

THE SCIENCE  
OF EVOLUTION  
AND  
THE MYTH  
OF CREATIONISM

KNOWING WHAT'S REAL  
AND WHY IT MATTERS

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**“BUT HOW CAN WE EVER BE SURE  
ANYTHING IS TRUE?”:  
SUCH PHILOSOPHICAL RELATIVISM OFFERS  
CREATIONISTS EASY PICKINGS**

It's important to think about *how* you can tell whether something is really true or not. What are the methods and approaches which can be used for getting at the truth and distinguishing it from falsehood? Without a basic grasp of these approaches and methods it's easy to fall into accepting just about any lie or falsehood, especially if it seems to be put forward with conviction by people in positions of power and influence (governments, religious authorities, TV personalities, and so on).

It's good to have a critical mind and to question everything. But then again it's *also* important to recognize when at least the basic truth of something has already been clearly established. If human beings always went around thinking that “*nothing* is ever sure,” how could we ever survive or get anything done? Should we walk in front of a moving bus because “we can't ever really know for sure” whether we'll get run over? Should we not bother setting an alarm clock because we “can't ever know for sure” that it will ring, or that it even really exists, or that *we* really exist and have a reason to get up? These examples may seem silly, but they make the point that, even just to function in day-to-day life, we human beings really need to have some way, some approach and method, which can help us to determine when something is actually true (or false).

Of course we'll never have *absolute* truth—in the sense that we'll never know everything there is to know about everything—but we do have some means and methods for getting to the point that we can say, with a high degree of confidence, that something is true—meaning that *it actually corresponds to some aspect of material reality as it really is*.

Again, the point is that it's good and important to question everything, but it's *also* good and important to recognize that not everything is forever up for grabs—sometimes we can know *enough* about something to accept it as true, stop agonizing about it, and move on. Such is the case with the basic theory of evolution.

But a lot of people in the United States today still don't realize that we can be *that sure* about evolution. Anti-evolution and anti-science Christian fundamentalist Creationists have worked to confuse people's thinking on this since the late 19th century, typically becoming particularly active and aggressive in times of social turmoil and when the overall direction of society is being broadly questioned and debated. It's especially at such times that reactionaries resist all forms of social progress and call instead for looking backward and “restoring core values and traditions.” Today is no exception.

The Creationists have waged such determined anti-evolution and anti-science campaigns in recent years that U.S. universities are now reporting that they are getting very worried about growing scientific illiteracy in the country as a whole as they notice that more and more freshmen are arriving on campuses so poorly trained in even basic science that they actually believe “the scientific community is divided on whether evolution happened” and that “evolution is still just an unproven theory.” To state it clearly again: both those notions are *completely false*. The scientific community (in the U.S. and worldwide and in every field of science) is *not* “divided” on the basic facts of evolution. The consensus is overwhelming that (a) life *has* definitely evolved and that (b) the basic mechanisms involved in *how* life evolved and continues to evolve (such as natural selection) are by now well understood.

### **The “Theory of Evolution”—What a Scientific Theory Is**

As for the question of evolution being “just an unproven theory”: this is also false. As spoken to throughout this book, there is an incredible amount of accumulated and mutually reinforcing *evidence* for evolution, and the general scientific consensus is that the theory of evolution is among the best-proven and best-documented theories in all of science.

But one of the favorite methods of the Creationists is to play on people's ignorance and confusion about some basic words: in regular everyday English, the word “theory” often means “a guess” or something that has not been proven to be true. So the Creationists hope that when you hear

the words “theory of evolution” you will automatically think it hasn’t yet been proven to be true. But, in scientific circles, the word “theory” has a very different meaning: a “scientific theory” is what scientists call a complex body of thought that *ties together* a number of different ideas and proposals which successfully explain—from a number of different angles—the basic principles and mechanisms involved in a natural process, such as the origins and later change and development of some part of actual material reality. So, for instance, scientists talk about the “theory of gravitation” or the “Copernican theory” (of the motion of the planets, including the earth, around the sun) but that doesn’t mean they’re “guessing” that objects fall towards the earth because of the pull of gravity or that they’re “guessing” that the earth goes around the sun rather than the other way around. The theory of gravitation and the Copernican theory are by now well documented and supported by the accumulated scientific evidence, and the same can be said of the scientific theory of evolution.

