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.

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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).

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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/.

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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.
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7. J. Gordon Edwards and Steven Milloy, 100 things you should know about DDT, www.junkscience.com/ddtfaq.html (accessed on Jan 10, 2008).
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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.

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"What About the Water Vapor Canopy Hypothesis?"

You say that the literal translation makes the most sense, yet you say that there are things about it that make no sense. Well here is my suggestion. I am a literalist… I believe what the Bible says about creation – literal. 6 days. But read your Bible about the creation of the "sky." God separated the waters from the waters. It doesn't say that he created mists,

or clouds from the waters to make up the sky… it says he separated the water from the water. In fact, wind, rain, and rainbows are not mentioned anywhere in the Bible until the flood… so what if the atmosphere was different in the original times? What if there was literally a solid water "layer" above the sky…. this would create an atmosphere like a green-house effect on earth… therefore totally changing the oxygen and most importantly CARBON levels in the air… which would totally ruin all "carbon-dating" tests prior to the flood… which would then in effect also explain why people lived longer prior to the flood. Not only were we closer to perfection then… but there was probably better levels of oxygen in the air… and oxygen is known to have healing properties (especially O_3). Just a thought to consider…

Thank you for reading and writing.

I am very familiar with the Canopy Hypothesis you describe. I even accepted and taught it for several years. While definitely still around, it has fallen into disfavor in many creationist circles for two primary reasons.

The first is biblical. The description of Day Two in Genesis describes the separation of the waters and that God placed an expanse in the midst of the waters. This has usually been interpreted as the atmosphere. However, on Day Four, God places the sun, moon, and stars in this same expanse.

The second involves the inherent instability of any water vapor canopy above the earth's atmosphere. So far calculations show that it would require a miracle of constant intervention to keep it in place until the flood. There is also a difficult problem with the condensation of the canopy into water droplets to fall as rain for forty days and nights. This would release a tremendous amount of heat that would cause additional problems.

Hope this helps.

Respectfully,

Ray Bohlin

Origin Science

There is a fundamental distinction between operation science and origin science. The founders of modern science had a Christian view of creation.

Origin Science versus Operation Science

Recently Probe produced a DVD based small group curriculum entitled *Redeeming Darwin: The Intelligent Design Controversy*. It has been a great way to inform Christians about Intelligent Design and show them how to use a conversation about this topic to share the gospel.

This year also marks the twentieth anniversary of a book Norman Geisler and I published entitled *Origin Science*.{1} In light of the current controversy concerning intelligent design, I want to revisit some of the points we made in this book because they help us better understand some of the key elements in the debate about origins.

The foundational concept in the book was that there is a fundamental difference between operation science and origin science. Operation science is what most of us think of when we talk about science. It deals with regularities. In other words, there are regular recurring patterns that we can observe, and we can do experiments on those patterns. Observation and repeatability are two foundational tools of operation science.

Origin science differs from operation science because it does

not deal with present regularities. Instead it focuses on a singular action in the past. As we say in the book, “The great events of origin were singularities. The origin of the universe is not recurring. Nor is the origin of life, or the origin of major new forms of life.”{2}

We argued that “a science which deals with origin events does not fall within the category of empirical science, which deals with observed regularities in the present. Rather, it is more like forensic science.”{3} In many ways, origin science is more like the scientific investigations done by crime scene investigators. The crime was a singular event and often there was no observer. But CSI investigators can use the available evidence to reconstruct the crime.

Likewise, research into origin science must use the available evidence (the bones and the stones) to try to reconstruct a past event. We therefore concluded that:

> In origin science it is necessary to find analogies in the present to these events in the past. Thus, for example, if evidence is forthcoming that life can now be synthesized from chemicals (without intelligent manipulation) under conditions similar to those reasonably assumed to have once existed on the primitive earth, then a naturalistic (secondary-cause) explanation of the origin of life is plausible. If, on the other hand, it can be shown that the kind of complex information found in a living cell is similar to that which can be regularly produced by an intelligent (primary) cause, then it can be plausibly argued that there was an intelligent cause of the first living organism.{4}

Rise of Modern Science

When we discuss the differences between origin science and operation science, it is important to point out that

evolutionists and creationist differ in what they believe caused the origin of the universe, the origin of life, and the origin of major life forms. “Evolutionists posit a secondary natural cause for them; creationists argue for a supernatural primary cause.”{5}

Evolutionists argue that a naturalistic explanation is all that is necessary to explain these origin events. There is no need for the supernatural. Julian Huxley, speaking at the Darwin centennial celebration in Chicago, declared: “In the evolutionary pattern of thought there is no longer need or room for the supernatural. The earth was not created; it evolved. So did all the animals and plants that inhabit it, including our human selves, mind and soul as well as brain and body. So did religion.”{6}

Although most scientists today make no room for the supernatural, that was not always the case. In fact, it can be argued that it was a Christian view of reality that essentially gave rise to modern science.

In a landmark article on this topic M.B. Foster asked: “What is the source of the un-Greek elements which were imported into philosophy by the post-Reformation philosophers, and which constitute the modernity of modern philosophy? And . . . what is the source of those un-Greek elements in the modern theory of nature by which the peculiar character of the modern science of nature was to be determined?” These are two important questions. He said: “The answer to the first question is: The Christian revelation, and the answer to the second: The Christian doctrine of creation.”{7}

Foster argued that modern empirical science did not emerge from a Greek view of nature. Instead it arose because the founders of modern science had a Christian view of nature. They “were the first to take seriously in their science the Christian doctrine that nature is created.”{8}

Foster argued that only when the Greek concept of necessary forms in nature had given way to the Judeo-Christian idea of a contingent creation did it become necessary to take an empirical route to finding scientific truth. Once these scientists came to view nature as contingent creation it became necessary to use observation and experimentation to understand it. From there, modern science arose.

Francis Bacon

Francis Bacon's belief in the concept of creation is well known. Bacon even confessed that his motivation to observe and experiment was based on the creation mandate in which God said to man: "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over [it]." (Gen. 1:28).

