

# CLEARING THE GROUND FOR A MEETING OF SCIENCE AND THE CHRISTIAN FAITH

**Five Characteristic Errors That Make the Healthy Challenge  
of Differing Perspectives Seem Like Open Warfare**

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Science and faith bear on each other in many ways. This is inevitable because the subject of theology is so broad. John Polkinghorne, a professor of theoretical physics and priest of the Church of England, observes that to be "concerned with questions of God is to be concerned with the totality of all that is real."

Understanding the natural world is important to all of us, but has additional significance for those who believe the universe was created. In this understanding, what we learn about our world also teaches us about the Creator. It is the Christian view that this Creator actively reveals truth (about creation and Creator) in several ways, through the world around us, through the writings collected in the Bible and through personal experience.

We need to maintain humility about how well we really understand the physical world and its workings, how well we understand the Bible and how well we understand our own subjective experience. But in principle, faith, propositional theology, and science share the goal of understanding the way the world is. Many people today believe these different sources of knowledge are in such conflict that we simply cannot continue to acknowledge that they are, in fact, all valid sources of knowledge. I disagree, and after summarizing the current problem, I briefly review five characteristic errors of thought which make the conflict seem much worse than it really is. If it happens that the world really exists, it bears certain characteristics and not others, and we will need both science and theology, working together, if we are to improve our understanding of this one world.

## ***Leave Me Alone and I Won't Call You a Fool (To Your Face)***

Many people hold the view expressed by Stephen Jay Gould in a recent *Natural History* article that science and faith are both valuable but must be kept apart. They must not be allowed to interfere with each other. At first glance this seems like a good solution, particularly since we can all think of times when one has improperly interfered with the other and caused great pain and loss. But such a view makes no sense if you believe that both science and faith have bearing on the same, the one and only, real world. Gould and many others may talk about the value of faith but in fact believe it has nothing to do with the "real" world, only with the world of our individual subjective imaginations. I hope I am wrong, but I suspect that when Gould says religion is important he is making a psychological or sociological statement, and not in the least acknowledging that there may really be such a thing as a spirit world outside of these realms of human creativity. Certainly that is how many scholars in my own field of anthropology understand religion --an essential component of human existence, but utter nonsense nonetheless.

On this matter I side rather with Polkinghorne and also with Albert Einstein who said, "science without religion is blind; religion without science is lame." Science and theology (which may be defined loosely as our intellectual effort to understand and explain faith, or, perhaps, as the study of God) are far from identical, but they both have something to say about the nature of the world around us, and neither one is adequate in itself for fully understanding this world. Furthermore, each is affected by human finitude, by our limited ability to see things as they really are in the fullest, deepest, undistorted sense. My point then, is

not that science and faith can coexist if each is kept on a sturdy leash. Rather, each domain of knowledge is enriched by the other.

### *All Quiet on the Enlightened Front?*

But of course this is not what you always hear. Even Gould can fancy himself a generous soul (or at least an altruistic strand of DNA) when his article is compared to the view most widespread in the popular imagination. For the last hundred years, most of us have been taught that science and religion are at war, a view championed at the turn of the century by Andrew D. White who wrote two bloated volumes of *A History of the Warfare of Science with Theology in Christendom*. White was very persuasive as a speaker. He was also President of Cornell, and like most major university presidents was not without intelligence. But my claim that his volumes are "bloated" is not just a sneaky rhetorical device, for while he piles example upon example, very little is really evidence for his point.

Indeed, there is very little evidence in general for an *inherent* conflict between science and Christianity -- *inherent* being the key word behind my point, for often there is rather more than just a little friction. I myself have been caught in skirmishes fierce enough to seem like open warfare, and important historical examples come readily to mind. Virtually every time I suggest to a group of people that science and theology are not at war, someone points out Galileo's fight with the religious authorities. Many people believe this not only proves there is an ongoing war, but that religion fights dirty. However, this was an event from very early in the development of modern science, and its relevance to current science and religion is easily overestimated. Also, even in this "type case" things are far from simple.

