sciences than from "creationist" sources [quotes are mine].

• The peer review literature does not argue whether evolution happened, it is just researching how it happened. Whether it happened is not in question.

Against Proposed Wording and For "Strengths and Weaknesses" Wording:

• Even within the "strengths and weaknesses" wording, there has been silencing of students, and some teachers are intimidated to even broach the subject. Examples were cited by two of the testifiers.

• Cases of scientific hoaxes were cited by several people, including Piltdown Man and Haeckel's Embryos. These are significant because many evolutionists will not admit these were hoaxes/errors. While they could be examples of how theories grow and change (something they agree is part of science and should apply to evolution), they instead go unaddressed and worry those who respect true scientific research and achievement.

• No one area of science has answers to everything, so there are always weaknesses in theories.

• There has been no litigation in the last twenty years with the wording "strengths and weaknesses" and to say that this encourages pseudoscience, brings up the question as to whether Texas has been engaging in pseudoscience for the last twenty years.

• Standards should promote academic diversity and critical thinking. Some of the great minds in science were non-conformists.

• Children begin thinking abstractly at young adolescence, and their abstract and cognitive abilities continue to develop through high school. This stresses the importance of including critical thinking skills in the TEKS. Teaching

strengths and not weaknesses does not promote abstract thinking.

• Teaching strengths and weaknesses is more honest.

• Examples were cited of students who did learn strengths and weaknesses and it worked well.

• Real science deals with strengths and weaknesses of a theory; why should evolution be held to a different standard?

• We should not proclaim high school students too dumb to understand (my note: two of the testimonies were given by high school seniors).

• "Evolution" is a tricky term because when someone says "evolution" they may mean three different things, one of which is a fact and two of which are conjecture: 1) Microevolution (fact), 2) Common Descent (theory), 3) Natural Selection acting on mutations is how things evolve (theory). Student should distinguish this.

• Scientific consensus is only one part of science, the conclusion part. Students need to also know the scientific process.

• There is a difference between scientific law, theory and hypothesis.

• All theories are refined in the scientific process. Evolution does not have testable postulates. (This testimony was cut off due to time, but he was going to distinguish between origins and operations science).

Assessment

My husband David is a science teacher who has taught high school science in public school and now teaches middle school science in a private, college-preparatory school. I have two

degrees in science and am a research associate at Probe Ministries. Here is our assessment of the TEKS:

The wording "strengths and weaknesses" seems very intentionally omitted from the proposed version, which is suspect, but neither one of us can say definitively that it was left out in order to promote a particular agenda of misleading students or indoctrinating them by evolutionist advocates. "Analyze and evaluate" does convey something different than "analyze, review, and critique" and it does seem to be a very subtle difference that allows for slightly less freedom of discussion within the classroom; however, with this language, by itself, there may still be opportunity to have a rigorous discussion of weaknesses, especially if it falls under the category of "evaluating." Its omission from the TEKS however, as one Board member pointed out, does communicate something as well, so we are skeptical of the perceived freedom with this language.

Another, and what I think is a blatant problem with the evolution curriculum, is in the specific wording within the evolution content section. Within the TEKS Biology section, there are several topics that the students must cover. Within each of those topics are specific things that they must master. In the TEKS proposed draft, the evolution section of high school biology requires students to:

> *A. Identify how evidence for common ancestry among groups is provided by the fossil record, biogeography, and homologies including anatomical, molecular, and developmental;*
>
> *B. Recognize that natural selection produces change in populations, not individuals;*
>
> *C. Describe the elements of natural selection including inherited variation, the potential of a population to produce more offspring that can survive, and a finite supply of environmental resources resulting in differential*

reproductive success;

D. Recognize the relationship of natural selection to adaptation, and to the development of diversity in and among species; and

E. Recognize the effects of other evolutionary mechanisms including genetic drift, gene flow, mutation, and recombination.{3}

The action verb at the beginning of each of these points is important because each verb is intentionally chosen, and from an educator's perspective has a technical meaning. According to Bloom's taxonomy of educational activities, verbs such as "describe," "define," or "identify" represent a low level of cognizance, while words such as "explain," "recognize," "illustrate" and "predict" are mid-level, and words such as "compare" "analyze," "interpret" are higher level of cognizance.{4} In *all* of the other science concepts taught in biology, students are asked to "compare," "investigate," "predict," "analyze," and "interpret." However, evolution is kept at a purely definitional level, meaning that even though the proposed TEKS include "analyze and evaluate" within the general scientific process section, there is no opportunity to do this when the students get to the evolution section; they are only required to essentially memorize definitions or memorize what fossils lead to common descent. Many testifiers claimed that students were free and in fact encouraged to discuss evolutionary theory. They said the "strengths and weaknesses" language was being replaced by the better, more specific "analyze and evaluate." This is intentionally misleading. The general standards do read that way, but the evolution section itself is exempt from this rigid treatment in the new TEKS.

I was particularly unimpressed with Terrence Stutz's article from the *Dallas Morning News*, in which he labeled the board

members who wanted to include “weaknesses” as being aligned with “social conservative groups that in past have worked to cast doubt on science-based theories on the origins of life,”{5} when really, most of the testifiers and Board members that wanted “weaknesses” left in the TEKS, including my husband and myself, are arguing for academic freedom and free inquiry. The way evolution is handled in the proposal does nothing to promote even an analysis and evaluation, let alone an atmosphere of inquiry on a theory that is supposed to be the cornerstone of biology. {6}

The Vote and Results:

The Texas State Board of Education had a preliminary vote Thursday, and it was tied 7-7, which means that, so far, “strengths and weaknesses” language will not be in the next version of the TEKS (it requires a majority). However, the board has until March to make its final decision, and make a final vote.

While “strengths and weaknesses” is not in the current draft of the TEKS, the board did vote on some amendments that ask students to “analyze and evaluate” specific aspects of evolutionary theory, bringing the evolution science concepts up a notch (or two) on Bloom’s scale.

According to *Evolution News and Views*,{7} the wording change is as follows:

> *(7) Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to:*
>
> *(A) analyze and evaluate how evidence of common ancestry among groups is provided by the fossil record, biogeography, and homologies including anatomical, molecular, and developmental;*
>
> *(B) analyze and evaluate how natural selection produces*

change in populations, not individuals;

(C) analyze and evaluate how the elements of natural selection including inherited variation, the potential of a population to produce more offspring than can survive, and a finite supply of environmental resources result in differential reproductive success;

(D) analyze and evaluate the relationship of natural selection to adaptation, and to the development of diversity in and among species; and

(E) analyze and evaluate the effects of other evolutionary mechanisms including genetic drift, gene flow, mutation, and recombination.

Furthermore, the Board passed an amendment that asks students to "Analyze and evaluate the sufficiency or insufficiency of common ancestry to explain the sudden appearance, stasis, and sequential nature of groups in the fossil record."{8} Unfortunately, media coverage on these particular amendments are scarce. We would consider these amendments a success, especially since they address the issue of low-level cognizance in the evolution requirements. Now they are at a level that seems much more appropriate for high school biology, and we feel will promote good critical thinking and intellectual inquiry. We also believe that these amendments will better serve to prepare our students for the intellectual rigor and higher level thinking skills that they will need at the collegiate level.

Texas State Board of Education
Public Testimony
Heather Zeiger, M.S.
Research Associate, Probe Ministries

I went to Texas public schools for junior high and high school. I knew then that I was going to pursue a career in science, and ended up choosing chemistry my senior year. I graduated in 1999, and at the time, I had received some education in evolutionary biology. That education mostly consisted of memorizing facts and definitions, but gave no indication that there was anything more to be discussed. By way of example, one of the things we learned in biology was the Miller Urey experiment. We learned that this was the prevailing theory on how life began, and this is how it worked. There was no further discussion on chemical origins, and as far as I knew from what I was taught in the public high school, scientists agreed that this was how it happened. Except . . . it turns out that there were and still are many questions about chemical origins. In fact, as I later learned, there is an entire field of study in which chemists deal with the very fundamental questions of how life began. There is more than a little contention among those who believe that life came from an RNA-based world and others who believe that it was originally metabolic. There are still others who think that life beginning from purely chemical processes may not even be possible under our current theories.

What was presented as a boring little tidbit in our biology books, actually is an entire field of inquiry. Chemical origins is just one area of evolutionary theory; and as we all know there are evolutionary biologists still researching these issues, which means that there are still challenges or unexplained parts of the theory to be investigated. The students that go into science, the ones I've worked with, are fascinated by the unexplained parts of a theory, by the mysteries. I think is a disservice to our children and to the scientific community to gloss over the places where a theory needs more work. We should encourage students to go on and become the next scientist to answer these questions in evolutionary theory. While the proposed draft does discuss strengths and limitations, in science, in general, it does not

leave the evolution section open to this, but keeps it at a definitional level. I therefore contend that the Biology TEKS, science concept seven (evolution) should be phrased in such a way that would go beyond the less interesting part of science, identification and description of terms. And hopefully, this will open classroom instruction to analysis and discussion of current strengths and weakness within this important theory.

Texas State Board of Education
Public Testimony
David Zeiger
Texas SBEC Certified Science Composite Teacher for Grade 9-12

My name is David Zeiger and I am a certified composite science teacher for grades nine through twelve. I taught Chemistry and Physics for two years in Garland ISD, and now I teach seventh grade Life Science at Trinity Christian Academy, a private college preparatory school in Addison. In my relatively brief tenure as a science teacher, I have had to come to terms with a simple discouraging fact: most of my students will not love science as much as I do, let alone become researchers, engineers, doctors, nurses, or even science teachers. In fact the National Science Foundation found that in 2000 only one third of college students earn bachelor degrees in science and engineering.{9}

Therefore, when I read the TEKS as the guiding structure for my curriculum, I have to ask what my job as a science teacher truly is. Am I wasting my time with two-thirds of my students? Memorizing the parts of a plant, reeling off the periodic table, or calculating using laws of motion; are these things that students are going to use again? Do I even want them to memorize a chart with the strengths and weaknesses of evolutionary theory? No. The things that every student can take with them are how to gain information from their environment, whether that environment is a job training manual, a relationship with their spouse, or a new technique for hammering a nail; how to test that new information against

their previous experience and training; and most importantly, how to be flexible enough to change their ideas when it turns out they were wrong.