Of this mandate to subdue creation Bacon wrote, "Only let the human race recover that right over nature which belongs to it by divine bequest, and let power be given it; the exercise thereof will be governed by sound reason and true religion."{9}

Speaking of the natural world, Bacon declared, "The beginning is from God: for the business which is at hand, having the character of good so strongly impressed upon it, appears manifestly to proceed from God who is the author of good, and Father of Lights."{10}

Bacon believed that a careful observer of nature could discover certain "fixed laws" which he could use in subduing the world and have dominion over creation. In fact, he believed that nature (like the Bible) is the revelation of God. So Christians need not fear that any discovery in God's world (science) will destroy their faith in God's Word (Scripture). For "if the matter be truly considered, natural philosophy is, after the word of God, at once the surest medicine against superstition and the most approved

nourishment for faith, and therefore she is rightly given to religion as her most faithful handmaid, since the one displays the will of God, the other his power."{11}

Bacon believed he could discover the orderly laws by which God established in the creation. He described three approaches:

> The men of experiment are like the ant, they only collect and use; the reasoners resemble spiders, who make cobwebs out of their own substance. But the bee takes a middle course; it gathers its material from the flowers of the garden and of the field, but transforms and digests it by a power of its own.{12}

Therefore the modern scientist is neither a scholastic spider not an empirical ant but a Baconian bee who extracts from nature what is available for transformation.

Bacon's understanding of Scripture was shaped by the writings of John Calvin. Both Calvin and Bacon were trained in the methods of Renaissance law. Calvin had applied this new method to Scripture, the book of God's Word. Bacon adopted this legal method of inquiry and applied it to the book of God's world.{13}

Kepler and Galileo

Johannes Kepler's astronomical views were also bedded deeply in his theistic beliefs about creation and the Creator. He stated that we "will realize that God, who founded everything in the world according to the norm of quantity, also has endowed man with a mind which can comprehend these norms."{14}

Kepler viewed the universe as a great mathematical machine created by God. Thus he wrote,

> My aim in this is to show that the celestial machine is to be likened not to a divine organism but rather to a

> clockwork . . . insofar as nearly all the manifold movements are carried out by means of a single, quite simple magnetic force, as in the case of a clockwork all motions [are caused] by a simple weight. Moreover I show how this physical conception is to be presented through calculation and geometry.{15}

Kepler assumed (as the Pythagoreans did) that the universe was mathematically analyzable. But unlike the Greeks, Kepler believed that since the observable physical world was a creation of God, one could come to know God's thoughts by studying the physical laws of the universe.

Another great astronomer was Galileo. He believed "the Holy Scriptures and Nature are both produced by the Word of God; the former is the results of the dictation of the Holy Spirit, and the latter is the most obedient agent of the ordinances of God." Galileo also added: "I do not believe the same God who gave us our senses, our reason, and our intellect intended that we should neglect these gifts and the information they give us about nature, or that we should deny what our senses and our reason have observed by experiment or logical demonstration."{16}

Galileo believed that the observable laws of nature operate with unalterable regularity. Therefore scientific theories must fit nature. Nature cannot be changed to fit our scientific theories. God works in regular ways in the operation of his universe. He added that mere ignorance of natural causes of the operation of the world is not a sufficient justification for positing a supernatural cause.{17}

The supernatural is the source of the natural world, but the natural is the proper domain of science. Science deals with "natural phenomena" which supernatural realm is not subject to such test.{18} Thus, mere ignorance of natural causes of the operation of the world is not a sufficient justification for

positing a supernatural cause.

By this distinction Galileo hoped to secure the domain of operation science from unjustified intrusions by religious dogma while retaining nonetheless his belief in a supernatural origin of the natural world.

Isaac Newton

Isaac Newton believed that God created the solar system. He held that the entire solar system was formed from a "common chaos" which is described in Genesis 1:2. From this chaos the "spirit of God," by means of gravitational attraction, formed the separate planets." In a letter to Thomas Burnet he insisted that "where natural causes are at hand God uses them as instruments in his works, but I do not think them alone sufficient for ye creation."{19}

For Newton, "this Being governs all things, not as the soul of the world, but as Lord over all, and on account of his dominion he is wont to be called Lord God or Universal Ruler." For "Deity is the dominion of God not over his own body, as those imagine who fancy God to be the soul of the world, but over servants. The Supreme God is a Being eternal, infinite, absolutely perfect."{20}

Newton believed that God had dominion over all His creation:

> And from his true dominion it follows that the true God is a living, intelligent, and powerful Being; and, from his other perfections, that he is supreme, or most perfect. He is eternal and infinite, omnipotent and omniscient; that is, his duration reaches from eternity to eternity; his presence from infinity to infinity; he governs all things, and knows all things that are or can be done.{21}

This Christian concept of God was at the very center of Newton's cosmology. It was the very foundation of his

scientific investigation. According to Newton, the universe was God's great machine, and scientists could discover the laws by which this machine operates because these are the laws of God.{22} Thus for Newton, God is the primary cause of the universe and natural laws are the secondary causes by which God operates in the natural world.

Sadly there is a bitter irony in all of this for creationists. The scientific method we employ today was built on the belief in a Creator and His creation. Now, a few centuries later, the science has been used to replace creationist beliefs about origins.

These early scientists shifted their emphasis from a primary cause (God) to secondary causes (natural laws) through which He operates in the natural world. Over time, the subsequent preoccupation with these secondary causes caused scientists to reject the legitimacy of positing a primary cause for these origin events. "In short, natural science came to bite the supernatural hand that fed it."{23}

Notes

1. Norman Geisler and Kerby Anderson, *Origin Science* (Grand Rapids, MI: Baker Book House, 1987).
2. Ibid., 15.
3. Ibid., 14.
4. Ibid., 16.
5. Ibid., 15.
6. Ibid., 19.
7. Ibid., 37.
8. Ibid.
9. Ibid., 40.
10. Ibid.
11. Ibid., 41.
12. Ibid., 42.
13. Ibid.
14. Ibid., 44.