For example, the religious authorities were the civil authorities and the academic authorities all tied together. Modern scholars ought think twice before bringing up Galileo as a case of the warfare of science faith, for it reflects no more favorably upon their profession than upon the Church. The story is at least as much one of small-minded, vindictive academics using a heavy handed government to get their way as it is one of tradition vs. progress or science vs. Christianity. I like Galileo. He was not just a scientific genius but a witty character and something of a wise-mouth, and his books make entertaining reading even now, hundreds of years later. But his fondness for insulting and angering colleagues deeply alienated people in ways that went far beyond the friction inevitable in intellectual disputes. Even John Cleese could learn a thing or two from Galileo about the art of insult, but Galileo quite foolishly directed his barbs to real people, including some very powerful people who tried at first to conduct the argument on a more mature plane. Far from a hero in shining lab coat facing cretinous louts in clerical robes, Galileo was not without blame for his miseries. And finally, Galileo was as devout a Christian as any of his opponents -- very likely more devout than some of them. Unfortunately, not devout enough to overcome his exuberant pride and various other character flaws, but his professions of faith are deeply integrated with his thought and writings and it would be very hard to justify the claim that he only pretended to be a Christian as a matter of convenience, or as a matter of unreflective acculturation. This is a long digression, but my point is an important one. The Galileo affair is for many the type case of the warfare model, but it was simply not a battle of science vs. Christianity. There was certainly a battle, but it was not at all about science and Christianity being inevitably irreconcilable.

Speaking of acculturation, the warfare model spread by Andrew White and his colleagues was not new to them, but made particularly good sense in those days given other aspects of the view of the world that was "in the air" at the time. Before World War I put a check on secular optimism, many people believed the world was getting better every day in every way. So firm was the grip of this idea that people even spoke, with passion if not exactly humility, of humanity at last "coming of age". How exciting it must have been to live at *the very time* when we finally grew up -- and how different from what it is like now, some ninety years later, living in a culture that seems more adolescent than mature. An important part of this extraordinary optimism was what people perceived as the recent evolution of human thought from the olden days when we needed barbaric religious myths to sustain us, to the present when the searching light of science would take over the role of salvation, and provide us with all Truth.

Living in the 1990s we do not need to be reminded that it was not to be. Now the pendulum has swung back the other way, I think too far, and instead of the "light of science" being used as an image of enlightenment and wisdom, it is usually phrased something more like "in the cold, unfeeling light of science" humanity means nothing, but now we know better than to believe them. Many of us now live with an oddly ambivalent attitude toward science, being as likely to forget its real achievements as to forget its real limitations.

But strangely, while our cultural attitudes toward science have changed dramatically through the century, many of us still hold to a 19th Century view of religion. Many people believe, or perhaps just assume, that religion and science are terminally at odds, and that religion has been pushed aside by this inevitable progress -- despite the fact that we no longer believe in the inevitable progress.

### ***Must we Take Sides?***

If we start with the assumption that religion and science are at war, we have really only two viable choices for resolving it -- rejecting religion (as many scholars, from Andrew White to Richard Dawkins advocate), or rejecting science, something seen most clearly in the creationism movement, but now also becoming popular in academic circles among post-modernists. We often see either "science deified" or "science defied." If you really believe that science and faith are at odds, and you also care to learn the truth about the world around us, then you cannot remain neutral. And this, like Galileo's experience, is not simply a matter of a secular world vs. the Christian church. Different churches too have tended to take sides, and the result has been tremendous loss.

1) *The "modernist" approach* has been to accept all that we can of what scientists say, and of the latest and therefore best of scholarship in general. This requires a dramatic rethinking of faith to make it fit with science. Often this has meant, over time, such changes to faith as it is accommodated to science that it becomes nearly unrecognizable. In some cases, faith has become (surprise!) little more than a secular scientific world view expressed in religious sounding language. Rudolf Bultman's famous demythologizing program had the expressed goal of taking the supernatural out of the Gospels, something he and many others believed science forced us to do. But there isn't an awful lot left after doing that, and it is not easy to convince people that they should revolutionize their lives on the basis of the pale nonsense that is the Gospel without God. More traditional Christians like to see this is a wimp's approach, a sell-out for respectability in the world of power and prestige. That may often be the case, but for those who genuinely embrace the idea, and really think it through, facing the implications, it is actually a very courageous move. And if you really believe that science and faith must be at odds, and that science holds the higher ground, then you will not see adjusting faith to correlate with science as accommodation or selling out, but as necessary for acknowledging truth. On the other hand, if it is not true that science and faith are inevitably at war, or that science is always in the right when they seem at odds, then it is fair to say that this approach can cause tremendous misunderstanding.

