"Integrating Science and Faith in a Cohesive Worldview"

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I want to spend our time today considering how science influences worldviews and how worldviews in turn can influence scientific inquiry. I have always had a great interest in the interplay between these two because I am committed to a Christian worldview and am also committed to reconciling my beliefs to the sound evidence presented by science. It is my belief that the two must coincide perfectly. If the Christian God is the truth about our reality, then he owns all things and all things should be consistent with his nature and his testimony. If we find great evidence from the natural world that cannot be harmonized with the Christian worldview, then it would seem to me that maybe the Christian worldview is not correct and we should search for the one that is. However, if it is correct, then it should lead us to discoveries about our world that opposing worldviews would not uncover. In this way, science is a fascinating way to investigate the accuracy of worldviews, and worldviews in turn provide a framework for science to work within.

A few months ago, my church began a series called Science and the Bible where we looked at one particular attempt to harmonize the record of nature with the words of the Bible. What became immediately obvious was how much confusion there is about how this might be done. The picture of our world presented by the modern scientific community seems to be totally at odds with the picture of the world as portrayed by people of faith. For those in our study, one thing became clear -- it is not obvious how or even if they fit together.

It is no secret that science and faith are considered by many to be irreconcilable opposites. I recently read in a front page story of the *LA Times* that a 1999 survey done by the *Scientific American* magazine concluded that fewer than 10 percent of National Academy of Science members believe in God. Contrast that to the results of a Gallup Organization poll showing that 90 percent of Americans say they believe in not only a God, but one that played a part in creation. The contrast is startling. Obviously we are looking at more than just a coincidence here. What is it that these scientists know that the rest of America lacks? Have scientists indeed found some body of evidence that eliminates the possibility of God? Or is the science community committed to a worldview that rules out belief in God in spite of the evidence? What we have here is a great struggle between two opposing worldviews. If we can understand how worldviews interact with science, we may be able to gain some insight into what may be behind this great contrast of belief.

When I say worldview, I simply mean the view an individual believes to be the most accurate comprehensive picture of our world. Charles Colson, along with Nancy Pearcey and Harold Fickett, define a worldview in the book *How Now Shall We Live?* as any view that answers the questions: “Where did we come

from?", "What has gone wrong with the world?", and "What can be done to fix it?" Since science speaks mostly to the first question, we will limit our discussion of worldviews today to that aspect only.

Though we may not think much about it, the way in which we answer the question of our origin has profound impact on everything else we think and do. If we believe there is no creator or if we believe in one that has abandoned us, we will likely live very different lives than if we believe we are the creation of a God to whom we are ultimately accountable. In essence, everything is on the line based upon our answer to the origins question. Each worldview has an answer to the origin question and historically, there was not really been any empirical test for the accuracy of one origins view over another. That may be changing today because of the increasing influence of science. We may be moving into an exciting period of history where the question of our origin can be answered empirically instead of just philosophically or by revelation as in the past. As we gather more information about our world, and ourselves we are getting a better idea of our origin. For this reason, we see science both influencing and being influenced by competing worldviews. With so much at stake, the lines of distinction between worldviews ideas and scientific evidence can easily be blurred. Science is caught up in a power struggle of ideology because of its power to shape belief. It is increasingly difficult to separate out science that is driven by worldviews from science that is driven by evidence.

In order to untangle this interplay between science and ideology, we need to understand how these two interact. For starters, lets consider how science shapes worldviews. The link between science and worldview models can be understood through an ancient parable about three blind men feeling an elephant. One man feels the trunk and believes it is a rope while another feels the leg and believes it is a tree. The third man feels the ears and believes it to be a fan. All three are experiencing the same reality yet they each draw different conclusions and all three happen to be wrong. Since they cannot see the true picture they are limited to doing experiments to gather information. By assembling this information, they formulate beliefs. As they add up their beliefs, they make a statement about their worldview. It is an expression of what they believe to be the true reality. You can see from this parable that the quality of the information gathered has a profound impact upon what worldview is held. In the same way, the information gathered by physicists, biologists, chemists, paleontologists and specialists in other fields shapes our beliefs about reality. This in turn greatly influences the conclusions we make about the worldview we choose to hold.

J. P. Moreland gave a talk on this campus a few months ago where he expressed the power of this link between knowledge and belief. He stated that we are not free to believe whatever we choose. In fact what we believe is not something we have made a choice about at all. This seems an odd thing to say, but I think it can be demonstrated to be true. Our ability to hold a certain belief is

limited by our knowledge about reality. If we are to retain our sanity, we in fact must limit our beliefs. For example, a sane person cannot choose to believe that he died two days ago, that he lives on Pluto, or that he can fly. Our knowledge about these things makes believing them impossible. Similarly, a child may believe in Santa Claus until what point? Until the day he gains knowledge that makes this belief impossible. So our picture of what is true holds our beliefs in check. Once this knowledge is gained, holding on to wrong beliefs is actually impossible without some sort of irrational denial. If we continue to hold a belief contrary to what we know to be true we live foolishly. As our knowledge grows, what we can and can't believe is forever impacted.