Those important methods of learning are included in the TEKS for non-biology science classes and in the non-evolution biology standards. When teaching science other than the evolutionary theory, students are asked to "compare," "predict," "investigate," "explore," "explain," "analyze," "interpret," and "model," activities from the whole range of cognizance. But, the proposed recommendations on evolution use language that refer to and limit the students to the simplest level of cognitive learning: memorization.

If we don't teach the simple fact that every theory has weaknesses, we don't teach young people true science. If we don't teach them to find and evaluate those weaknesses, we don't teach them to be humble in their search for truth. And if we don't teach them how to keep or reject those theories, we leave them as prey to whoever has a stronger opinion than they do.

Please keep teaching students to analyze and evaluate scientific theories. Critical reasoning is one of the few things I know all my students will need and use every day of their lives.

Notes

1. 1998 TEKS, Section 112.43, (c), (3), (A).
2. Section 112.43 (c), (3), (A) of proposed TEKS
3. Proposed 2009 TEKS Section 112.43, (7)
4. www.teachervision.com
5. Terence Stutz, "Texas Board of Education votes against teaching evolution weaknesses," *Dallas Morning News*, January 24, 2009. tinyurl.com/bncw55
6. Theodosius Dobzhansky, "Nothing in biology makes sense except in the light of evolution," *American Biology Teacher*

1973, volume 35, pp. 125-129.
7. www.evolutionnews.org/2009/01/recap_texas_board_of_education.html
8. Ibid.
9. www.nsf.gov/statistics/seind04/c2/c2s3.htm

Human Embryonic Stem Cells Go to Human Trials

January 23, 2009

Just when we all thought that perhaps the wind in the sails of the human embryonic stem cell debate had abated, Geron Inc. announced that it was approved by the FDA to conduct an experimental procedure on human subjects who have suffered from a recent spinal cord injury. The procedure would involve the injection of neural cells derived from human embryonic stem cells into a spinal cord injury site. The patients would receive two months of immune suppressant drugs and will be closely monitored for a year. The stem cells were obtained from some of the oldest lines of human embryonic stem cells that were left over from in vitro fertilization procedures.

What if this doesn't work?

There are many human embryonic stem cell researchers who are worried about Geron doing the first human trials. Dr. Kessler, chairman of neurology and director of the stem cell institute at Northwestern University, is quoted in the *New York Times* as being skeptical that Geron's technique will work on human patients. In trials with mice, Geron showed that mobility increased in the tails and legs of mice with moderate spinal

cord damage. Also, the mice showed no formation of tumors, a problem with embryonic stem cell therapies. However, the mice had “moderate injuries,” and Kessler is skeptical that alleviating moderate injuries in mice will translate in the severe injuries in humans.

For those of us who are against the use of embryos for research purposes, this would be another example of the difficulty of using embryonic stem cells. This is just one more reason why more research and research dollars should be focused on adult stem cells. Adult stem cell research has been successfully used in humans for years, and is not ethically contentious.

As Christians, we also need to be mindful and prayerful of the fact that there are many people who have placed hope in embryonic stem cell research. The media has portrayed embryonic stem cells as the panacea for everything from spinal cord injuries to diabetes to Alzheimer’s. We need to be sensitive to the pain and disappointment that this could be for many people who have had to deal with permanent injuries or debilitating conditions.

What if this works?

First of all, even if this particular trial works, the scientists at Geron say that there is still many years of work to do. All they are testing now in Phase I clinical trials is if it is safe. Testing for efficacy comes later.

If this procedure works both safely and therapeutically, then we as Christians have the most difficult position. The fact that we believe the embryo is a person, and that it has value and dignity, does not change. Also, the fact that from a biblical perspective it is unethical for us to decide to destroy one life to save another, and to value one life over another, does not change. But anyone who is in this position or has a child, a spouse, or a loved one paralyzed due to a

spinal cord injury must make a decision, and no matter what decision they make there will likely be feelings of guilt, regret and temptations too. Consider two examples:

> *1) Your spouse is in a horrible car accident and suffers from a spinal cord injury which will likely leave him/her paralyzed. You have the option of doing embryonic stem cell therapy at the injured site, which may result in your spouse regaining some mobility. You don't think it is right to destroy an embryo because it is a person too, and is made in the image of God so it has inherent value. As you watch your spouse work with his/her injury, learning how to live life without mobility, how likely is it that you will ask yourself, "Did I do the right thing?" "If that embryo was going to die or be used in someone else anyway, why not my spouse?" How tempting would it be to carry that regret and guilt?*
>
> *2) As before, your spouse is in a horrible car accident and suffers from the same injuries. This time you elect to do the embryonic stem cell therapy. Your spouse regains some mobility, but how tempting would it be to wonder about the sacrifice that was made, and the guilt associated with compromising, or to look at your children knowing that they were embryos once too?*

These are not easy decisions. I will not pretend that even though as Christians we believe in the sanctity of human life, somehow it makes one decision any easier or the other decision any less tempting. Thankfully, we do not have to make these decisions at this time, and my prayer is that I hope we never do. It is said that a society can be judged by how they treat their most vulnerable. From the biblical perspective Jesus said, "Truly, I say to you, as you did it to one of the least of these my brothers, you did to me" (Matthew 25:40).

To give you two additional pieces of encouragement:

1) Adult stem cells have alleviated the effects of particular types of spinal cord injury in human patients (see www.discovery.org/a/2362 for a great article that was written in 2004, but seems quite timely now).

2) Desiring to alleviate the effects of the fall, including things like spinal cord injuries, is understandable. Whether or not we find a cure within someone's lifetime, we have hope in God's promise that he has conquered death and we will receive a resurrected body (1 Corinthians 15).

For more information on stem cells see these two articles from Probe.org:

www.probe.org/amniotic-stem-cells/

www.probe.org/the-continuing-controversy-over-stem-cells

Personhood and Origins

Does One's View of Origins Really Matter?

In the midst of carpools, meetings, appointments, and everything else that life throws at us, does it really matter whether someone is a Darwinist or a Creationist, or holds some position in between?

Whether we are aware of it or not, we all filter our life experiences through the lens of our worldview. Nancy Pearcey, author of *Total Truth*, describes a worldview as the "mental map that tells us how to navigate the world effectively."{1}

As technology advances, we find ourselves wading through very murky waters that deal with questions of personhood at the edges of life. Questions about embryos and human experimentation and euthanasia and physician-assisted suicide are no longer speculative theories for ethicists to ponder in their ivory towers, but something that ordinary people have to deal with either through voting or through very personal decisions. And it can be confusing—which is precisely why we need a map to guide us!

Consider this: The state of Washington recently passed a law approving physician-assisted suicide. Many are lobbying congress to vote on lifting restrictions on funding for embryonic stem cell research. Great Britain is voting on funding for research on human/animal hybrids. And many of us will have to make difficult decisions about a loved one in the hospital. Just last week, a British couple used in vitro fertilization to select from a group of their own embryos one who did not have the genetic markers for breast and cervical cancer which ran in the family, leaving the other embryos to be destroyed. One's view of origins, and particularly who man is within that view, has a profound impact on how we make decisions regarding such bioethical issues.

Characteristics of the Map

Pearcey says that every worldview, or mental map, has to answer these three questions: 1) How did we get here? 2) What happened to us? and, 3) How do we make things right? *Christian theism* answers these questions with the biblical record of:

1) Creation,
2) Fall of mankind from favor and fellowship with God,
3) Redemption of fallen mankind through salvation in Jesus Christ.

Naturalism would answer these questions with:

1) Macro-evolution, natural selection randomly acting on chance variations, (no one to answer to)
2) No right or wrong, just "survival of the fittest," (no inherent law to be held to), and the
3) Evolving and passing on of our DNA (no over arching plan or ultimate meaning to life than to just continue living).

The answers to these questions directly affect our view of personhood. Both secularists and Christians would agree that "a person" is valued as having a right to life and in the United States; we would agree with our founding Fathers that they have certain inalienable rights. But the answer to the question "What is a person and how should they be treated?" is very different under each worldview, and will guide you to very different waters.

The Christian Theism Map

From the Christian view of origins, we find that man is created in the image of God{2} and that he is a special part of creation, above all other creatures.{3} Part of being made in the image of God is that humans are more than the sum of their physical parts. People are made up of both body and mind (or soul), and these physical and spiritual components are integral to a person's identity.{4} James 2:26 says that the body apart from the spirit is dead. The story of Jesus raising Jairus' daughter in Luke 8:55 makes clear that when her spirit returned to her body, she was once again alive. Also passages about the resurrection, such as 1 Corinthians 15, make a distinction between the spirit and the body.

If people are both spiritual and physical, then their value is not just placed in physical abilities or in their genetics. There is value beyond the body. We would still consider a disabled person, or a person in a coma, or a victim of a horrible accident as a valuable person. Even if their body became functionless or mangled, they would still be valued as

a person because their value and identity entails more than the physical self. The body is important and a crucial part of their identity, but it is not the only measure.

The Naturalism Map {5}

From the naturalistic view of origins, popularly embodied in Darwinism, man is part of a long heritage that began with natural selection acting first on chemicals, then cells, then simple animals, and now on the current assortment of animals, including *homo sapian*. Man is considered another animal, and does not necessarily deserve any more rights or privileges than any other animal. Because the naturalistic worldview denies the supernatural or spiritual, man is seen as merely a physical being. Therefore, his value stems entirely from in his physical capabilities and genetics.