2) *The "fundamentalists"* take basically the opposite approach of rejecting science. Wherever they see a conflict between the teachings of science and of their understanding of Christianity, they opt for the view that the Bible is revelation from God and it must be true, so therefore science is wrong. This is often caricatured as an ignorant, head in the sand position, and disdained as willful ignorance. I have been blessed with the opportunity to argue with some creation scientists, and can give personal testimony to the fact that their reputation for stubborn, closed- minded ignorance is sometimes all too well-deserved. But we also need to recognize that this response, just like the modernist approach, is much more reasonable given their assumptions than it appears to be from the perspective someone who does not hold the same basic assumptions. If you start by believing that a literal reading of the Bible (in a characteristically 20th-Century way, as though it were a newsreel or a scientific text) is truth from God himself, then anything that conflicts with that must be wrong. Period. Henry Morris of the Institute for Creation Research, for example, does not think of himself as rejecting science, but rather as rejecting false ideas that currently pass for science. I disagree with many things he says. In fact I can't read more than a page or two without getting an urge to shake him by the collar. But there is a certain logic and, up to a point, internal consistency to creation scientism. It is also a courageous position. But there are troubling consequences for this approach as well,

most prominently, I think, a rather unBiblical fear of intellectual exploration. And if their premises (that science and faith are at odds, and that we must read the Bible as though it were a science text) are not true, then this position, too, can bring great harm.

### ***Science and the Christian Faith are Not at War***

Now more and more people who study science and faith issues are beginning to work out a third way. This is not a compromise and it is not sort of half- way between these extremes. In fact, this way recognizes that the modernist and fundamentalist approaches are not the extreme opposites they appear to be but instead are different versions of essentially the same view of the world. They both start with the premise that science and faith are at odds, so what are we going to do about it. I say instead that science and faith are not at odds. Some people agree with this simply because it sounds "nice" and "conciliatory" but when I talk with them I discover that in practice they have made no attempt to put science and faith together and instead give priority to one over the other without realizing it. But the perspective I prefer is very different. It is not a matter of accepting a little science here, a little religion there, but may involve a fundamental re-thinking of assumptions. However, to accept the view that both science and faith may make genuine contributions to understanding the world, may genuinely help add depth to each other's findings, we must deal with the fact that, as I mentioned before, it does often seem that science and Christianity are at war.

### ***The Five Characteristic Errors***

How can I reject the view that science and Christianity are at war; certainly they often seem to be at odds. Since I can't give a full answer short of a long book, here are five examples of things to watch out for, examples of the kinds of errors that result in making science and Christianity seem more at odds than they really are. These are basically tools for clearing away stumbling blocks.

#### ***1) False Opposites vs. Complementarity***

One of the most widespread problems is the belief that if science can explain something, we can no longer believe God was involved. Most of us accept this idea without even thinking about it. It is in the air we breathe -- a kind of pollution which has an effect on our mental health similar to acid rain on the Adirondacks.

This is behind the rise of Deism in the 18th century, the idea that God got things started, but left the watch to tick away, and that everything now is determined, via natural laws, from what happened before, and it is behind the "God of the gaps" view of explanation where we use "God did it" as a filler whenever we have no scientific answer. Few people accept this now, though strangely it is the view of God's work that Stephen Hawking attributes to most people in his best selling *A Brief History of Time*.

If science is healthy, the idea that if science explains something, God isn't involved has the inevitable effect of diminishing religion. As every new scientific explanation comes along, it naturally leaves less room for this God of the gaps. To return to Hawking, he believes he has a model that shows the universe is uncreated, that there are no time boundaries, and the question he asks becomes very haunting: "What place, then, for a creator?" But it needn't remain troubling for long, since it is all based on a misleading picture of scientific explanation. In fact, it is entirely possible for two different explanations of the same event or phenomenon to both be true at the same time. In particular, scientific and religious explanations need not oppose each other but can actually complement each other, together providing a fuller picture of reality.