15. Ibid.
16. Ibid., 46.
17. Ibid., 49.
18. Ibid.
19. Ibid., 50.
20. Ibid.
21. Ibid., 51.
22. Ibid.
23. Ibid.

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A Meaningful World

The Poison of Meaninglessness

We have been drinking a poison that first infects our heads, then slowly moves to our hearts. It is the poison of meaninglessness. Many people assume that science says the universe is without purpose and everything is a result of random, meaningless events. A recently released book, *A Meaningful World* by Benjamin Wiker and Jonathan Witt,{1} seeks to be the antidote to this poison by looking at science and how certain features of the universe do not fit within the materialistic worldview. This book will be our guide as we consider the question, How does science reveal meaning in the universe? But first, we need to understand the poison before we can discuss its antidote.

Within the scientific community, the assumption of meaninglessness is a result of its members' worldview. Most scientists hold to a materialistic worldview where everything is explained by physical or material causes, which are

purposeless, random, natural events. Furthermore, a materialist reduces everything to its basic parts and claims that ultimate meaning lies in these parts. For example, when people say that we are a product of our genes, they are reducing humans to their chemical parts. By this definition, people do not have a soul, and the illusion of human genius or creativity is explained as neurons firing in the brain or animal instinct.

So if that is the poison, what is the antidote? The antidote comes from Christians who break the materialist spell by showing that the world is full of meaning and purpose because it has a Creator. This can be done by looking at scientific evidence for a meaningful world.

A good place to begin is with the idea of genius. Why study genius? Because the most poisonous effect of materialism is the way it skews our self-understanding or our worldview. In a materialistic world without a purpose, there would be no signs of creativity and genius in nature. Before Darwin's time, the evidences of creativity and beautiful design in nature were some of the best arguments against materialism. However, the theory of evolution through random, natural causes denied the masterful work of design.

First, we will learn how to recognize some common elements found in a work of genius by looking at one of the most well-known geniuses of all time, William Shakespeare. Then, we will see if those same elements show up in nature.

How Do We Know It's Genius? The Example of Shakespeare

A Meaningful World describes four elements that will show up in a work of genius: depth, clarity, harmony, and elegance. If the world is designed by an ingenious designer, then we should see these four elements of genius in nature.

How do we detect genius in nature? Let's take a look at the work of a well-known playwright, William Shakespeare, as our model for describing the elements of genius.

Consider the situation in *Hamlet* where we get the famous and often misused line, "Methinks it is like a weasel."{2} The surface reading is that Hamlet and Polonius are looking at clouds and Hamlet observes that one looks like a weasel. As we delve deeper and consider the context, we find that Hamlet is actually exposing Polonius as a weasel himself.

The deeper meaning in Shakespeare's work has intrigued academics for years. And it points us to our first character of genius, *depth* or depth of meaning.

However, depth is nothing if it cannot be detected. So here we come to our next element of genius, *clarity*. Shakespeare did not write the scene with Hamlet and Polonius for his own whimsy, but so that the reader would detect the double meaning in Hamlet's weasel comment. Ingenious works have depth and meaning that beg to be discovered. Hence, they have clarity.

The last two elements of genius go hand in hand: *harmony* and *elegance*. Harmony would describe how various parts—or in Shakespeare's case, how various scenes—are interrelated. In all of Shakespeare's plays, the characters and scenes are related to each other; no scene is random or contradictory to the rest of the play. They are in harmony with each other.

The last element, elegance, is not about parts but about the unifying whole. When all of the parts have come together and operate harmoniously, then we have a new element, in this case a play. No one scene stands alone, but is within a context of the whole. One cannot understand the line "Methinks it is like a weasel" without setting up the context of the play itself.

So from Shakespeare we have identified four important elements to genius: depth, clarity, harmony, and elegance. Let's see if we can find these same elements in nature.

Genius in the Periodic Table of Elements

When we turn to chemistry to see if we find a conspiracy of ingenious design, we will find that, just like a cleverly crafted puzzle that was meant to be solved, when you arrange the elements according to weight, the periodic table makes a stunning natural jigsaw puzzle.

Now that scientists have solved the jigsaw puzzle, they find that it gives us amazing information about atomic properties. This insight has allowed us to make everything from pharmaceuticals to cosmetics to weapons to particle accelerators. So is it just coincidence, or does the periodic table display the properties of ingenious design?

Let’s consider how the periodic table works. When you line the main elements up in groups of eight, the periodic table functions much like a Sudoku puzzle. Elements going across a row, or period, are related in their structure, while elements going down a column are related in their properties. Sudoku puzzles are designed by the puzzle maker with just the right amount of clues for the puzzle to be solved. If you look at the history of chemistry, you will find that the periodic table was first put together because there just happened to be the right amount of clues to give us a reason to be suspicious of design.

Remember those four elements of Shakespeare’s work: depth, clarity, harmony, and elegance? It turns out that when we consider the periodic table, these properties across rows and columns display a *depth* of meaning beyond the obvious weight of elements. Secondly, its properties are clear enough for us to discover them, so it has *clarity*. The jigsaw puzzle of the elements arranged in this way display a *harmony* that sings sweetly to chemists’ ears; for example it turns out that elements on the right of the table generally combine with elements on the left of the table. Third, the periodic table of elements is *elegant* in how it operates as a functioning

whole. We could not know the characteristics of many of the elements without having other elements to compare them to. In this sense, the table reads like a play in which each element is a character whose personality is only really seen in light of the entire cast of characters.

Although a materialist would say that we are nothing but chance chemical reactions, it seems that our chemistry is not so random after all, but that it was designed with us in mind. Next we will find mathematics and physics also have the properties of ingenious design.

Genius in Mathematics and Physics

The worldview of many scientists would have us believe that the universe is meaningless because it is the result of chance random processes. In mathematics, a language of the universe, do we find the handiwork of genius designer?