This mental map has led to such murky waters as the *eugenics movement*, through which scientists engaged in sterilization of prisoners, the intellectually weak and the poor because they wanted to improve the human race and purge "bad genes" from the gene pool. They also considered certain races as more advanced, or more evolved, than other races. The logical end of the *eugenics movement* was realized in Nazi Germany. Darwinism is not necessarily the cause of eugenics, but eugenics is an unsurprising logical possiblility under that particular worldview.

From the naturalistic view of personhood, one man can value another man based solely on his physical appearance or capabilities. Logically, from the naturalistic worldview, one can justify almost any action because "survival of the fittest" is the reigning ethic.

The eugenics movement is widely considered a black mark on American history, and many would consider it long gone with our lessons learned. However, many bioethicists, doctors and medical health professionals still practice medicine and make

decisions based on a worldview and values that were used to justify eugenics. It is common to discuss a person's "quality of life" and make decisions on how to treat—or even if they should treat a patient—based on this measure. "Quality of life" criteria are often arbitrary measures of a person's worth based on how well they function physically and mentally compared to what is deemed "normal." Unfortunately, such subjective "quality of life" ratings and scales likely reflect what the doctors or authors' personally value more than the dignity or sanctity of the individual they are measuring. Quality of life measurements and our example of the Great Britain couple choosing an embryo based on its genetic markers are examples of people practicing a type of eugenics, whether they wish to call it that or not.

So Origins Does Matter. . .

These are two very different views of man, and lead to widely varying conclusions about personhood or the sanctity of human life.

The Bible may not contain the words "stem cells" or "euthanasia" but it does speak to the value and sanctity of human life. It also addresses how we should value one another and why it is so tempting to judge each other based on our own standards instead of God's standards. Whether we are talking about the Pharisee who was thankful he was not like the tax collector or the person who decides that embryos and the elderly should not continue living because they're worth more dead than alive, one person is placing a value on another person based on his own criteria of values as opposed to God's. In fact, he is putting himself in the place of God.

I am reminded of a passage when God was directing Samuel to anoint a new king. Samuel was judging the sons of Jesse based on physical standards only, "But the Lord said to Samuel, 'Do not look on his appearance or on the height of his stature, because I have rejected him. For the Lord sees not as man

sees: man looks on the outward appearance, but the Lord looks on the heart.'"{6} Samuel judged Jesse's sons based on their physical features, but God reminds him that he has standards that are beyond what man can see. The naturalistic worldview of personhood is similar to Samuel's standards of who would be a fitting king, but the Christian theistic worldview holds that it is God's standards, not man's, that dictate how we are to value a person. God values individuals despite their physical features and while we may not see their value right away (David was a young shepherd), God does. Thus, we must trust that what he values is what we should value.

Again, our worldview is like a mental map. Personally, if I had to navigate murky waters, I would rather have a map made by the Creator, himself—a God's—eye—view of the waters—than the limited perspective of someone standing right there in the middle of it. Whose map are you going to use?

Notes

1. Pearcey, Nancy, *Total Truth*, Crossway Books, 2005, p. 23. See Probe's review of *Total Truth* here: www.probe.org/total-truth.
2. "So God created man in his own image, in the image of God he created him; male and female he created them." Genesis 1:27 (ESV Bible).
3. "And let them have dominion over the fish of the sea and over the birds of the heavens and over the livestock and over all the earth and over every creeping thing that creeps on the earth." Genesis 1:26 (ESV); See also Genesis 1:28-30.
4. See Probe's article on The Spiritual Brain: www.probe.org/the-spiritual-brain.
5. For more information on Darwinism, see Probe's articles at: www.probe.org/category/faith-and-science/origins/.
6. 1 Samuel 16:7 (ESV Bible).

Darwinist Arguments Against Intelligent Design Illogical and Misleading

I recently attended a debate on "Intelligent Design (ID) and the Existence of God." One of the four debaters was Dr. Lawrence Krauss{1} representing an atheistic, anti-ID position. I was looking forward to hearing what Dr. Krauss would say when speaking in the presence of other knowledgeable members of academia. Would he go beyond the tired, illogical talking points passed on without question by the mainstream media? Or would he present some thoughtful arguments *against* the validity of intelligent design concepts and/or *for* the current state of Darwinist explanations for life as we know it?

Since I believe there are some thoughtful, interesting arguments that could be raised against intelligent design, I was sorely disappointed to discover that Dr. Krauss did not deviate from the shallow arguments which consistently appear in media coverage of this topic. As one of the other debaters, Dr. David Berlinski {2}, commented after Dr. Krauss' opening statement, "Everything you have said is either false or trivial."

However false and trivial they may be, these arguments are blindly accepted as reasonable by many people. As thinking Christians, we have a responsibility to be prepared to tear down these façades raised up against the knowledge of God. One way to do this is to be able to discuss with others the prevailing arguments in ways that reveal their weaknesses and inconsistencies. To help in that process, the remainder of

this article will list several of the standard arguments offered up by Dr. Krauss and examine their reasonableness and validity.

Argument: **Evolution is a proven fact**. Scientific experiments and observation over the last 100 years have conclusively demonstrated that evolution is a fact.

> ***Analysis: Faulty logic resulting in false conclusion****. In the context of the debate, "evolution is a proven fact" is implied to mean that random mutation coupled with natural selection is the sole process through which life evolved on this planet.* ***This meaning of evolution is not a proven fact.*** *What has been demonstrated through observation and experimentation is that the frequency of certain characteristics in a species will vary over time through random mutations and natural selection. These results provide some support to the theory that these undirected natural causes could be responsible for the development of life as we know it, but they do not come close to proving it. In logical terms, we would say that what science has demonstrated is necessary for the premise to be true but not sufficient to prove that it is true. That would be like saying, "Since we can demonstrate that wind and water erosion can produce regular geometric patterns, this proves the Statue of Liberty is the result of undirected natural forces."*

Argument: **Origins science is the same as observational science**. Both the study of origins (or other one-time events) and the study of ongoing natural processes are the same because they both look at data that was observed in the past. Therefore we can apply the same criteria to origins science as to observational science. Since observational science depends on repeatable experiments, we should reject out of hand any hypothesis (e.g. ID) that considers intervention by a designer because we cannot recreate it.

> ***Analysis: False premise resulting in faulty conclusion****. The study of origins is more akin to archaeology and forensic science than to observational science. In these fields, scientists look at the evidence left over by past events to help evaluate hypotheses on what caused the event to determine the ones that are most likely. As an example, consider the question, "Why does the earth have a large moon?" Scientists have a number of different theories on when and how our earth acquired a moon, but they would all agree that we can never be certain what actually happened (apart from the development of a time machine which would allow us to go back and observe the event). It is true that in observational science fields, scientists do look at results from experiments done in the past. But, they can choose to repeat those experiments in the future.*
>
> *Regardless of whether one is considering the role of natural selection or the role of an intelligent designer, when you are developing hypotheses for the origins and development of life on earth the best that can be done is to access which processes had the highest probability of contributing to the end results. If you eliminate all options other than random variations in natural processes, you tie the hands of scientists in considering how the evidence best fits all hypotheses.*

Argument: Some things that have the appearance of being designed are not. Therefore, we cannot detect the presence of design.

> ***Analysis: Faulty logic resulting in false conclusion****. Yes, there are things found in nature from the geodesic shapes of carbon structures to the results of erosion that mimic shapes designed by man. Yet, most of us seem to have no problem distinguishing between the remains of ancient civilizations and the results of undirected natural processes. If you*

search enough beaches and tidal pools, you can probably find every letter of the alphabet produced by the interaction of tides and currents. But, if you come across the words "John loves Mary" in the sand, you will be very confident that these were the result of intelligent intervention.

Argument: The theory of evolution is a foundation of modern science.

Analysis: Switching definitions results in false conclusion. *Understanding the processes by which bacteria, viruses, species and societies change in response to changes in their environment are important concepts in modern science. However, whether one believes these processes are solely responsible for the origin and development of life on earth or not has little or no impact on one's ability to make advances in science. To date, I have not been made aware of a single positive advance in modern science or engineering that required the developer to fully believe in Darwin's view of the origins of the species in order to make that advance. One's beliefs on origins are foundational to answering the metaphysical questions of life, but don't preclude someone from making contributions in science. Advances in science have been made by Christians, Hindus, Buddhists, Jews, atheists, etc.*

Argument: Scientists understand how the bacterial flagellum evolved, disproving the concept of irreducible complexity.

Analysis: False statement coupled with faulty logic. *The bacterial flagellum is a complex device used to propel some types of bacteria. It is comprised of over 30 different proteins. Not only do these proteins perform different complementary functions, but they must be assembled in the bacteria in exactly the right sequence by other proteins. Since the flagellum will not function without all of these elements in place (i.e., it meets the definition of*

irreducible complexity established by Dr. Behe in his book Darwin's Black Box), the premise is that all of these parts would have to appear simultaneously in order for natural selection to favor carrying forward any of these mutations in the gene pool.

Dr. Krauss stated that scientists have shown that the bacterial flagellum is not irreducibly complex. To the best of my knowledge, this is a gross overstatement. The arguments I have seen presented fall far short of developing a plausible explanation for how the flagellum could have evolved{3}. If a plausible argument coupled with experimental evidence exists, I am very interested in having my understanding updated. However, even if such evidence did exist, it would not demonstrate that the concept of irreducible complexity was false or that this unknown plausible path was the way the flagellum came onto the scene.

Argument: Intelligent Design can never be science because it is not falsifiable. You must have ways to prove a scientific theory is false in order for it to be a valid theory. Any observation that does not agree with the theory can be attributed to supernatural intervention.