Suppose there was a No Smoking sign on the wall. We could very well describe it scientifically.

- We could take little samples of the paint to a spectrometer and discover its chemical composition.
- We could take another sample, if it were made of wood or some other organic material and do a radiocarbon test on it to see how old it was.

- We could view the fibers of the cardboard under an electron microscope and determine what kind of tree it was made from.
- We could bring it to an optics lab, and note that what some people have explained as words are in fact nothing but different patterns of surficial reflectivity.
- We could even give our detailed scientific explanation practical value, noting for example that the pigments are non-toxic, so if we put this up in the nursery, children could chew on it all they wanted.

But when we have collected and compiled all our data, spun out all our theories, and drawn on the best that modern science can provide, there is one thing we cannot do. We cannot light up a cigarette. If we do, we will still be ushered out of the room.

And this is because the chemical analysis does nothing to negate the claim that the sign has meaning, and has a purpose. It is true that it is a block of wood with latex-based pigments spread out upon its surface. But it is also a message. This is a different sort of explanation from that of the optical and chemical analyses. If we study the sign with scientific methods meant to understand chemicals, we should not be surprised to discover that our data indicate that the sign is in fact a bunch of chemicals with distinctive properties that can be discovered by empirical methods. It is worth doing this; science is both interesting and valuable as I think we would all agree. But we have no justification for the claim that the sign is *nothing but chemicals*, or that these explanations show it is without purpose. It seems very silly to say that because we can describe the chemicals in the material we are no longer able to see it as a no-smoking sign, yet in the real world we allow people to tell us that because we are a bunch of reacting chemicals we are not really persons as Christianity has taught us, or because we can explain one historical event in light of another event we can no longer accept the idea that God affects human history. The view that two different kinds of explanations can both be true at the same time is an important part of the complementarity model of science and theology.

One need not accept everything said in the name of complementarity to understand the importance of this point. (Beware! There are people out there who will want to dismiss what you say using a guilt by association approach -- they will call this view complementarity, find something else also part of what someone has labeled the complementarity model, show why that other idea is wrong and then turn around and say they have proved complementarity wrong so you are also wrong. This is a common scholarly game which does nothing more than help teachers keep their students from thinking.) Complementarity in this sense can affect any number of real issues in science and faith as dramatically as it can affect our decision whether or not to smoke in a given room. For example:

- Knowing the laws of gravitation does not negate the claim that God is continually upholding everything through the power of His word (Hebrews 1:3).
- Knowing that natural selection can have an effect in leading to new forms of life does not deny God's hand in it.

There is an important caution, however. Even though in principle different kinds of explanations could be complementary, at times the individual arguments would not be compatible with each other. Some well attested findings of science are in fact incompatible with some religious understandings of the world. I am not suggesting there is no conflict and everyone should just hold hands and smile. But even if two explanations are opposed, we should think twice rather than automatically assuming the explanation proposed by a scientist is correct and the one proposed by a theologian is wrong. One or the other or both explanations may be wrong for any number of other reasons. But it is valuable to know that we do not necessarily have to choose between them.

## ***2) Unacknowledged assumptions.***

Conflict also arises from unrecognized assumptions in our use of the Bible or in our use of scientific data in trying to understand the way things are. For example, only rarely, if at all will science in itself provide conclusions concerning meaning. So, when you hear people drawing conclusions about human nature, human worth, or the nature of God from science, you can bet that there are some non scientific metaphysical assumptions at work too and not just empirical findings or scientific theories. These will always be assumptions unrelated to the science. I am certainly not the first to suggest there are serious limitations to what science is and what it can do. John Polkinghorne has said of science that

"Its great success is purchased through the modesty of its ambition, restricting the phenomena it is prepared to discuss to those of an impersonal, and largely repeatable, character. It was a brilliant tactic of investigation for Galileo and his successors to confine themselves to the primary quantitative questions of matter and motion, but that narrow view would be a poor metaphysical strategy, condemning one to a narrow reductionist conception of reality. Those discarded secondary qualities of human perception may in fact prove to be primary clues to the construction of an ampler view of the way the world is. Music is more than vibrations in the air" (Polkinghorne 1994:5).