There are many great examples from history where we can see this process at work. In the fourth century, it was commonly held that the earth was flat. This incorrect belief limited the framework by which men thought about travel, astronomy, and even commerce. But some Greek philosophers of the day had done more careful experimentation and believed the world to be round. Once this was established, our concept of our world, its limitation, and its opportunity was forever changed. No modern worldview can be built upon the assumption that the earth is flat. The evidence simply prohibits this belief.

Moving forward to the sixteenth century, Martin Luther expressed a popular belief about the nature of the solar system. In response to the teaching of his day that the earth was not the center of the universe, he wrote,

"People gave ear to an upstart astrologer who strove to show that the Earth revolves, not the heavens or the firmament, the sun and the moon... This fool Copernicus wishes to reverse the entire science of astronomy..."

Luther was stretching his worldview into unfamiliar territory and reality proved his belief on this issue to be wrong. The facts of nature lead us to a more correct worldview.

These two examples demonstrate the power that science can exert on what we are able to believe. But in these two cases, the beliefs that were impacted were relatively minor in terms of answering the origin question and shaping worldviews. But this is not always the case. Some information from science speaks directly to the origins question and in this way impacts the very foundation of worldviews. This is one of the reasons I think there is so much tension between science and faith. Scientific discovery has the power to destroy or to affirm worldviews. Those who have built their lives upon a particular worldview may feel a bit anxious if its foundations are threatened. But science is not to be feared. If our picture of reality is truly wrong, shouldn't we want to know? It is obviously foolish to live lives contrary to what we know to be true. A bit of honesty and a bit of humility will serve us well as we consider the impact of scientific discoveries upon our worldviews.

Consider the approach of H. S. Lipson, member of the Institute of Physics. Lipson had held a worldview rooted heavily in naturalism and Darwinism. Upon investigating the mathematical improbability that Darwinian evolution occurred, he wrote,

"We must go further than this and admit that the only acceptable alternative is creation. I know that this anathema to physicists, as indeed it is to me, but we must not reject a theory that we do not like if the experimental evidence supports it."

Lipson kept enough flexibility in his worldview to allow the new evidence to shape his beliefs. If he had clung to his preconceived notions, he would have departed from a picture of reality that he knew to be true. Despite his reservations, he allowed the evidence to shape his beliefs. This kind of courage and honesty is commendable as it is at the heart of the quest for truth.

Robert Jastrow, founder of the Goddard Space Institute was also honest enough to allow scientific discovery to influence his worldview. Reflecting upon the implications of the discovery of the big bang, he made the following statements about his atheistic colleagues,

"Astronomers now find that they have painted themselves into a corner because they have proven, by their own methods, that the world began abruptly in an act of creation, and they have found that all this happened as a product of forces they cannot hope to discover." And he continues with great honesty, "the scientist's pursuit of the past ends in the moment of creation."

Though he labels himself an agnostic, we can clearly see how the weight of evidence for a beginning is causing a shift toward a more theistic worldview.

Probably the best example of scientific evidence causing a shift in worldview comes from the twentieth century's greatest scientist. Einstein experienced a total overhaul in worldviews as he processed the reality that time, space, and energy had a beginning. Einstein was initially not at all given to belief in a God that created. He was openly antagonistic toward those who believed in the Bible favoring a naturalistic worldview that did not require a creator. Ironically, his own discoveries gave him the knowledge that changed his beliefs. Norman Geisler records this shift in his book *Baker Encyclopedia of Christian Apologetics*,

"Einstein first opposed the mounting evidence for a big bang origin, perhaps realizing its theistic implications. In order to avoid this conclusion, Einstein added a 'fudge factor' in his equations, only to be embarrassed later when his maneuver was noticed. To his credit, he eventually admitted his error and concluded that the universe was created. Thus, he wrote of his desire to know how God created this world. He said, 'I am not interested in this or that phenomenon, in the spectrum of this or that element. I want to know His thought, the rest are details.'"

So our worldviews are greatly influenced by our knowledge about the world. In this way, science works as a tool that prunes out our beliefs that are based upon incorrect information. It can shape, or even totally defeat our worldviews. If we want to live lives consistent with reality, then we must hold a worldview that can be reconciled with what we know about reality. Just as the blind man who believed he was experiencing a tree could soon be in for a big surprise with some startling consequences, we too should strive to hold a worldview that fits reality. In doing so, we can hopefully avoid the consequences associated with living by wrong beliefs.