***Analysis: Arbitrary, inconsistent definition**. Academics in the field of philosophy of science do not agree that the ability to falsify establishes a boundary on what is and is not science. Professor of philosophy and atheist Dr. Bradley Monton {4} pointed this out during the debate. He argued that we should not exclude a potentially valid hypothesis simply on the basis of a narrow definition of science. In addition, origins science cannot meet this standard. Proponents of neo-Darwinism have clearly demonstrated over the last few decades that it is not falsifiable either. Whenever the theory disagrees with the evidence, its proponents claim that natural selection found a way around the problem; we just*

don't know what it is yet. As Richard Dawkins stated, "Evolution is more clever than we are."

Hopefully, this summary will help you sort through the smokescreen of "conclusive" arguments offered up by the proponents of naturalistic Darwinism. Perhaps someday they will engage in a genuine discussion where both sides can state: 1) the reasons they believe their theory has merit and, 2) the observations that create problems for their theory. Such a discussion might actually prove helpful to someone trying to sort through the evidence to make an evidence-based faith decision.

Notes

1. Dr. Lawrence Krauss is the Foundation Professor in the School of Earth and Space Exploration and the Physics Department, Co-Director of the Cosmology Initiative, and Inaugural Director of the Origins Initiative at Arizona State University.

2. Dr. David Berlinski is a lecturer, essayist and a Senior Fellow of the Discovery Institute's Center for the Renewal of Science and Culture. Dr. Berlinski received his Ph.D. in philosophy from Princeton University and was a postdoctoral fellow in mathematics and molecular biology at Columbia University.

3. Additional information from the Reference Guide to Redeeming Darwin available at *RedeemingDarwin.com*.

Example of Darwinist argument: Since design cannot be considered as an explanation, evolutionists maintain that complex structures like flagellum evolved slowly over time from less complex structures performing other functions in the cell. Kenneth Miller states: "At first glance, the existence of the type III secretory system (TTSS), a…device that allows bacteria to inject these toxins through the cell membranes of

its unsuspecting hosts, would seem to have little to do with the flagellum. However, molecular studies of proteins in the TTSS have revealed a surprising fact—the proteins of the TTSS are directly homologous to the proteins in the basal portion of the bacterial flagellum…. The existence of the TTSS in a wide variety of bacteria demonstrates that a small portion of the "irreducibly complex" flagellum can indeed carry out an important biological function. Since such a function is clearly favored by natural selection, the contention that the flagellum must be fully assembled before any of its component parts can be useful is obviously incorrect. What this means is that the argument for intelligent design of the flagellum has failed." Response to Darwinist argument: The flagellum is an excellent example of an irreducibly complex function in one of the simplest life forms. Different proteins and structures work together to create a swimming mechanism. This complex interaction cannot be adequately explained by evolutionary processes. Mutations creating only one piece of the flagellum in a life form without the other pieces would not create any value to be carried on to the subsequent generations. Miller's statement that "the argument for intelligent design has failed" misses the point of irreducible complexity. The fact that one component of an irreducibly complex system may have another useful function does not remove the barrier that the irreducibly complex system requires the simultaneous appearance of multiple cooperating components to perform a function that has not been performed in that way before. In addition, William Dembski points out another problem with Miller's argument:

> *The best current molecular evidence, however, points to the TTSS as evolving from the flagellum and not vice versa…. Miller has nothing more than the TTSS to point to as a possible evolutionary precursor. Behe and the ID community have therefore successfully shown that Darwinists don't have a clue how the bacterial flagellum might have arisen.*

4. Dr. Bradley Monton is a philosophy professor at the University of Colorado at Boulder. His areas of specialization include the Philosophy of Science (especially Philosophy of Physics), Probabilistic Epistemology, Philosophy of Time and Philosophy of Religion. Previously he was on the faculty of the University of Kentucky, an Assistant Professor at The American University of Beirut and a Teaching Assistant at Princeton University. He earned his Bachelor of Arts in Physics and Philosophy at Rice University and his Ph.D. in Philosophy from Princeton University.

The Complex Realities Behind Global Warming

Dr. Ray Bohlin says that global warming is over-hyped and not the danger that environmental alarmists would have us believe. We need to look carefully at what's really going on.

Is the Earth Warming?

Global warming is a very controversial and complicated topic. A few years ago I addressed my growing concerns about how certain scientists and the media were only telling part of the story.{1} I have hesitated to go further with a critique with what has become a global warming scare campaign because I wanted to be sure before getting overly critical.

Unfortunately, because of controversies over origins, embryonic stem cell research, the lack of solid information about sexually transmitted diseases for young people, and other issues, the Christian community has been given a tag of

being anti-science. We are somehow afraid of science because it has the potential of arguing against the idea of a truly supernatural God.

As one trained in the disciplines of science, this reputation grieves me. I love science and nature. I always have. I studied ecology as an undergraduate and early in my graduate studies. I was a member of SECS, Students for Environmental Concerns, at the University of Illinois. I recycle my newspapers, plastic, aluminum, and tin cans and glass. I have always driven a fuel efficient vehicle.

As I grew as a believer I read Francis Schaeffer's *Pollution and the Death of Man: The Christian View of Ecology.* In those pages, I saw that only a Christian environmental ethic could supply a real and workable framework for environmental action while still respecting man's unique position as being made in the image of God and man's place as God's steward of Creation. One time I even represented evangelical Christians on a panel at a meeting of environmental journalists. They were genuinely cordial and very curious about how a conservative evangelical could even have concerns about the environment.

But I could still find many points of agreement with the more secular environmental movement. Therefore, I have hesitated to criticize what has become a primary issue for the environmental movement until I was more up to date on the facts. My basic point about global warming is that there is much more controversy about what the data is telling us than what is usually communicated to the public.

The one thing just about everybody agrees with is that the earth has warmed about one degree Fahrenheit or a half degree Celsius since 1900. The controversy revolves around what has caused that increase, what its effects will be, and whether the steep increase in global temperature, especially since the 1970s, will continue to escalate out of control.

But is it realistic to think such escalation will continue? Does the data really predict such an extreme? Can computer models be that accurate?

If the Earth Is Warming, Are Humans Responsible?

As I noted above, just about everyone is convinced the earth has warmed by about one degree Fahrenheit since the year 1900. That doesn't sound particularly ominous. But some computer models suggest that global temperatures could increase by five to ten degrees Celsius or nine to eighteen degrees Fahrenheit by the year 2100!

That sounds like a very unattractive possibility. But is it real? The engine that really drives the global warming freight train is not just the fact that the earth has warmed over the last century but the suspected cause. Those who support a radical view of global warming, such as former Vice President Al Gore, believe that the warming is due to increased levels of carbon dioxide in the atmosphere. The increase in carbon dioxide is caused by humans burning too many fossil fuels such as oil, gas, and coal.

So how much carbon dioxide in the atmosphere is too much? In 1958, carbon dioxide levels in the atmosphere were 315 parts per million (ppm). In 2008, fifty years later, carbon dioxide had risen to 385 ppm, about a twenty percent increase. Carbon dioxide is referred to as a greenhouse gas. That means that the carbon dioxide in the atmosphere absorbs energy from the sun and radiates it back out as heat. Therefore, the more carbon dioxide in the atmosphere, the warmer it becomes.

That would seem to say that increased carbon dioxide means a warmer atmosphere. But how much heat carbon dioxide accounts for is hotly debated among scientists. Some say it's the major cause of global warming; others say it probably has little

effect. There has been a little reporting that the earth cooled slightly after 1998, and that the earth's temperature has stabilized for the last ten years. In fact, from January 2007 to May 2008, the earth cooled by a full degree Fahrenheit.{2} Yet, CO_2 levels have continued to rise! Something seems backwards.

Australian climate scientist David Evans used to solidly believe that there was a large role for carbon dioxide in the global warming scenario. But Evans then looked at the data independently. He summed up his research by saying, "There is no evidence to support the idea that carbon emissions cause significant global warming. None."{3} The data has completely changed his mind.

Besides, the earth has warmed and cooled significantly in the last two thousand years without any human interference.{4} The Medieval Warming Period from AD 900 to AD 1300 was warmer than today (which, incidentally, was a period of great economic expansion, demonstrating that the alarmist claims that global warming will ruin the economy are groundless).

If the Earth Is Warming, What Will Be the Consequences?

As I have said earlier, the earth has warmed slightly over the last century. Some have even pointed to 1998 as the warmest year on record. Although a re-analysis of the data questions that conclusion, the 1990s was still a very warm decade compared to any other decade in the century.

But what if the temperatures continue to rise? Perhaps the most common projection is of wildly rising sea levels. The 2001 IPCC (Intergovernmental Panel on Climate Change) report suggested sea levels could rise as much as two to three feet by the year 2100. Many of our coastal cities and wetlands would be inundated.

But what does the data show? First, sea levels have been rising steadily since the last ice age over eleven thousand years ago. The melting of the vast continental glaciers caused significant sea level increases. Second, over the last hundred and fifty years, sea levels have increased by about six inches every one hundred years. Third, many scientists see no reason that this rate will change significantly this century or the next. Reports of Indian Ocean or Pacific Ocean islands being inundated by rising sea levels just don't stand up to investigation.

Venice has been succumbing to rising sea levels for over a hundred years. But the problem is not just rising sea levels.{5} The land mass that the city of Venice rests on has also been sinking for decades due the weight of the city and the unstable ground underneath.

Many glaciers are retreating, and that could cause sea levels to rise. But some glaciers are growing and advancing. While one portion of Antarctica has warmed, most of the continent is cooling and the ice mass is growing. The realities are more complex that we are being told.

Another major projection is that storms will be increasing in frequency and intensity. This has usually been applied to hurricanes, especially after the destructive storms, Katrina and Rita, in 2005. But again something curious went underreported. Hurricane forecasters were predicting another harsh hurricane season in 2006 and 2007.