Simple as it seems this is a profoundly important notion; "*the great success of science is purchased through the modesty of its ambition*". He goes on to say that

"none of us can do without metaphysics. We all need to form a world-view going beyond the particularities of our individual disciplines. Scientists are especially prone to recoil from the notion of what they fear will prove to be the cloudy claims of such a generality, and then go on to promote the insights of their own field of study into a rule for all. As Jeffery Wicken says, 'Although scientists may officially eschew metaphysics, they love it dearly and practice it in popularized books whenever they get the chance.' If we are going to be metaphysicians willy-nilly, let us at least be consciously self-critical about it" (Polkinghorne 1994:9).

It is important that we dearly love metaphysics, and these popular writings are among the most interesting scientists produce even if often frustrating as well (at least for those with differing metaphysical assumptions). I give Hawking a hard time, but there is no doubt that his book is much more interesting than a typical issue of the Proceedings of the American Physical Society (though maybe this is because I can't read that journal). It is also important, and in no way self contradictory, that scientists officially eschew metaphysics, for this is necessary *within science itself*.

But Polkinghorne's last point is the most important; we must be self-critical, and this should start with recognizing when our conclusions depend on contended assumptions and when they do not. When we depend on these assumptions we have moved beyond science's modest ambitions.

This is not bad. In fact, it is unavoidable. But it does mean that those who accept the findings of science are not bound to accepting the conclusion in question *unless they also accept the additional assumptions*. Most of these claims, then are really not scientific claims at all. When Carl Sagan begins his *Cosmos* with the words, "[t]he cosmos is all that is or ever was or ever will be" he is making a metaphysical statement, indeed, this is almost a definition of metaphysical naturalism. What I find appalling is how many people believe that this is a scientific statement, that it is a conclusion we are bound to believe because people with big telescopes have proven it to be so.

Or consider this example. I've heard this many times, but it's the sort of thing you can picture someone like Carl Sagan drawing out with great relish.

The universe is over 10 billion years old, and humans have only been here for 100,000 years--a mere tick. The universe is huge, with billions of galaxies, each with millions of stars, of which ours is but one unexceptional example. Our planet is a little spec, and we are but one of millions of species of life sharing it.

These are all well-attested empirical findings of science. But in this scientific context, Sagan and others conclude, we are utterly insignificant. We must accept this and give up the self-important idea that if there is a God at all he would bother with us. Crass anthropocentrism and unbounded arrogance. Christianity is for fools who don't know modern science. But consider the assumptions used here.

Concerning conflict with Christianity, the argument assumes we made all this up. It rules out the possibility that these ideas were revealed to people by God -- ironically, while pretending to disprove it. If God does speak to us it is hardly arrogance or delusion to believe what we are told. On the contrary, it is arrogance to believe in an alternative idea known to be created by humans.

There are also problems with concluding we are insignificant. These empirical facts say nothing whatsoever about our significance unless we also accept several doubtful metaphysical assumptions such as that importance and value are directly related to size and duration. We would indeed be insignificant if worth and importance depend on being big and old. But where is the science that has established that idea?

And finally, even Sagan didn't really believe it. It only takes a little exposure to Sagan to realize that he never thought of *himself* as an insignificant spec. What then, could people who say this kind of thing really mean by it?

### ***3) Self-destructive critiques.***

Then there are those critiques of Christianity by the sciences and social sciences which seem very devastating at first but which turn out to undercut themselves at the same time. An argument that does that simply cannot be both true and meaningful at the same time. This kind of argument is common in modern thought and it is useful to get in the habit of examining ideas--including your own--with this question: *What would happen if I applied this idea to itself?*

Here's one from Charles Darwin. I am not objecting to the idea of evolution, only to the conclusion that he draws from it. In a letter to a friend, Darwin was discussing the belief that there is an intelligent mind behind the workings of the universe. Darwin has his doubts about this, saying "can the mind of man, which has...been developed from a mind as low as that possessed by the lowest animal, be trusted when it draws such grand conclusions?" The many people who gleefully quote this obviously believe the answer is no, an evolved mind cannot be trusted to produce reliable statements about God. With one swift blow Darwin has undercut any hope for the reasonableness of Christianity which is reduced to unfounded belief, pure speculation; blind faith rather than faith. But neither Darwin, nor those who have quoted him approvingly (from T. H. Huxley to modern popularizers) seem to notice that Darwin's theory of evolution is itself a product of the same evolved mind. Why does he trust this high order product, this grand conclusion?