Of course scientific theories are always being further *extended and developed* as human knowledge expands and comes to understand some things that we didn’t previously understand. And as knowledge develops, it is inevitably the case that some old ideas are discovered to be wrong and therefore need to be discarded. Science actually *advances* by calling into question and critically reviewing previously established scientific notions. It is true that there is *always* going to be more to learn and discover about *everything*. But that doesn’t mean that we can never come down and say that something *is true*. People who like to say things like “but you can never be sure” fall into the mistaken outlook and approach known as *philosophical relativism*. (Of course, since human knowledge is never complete and perfect, and is always developing, people who think and act like they have “absolute truth” about everything, or everything important, fall into the erroneous method known as dogmatism, which is the “flip-side” of relativism.) But when we say something is “true” it simply means that there is good, compelling and concrete evidence (preferably from a number of different and *mutually reinforcing* sources and directions) that our understanding of something *actually does closely correspond* to how that something really *is* in objective reality, that is, in the real material world—which includes all that is part of the natural world and which encompasses the features and workings of human social organization as well. (See “*Reality and Distortions of Reality—Objective Truth and Subjective Influences*” on page 216.)

Scientific theories (whether pertaining to the world of nature or human society) do not get proven to be “true” overnight. Before any great idea or set of ideas can be confidently said to be “true,” it has to get put through the scientific crucible—that means it gets poked at and critiqued and challenged and tested over and over again and from countless different directions. A good scientific theory puts forward some predictions about

what we should expect to find in the real world if the theory is true; and it is *also* makes predictions about some of the things we should *not* be able to find in the world if the theory is true. This is known as the principle of “scientific falsifiability”: a genuine scientific theory, as a matter of principle, has to be capable of being disproved by facts (things which, if discovered,

### *Reality and Distortions of Reality—Objective Truth and Subjective Influences*

The philosopher Robert Pennock, who has written a very useful and interesting book showing what’s wrong with the Intelligent Design and other creationist arguments from both a scientific and philosophical/methodological perspective (*The Tower of Babel: The Evidence Against the New Creationism*) makes the point that the “Intelligent Design” Creationists (IDCs), in their attack against “scientific naturalism,” fall into classic “postmodernist” deconstructionist misinterpretations of the work of Thomas Kuhn. Thomas Kuhn was an influential philosopher and historian of science who argued, starting in the 1960s, that the way scientists choose what conceptual and theoretical framework (what “paradigm”) they should apply in framing their scientific questions and in seeking to resolve scientific puzzles is necessarily heavily influenced by subjective factors, including prevailing social norms and conventions. Unfortunately, some people misinterpreted that to mean that therefore there is no objective scientific truth at all, that all truth is necessarily subjective and therefore that any one scientist’s theory is pretty much as good as any other’s.

As Pennock points out, Kuhn himself didn’t agree with that and tried to point out that this is not at all what he meant to say, and that scientific truths themselves are objective (not subjective), and truth itself is not relative—he clarified that he simply meant that scientists are necessarily *influenced* by subjective factors, even in the choosing of what kind of conceptual framework and method they use to try to get at the objective truth of things. Nevertheless,

despite Kuhn’s protestations, it is, according to Pennock, that initial misinterpretation of Kuhn’s views which seemed to spread widely throughout academic circles, where it went on to influence the development of “deconstructionism” in literary circles. Deconstructionism refers to a method of reading and discussing texts that emphasizes the *multiplicity* of possible readings and interpretations of any given text and the subjective influences which any reader (as well as any author) can bring into any text. For the deconstructionist there can therefore be *many* possible “truthful” interpretations of any one text or work of art (“your truth” can be different from “my truth” in deconstructionist approaches).