But neither of these years panned out that way. Both were relatively quiet with fewer and less intense storms. The peer reviewed journal *Natural Hazards* focused an entire issue on this question in 2003, and experts from across the climate fields found no reason to expect storms of any variety to increase in intensity or frequency.{6}

There are also positive benefits of warming and increased

carbon dioxide. Carbon dioxide and increasing temperatures are good for plants. Vegetation has increased by six percent globally from 1982 to 1999. We forget that carbon dioxide is not a pollutant. It is a necessary fertilizer for plants.

If the Earth Is Warming, What Should We Do About It?

Because of all this, I conclude that, at the very least, the evidence for anything resembling a catastrophic global warming due the increase of the greenhouse gas carbon dioxide from burning fossil fuels is remote at best. Certainly the earth is warming, but at a very slow rate. The warming is likely due to a well observed cycle of warming and cooling that occurs about every fifteen hundred years.{7} This cyclical trend is probably due to cycles in the sun's intensity over this same period of time.

But those who are pushing a more alarming scenario of catastrophic global warming demand drastic action. Since many have concluded that the major component to the warming has been human produced carbon dioxide from the burning of fossil fuels, they unsurprisingly want to curtail the use of fossil fuel. The now infamous Kyoto Protocol has called on the major developed countries to curtail their carbon emissions due to fossil fuels to seven percent below 1990 levels by the year 2010, only two years away. But increasing levels of technology have increased our demand for electricity. This means we would need to reduce our emissions by twenty-three percent of today's levels.{8} Needless to say, cutting our fossil fuel use by nearly one quarter would be catastrophic to our economy.

Renewable energy sources like wind and solar should be a part of our energy future, but they will always be intermittent. Storing and transporting these energy sources will continue to be expensive. Current costs indicate these power sources are

four to ten times as expensive as fossil fuels.

Economic forecasting groups estimate that Kyoto will cost the U.S. economy between 200 and 300 billion dollars per year. Over two million jobs will disappear and the average household will lose $2,700 each year.{9} These enormous economic costs will be hardly noticed in households making six figure salaries. The largest impact of increasing energy costs will be largely felt by low and middle income families. The combined costs of electricity and gasoline will drive even more below the poverty line and force small businesses into bankruptcy.

The worst part of this economic news is that the actual gain in lowered global temperatures will be hardly noticeable. The U.N. itself admits that even full compliance with Kyoto will only result in a 0.2 degree Centigrade slowing of global warming by 2047.

There are numerous other scientific, economic, and political problems with alarming scenarios of human caused global warming. Check the additional resources at the end of this article to get better informed about this crucial issue.

What Is a Christian Environmental Ethic?

To summarize: First, the likelihood that the increasing levels of carbon dioxide in our atmosphere through the burning of fossil fuels is responsible for this warming is very small and growing smaller. Second, the evidence is increasing that this period of warming is not unusual in the earth's history. Third, the warming trend has stalled over the last decade as carbon dioxide levels have continued to increase. Fourth, even if the burning of fossil fuels has contributed significantly to this one-hundred-year warming trend, the proposed remedy of cutting back drastically on our use of fossil fuels would cost hundreds of billions of dollars every year and dramatically

affect the worldwide economy and trap even more people in poverty for little or no reduction in the rate of warming.

And last but not least, over 30,000 scientists, 9,000 of them with Ph.D.s, have signed a statement rejecting the claim that "human release of greenhouse gases is damaging our climate."{10} There is no consensus in the scientific community about human-caused global warming.

I have a growing suspicion that global warming alarmism is simply a tool to bring about a redistribution of wealth from rich to poor countries, gain higher levels of government regulation, energize and empower the extreme environmental movement, and to impose an unnecessary lifestyle designed to drastically reduce the impact of humanity on the earth.

What this perspective reveals is an environmental policy based on a naturalistic worldview. The earth is viewed as a place where all manner of species have evolved through natural process and no one species has preference over another. The earth "belongs" to all species. Humans, therefore, are just another species, whose negative impact on the earth far outweighs its presence or numbers. Correcting this imbalance vetoes any concerns about human welfare and prosperity.

But from a Christian worldview, we learn that the earth belongs to God as Creator, and by His decree we have been given stewardship of this creation. But as human beings are made in the image and likeness of God, human welfare arises as an equally valid priority. We can't callously disregard the poor and human welfare in general to satisfy a politically motivated call for environmental action based on skewed science. Check the additional resources below to help you find your way through the minefield of conflicting evidence, rhetoric, and opinion.

Notes

1. Dr. Ray Bohlin, "Global Warming," probe.org/global-

warming/.
2. wattsupwiththat.wordpress.com/2008/06/03/uah-global-temperature-dives-in-may/ accessed September 12, 2008.
3. David Evans, www.theaustralian.news.com.aU/storv/Q.25197.24036736-7583.00.html accessed September 3, 2008.
4. On top of that, ice core data from various places around the world now confirm that carbon dioxide levels have risen as the temperature rises well before humans could have had any worldwide impact. More precise measurements indicate that the rise in carbon dioxide trails the rise in temperatures by several hundred years. Climate specialists speculate that as the atmosphere and oceans increase in temperature, the oceans release more of their dissolved carbon dioxide into the atmosphere. So in the past, rising temperatures has caused the rise in carbon dioxide, not the other way around.
5. Ibid, p. 161-171.
6. Natural Hazards 29, No. 2 (June 2003).
7. S. Fred Singer and Dennis T. Avery, Unstoppable Global Warming (Rowman & Littlefield Publishers, 2008).
8. Ibid., 60.
9. Acton Institute, Environmental Stewardship in the Judeo-Christian Tradition (Grand Rapids, Mich./Acton Institute, 2007), 92-93.
10. Melinda Zosh, "31,000 Signatures Prove 'No Consensus' About Global Warming," Accuracy in Media, www.aim.org/briefing/31000-signatures-prove-no-consensus-about-global-warming/. May 22, 2008.

Additional Resources

www.cornwallalliance.org/articles/read/an-open-letter-to-the-signers-of-climate-change-an-evangelical-call-to-action-and-others-concerned-about-global-warming/

www.cornwallalliance.org/docs/a-call-to-truth-prudence-and-protection-of-the-poor.pdf

www.we-get-it.org

Singer, S. Fred, and Dennis T. Avery. *Unstoppable Global Warming Every 1500 Years.* Rowan and Littlefield Publishers, New York, 2007, (especially page 260).

Acton Institute, *Environmental Stewardship in the Judeo-Christian Tradition*, Grand Rapids, Mich./Acton Institute, 2007, (especially page 119).

Driessen, Paul. *Eco-Imperialism: Green Power, Black Death*. Bellevue, Wash./ Free Enterprise Press, 2003-2004, (especially page 182)

Schaeffer, Francis A. *Pollution and the Death of Man: The Christian View of Ecology*. Wheaton, Ill./ Tyndale House Publishers, 1970, (especially page 125)

Only Science Addresses Reality?

Dr. Ray Bohlin comments on the hubris of Drs. Coyne and Cobb in their op-ed in Nature*, in which they claim that only science addresses reality. Religion, they say, must be silenced. This alarming sentiment has already met reality in California.*

Would it surprise you to hear that churches may eventually be prohibited from teaching any ideas contrary to Darwinian evolution? “No way!” you say. “The Constitution guarantees freedom of speech! The first amendment guarantees that Congress can pass no law restricting or promoting any religious exercise!”

Well, yes the Constitution does that, but be patient with me and I'll show why the answer to the opening question could be "yes."

In the current issue of Nature, probably the most prestigious science journal in the world, a letter to the editor appeared in the August 28, 2008 issue on page 1049. Two well-known evolutionary biologists, University of Chicago's Jerry Coyne and University of Manchester's Matthew Cobb wrote the letter to complain about a previous editorial expressing hope that the Templeton Foundation, which funds research into the relationship between science and religion, might bring about some helpful resolutions.

Coyne and Cobb couldn't disagree more:

> We were perplexed by your Editorial on the work of the Templeton Foundation…. Surely science is about material explanations of the world—explanations that can inspire those spooky feelings of awe, wonder and reverence in the hyper-evolved human brain.
>
> Religion, on the other hand, is about humans thinking that awe, wonder and reverence are the clue to understanding a God-built Universe…. ***There is a fundamental conflict here, one that can never be reconciled until all religions cease making claims about the nature of reality*** (emphasis added).
>
> The scientific study of religion is indeed full of big questions that need to be addressed, such as why belief in religion is negatively correlated with an acceptance of evolution. One could consider psychological studies of why humans are superstitious and believe impossible things….
>
> …***You suggest that science may bring about "advances in theological thinking." In reality, the only contribution that science can make to the ideas of religion is atheism*** (emphasis added).

Coyne and Cobb clearly state that religion has no authority to make claims about reality. If science is allowed to persist in this audacious distortion of religion and science, then any kind of teaching that is critical of any aspect of naturalistic evolution would be considered a negative influence on society as a whole. Religion is seen as crossing its constitutionally protected borders.

Biology teachers constantly complain now that what they teach about evolution is contradicted by the churches their students attend. This is obviously quite frustrating. If science is the only branch of knowledge that is allowed to make claims about reality, then religious teachings should not be allowed to interfere.

You may still be thinking that I'm taking this too far. Consider though that the California state university system already refuses to give credit for high school science courses that include anything beyond naturalistic evolution. Many Christian private school graduates in California are finding that their science courses are not accepted at state universities. Essentially that means you don't get in unless you can make those credits up by taking junior college science courses that meet the evolution-only standard.

State governments may easily decide that they need to help these religious school graduates out by requiring that these religious schools not be allowed to teach religious material that contradicts state-mandated standards. It's a violation of the separation of church and state, after all!

If you ever questioned the importance of the evolution/Intelligent Design controversy, I hope you see the point now. Unless we can convince a sufficient minority in the science community that science is limited and the subject of origins is one of those limitations, we may not be able to legally teach students anything about creation or Intelligent Design.