Or consider positivism, a philosophy long discredited in its strong form, but which many of us nonetheless have been taught in the "what is science" sections of high school courses. It is a version of empiricism built on the Verifiability Criterion of Meaning. According to this verifiability thingie, no statement is meaningful unless it is in principle empirically testable, or else is an analytic statement (true by definition--e.g. all bachelors are unmarried). Naturally metaphysics, particularly religion, do not fare well: to positivism religion is literal nonsense.

But to the person who asks how can I possibly believe something that cannot even in principle be verified empirically, we must answer that this Verifiability Criterion is not itself empirically verifiable. The principle itself cannot stand up to its own test. By uttering that sentence you have not eliminated religion but have contradicted yourself. Thus, either it is meaningless or meaning does not depend on empirical testability in which case it is false. Either way, it's not very exciting. But real people today, who haven't thought this through, are reluctant to even think about religion for this very reason. It is one of the main reasons people believe that science has ruled out religion, and it is nothing short of nonsense. It is also a reason why religion has retreated into the subjective over the course of this century.

And lastly, what of behaviorism, made popular by B. F. Skinner, who argued that our actions are conditioned behaviors. Skinner is no longer "in" in academic circles, but much of sociobiology, evolutionary psychology, and all kinds of thoughts that don't have fancy names to go with them, all work much the same way. By now you are probably ready for my answer, since it is exactly the same problem again. Skinner is asking us to make a conscious choice to believe that we are conditioned and cannot make conscious choices to decide what we believe. Hmm. That doesn't sound too convincing to me. It is not strictly self-contradiction, but in that wonderful expression of the philosophers "ultimately incoherent."

As a digression, I came across this idea in a philosophy class here at Bates College, taught by Joseph D'Alfonso. I took a course with him in 1976 and he retired the next year -- I have always assumed for unrelated reasons. We talk sometimes about the importance of good teachers, but I can say literally that one of his classes changed my life, though of course I didn't realize it then. He sat at a table, with his hands folded, and spoke quietly with his smooth Italian accent. It all seemed calm except that he said the most extraordinary things. At least so it seemed to me; the woman who always sat next to me never actually snored out loud, but clearly had a different perspective on the class overall. Professor D'Alfonso said that Skinner used to bother him. But, one day while driving home from Boston, he stopped to get gas, and while sitting there (before the days of self-service, I guess) it dawned on him that Skinner was asking us to make a willed choice to believe that we do not have free will to choose what we believe.

That really struck me in two ways. First, the sheer ordinariness of it. You can be a regular person driving in a car up route 95 and have wonderful ideas. Who knows, even I could do it! Also, the idea itself is transforming, and I have come to realize in the last twenty some years that much of modern thought falls into the same logical trap. I'm serious. I believe that many of the ideas promulgated today genuinely undercut themselves and therefore are most unlikely to be true. Someday people will get quite a laugh over what people actually believed in the last half of the 20th Century, and it is my opinion that any such scorn is far more well deserved than the uncomprehending derision we now heap upon those who spoke of angels dancing on the heads of pins or of the nuances of phlogiston theory.

The general form of reasoning was not new with D'Alfonso, of course, and is technically known as a *tu quoque* argument. I can't read Latin, but as one who grew up in New York I think it might be fair to call it the "same to you, buddy" argument.

#### ***4) The Possibility of and Problems with Revising Theology and Faith***

Some years ago now -- even longer ago than my college philosophy class -- another Italian wrote a little book, titled "Concerning the Use of Biblical Quotations in Matters of Science" in which he said: "the intention of the Holy Ghost is to teach us how one goes to heaven, not how heaven goes." Galileo Galilei wrote this as a letter in 1615, and it is still available in paperback, which I take to be some mark of success. But as much as I respect Galileo in general, I have to disagree with him here, for I believe that revelation and empirical knowledge (from science, daily living) do intersect and interact. Our understanding of the natural world may change, and we may need to reinterpret Scripture in light of this revised understanding. Perhaps also -- dare I say it -- *vice versa*.