In the book *A Meaningful World*, the authors emphasized the *clarity* of mathematics because the ability of the human mind to discern mathematical principles is quite remarkable. The universe seems to follow certain mathematical laws: the pattern of the multiplication table, musical scales, and the beauty of symmetry. These mathematical laws, however, are not elusive. Since ancient times man has been able describe truths about nature in terms of numbers, counting, and patterns.

We can easily find the *harmony* and *elegance* in the language of nature by looking at mathematics and physics. Math has harmony because, starting with basic arithmetic, you can build all the way up to complex principles like calculus and trigonometry. The elegance of mathematics is really seen when applied to physical phenomena. After many years of experiments, we have discovered that the complicated idea of gravity can be described by one simple equation. This is natural elegance.

The *depth* of mathematics is more difficult to grasp because we

are so accustomed to using math. After Newton's time, mathematics seemed to be the end all, be all, of the universe. This was stretched to the point that some worshipped mathematics over God. But soon mathematicians and scientists found that we did not actually have the whole picture. With Einstein's theory of general relativity and quantum mechanics, mathematics grew as a field and continues to grow and refine.

Although mathematics is an abstract idea, it is the language of the physical world. As we have seen, mathematics and the way it describes physical phenomena displays clarity, depth, harmony, and elegance. Math is the language that God invented. And it is one of the ways that He speaks to us of His existence.

Genius in Biology

Since Darwin's day, biology has been infused with the idea that everything from bacteria to human beings has sprung from the result of random, purposeless, natural causes. But nature seems to show the fingerprints of the creative genius of our creator, God.

Can we see those signs in biology? *A Meaningful World* describes harmony within biology at length. Let's take a look at the cell.

The cell contains many parts: the mitochondria, the nucleus, and DNA. Each of these parts has its particular job to do. And, in addition, each part has a job that is related to all of the other parts of the cell. Think of the cell like a car engine and mitochondria as the carburetor. A carburetor has a specific job in the engine. You cannot talk about what a carburetor is without explaining how it works within the engine. Its job is related to all of the other parts. This is *harmony*, one of our elements of genius.

But what about elegance, depth, and clarity? It seems that

these are also apparent in biology. The *elegance* of the cell is how it functions as one intricate machine, like our car engine. The cell is a biological engine; actually it is a very efficient, self-sustaining, self-replicating engine.

What about depth in biology? Let's go back to the cell. Cells get their energy through metabolism. We used to think that this was a simple path with many useless byproducts. Upon closer inspection, one sees that those byproducts have functions within the cell that are necessary for its survival. As we continue to study the cell, we find more and more *depth* to its function.

Finally, how does biology demonstrate *clarity*? Were we meant to find the handiwork of a designer? Most biologists would agree that biology is the study of things that have the appearance of design. If it appears designed perhaps it was, and perhaps we were meant to discover that. The genius behind biology is clear enough that God says that we are without excuse.{3}

Hopefully, you can see that creation is a masterful work of a divine genius. As the book *A Meaningful World* has shown us, nature bears the hallmark of design that has us, its students, in mind.

Notes

1. Benjamin Wiker and Jonathan Witt, *A Meaningful World: How the Arts and Sciences Reveal the Genies of Nature (Downers Grove, Ill.: InterVarsity Press, 2006).*
2. Hamlet Act 3, Scene 2
3. Romans 1:19,20 (ESV)

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Expelled: No Intelligence Allowed

Dr. Bohlin explores the key points from this documentary from a Christian perspective. He looks at three of the scientists featured on the film who were persecuted for their willingness to consider intelligent design as an option. The film may become dated but the issue of an intelligent creator versus an impersonal, random cause of creation will continue on for many years.

A film was released in April 2008 starring Ben Stein. Titled *EXPELLED: No Intelligence Allowed*,{1} this film documents the dark underside of academia in America and around the world, exposing what happens when someone questions a ruling orthodoxy. In this case, that orthodoxy is Darwinian evolution.

Evolution is routinely trumpeted as the cornerstone of modern biology, indispensable even to modern medical research. Therefore, if someone questions Darwinian evolution and its reliance on unpredictable mutation and natural selection, you are questioning science itself. At least that's how the gatekeepers of science explain it.

Never mind that over seven hundred PhD trained scientists from around the world have openly signed a statement questioning the ability of Darwinism to account for the complexity of life. You'll find my name among them (www.dissentfromdarwin.org). We are usually dismissed as being misguided, uninformed or religiously motivated. We couldn't possibly have legitimate scientific objections to Darwinian evolution.

Many have refrained from signing that list because of the possible repercussions to their career. But isn't there

academic freedom in this country? Doesn’t science progress by always questioning and leaving even cherished theories open to reinterpretation? Isn’t science all about following the evidence wherever it leads? Well, in theory, yes. Practically, scientists are human, too, and often don’t like it when favorite ideas are reexamined.

The film *EXPELLED* explores the reality of what happens when evolutionary orthodoxy is questioned by vulnerable scientists who have yet to secure tenure.

In what follows, I will take a detailed look at just three of the scientists featured in the film. In each case I will reveal greater detail than the film is able to explore and provide resources for you to inquire further. Hopefully this will inspire you to learn more about this important issue and attend the film when it opens.

Let me briefly introduce the three scientists.

Richard Sternberg has a double PhD in evolutionary biology. As editor of a scientific journal, he oversaw the publication of an article promoting Intelligent Design and critical of evolution. As a result, he was harassed and falsely accused of improper peer review. He has been blacklisted.

Caroline Crocker taught introductory biology and made the mistake of including questions about evolution contained in science journals. She was accused of teaching creationism and eventually lost her job, and has been unable to find work ever since.

Finally, Guillermo Gonzalez, a well published astronomer, has been denied tenure because he supports Intelligent Design. Trust me, you’ll find it hard to believe what you read.

Richard von Sternberg

Richard von Sternberg was the managing editor of the biological journal, *The Proceedings of the Biological Society of Washington,* or *PBSW*. Sternberg was employed by the National Institutes of Health in their National Center for Biotechnology Information. He was also a research associate at the Smithsonian Institution's National Museum of Natural History when he served as the journal's managing editor.