In this way science has a very positive influence on worldviews. But it does have its limitations. As with anything we plan to incorporate into the framework of our beliefs, we must exercise discernment. As we have discussed, science is not totally free from ideological influence. In addition, the information provided by science is not always sound. It must stand the test of time and scrutiny. If we rely too heavily upon information that is not very well established, we can be led astray. Also, we do not have the whole picture and must leave room for new discoveries. In spite of all we know, we are still like blind men piecing together bits of information about a reality that we cannot fully see. As illustrated in the parable, they would have been wise to hold off on deciding too quickly what reality they were experiencing. More reliable information will always lead to a more accurate belief. Also, we need to remember that a worldview is much more than an answer to the origins question.

Now let's consider the opposite case. What happens when a worldview begins to influence science? Shouldn't scientists check their ideology at the door of the laboratory? Do our worldviews skew our interpretation of evidence or do they serve as a guide leading us to explore in the right places? These are interesting questions to consider.

To answer these questions, let’s revisit what science actually is. Pure science is really neutral when it comes to worldviews. It is not the servant of any one person's beliefs. Science is simply a systematic process for gathering reliable information about the nature of our world. It is a method used to test assumptions to prove which ones are consistent with the laws governing our lives. When it reveals an aspect of reality, every worldview must bend the knee. But science is also the work of men and women who each have their own unique worldviews. We would be foolish to assume that their ideas about reality did not influence their work. When we combine the necessity of science to make assumptions, with the worldviews that scientists bring into the lab with them, we have the potential for the cart to get ahead of the horse.

We have shown that science forms part of the foundation for worldviews. It gives us pieces of truth to which we all must conform. But we do not know everything about our world -- since none of us has seen the proverbial elephant -- so we are all left to fill in the blanks with some assumptions. This is not necessarily a bad

thing as long as we keep these areas of assumption separate from what is well established by evidence. As long as the evidence is used to evaluate the assumptions, we are performing what I will call pure science. When our assumptions are held dogmatically in spite of the evidence, or are used to reinterpret the evidence, we are performing what I will call bad science. Good science then is rooted in evidence; bad science is driven along by worldviews in spite of the evidence.

But this influence of worldviews upon science is much like gambling in Vegas. When the risk is high, so is the potential pay off. If we use a reliable body of information to build a worldview and then make the right assumptions about what may be true, it can steer us toward accurate discoveries about our reality. Suppose our blind men were to gather enough information to assume that they were experiencing an animal. This assumption would allow them to design good experiments to test that theory. Since their guess happens to be right, they would likely be able to find evidence to establish what they thought to be true. In this way, they could make great progress in defining their reality. Even though they may be far from determining that they were feeling an elephant, their assumption would get their beliefs much more in line with reality and would allow them to take advantage of their world. They could make much better assumptions and would likely uncover a host of new discoveries. In this way, their worldview options would diminish and the pool of incorrect views would greatly decrease. They would be closer to the truth.

History again provides us with some wonderful examples of how this works. Ironically, while Luther was misinterpreting the Bible to defend a historic tradition in spite of the evidence, Copernicus was using the same Bible to develop his assumptions about the heliocentric solar system. In *How Now Shall We Live?* Charles Colson writes:

"For example, when Copernicus proposed that the planets go around the sun instead of the earth, he actually had no empirical evidence for the new hypothesis. Before the invention of telescopes, observations of the planets fit an earth-centered system just as well as a sun-centered system. The sole factor favoring a heliocentric system was that it was mathematically simpler; it didn't require as many adjustments in the equations. And since Copernicus was convinced that God had made the world mathematically precise, getting better formulas was good enough for him. Of course, when telescopes were invented, it turned out that Copernicus was right. But standing at the threshold of the scientific revolution, Copernicus was inspired not by the scientific facts available to him but by his Christian faith."

Copernicus used his worldview to make assumptions about what he expected to be true. His idea was eventually established by the evidence, not by the dominance of his worldview. Johannes Kepler used the same principle to discover the path of planetary motion. Quoting again from Colson:

"...Kepler was convinced that everything in creation is precisely the way God wants it to be. If God had wanted the orbits to be circular, they would have been exactly circular; since they were not, then they must be exactly something else. Kepler struggled for years to reconcile the equations with the observations until he finally hit on the discovery that the orbits are ellipses. Through the difficult years, it was his Christian faith that spurred him on -- his conviction that the Biblical God has complete control over matter and, therefore, it will be mathematically precise."

Again we see how a correct worldview assumption led Kepler to search persistently in an area that others were not looking. Kepler's assumptions are not questioned today due to the overwhelming evidence for a mathematically precise universe. Their discoveries resulted from good science and have forever changed our ideas about the solar system. An interesting side benefit to such discoveries is that when they are proven true, it can lend great support for the accuracy of the worldview that generated the assumptions.