But this raises some questions that are disturbing for many Christians. Doesn't that deny the truth of scripture? And isn't that dangerous? To the second question I say, yes, very dangerous. If we adjust our view of what the Bible says to accommodate every new idea, we will end up believing all manner of absurd things, and in the process will have twisted the Bible rather than learned from it. This is what I think Bultmann did with his demythologizing. We are mercifully past the greatest outbreak of bultmania, but his influence is still strongly felt. (Most of his books are also still available in paperback.) And, despite my objections, this is not all for the worse.

But the answer to the first question -- doesn't this deny the truth of scripture - is not so simple, because we always have finite knowledge and understanding of the Bible and of anything else. So the idea of *reinterpretation* is not as big a deal as it might seem to many fundamentalists, when we realize that our



former view was not necessarily absolute truth. Thus I would argue that if we change our view of the age of the earth based on extra-Biblical knowledge, it does not mean the Bible was wrong, but that we misunderstood it. It might be worth keeping in mind that we may still not understand it even though we very likely now have an improved understanding. Interestingly, science works the same way. As Polkinghorne says, it is difficult for an experimentalist to see what he is not looking for.

While many have accepted the possibility of revising our view of the meaning of a passage to conform to new ideas from outside the Bible (age of the earth, non-fixity of species, earth orbiting around the sun) this does raise a troubling question: When is this accommodation a matter of correction and when is it really corruption? Can we sort out when new "knowledge" or accepted ideas leads to genuinely better understanding of what the Bible meant and of the way the world is, from simply being led by the wisdom of the world into greater misunderstanding? Sometimes we can, at least in time. It is easier for us to see than it was for those in the middle ages, that it was accommodation with Greek philosophy that was responsible for the geocentric idea of the universe in the first place.

### ***5) Joining theology too closely to science.***

A closely related concern is that science can change and if we tie it too closely to our theology we set ourselves up for a fall. In the 1800s natural theology, like that of William Paley relied heavily on the complex intricacy of the human body as evidence of a creator. When natural selection claimed to be an explanation of why life forms are the way they are now, it seemed to many people like a greater blow to Christianity than it should have. I would argue that Christianity and evolution are not opposed even though you can define them so as to rule each other out. Yet, I do not go along with Teilhard who says Christianity must integrate itself with "the most modern" concepts of evolution. They will change. Evolution is already different from what Teilhard knew in the 1930s. Even the "Modern Synthesis" is a later development, not to mention punctuated equilibrium, and so on.

Also, let's not jump too quickly to using quantum uncertainty as the place where God works, the long hoped for room for maneuvering in a determined universe. Certainly it warms the heart of the theist to see science discovering that pure determinism is not a correct picture of the universe -- in part because theists already knew this but never did get very far at convincing scientists that they were out of touch -- but the current picture of the quantum world and its relation to cause and effect on a larger scale will very likely change in the next few decades. On the other hand, we ought to be exploring the meaning and significance of each new find, just in a tentative -- or humble -- way.

### ***An Attitude of Humility***

Jesus said we should come to him like a child. This has a number of implications but one way children differ from many adults is that when they ask questions, it is nearly always to learn a new answer. It is consistent with the Bible that we are not to stop asking questions--either of the Bible, or of the world. And when we ask, we should humble ourselves enough to really want to learn.

This does not mean "anything goes," and humbly seeking truth is not the same as a vacuous relativism, or a niceness that lets any kind of nonsense pass by, out of an aversion to coming out and saying this is wrong. But suppose we were to recognize that we don't have perfect knowledge, and that others who hold different views may also be courageous. Ok, I'll admit it. Maybe it is possible -- in theory, I mean -- that someone who disagrees with me is, perhaps (however unlikely) actually correct. (Just this once, of course.) Then, discussions in the area of science and faith would become a little less heated and venomous.

Does this self-assessment sound like a typical scientist, or for that matter like a typical theologian?

"To myself I seem to have been only a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, while the great ocean of truth lay all undiscovered before me."

This is a quote from Sir Isaac Newton, and if there was anyone who had a right to say he had discovered a very important truth about the world, it was he. Perhaps he has discovered a deeper truth than we thought.