Sternberg was considered a rising scientist and theorist. His multiple appointments demonstrated great confidence in his research ability. By 2004 he had accumulated thirty scientific publications in peer-reviewed science journals and books.

His fall from grace was not for something he said or did, but for what he didn't do. As managing editor for *PBSW*, he did not reject outright an article submitted for publication that supported Intelligent Design as "perhaps the most causally adequate explanation" for the explosion of new, complex life forms during the Cambrian period. He "*mistakenly*" sent the paper out for peer review, and went along with reviewers recommendations for publication after extensive revisions were made.

When the article appeared in the journal's August 2004 edition, the journal and Sternberg were assailed for allowing the publication of this heresy. He was accused of not following proper peer-review procedure. If he had, certainly the paper would have been rejected. He was accused of acting as the editor himself when normal procedure was for the paper to be referred to an associate editor. If he had, surely the article would have been rejected. He was accused of choosing reviewers predisposed to support the ID perspective of the article. If he had chosen true scientists, surely they would have rejected the article.

I think you get the point. Any scientist worth their salt

would have rejected the article out of hand; Sternberg didn't and therefore was guilty of academic sin. Eventually, Sternberg claimed he was harassed by the Smithsonian where he currently worked. He claimed his office was changed, that he was denied access to museum specimens and collections, that his key was confiscated, and that he was subjected to a hostile work environment, all intended to get him to leave.{2}

The White House Office of Special Counsel was eventually called in to investigate, and although they eventually did not take the case because Sternberg was not actually a Smithsonian employee, they did issue a preliminary report documenting the inaccuracy of the charges against him and the accuracy of Sternberg's accusations.{3} He followed very standard and proper peer-review procedures and even got approval for the article from a member of the society's ruling council. You can bet that the editors of other journals were paying attention.

Caroline Crocker

Caroline Crocker, a PhD with degrees in pharmacology and microbiology, is a research scientist and former lecturer at George Mason University.{4}

As Crocker tells her story, she was an instructor at George Mason University, teaching introductory biology. One lecture was devoted to evolution, and she decided it was important for students to hear not just the evidence favoring evolution but published research that questioned certain elements of evolutionary theory. Crocker had come to this conviction not from any religious motivation but from her own research and convictions as a scientist.

The lecture was received very well with spirited discussion and she considered it a success. Days later she was called to her supervisor's office who accused her of teaching creationism. She denied this and claimed she never even used

the word and encouraged her supervisor to look up the lecture herself which was online, as were all her lecture notes. Later she was demoted to only teaching laboratories and eventually dismissed altogether.

Upon getting another teaching job at a local community college, she eventually learned she was targeted for dismissal again and left on her own. Eventually, she applied for other teaching positions and, though initially offered the job at one interview, she was later called and told there was no money for the position. Someone at the National Institutes of Health eventually told her to stop looking because she was blacklisted.{5}

A young lawyer at a local law firm eventually volunteered to take her case *pro bono* [without charge]. His firm agreed with his decision and filed an initial complaint with George Mason University. The complaint was later dropped and the lawyer mysteriously asked to clean out his office. He too has struggled since, trying to find employment.

George Mason denies any wrongdoing, of course, and maintains that academic freedom is honored at their university, but they offer few specifics on just why Crocker was terminated.

Crocker always received high marks from her students and was qualified and effective wherever she went. Suddenly after questioning Darwinism, her scientific career is over. There is another viewpoint, of course. P. Z. Meyer's, for example, defends the decision to let Crocker go at the end of her contract because questioning evolution shows she was incompetent.{6}

Guillermo Gonzalez

Guillermo Gonzalez is a planetary astronomer and associate professor at Iowa State University. Gonzalez has done research and taught at Iowa State for five years and has accumulated an

impressive record. He has accumulated over sixty peer-reviewed publications in various science and astronomy journals. In addition, he has presented over twenty papers at scientific conferences, and his work has been featured in such respected publications as *Science*, *Nature,* and *Scientific American*.{7}

Ordinarily, to become a tenured professor at a research institution there are specific requirements that must be met. The Astronomy Department at Iowa State requires a minimum of fifteen research papers. Gonzalez should have felt quite secure since he published nearly five times that many papers. He also co-authored an astronomy textbook through Cambridge University Press that he and others used at Iowa State. But his initial application for tenure was denied. The faculty senate indicated his application was denied because he didn't meet certain necessary requirements.

However, many suspected he was denied tenure for his support for Intelligent Design through his popular book and film *The Privileged Planet*. While having nothing to do with biological evolution, Gonzalez and his co-author Jay Richards maintain that our earth is not only uniquely suited for complex life but is also amazingly well-suited for intelligent life to observe the cosmos. This dual purpose seems to suggest design.

In denying Gonzalez's initial appeal, the university president specifically stated the denial had nothing to do with Intelligent Design. Gonzalez further appealed to the University Board of Regents. In the meantime, the Discovery Institute obtained internal university emails clearly indicating that the sole reason Gonzalez was denied tenure was due to his support of ID, despite the university's public denials. These emails also indicated that some of these university professors knew what they were doing was wrong and conspired to keep their deliberations secret.

Amazingly, the ISU Board of Regents refused to see this information or provide Gonzalez an opportunity to defend

himself before they voted. Not surprisingly, Gonzalez's final appeal was denied in early February 2008.

Be Prepared for *EXPELLED*

Probe Ministries highly recommends the film *EXPELLED: No Intelligence Allowed* as it highlights the harassment and persecution of PhD scientists at the highest levels of academia and exposes signs of ugly things to come in the culture at large.{8} Usually the scientific establishment tries to cover up these activities, but when exposed, they usually resort to saying that this level of harassment is deserved since a fundamental tenet of science is being challenged, and therefore these scientists don't deserve their positions. Academic freedom apparently only applies to disagreeing with details about evolution but not evolution itself.

These three stories are just the tip of the iceberg. These scenes are being played out around the world, and publicity is an important step in seeing justice done.