While Coyne and Cobb certainly don't represent all scientists, they are not alone! Trust me. I watched a video recently of Jerry Coyne making a presentation at a scientific meeting where he basically made the very same claim. NO one objected. He was applauded enthusiastically. Watch it for yourself here. While the whole lecture is worth watching, the last eight minutes when he presents a slide with just the word "Religion" is the key segment.

Coyne and others are trying to establish what Nancy Pearcey called the fact/value split in her book *Total Truth*. To Coyne science is based on fact. Only material explanations are allowed in science since religion is based on personal values and have nothing to do with facts. Therefore if you try to inject your personal values (Creation, Intelligent Design) into the world of facts (science) this is a violation of the rules of science. It's not allowed.

According to Jerry Coyne speaking in the video, the only way to increase the acceptance of evolution is to reduce or eliminate the influence of religion. The two are incompatible! Coyne is unable to see that he also has a worldview, materialism, which influences how he interprets the data of science. He erroneously believes he is being objective about his interpretation.

This is a cultural battle as well as a scientific battle. For more information and resources from Probe to help you educate yourself and others about evolution and Intelligent Design see browse our articles at www.probe.org. If we don't "tear down strongholds" like this, we may find ourselves behind impenetrable, silent walls.

Healthcare and the Common Good

One of the hot topics in the presidential election campaign is healthcare and healthcare reform, but is there a Christian perspective on healthcare? If so, what is it? I had the privilege of attending the annual bioethics conference hosted by the Center for Bioethics and Human Dignity and Trinity International University this past July. Guided by this year's theme, "Healthcare and the Common Good," some of the health profession's leading practitioners discussed issues of healthcare and the health profession from a Christian perspective.

What Is "The Common Good"?

Dr. Edmund Pellegrino, chairman of the President's Council on Bioethics, began the conference by distinguishing between first-order healthcare questions and second-order healthcare questions. First-order questions in this case involve the moral or ethical implications of healthcare. These questions include: What do we do with the poor and ill? What are our moral obligations to them? By what criteria do we judge healthcare programs? And, is the healthcare system providing for basic human needs? Second-order questions, often covered by the media, include economic issues, systems, and politics. Usually, this level of inquiry seeks to answer questions like "How is healthcare to be structured?"

Dr. Pellegrino used Aristotelian philosophy to discuss the idea of common good. He describes common good as everyone being enabled to fully achieve their own perfection as men. Essentially, everyone is valuable because he is a human being, and part of giving them value is to provide for them relief from suffering and the opportunity to flourish, whether they merit it or not. Dr. Pellegrino asserts that this is similar

to the biblical idea of being not only your brother's keeper, and your enemy's keeper, but also ministering physically to those who are irresponsible. As Christians we have an obligation to care for the weak and the infirmed, and we, furthermore, cannot make value judgments on the worth of someone's life because of their personal behavior.

Human Dignity

Underlying any area of bioethics based on a Christian worldview is the concept of man as a special part of creation made in God's image.{1} This means that our views on healthcare should reflect the inherent dignity of the individual. Dr. Pellegrino discussed this essential element that part of common good is valuing man because he is man, and I would add that it is expressly because he is made in the image of God.

Many of the sessions at the conference, whether they were on doctor/patient relationships or public policy, centered on this point that man is made in the image of God and that individuals should be valued as unique and important. This presupposes a theistic worldview.

During my paper session at this conference, I emphasized the importance of a worldview approach for laying the foundation of how to evaluate specific bioethical issues. This is also essential in evaluating healthcare policies and our moral obligation to the weak and infirmed. How does one's worldview affect their various views on healthcare?

As Nancy Pearcey points out in *Total Truth*,{2} every worldview answers three basic questions: Where did we come from? What happened to us (why is there evil)? And, how can things be made right? As Christian theists we would answer these questions with "Creation-Fall-Redemption." Naturalists, on the other hand, would answer with the triad "Darwinism–Evil is an illusion–Survival of the fittest." A naturalist's creation

story is that of Darwinism.{3} Therefore, man is nothing more than a product of natural selection. He does not hold a unique position above other animals, and he was not specifically created with a purpose.

One's view on origins is fundamental to how man is regarded, and it determines which ethical system is used to determine right and wrong views on healthcare. The tension is between the theistic view that man has inherent dignity and worth, despite his capabilities or lack thereof, and the naturalistic view that man's worth is based on whether or not he is a burden on society as a whole.

One view places an absolute value on a person while the other places a relative value. This, in turn, determines whether or not we share a moral obligation to help the weak and infirmed.

But We Vote on Second-order Questions!

While the ethical implications on healthcare are of primary importance, usually we are asked to evaluate healthcare based on second-order questions: How much does healthcare cost? Who should get subsidized? How are they subsidized? Should healthcare and health insurance be privatized? Which candidate's plan do I agree with?

Several of the speakers at this bioethics conference addressed specific plans by candidates and their opinions about them (For more information on second-order analyses, see the *Women of Faith Blog post* which summarizes Dean Clancy's discussion on McCain/Obama Healthcare plans. See also James Capretta's discussion on policy analysis, PowerPoint® presentation from the conference and a related article.) But the emphasis at the conference was not in endorsing one candidate over another as much as evaluating healthcare from the perspective of a Christian worldview. In other words, we first must answer the primary questions and then use that analysis to guide our views on the secondary questions in healthcare.

I came away from the conference with an understanding that there are several problems with the current healthcare system, from overuse of technology to doctor/patient relationships to how the government subsidy system works. However, these problems are really the fruits of a deeper problem having to do the worldview approach that medical health professionals, politicians, and we, as a culture, take on the issue of health and healthcare. Healthcare is becoming more and more a consumer business or a commodity, and less and less a moral obligation to help those that are weak and infirmed (or a moral obligation to help prevent people from becoming weak and infirmed).

There is no one solution; thus, no one candidate has *the* solution to all of our healthcare problems. And deciding between expanding government subsidies and privatization is not the root of the problem, so it is not the ultimate solution. As Dean Clancy, former member of the President's Council on Bioethics, pointed out in his session on "Solutions," society can achieve four levels of "happiness": 1) the ultimate good, 2) good beyond oneself, 3) personal achievement, and 4) immediate gratification.

As a culture we are stuck at levels 3 and 4 (personal achievement and gratification), and this means our priorities and decisions are stuck there. This is directly tied to our worldview. From a naturalistic vantage point, it would be logically inconsistent to move beyond levels 3 and 4. However, on a theistic worldview, 1 and 2 follow from the biblical perspective on priorities such as, "You shall love the Lord your God with all your heart and with all your soul and with all your mind…You shall love your neighbor as yourself."{4} God is the ultimate good, and then we are to love others by doing good beyond what benefits ourselves.

What Can I Do?

We can serve a witness to our culture by modeling the biblical perspective on healthcare and human dignity. Maybe not necessarily on the voting ballot, but oftentimes this mindset is modeled on a very personal level by providing for the weak and infirmed in our churches and communities. Or by treating individuals with value, even if they are irresponsible with their health. Or through the way doctors and nurses treat their patients. These are all very tangible ways that people can see the love of Christ and may very well be one way to change some of the problems in our healthcare system from the grassroots level.

Notes

1. “So God created man in his own image, in the image of God he created him; male and female he created them” Genesis 1:27 (ESV).
2. Pearcey, Nancy, *Total Truth: Liberating Christianity from Its Cultural Captivity*, Crossway Books, 2004, pgs. 45-46.
3. This is referring to Darwinism as a philosophy: The presupposition that there is no God, only nature.
4. Matt 22:37, 39 (ESV).

The Spiritual Brain

Heather Zeiger keys off The Spiritual Brain *by Beauregard and O’Leary to critique the materialist position that belief in God is simply in the neurons of the material brain. The Christian worldview is non-materialist and recent experiments bear out its power of explanation over and against the*

materialist worldview.

The Worldview of Neuroscience

The popular worldview held in neuroscience, or the study of the brain, is materialism. Materialism says that humans are only physical beings, which means there is no possibility of an immaterial mind or a soul. On the other hand, non-materialists would say that humans have both a physical aspect and a spiritual aspect. As Christians, we are non-materialists, and would say that we are both physical and spiritual because God, a spiritual being, created us in His image. However, our physical bodies are important because God gave us bodies suited for us.

But what if materialism were true? First, self-consciousness would just be an evolutionary bi-product; something that randomly evolved to help our species survive. Secondly, we would just be a product of our genes and our environment, so free will or the ability to make decisions would be an illusion. This implies that our thought life, our prayers, and everything that dictates our identity is nothing more than neurons firing.{1} And from this we can conclude that our beliefs are unimportant because we really can not trust them anyway. They might be caused by a misfiring neuron. But is this what the data shows us?

In this article we will be looking at some examples in neuroscience that seem to contradict materialism, and to guide us we will be using the recently released book, *The Spiritual Brain* by Mario Beauregard and Denyse O'Leary. We will look at some experiments materialists have tried to do to explain religious experiences and their effects on the body. Then we will look at some experiments that can only be explained from a non-materialistic worldview. Finally, we will see how the data from neuroscience fits within a Christian view of the mind and brain.

The Spiritual Brain does not take a distinctly Christian perspective. So while the studies within this book do not necessarily confirm or deny that Christianity is the "best" religion, it is still useful for apologetics. First, it allows us to break through the language barrier between a materialist and a Christian by looking at data in general neuroscience terms. Second, science studies the world around us, which is God's general revelation, and while this gives us truths about the character of God and His creation, our interpretation of the data must be filtered through the lens of the special revelation of God's Word.

Is God All in Our Heads?

Is there a part of our brain that creates God? Are some people genetically predisposed to being religious? A materialist would say "yes" to these questions. However, as the book *The Spiritual Brain* shows us materialists have not been successful in proving this.