The so-called “post-modernist” deconstructionists took this even further, basically arguing that there is no such thing as “objective” truth, because the fact that each person brings their own subjective interpretations to things makes it impossible to ever know anything *other than* through this distorted subjective lens. As Pennock points out, the post-modernist deconstructionists argue that when people *think* something is true “it is only because one or another particular group—because of their position, prestige or power—has been able to establish and enforce their own view.” In such a view all truth is relative, and “power relations” determine what we call truth at any given time. (For more on this see Pennock’s *Tower of Babel: The Evidence Against the New Creationism*.)

By contrast, the method of dialectical and historical materialism (which is the viewpoint and method upheld and applied by communists) agrees that subjective influences (including social values and conventions and class-influenced outlooks and methods, especially when concentrated in the hands of people wielding power) can and do distort perceptions of the actual truth of

would prove your theory to be wrong). The theory of evolution could be falsified (proven wrong) if, for instance, fossilized dinosaur and human footprints were ever found in the same undisturbed rock layers, because that would mean dinosaurs and humans lived at the same time, and this would completely contradict everything we know about how and when different

things and that it is important to recognize and identify these subjective distortions; *but that doesn't mean that all truth is relative or that it is not possible to discover the actual objective truth about the way things really are in nature and society.* The notion that all truth is relative is a recipe for idealist paralysis that just gives up on trying to deeply understand how reality really is (independently of people's notions of it) and how people might consciously attempt to affect that reality.

To get at the *objective* truth of things, what is required is the application of a consciously and consistently *scientific* method which repeatedly grapples with objective reality and tests and transforms it to see whether or not it conforms to predictions we make about how it actually is at any given point, and in what ways it may be changing and developing. Yes we *do* all bring our subjective influences and outlooks to the task; but the actual truth of things (in actual objective reality) *is there*, whether we interact with it or not, and regardless of any of our subjective opinions and preconceived notions. In contrast to subjective idealism or other forms of *philosophical idealism* (which includes beliefs in a supernatural realm existing above and beyond the sphere of actual material reality), it is *science*—a scientific outlook and method—which we must apply if we want to find out the *actual* truth of things.

Unfortunately, as Pennock explains, postmodernist relativism tends to view science itself as just another “narrative and interpretive activity” (much like the writing of literary texts or other artistic pursuits) and these relativists conclude from this that scientific truths “are not objective but are constructed by power relations and prejudices.” Here again, two things are being confused, or “jumbled together”: the reality that human beings bring subjective outlooks and interpretations to everything they

do, including in science, and that we should try to consciously sort these out; and, on the other hand, the basic fact that objective reality does exist independently of human beings and that by becoming more fully conscious of what constitutes a genuine scientific method and aware of methodological errors to avoid, human beings can actually zero in more and more closely (even if never perfectly) on the actual truth of things. *How could we ever make concrete scientific advances and transform reality in line with our intended objectives* (as in the development of antibiotics, to use just one example) *if objective reality didn't really exist and if human beings were totally powerless to determine with a fair degree of confidence the objective truth corresponding to that actual reality?*

The more traditional “scientific Creationists” try to argue as if they believe it's OK to use the usual methods of scientific investigation because when you do that you can come up with “evidence” that evolution didn't happen, so therefore the story of a Creator god told in Genesis must be right. In reality, they don't apply a genuinely scientific method, nor do they have any legitimate scientific evidence that could possibly support their viewpoint (they mainly make up absurd claims based on nothing, such as the idea that the order of the fossils in different rock layers represents the order in which different animals drowned during the Biblical Flood!). They mainly try to make people take their word for it that evolution isn't a solidly supported theory in the hopes that people will allow them to propose their religious alternative in the science classrooms. But they'd still like people to believe that their creationist views are compatible with modern scientific methods.