Now, let's be clear about something. Just because a few scientists and scientific institutions have behaved badly on behalf of evolutionary orthodoxy doesn't mean that evolution itself is suspect. But as I stated earlier, over seven hundred scientists have now signed a statement declaring their skepticism about Darwinian evolution as a comprehensive explanation of the complexity of life and the list is growing. The scientific underpinnings of Darwinian evolution have been unraveling for over fifty years. I've been personally involved in this revolution for over thirty years, long before Intelligent Design was even a recognized movement.

The *EXPELLED* documentary will certainly raise the visibility of this debate even further in the general public and hopefully within the church. But I have been quite surprised how many in the church are really unfamiliar with the

Intelligent Design movement and are even suspicious of the motives and beliefs of those involved.

In that light, Probe Ministries and EvanTell unveiled last summer, before *EXPELLED* was announced, a small group DVD based curriculum about the Intelligent Design movement, called *Redeeming Darwin*. Check out this material at Redeeming Darwin.{9} There are small group leader kits, self-study kits, and very inexpensive outreach kits meant to be handed out to people wanting to see for themselves. We are thrilled to have Josh McDowell's endorsement, and our curriculum is being recommended to church youth leaders by those promoting *EXPELLED*.

This spring and through the summer the rhetoric will be escalating, and many just won't understand what all the fuss is about. First, make plans to attend *EXPELLED* in a few weeks and take some skeptical friends with you. Then give your friends a copy of our *Discovering the Designer* DVD and invite them to join your small group in studying Redeeming Darwin to help answer the inevitable questions about ID and evolution. In addition, Redeeming Darwin will show you how to take a conversation about ID and evolution and use it to share the gospel. That's how you can "redeem Darwin."

Notes

1. streamingmoviesright.com/us/movie/expelled-no-intelligence-allowed/.
2. www.rsternberg.net/ (last accessed 2/12/08).
3. www.rsternberg.net/OSC_ltr.htm (last accessed 2/12/08). Sternberg used well-qualified reviewers for this paper and has steadfastly refused to identify them, which is normal protocol despite repeated attempts by evolutionists to find out who they were. None of them were "creationists" as has been suggested.
4. www.washingtonpost.com/wp-dyn/content/article/2006/02/03/AR200

6020300822.html (last accessed 5/18/20).
5. www.christianpost.com/news/expelled-exposes-plight-of-darwin-doubters-30277 (last accessed 5/18/20).
6. scienceblogs.com/pharyngula/2006/02/05/heck-yeahcaroline-crocker-shou (last accessed 5/18/20). Also be advised that PZ Meyers is not shy about using vulgar language.
7. To view a full list of online and print articles and to view Gonzalez's academic record, visit the Discovery Institute's section on Gonzalez at www.discovery.org/a/2939 (last accessed 5/18/20). See also post-darwinist.blogspot.com
8. streamingmoviesright.com/us/movie/expelled-no-intelligence-allowed/.
9. Also see www.probe.org and streamingmoviesright.com/us/movie/expelled-no-intelligence-allowed/.

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Life on Another Planet-Just Around the Corner?

In late April [2007], a group of European scientists made an announcement that created quite a stir in the mainstream media. For the first time, a planet which could potentially support life has been discovered outside of our solar system. One newspaper headline read "Scientists find potentially habitable planet—Discovery a big step in search for life in universe"{1}. Such an announcement raises important questions:

> *Is this newly discovered planet really a likely host for life?*
>
> *Does this discovery imply that the earth is not unique is its ability to support complex life as promoted by most proponents of Intelligent Design?*
>
> *If this planet does (or did) host life, would that detract from or support our belief in a transcendent creator?*

By considering these questions, we realize that this discovery provides more support for the theory of Intelligent Design than for Darwinism.

A Potentially Habitable Planet?

This planet orbits the red dwarf star, Gliese 581 and has been designated as 581 c. It cannot be seen from earth. It was detected by examining the effect its gravity had on the light emanating from its star. Based on that data, these scientists projected that this planet may have temperatures between 32 and 104 degrees. With this temperature range and at 1.5 to 2 times the diameter of earth, it might be able to hold liquid water. In addition, its red dwarf star appears to be quite old and stable, suggesting that its planets may have been around for billions of years. Thus, some of the characteristics necessary for a naturalistic explanation of life may be associated with this planet.

However, a habitable planet requires much more than "just add water"{2} plus time. Further analysis of Gliese 581 c indicates that it probably has many characteristics unfavorable to life. Examples include:

> *It does not rotate around its axis, meaning one side is always in the sun while the other side remains in constant darkness. Some scientists are now suggesting that its surface temperatures will be much hotter than the original estimates.*

> *Since it orbits a red star with lower levels of electromagnetic radiation than our sun, this greatly limits the effectiveness of photosynthetic reactions.*

Uniqueness of Earth

On the Reasons To Believe Web site{3}, astrophysicist Hugh Ross has posted several articles identifying characteristics of our galaxy and earth that are necessary for life. In one paper{4}, he estimates the probability of the universe having a planet like earth exhibiting all 322 characteristics identified as critical for life. A high level analysis of the list in his paper indicates that Gliese 581 c may satisfy 112 of these characteristics (primarily because it exists in the same universe and galaxy as earth). Gliese 581 c is the first out of 220 planets identified outside our solar system that exists in the habitable temperature zone.{5} That leaves at least 210 questions unanswered such as:

> *Does it have a large enough moon to create tidal patterns?*
>
> *Does it have just the right size, protecting planets to reduce the number of asteroid hits?*
>
> *Does it have the right thickness of crust?*
>
> *Does it have the right atmosphere?*
>
> *Does it have the right mixture of minerals?*

Using the probability estimates for each remaining characteristic, a conservative estimate for the probability that this planet could support life is 1 in 10^{199} (1 with 199 zeros after it). Please remember that this extremely low probability (essentially zero) is simply to have a planet that is habitable. It does not include the similarly minuscule probability of even the simplest life forms arising from

inorganic matter. As renowned astrophysicist Stephen Hawking stated, “I expect there will be planets like Earth, but whether they have life is another question. We haven’t been visited by little green men yet.”{6} Since we can be virtually certain that this planet does not support any life, we may not want to spend the effort to travel to it—especially, when with current technology, it would take over 400,000 years to reach this planet.