Dean Hamer, geneticist and author of the book *The God Gene*, proposed that some people are more religious than others because they have one DNA letter that is different from non-religious people.{2} While this story was touted as a breakthrough in the media, the scientific community was not amused. Hamer's experiments were not well-defined, and no one could replicate them.{3}

Another popular theory is that people that have a religious experience may be suffering from mild forms of temporal lobe epilepsy. Basically, a misfiring in the brain causes people to be obsessive about something, like religion. These scientists speculate that people like Mother Teresa, Joan of Arc, and the apostle Paul are likely candidates for temporal lobe epilepsy.{4} Epilepsy specialists, however, do not believe that religious experiences are characteristic of temporal lobe epilepsy, and usually seizures are not associated with peace, tranquility, or religious visions. Also, temporal lobe

epilepsy is quite rare, yet over sixty percent of Americans have reported having some kind of religious or mystical experience. And as we will see, many parts of the brain are involved in religious experiences, while temporal lobe epilepsy is much more centralized.{5}

Perhaps one of the strangest experiments to hit the popular media was that of the God Helmet. Neuroscientist Michael Persinger claimed that religious people were more sensitive to magnetic fields, and that electromagnetic radiation was what prompted religious experiences. He developed a helmet that produced strong electromagnetic waves. Several people who tried on the God Helmet reported having a religious or mystical experience of some sort. However, there were some fundamental flaws in the whole setup, including the fact that Persinger never published his results and did not have brain scans to back up his statements. Eventually, a group of scientists from Sweden, using a double-blind test, proved that the God Helmet was really the power of suggestion. The electromagnetic waves didn't cause the religious experiences.{6}

Experiments That Don't Mind

All of these failed experiments presumed that there is no God and there is no spiritual component to people. We have shown, however, how the evidence from neuroscience doesn't seem to fit the materialistic worldview. As we will see, some experiments reported in *The Spiritual Brain* cannot be explained from this worldview. What we will find is that they fit nicely within a Christian worldview.

The first example is obsessive compulsive disorder therapy. Obsessive compulsive disorder, or OCD, occurs when a person has distressing or unwanted thoughts that dominate their thinking, and these obsessions trigger an urge to do some kind of ritual behavior, also known as a compulsion. The interesting thing about OCD is that the person knows that the

obsession is irrational and the ritual won't really fix it, but their feelings tell them otherwise. Scientific studies have shown that the brain is actually misfiring. The part of the brain that tells a person, "There's a problem, do something to fix it," is firing at the wrong times. OCD is a clear case of a healthy mind and a malfunctioning brain.

A materialistic worldview would say that the only way to treat OCD is by *physically* fixing the bad neurons. However, the treatment that actually works involves the patients *mentally* fixing the bad neurons. Patients learn to take control of their OCD by recognizing when their brain is misfiring, and try to starve the urges to do the ritual. After treatment, brain scans show that the brain of an OCD patient is starting to fix itself. The patient is changing his physical brain with his mind![7]

Similar kinds of therapies have been applied to depression and phobias.[8] In both cases, *The Spiritual Brain* reports instances where a patient's brain chemistry was directly affected by their mind.

Another phenomenon that can't be explained from a materialist's worldview is the placebo effect. The patient is given a medicine that they are told will help them, but in actuality they are given a sugar pill. Interestingly, the patient's belief that the sugar pill will help them has caused measurable, observable relief from symptoms. Many doctors say that a patient's attitude oftentimes can help or hinder real medicines or therapies from working.[9]

The ability of the mind to change the brain's chemistry does not fit within a materialistic worldview. But as Christians we know that our minds are very real and can have a very real effect on our physical bodies.

Can We Take a Brain Scan of God?

As noted previously, the popular worldview among neuroscientists is materialism, which essentially means they do not account for or acknowledge spiritual effects on the brain nor do they believe that there is a spiritual component to the person. This would mean that even religious experiences are just our neurons firing. Materialists would claim that either the effects of religious experiences, including prayer, are neurons misfiring, or the person is faking it.

On the other hand, Christians believe that there is a spiritual realm, and there is a spiritual component to human beings that we call the mind or the soul. We believe that when we pray that we are actually praying to God who is real and separate from us, not just a figment of our imagination.

Mario Beauregard, one of the authors of *The Spiritual Brain*, took brain scans of Carmelite nuns while they were remembering the deepest and most poignant religious experience they had had.{10} Using functional MRI and QEEG he hoped to see what parts of the nuns' brains were active.{11}

Dr. Beauregard and his lab found that religious experiences involved many brain regions at once, which rules out materialists' suggestion that there is some kind of "God spot" in the brain.{12} They also found that brain scans during these religious experiences were very complex and consistent with something other than merely an emotional state. Lastly, they determined that the data did not have any of the markers one would expect to see if the nuns were faking it or lying.

This is all that the data can tell us. Physical machines cannot prove the existence of a spiritual God. But as the authors of *The Spiritual Brain* point out, what these experiments do show is that certain explanations, namely materialistic ones, are inadequate for explaining the data in neuroscience. The nuns are experiencing something beyond what

materialism can account for.

Prayer is complex and more than just emotional contrivances, so from a Christian worldview, the results are not surprising.

The Christian View of the Mind and Brain

Experiments such as the God Helmet and theories about temporal lobe epilepsy did not work because their premise was that God was something we made up ourselves. However, as Christians we know this is false. The Bible says that God is the creator and is distinct from His creation, not made from it.

The results of experiments with OCD, phobias, depression, and the placebo effect do not make sense to materialists because the mind seems to affect the physical brain. However, we know from Scripture that the mind, or the soul, is an essential part of our being. James 2:26 and Luke 8:55 show us that when the soul leaves, the body is dead, and when the soul returns, the body is alive. Also, passages such as Matthew 26:41 and Romans 8:10 and 11 tell us that our spirit can affect what our bodies do and keep us from sinning. Passages about the resurrection such as in 1 Corinthians 15 discuss the distinction between our spirit and our physical body.

Lastly, the experiment with the Carmelite nuns showed that during a deeply prayerful experience, their brains display signs of a very complex interaction that is going on. As Christians, we believe prayer is a way to interact with the Creator Who is separate and distinct from us. While this experiment does not prove God’s existence, it is reasonable to conclude that it is the level of complexity we would expect to see if someone were interacting with something distinct from themselves.

At one time people feared that neuroscience would be the death of God. The fear was that science might prove that everything that we do, including prayer and worship could be reduced to

neurons firing in our brains. Hopefully, you are convinced that neuroscience actually points us towards God. There is evidence for a spiritual component of the human self. And, the evidence is consistent with what we would expect from a Christian worldview.

Notes

1. Mario Beauregard and Denyse O'Leary, *The Spiritual Brain* (New York: Harper Collins, 2007) 3, 4.
2. Ibid., 48-50.
3. Ibid., 51, 52.
4. Ibid., 58, 64.
5. Ibid., 72, 71.
6. Ibid., 79-100.
7. Ibid., 126-130.
8. Ibid., 133-140.
9. Ibid., 141-142.
10. For a detailed account of the Carmelite nun experiment see Beauregard and O'Leary, *The Spiritual Brain*, 255-288.
11. Two things we must keep in mind. First, usually the brain will take the same pathways when it remembers an event as when the event actually happened. Second, this experiment can't tell us what the nuns were actually thinking, but it can tell us what kind of brain activity was occurring.
12. Beauregard and O'Leary, 42-44.
13. For more articles and information on the subjects covered in *The Spiritual Brain* see Denyse O'Leary's blog, Mindful Hack, at mindfulhack.blogspot.com.
14. See also Kerby Anderson's article "Mind, Soul and Neuroethics" at www.probe.org/mind-soul-and-neuroethics/.

Hope in the Midst of the Growing Malaria Pandemic

The Growing Scourge of Malaria

We don't know much about malaria in the United States anymore. The disease was once prevalent in the Southern States as far north as Washington D.C. George Washington suffered from malaria as did Abraham Lincoln. A million casualties in the Civil War are attributed to malaria. But malaria was eradicated in the U.S. and much of Europe by 1950 with the use of pesticides, eliminating the sole transmitting agent of the malarial parasite, Anopheles mosquitoes.{1}

Malaria not only continues elsewhere but is a growing threat in the tropics around the world and especially in Sub-Saharan Africa. Half the world's population is at risk for malaria with some estimates as high as 500 million cases every year and over 2 million deaths. Most of those deaths are in Sub-Saharan Africa, and over half of them are of children under five years of age. In some parts of Zambia there are over thirteen hundred cases of malaria for every thousand children under five. That means some children are infected more than once per year.

The economic effects are just as severe. Malaria drains the Indian economy of nearly $800 million each year due to lost wages from death, absences, fatigue and money spent on insecticides, medicines, and research. Uganda spends over $350 million annually on malaria control, and forty percent of their health care dollars are spent on treating malaria. Still eighty thousand die every year.

The disease begins with a painless bite of the female Anopheles mosquito that needs blood to feed her eggs every

three days. To prevent coagulation of her victim's blood she injects a little saliva which also may contain only a couple dozen one-celled organisms of the genus *Plasmodium*, the human malarial parasite. These make their way to liver cells where they multiply by the tens of thousands. After several days these liver cells rupture, releasing the parasite into the blood stream. The new parasites infect red blood cells and multiply again by the tens of thousands. Still the victim is unaware anything is wrong.

Once the parasites have consumed the red blood cells from the inside out, they rupture the cells and tens of millions of parasites are loose inside the blood. The first immune response begins, and muscle and joint aches are the first sign something is wrong. But the parasites infect new red blood cells within thirty seconds of release and hide from the body's defenses for two more days. When the next wave of parasites release, the immune system can be overwhelmed. Fever, cold sweats, and chills ensue and the fight is on. At this stage if an uninfected mosquito bites the sufferer, she will ingest a new form of the parasite and the cycle begins anew.