But a number of the Intelligent Design Creationists are actually even more

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species evolved. Biologists can give many such examples of the kinds of things that—if they were ever found to exist—would make a complete shambles of evolutionary theory. So, like all good scientific theories, the theory of evolution is falsifiable in principle—but, as a point of fact, science

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fundamentally anti-science than some of their Biblical literalist brethren, even though this may not always be immediately obvious. However if you study what they say and write, you will see that some of them at least (especially Phillip Johnson and his followers) *actually want to overthrow the whole way science is usually done!* They want scientific knowledge to somehow be attained “through” religion, and therefore they want scientific methods to reflect this goal by incorporating the idea of God right into the pursuit of science—the replacement of the methods of standard “naturalistic science” with “theistic science” (science driven by God) is the openly stated goal of at least their preeminent ideologue, Phillip Johnson. And they want access to the science classrooms of high schools and even universities in order to accomplish this stupendous “paradigm shift.”

The philosopher Robert Pennock makes a convincing case for the notion that this new breed of Creationists have been very much influenced by postmodernist relativism.\*

Phillip Johnson himself is a law professor who identifies himself as a “postmodernist deconstructionist” and denies that natural science can get to the actual objective truth of anything. He sees the theory of evolution as just one subjectively interpreted story, which happened to become dominant since Darwin’s time simply because the scientific community managed to politically suppress the teaching of alternative theories such as the theory of divine design. He calls on people to free themselves from the supposed tyranny of naturalistic science and its materialist rules of evidence. He argues that

we can’t get at the truth of things through “naturalistic” science—that this can only be done in the end through knowing God. “Truth” in his view does exist, *but it is only the truth of divine revelation!*

It is important to realize that *this* is what the Intelligent Design Creationists want to smuggle into the science classrooms, to be given “equal weight” with the theory of evolution, a scientific theory which, unlike “Intelligent Design,” has been repeatedly tested and verified (over and over and over again!) through concrete scientific observations and experiments. It is completely unconscionable to allow the obviously religious theory of “Intelligent Design” (which has never produced even a single legitimate scientific research article in a single legitimate peer-reviewed scientific journal) to be taught to our children *as science*. Today, the proponents of “Intelligent Design” (supported by people in positions of highest authority, right up to the president) have succeeded in confusing many people into thinking that the theory of evolution is on shaky ground and is controversial in the scientific community (when nothing could be further from the truth!); they have successfully lobbied to get some textbooks rewritten to reflect their crackpot theory; they have rammed their program through some school boards; they have launched lawsuits to try to undermine the separation of church and state; and, increasingly, they are succeeding in getting the mainstream media to grant them legitimacy and treat their theory as if it were serious science. But none of this changes the simple fact that “Intelligent Design” is not and has never been science. It is religion. And any political successes its proponents may achieve in connection with the advance of a reactionary social agenda cannot change the fact that Intelligent Design does not have a shred of scientific credibility.

\* The article “Marxism and the Enlightenment,” by RCP Chairman Bob Avakian, also contains a very interesting and relevant discussion of this and related questions. [This article appeared in the *Revolutionary Worker* #1029 (December 2, 2001), and is posted at [revcom.us](http://revcom.us); and it has been included in the book *Observations on Art and Culture, Science and Philosophy* by Bob Avakian (Insight Press, 2005)]

has never found anything (not a single thing) that actually falsifies it. It has, however, found many, many things that support it.

The theory of divine Creation is a religious belief, not a scientific theory. One of the sure signs of that is that the theory of divine Creation is, by its very nature and definition, impossible to falsify. The Creationists refuse to give people *any* examples of any kind of scientific discoveries that they could accept as proof that their divine Creation theory is wrong after all. They make a principle of this, because for them it is a matter of absolute religious faith. But if you make a principle of saying that there is no possible way that any information could ever come to light that would prove your theory wrong, then you are, by definition, not being scientific, and your theory has nothing to do with science!

Again, the theory of evolution was, from its very beginnings, falsifiable as a matter of principle. But as it turns out, all the actual scientific data that has been collected in the nearly century and a half since Darwin published his major work on evolution has repeatedly *supported* the theory of biological evolution; and *none* of it has ever provided evidence to the contrary. This more than anything is why there is such a broad and solid scientific consensus on the matter.