Life on another planet—What would it mean?

Would finding life on another planet be a victory for Darwinism and proponents of naturalistic evolution as the sole force behind life as we know it? Quite the contrary! Given the extremely small probability of finding another habitable planet in our universe, multiplied by the equally small probability of life generating spontaneously on a habitable planet, finding life on another planet would have to be considered a miracle.

In other words, finding even the simplest life forms on another planet would greatly increase the scientific evidence for intelligent design. Only a transcendent intelligent designer would be able to overcome those long odds to create life in multiple places in the universe. The theological implications of such a discovery would depend upon the nature of the life forms and will be left for future ponderings.

Bottom Line

The discovery of Gliese 581 c is an interesting event in astronomy which, if anything, further supports our view that the earth is very likely unique in its ability to support complex life. If life is ever discovered on another planet, it will further strengthen the position of intelligent design as the best theory to explain the evidence.

Notes

1. *Dallas Morning News*, April 24, 2007.

2. Jay Richards, Acton Institute, formerly with The Discovery Institute, the institutional home of the Intelligent Design movement.

3. www.reasons.org

4. Hugh Ross, "Probability for Life on Earth, 2004 April Update", Reasons to Believe, 2004.

5. It is interesting to note that Ross's paper allocated a probability of 1 in 1,000 to that same factor, which is the same order of magnitude as 1 out of 220. So if we used 1 out of 220 instead, the calculated probability would be less than 1 in 10^{198}.

6. *Dallas Morning News*, April 24, 2007.

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Stem Cells for Everyone: A Breakthrough?

As far as dramas go, the stem cell saga contains all the elements of a juicy prime-time soap opera. The excitement, the promises, the characters, the politics, the lies, the scandal, the moneythe only thing missing is sex, but thats the point, isnt it?

On November 20, 2007, the journals *Science* and *Cell* announced a truly major discovery. It was a way to convert human skin

cells taken from a simple skin biopsy into *stem cells* that behave like an *embryonic stem cell*but the byproduct is not an embryo and can in no way become one.{1} This has the effect, say many, of sidestepping the ethically troublesome practice of creating then destroying human embryos in order to treat diseases.

This new method is efficient. One biopsy can produce 20 stem cell lines, and can be taken from the patient himself, eliminating the risks associated with tissue rejection. We hear about stem cell breakthroughs all the time; how is this one different? Is this method ethical? Will it save as many lives as embryonic stem cells promise to? Is this the end of the stem cell controversy?

The Saga

Stem cells are simply cells that make other cells. Their job is to be a cell factory. By analogy, think of a rose. From the stem of the rose grows leaves, the flower, and thorns. The thorns dont produce flowers, the leaves dont produce thorns, and the flower doesnt produce leaves, but the stem does. The stem is versatile; it can make many parts of the plant. Stem cells operate the same way. Some stem cells are more versatile than others. In other words, some stem cells can make many types of cells and others can only make one type of cell.

The history of embryonic stem cells dates back to the 1950s when two scientists isolated a teratoma from a mouse. A teratoma is a tumor that is composed of various types of cells from hair cells to eye cells to teeth to nails, so the scientists aptly named it a *teratoma*, or monster. When investigating this tumor, the scientists found that the stem cells that produced this array of cell types had very similar properties of embryonic cells. Thus began the investigation into embryonic stem cells.{2}

Before the term stem cells had become popular, bone marrow

transplants had been used to treat patients with leukemia. Whenever a patient receives a bone marrow transplant from a donor, they are really receiving a type of stem cell therapy. At this point, scientists could only use bone marrow stem cells for very specific cell replacement. These stem cells were not very versatileat least that was the theory at the time. Since then, bone marrow stem cells have been found to be quite versatile, and can be coaxed into becoming a variety of cells. Scientists have now found a variety of adult stem cells throughout the body and have been using them in humans to cure or alleviate a number of diseases or conditions (see www.stemcellresearch.org for a complete list).

Another breakthrough with stem cells arose from tissues such as umbilical cord blood, placental tissue, amniotic fluid and even menstrual bloodall obtained without harming the life of the baby at any stage of development. Each of these stem cells are a little more versatile than the adult stem cells, meaning that they can become two or three different types of cells, and in many cases the donor/recipient need not be an exact match. The National Cord Blood Program is just one group that allows parents to put their babys umbilical cord blood in a bank so that he or she could use it for therapy sometime in the future, or they can donate the umbilical cord for others to use. See www.nationalcordbloodprogram.org for a list of patient success stories.{3}

If these are *adult* stem cells, then what are *embryonic* stem cells? These are cells removed from the eight-day-old embryo. When these cells are removed, the embryo dies. These cells produce almost all of the cells in the human body, and therefore are the most versatile stem cells. You may have heard of these cells as being pluripotent. That simply means that they are very versatile. Some scientists believed that embryonic stem cells (ESC) research was where time, money and resources should go since we know that these cells have the potential to become any cell type.

Numerous success stories of treatments with adult stem cells have been under-reported by the media, while the supposedly cure-all ESC were hypedeven though they have shown no actual success in humans. Ironically, adult stem cells have been saving patients lives for years (bone marrow transplants), while ESC scientists have yet to control the growth rate of the ESC. In what shouldnt be a surprise to anyone, ESC tended to form grotesque tumors (teratomas) composed of various cells found in the body.

Debate over the ethics of using embryos became heated within the political arena. The individuality and dignity of the embryo came into question. Scientists wanted unfettered research{4} so that all options can be explored to cure diseases, while others considered the embryo a very vulnerable life that has the right to be protected from experimentation. Both sides claimed to be arguing for the good of humanity.

These debates, however, have taken a slightly different turn with the recent discovery of converting skin cells into pluripotent stem cells mentioned above.