We need to get this scourge under control.

New Hope with DDT

As noted previously, malaria was prevalent in the U.S. until the late 1940s. We rid ourselves of this scourge through the use of the "miracle" pesticide DDT (dichloro-diphenyl-trichloroethane). Malaria was eliminated in Europe and North America by eliminating the species of mosquito that carried the disease-causing parasite.

DDT was used during WWII essentially as a secret weapon against malaria in the Pacific war. Not only were American bases sprayed with DDT to rid them of malaria carrying

mosquitoes, but freed prisoners of war were dusted with DDT powder to rid them of insect parasites. DDT was used to great effect and was deemed entirely safe to humans.

After WWII, Europe and America began applying DDT to their malarial and agricultural problems in mammoth proportions. Malaria was eliminated in Europe and the U.S. in a few years. Greece reportedly eradicated malaria within one year. Sri Lanka used DDT from 1946 to 1964 and malaria cases were reduced from over three million to twenty-nine.{2}

Recent studies have shown repeatedly that DDT causes no harmful effects to human health, and when used as currently prescribed there is little possibility of harm to the environment.{3} In South Africa, Sri Lanka, Mozambique and other nations, DDT has been extremely effective in reducing the rates of malaria, as much as an eighty percent reduction in one year.{4}

DDT is not sprayed out in the natural environment but on the walls of homes and huts. This use repels Anopheles mosquitoes, agitates those that do enter the home so they don't bite, and kills only those that actually land on the wall. Since most mosquitoes are not killed, just repelled, little opportunity exists for resistance to DDT to build up. Even mosquitoes that are known to be resistant to DDT are still repelled by it.

South African Richard Tren, president of Africa Fighting Malaria, says that "In the 60 years since DDT was first introduced, not a single scientific paper has been able to replicate even one case of actual human harm from its use."{5}

The World Health Organization in 1979 deemed DDT the safest pesticide available for mosquito control, and estimates from reputable scientists indicate DDT has been responsible for saving up to 500 hundred million lives.{6}

DDT is effective, cheap, long lasting, and safe. By itself, DDT is not a magic bullet, but it's pretty close. Certainly

more aggressive use of bed nets and newer drug treatments for those already infected still need to be used, but without DDT, these are only putting band aids on inches-deep open wounds. But some third world countries still do not know about DDT or are afraid to use it.

The Objections of the Environmentalists

For some, the reemergence of the pesticide DDT in the escalating fight against malaria raises concerns as it did for me since we are aware of the troubles allegedly caused by DDT for birds, particularly hawks and eagles in the ‘60s and ‘70s.

When the U.S. eradicated malaria, DDT was almost too effective and too cheap. Agricultural use was stepped up, and since DDT is a long-lasting chemical, it built up in the environment and in the food chain. Fish particularly began harboring large amounts of DDT in their tissues and Bald Eagles, which feed on fish, began a build-up of the chemical in their tissues as well. Eventually, Rachel Carson’s 1962 book, *Silent Spring*, blamed the declining numbers of Bald Eagles on the use of DDT. By 1972, the U.S. Environmental Protection Agency had banned the use of DDT in the U.S. despite mountains of evidence that this ban was unwarranted.

Bald Eagle numbers were plummeting before the use of DDT, and were recovering before the chemical was banned.{7} Specific tests done with numerous birds found no correlation between thinning egg shells and DDT. But the damage was done. The U.S. and European nations banned DDT and expected other countries to do the same. Both governments and non-governmental organizations (NGOs) began rejecting goods from other countries that used DDT.

When Sri Lanka and South Africa stopped use of DDT, malaria rates soared.

The indoor residual spraying method offers no risk to humans

or to the environment, yet environmental groups still resist its use. “If we don’t use DDT, the results will be measured in loss of life,” says David Nabarro, director of Roll Back Malaria. “The cost of the alternatives tend to run six times that of DDT.”{8}

But this truth seems to be lost on many activists and aid agencies. The human toll of malaria worldwide is far more important than imagined environmental risks and discredited scare campaigns. International aid agencies need to free up important aid dollars to secure DDT for countries whose people can’t afford the latest malaria medicines and whose government’s health budgets are stretched to the breaking point simply taking care of already sick patients.

Obviously there is something more going on than just unrealistic objections to a particular chemical. DDT is environmentally safe, without risk to human health, extremely effective and incredibly cheap.{9} The environmentalist worldview comes clearly into focus, even though their policies mean death and disease throughout over one hundred countries where malaria is endemic.

“Sustainable Development” Keeps Billions in Poverty, Disease and Malnutrition

DDT was unfairly criticized and banned in 1972 in the U.S. and eventually around the world despite clear evidence to the contrary. Places where malaria had been nearly eradicated, such as Sri Lanka, saw an immediate surge in malaria after its use was discontinued. But even now as the scientific credibility of DDT has been restored, many continue to fight its use.

Environmentalists and officials at the World Health Organization seek to reverse recent decisions to rehabilitate DDT and begin its effective use in malaria stricken countries.

But why? If DDT is so effective, safe, and inexpensive, why would some continue to fight its use? The answer is bigger than just misinformation or stubborn adherence to worn out doctrines.

In his book *Eco-Imperialism: Green Power, Black Death*, Paul Driessen exposes an intricate web of conspiracy to keep third world countries energy deficient, disease plagued, chronically poor, and malnourished, all in the name of "sustainable development." The bottom line is that sustainable development means that, if there is any supposed or imagined risk to the environment, then economic development must be curtailed to insure that whatever development occurs is sustainable by the environment with no risk at all.

Therefore, drugs like DDT for malaria control, fossil fuel-burning power plants, and even dams providing irrigation, safe drinking water, and cheap electrical power are resisted by powerful and well-funded environmentalist groups.

The Narmada dam project was killed in India by environmentalist groups concerned by a particular fish species that might be threatened. They persuaded international lending agencies to withdraw their support. Local residents were incensed. The project would have provided low cost electricity, sewage treatment plants, irrigation and clean water for 35 million people. People displaced were to be given new homes and farmland. But when a tiger and wildlife preserve was formed, displaced peoples were given no place to go and threatened with extreme measures if they returned.{10}

But why would seemingly well intentioned people appear to be so harsh and cruel to people simply wanting a better life? At the heart of this problem is a foundational worldview issue.

The Difference a Worldview Makes

It's alarming to see how frequently environmental groups will deliberately distort the truth and outright lie to achieve their ends. They have been caught many times, but are never held accountable.

In 1995, Shell Oil was announcing plans to sink one of its offshore oil rigs in the Atlantic with a permit from the UK Environment Ministry. Greenpeace, an international environmentalist group, launched a $2 million public relations campaign that accused Shell of planning to dump oil, toxic wastes, and radioactive material into the ocean. Shell eventually backed off and spent a fortune to dismantle the platform onshore.

A year later, Greenpeace actually published a written apology, effectively admitting the entire campaign had been a fraud. There were no oil or toxic wastes, and the admission was buried with small headlines in the business page or obituaries.{11}

The Alar apple scare of 1989 has been exposed as a gross misuse of science that ended up bringing in millions of dollars to the National Resource Defense Council that orchestrated the campaign. Never mind that grocers, apple growers, and UniRoyal lost millions of dollars as well as the use of Alar, an important cost-saving and harmless chemical.{12}

But why such fraud and misinformation in the name of a safe environment? My analysis indicates a clear difference in worldview. Many of the leaders in the environmental movement are operating under the banner of a naturalistic worldview. In that context, nature as a whole takes precedence over people. Anything that they perceive as even potentially causing harm should be avoided. Nature must be preserved as it is.

Invariably, the one species asked to make sacrifices is always human beings. This is clearly reflected in third world countries struggling to overcome the crippling effects of poverty and disease. Rather than develop cheap electricity through fossil fuel power plants, millions are forced to burn dung and local wood products, causing large increases in toxic fumes and other indoor pollutants.

Nearly a billion people worldwide suffer from increased incidence of asthma, pneumonia, tuberculosis, lung cancer, and other respiratory diseases linked to indoor pollution caused by burning raw biomass fuels to heat their homes and cook their food.{13}

As Christians, we recognize that people are made in the image and likeness of God. While we are always responsible for carrying out our responsibility to rule and have dominion over God's creation, a larger, primary concern is to look after human needs and relieve human suffering. Let's start allowing people the right to make their own decisions concerning electricity and malaria with our advice and not unreasonable pressure.

Notes

1. Michael Finkel, "Malaria: stopping a global killer," *National Geographic*, July 2007, 46.
2. Richard Tren and Roger Bate, *Malaria and the DDT Story* (London, UK: Institute of Economic Affairs, 2001), 35-37.
3. Tren and Bate, 45-47.
4. Paul Driessen, *Eco-Imperialism: Green Power, Black Death* (Bellevue, Washington: Free Enterprise Press, 67.
5. Richard Tren, quoted by Driesen, *Eco-Imperialism*, 69.
6. Driessen, *Eco-Imperialism*, 69.
7. J. Gordon Edwards and Steven Milloy, 100 things you should know about DDT, www.junkscience.com/ddtfaq.html (accessed on Jan 10, 2008).
8. David Nabarro, quoted by Driessen, *Eco-Imperialism*, 70.

9 . Interactive presentation on DDT and malaria, Africa Fighting Malaria, www.fightingmalaria.org/ddt-interactive.aspx, accessed on March 3, 2008.
10. Driessen, *Eco-Imperialism*, 39-40.
11. Ibid., 25.
12. Michael Fumento, The anatomy of a public scare, www.fumento.com/ibdalar.html. Accessed on March 3, 2008. Also see Michael Fumento, *Science Under Siege* (New York: William Morrow and Co., 1993), 19-42.
13. Driessen, *Eco-Imperialism,* 38-39.