At this point, I would like to return to my initial question: Why is it that belief in God is so rare in the popular scientific community? We have seen how discoveries about the origin of our universe have driven scientists to belief in a creator, and how belief in a creator has lead scientists to make correct assumptions about our world. So why do we find that God has been kicked out of the scientific community?

I think the answer is that in the last 150 years, we have seen what can happen when a worldview dominates science. Before Darwin, most scientists believed the world to be the work of a creator. Darwin's big idea was that life might have come into being without the need for a creator. If life, being far more complex than anything else in the universe, did not require a creator, then maybe there was no creator at all. There is an obvious philosophical motive in escaping the morality and accountability that comes with a theistic worldview. It is possible that Darwinian evolution gave this worldview a place to stand and in turn this worldview gave Darwinian evolution the momentum it needed to become established within the scientific community.

If we consider Darwin himself, we gain some interesting insight into this proposition. Fellow evolutionist George Grinnell studied Darwin's methods and made the following statement:

"I have done a great deal of work on Darwin and can say with some confidence that Darwin also did not derive his theory from nature but rather superimposed a certain philosophical worldview on nature and then spent 20 years trying to gather facts to make it stick."

But if this is the case, then shouldn't the evidence for Darwinian evolution be in short supply? If it is an incorrect assumption and is being driven by a worldview

instead of the evidence, shouldn't it fail? Yes. But this may take time. In Darwin's day, his theory seemed plausible enough. It has taken years to explore the fossil record and today, there is in fact mounting evidence against Darwinian evolution from all areas of science. We have already seen how many astronomers and physicists see the need for a creator. The time lines given by the big bang do not give near enough time for the Darwinian mechanism to develop the kind of diversity of life we have on earth. Mathematical physicist Robert Griffiths expressed this recent change of the winds when he said,

"If we need an atheist for a debate, I go to the philosophy department. The physics department isn't much use."

Even the fossil record, once thought to be the champion of Darwinists is turning out more problems than solutions. The March 22, 2001 cover story of the elite scientific periodical *Nature* covered the discovery of a new primate skull. The article headlines,

"The evolutionary history of humans is complex and unresolved. It now looks set to be thrown into further confusion by the discovery of another species and genus, dated to 3.5 million years ago."

We could visit virtually every field and find similar evidences that weigh in against evolution. I recently attended a meeting at UCLA of the Center for Study of Evolution and Origin of Life. This is an international community of Darwinian evolutionists trying to locate sound evidence for Darwin's idea. The guest speaker was Nobel Laureate Christian De Duve. For every possible mechanism that was presented, questions were raised that had no answer. All the discoveries we have made since Darwin's day have only served to complicate the problem instead of shedding light on how evolution might actually work. It was clear among the scientists gathered at this UCLA meeting that they were all completely committed to a naturalistic worldview. In spite of all the evidence against their views, they simply were not open to the idea that the idea of evolution might actually be wrong. This is not good science. The evidence must take priority over the assumptions.

Considering evolution's source in a naturalistic worldview, the lack of supporting evidence, and the mounting evidence that makes it so improbable, I think it is fair to say that we may have a worldview supporting a theory in spite of the evidence. So when we see a lack of professed faith in God expressed within the scientific community, it seems reasonable to suppose that it has more to do with opposing worldviews than it does with some knowledge that makes belief in God impossible.

To summarize, we have seen how science can be used to lead us to the correct worldview by defining a reality that must be consistent with our beliefs. These correct beliefs point us to a worldview that can be used to make assumptions

about yet unknown aspects of our world. If our assumptions are correct, we can increase our confidence in that worldview and can enhance our understanding of our reality by allowing our worldviews to point us toward new discoveries that fit within that worldview. We have also seen how science can be compromised when it is dominated by a worldview that does not produce validating evidence. I will leave you today with the words of one of my favorite scientist. Isaac Newton proved his competence as a scientist giving us the foundation for modern physics. His discoveries about the nature of our reality literally shaped the world we live in today. How was he able to gain such insight into the intricate workings of our world? The authors of *How Now Shall We Live?* reveal the secret,

"Isaac Newton, often considered the greatest of the early scientists, was a devout Christian whose pursuit of science was strongly motivated by his desire to defend the faith. He firmly believed that scientific study of the world would lead straight to the God who created that world. Science shows us, 'what is the first cause, what power he has over us, and what benefits we receive from him,' Newton wrote, so that 'our duty towards him, as well as that towards one another, will appear to us by the light of nature.' And why does science show us all this? Because the business of science is to 'deduce causes from effects, till we come to the very first cause, which certainly is not mechanical.' In other words, the world may operate by mechanical causes, but as we trace them back, we deduce that the first cause must be an intelligent and rational Being.... Small wonder that his friend Roger Cotes proclaimed that Newton's work 'will be the safest protection against the attacks of atheists, and nowhere more surely than from this quiver can one draw forth missiles against the band of godless men.' This is precisely the approach we must recover today."