Skin Cells

As mentioned, now scientists have isolated human stem cells that are as versatile as embryonic stem cells, but no embryos were used to obtain these stem cells. While more studies are needed to confirm that these cells act like ESCs in the human body, they behave just like ESCs in the lab.

There are a few concerns with this procedure. One of the biggest concerns is the way these stem cells are made. Both research groups had to use a type of virus to insert the right code into the skin cells to tell it to become a stem cell. This virus may be harmful to humans. However, both scientists are researching safer methods for coaxing the skin cells into stem cells.{5}

So is this method ethical? I strongly believe the answer is yes. As Leon Kass, former head of the Presidents Council on Bioethics, stated in a *National Review Online* symposium, Reprogramming of human somatic cells to pluripotency is an enormously significant achievement, one that boosters of medical progress and defenders of human dignity can celebrate without qualification.{6} Sanctity of life advocates can celebrate because no embryos are created or destroyed for research.

Both scientists who first published on this new discovery, Dr. James A. Thomson from the U.S. and Dr. Shinya Yamanaka from Japan, said that this research could not have been done without the knowledge that we already had from embryonic stem cells. And Thomson, who was one of the first scientists to remove a stem cell from a human embryo,{7} has specifically stated that embryonic stem cell research should continue.{8} We must keep this point in mind, but we must also remember that, contrary to what some in the scientific community are saying, both scientists had more than just economic reservations about using embryos in their research:

> *Thomson: If human embryonic stem cell research does not make you at least a little bit uncomfortable, you have not thought about it enoughI thought long and hard about whether I would do it.{9}*

> *Yamanaka: When I saw the embryos, I suddenly realized there was such a small difference between it and my daughtersI thought, we cant keep destroying embryos for our research. There must be another way.{10}*

Is This Match Point?

Most people agree that this changes the political and scientific culture of the stem cell debate. Surprisingly, some

major players have come around.

Jose Cibelli, research scientist whose successful primate cloning was overshadowed by the skin cell announcement states, If their method is as good as the oocyte (the cell that forms a human egg)we will be no longer in need of the oocytes, and the whole field is going to completely change. People working on ethics will have to find something new to worry about.{11} Even Ian Wilmut, the scientist famous for creating Dolly the Sheep [see Probe article], decided to abandon cloning and work with reprogramming cells instead. As the Britains *Telegraph* reports, The scientist who created Dolly the sheep, a breakthrough that provoked headlines around the world a decade ago, is to abandon the cloning technique he pioneered to create her. I decided a few weeks ago not to pursue nuclear transfer, Prof Wilmut said.{12}

Several of the participants of *National Review Online* Symposium agree that this removes the ethical concerns from researching pluripotent cells, and, pragmatically, this seems to be significantly more efficient than cloning embryos to remove stem cells. Case closed? Not quite.

Not all agree that this is the end of using embryos to extract stem cells. As Wesley Smith, bioethicist, vocal ESC critic and Discovery Institute fellow, points out on his blog, www.bioethics.com:

> *If anyone thought that the pro-human cloners would fold up their tents and steal away after the news was released that patient-specific, pluripotent stem cells had been derived from normal skin cells, they just dont understand how fervently some scientists and their camp followers want to clone human lifeand how hopeful some are that the stem cell issue can be the vehicle that wins the culture war.{13}*

Recall that we are dealing with scientists careers and, for the most part, scientists with a utilitarian worldview. A

scientist whose worldview is dictated by whatever is for the greater good and has built his entire career and reputation around embryonic stem cell research is not going to readily abandon it. To see the interplay of both career and worldview choices, Dr. Hans Keirstead, neurobiologist and stem cell researcher at the University of California-Irvine, had this to say in an interview for the *Arizona Daily Star*:

> *I do think a great deal of this work could be done with the skin-cell derived stem cells. But wed have to start completely over, from scratch, and we are not going to slow down to do that, not at this point.*

It is my personal feeling its a very ethical decision to use this tissue [Embryonic Stem Cells] to end human suffering, to better human life, than to destroy it.{14}

Conclusion:

As Christians, we operate within an ethical framework dictated by Gods word. Although the Bible does not mention stem cells, it *does* make clear that we are made in Gods image (Genesis 1:26, 27), that God knew us and knit us together within our mothers womb (Psalm 139: 13-16), and how God called prophets before they were even born (Isaiah 49:1; Jeremiah 1:4-5). God values the life of the unborn. We do not always have the privilege of seeing ethical decisions vindicated in our lifetime, but we can be confident that God is sovereign over all things.

Notes:

1. Takahashi, Kazutoshi, et al, Cell 131, 861-872, November 30, 2007; Yu, Junying, et al Sciencexpress, www.sciencexpress.org, (fee/registration to access full article) November 20, 2007.
2. From teratocarcinomas to embryonic stem cells and beyond: a history of embryonic stem cell research Solter, *Davor Nature*

Reviews 326, vol. 7, April 2006.
3. See list of references from Family Research Council, www.frc.org/get.cfm?i=IS06H01. See also www.stemcellresearch.org/facts/asc-refs.pdf for a sampling of peer reviewed research articles.
4. This case history [of ESC research] again reinforces the old truism that unfettered basic research driven only by scientific curiosity is usually the best way to discover things of enormous practical value Solter, *Davor Nature Reviews* 326, vol. 7, April 2006.
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6. National Review Online NRO Symposium, nationalreview.com, Brave New Future.
7. Thompson, James A. et al, *Science* 282, 1998.
8. Standing in the Way of Stem Cell Research by Alan I. Leshner and James A. Thomson *Washington Post*, 12-0-07, pg. A17.
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10. Risk Taking Is in His Genes by Martin Fackler, *New York Times*, 12-11-07.
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12. Dolly creator Prof Ian Wilmut shuns cloning by Roger Highfield, *Telegraph* 11/16/07, www.telegraph.co.uk.
13. 'Lead Into Gold:' Stem Cell Counter-Attack by Wesley Smith. Posting for November 27, 2007 www.bioethics.com.
14. Human embryonic stem-cell work must go on, says researcher by Carla McClain, *Arizona Daily Star*, 11-28-2007.

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