

What is Dialectical Materialism?

There is an interesting aphorism from Taoism: “That which is known is not the truth.”

This is an important observation. It is true because any description of reality is fixed as soon as it is offered while reality is undergoing constant change. This is why thought is always one step behind reality. We may anticipate, but to a significant degree such anticipation is uncertain, and often is a subtle manifestation of hopes and fears. These may be more or less well grounded. The secret is to pursue those avenues that offer better grounding, and I suggest that this better avenue consists of the scientific method generally, and Dialectical Materialism philosophically. Let me hasten to add that my use of Dialectical Materialism is personal and pragmatic—it seems to me to offer the most coherent philosophical understanding of reality available. I have come to accept that basic belief systems are unassailable by logical argument. I take the value of the scientific method to be obvious and universal, here I am discussing philosophical belief systems (metaphysics). People seem to be convinced of the various ways in which they conceive the world by reasons that are difficult to discover or argue with, usually because they are rooted in significant experiences rather than logical argument. Some belief systems are more coherent than others. That is they may offer more or less internally consistent reasoning. Some belief systems are more useful than others. As a philosopher I value both, but I accept that I cannot convince someone of these standards or their application with mere argumentation. So here I offer my view as a theologian would offer her or his view. I will try to explain the internal consistency of my view as well as its utility, but cannot hope to convince anyone that I am right and they are wrong. I will let the persuasive power of the philosophy stand on its own, to be accepted in whole or in part or not at all.

So what is Dialectical Materialism? According to Karl Marx's collaborator Frederick Engels, there exists one ontology—or structure to being—that includes nature, human society, and thought.¹ This ontology is dialectical and material.² The material aspect comes from the observation put forward in Marx's work that consciousness does not determine being rather being determines consciousness. Which is to say that philosophy should start with really existing things in their context, not with our ideas about these things. In other words material reality (which may ultimately prove to be vibrating strings of energy, at the smallest sub-atomic level) comes first, our ideas second. Dialectics is the study of how things move, interact and change. Engels said that the laws of dialectics, first discussed by the ancient Greek philosopher Heraclitus and then fully elaborated by Hegel, are in fact the fundamental laws of motion and development for all reality: for nature, human society, and then finally human thought.

According to Engels, dialectics, being these fundamental laws of motion in reality, consists of three parts or laws—and this much he borrowed directly from Hegel. These laws are 1) the change of quantity into quality, and vice versa; 2) the interpenetration of opposites; and 3) the negation of the negation (the famous thesis, antithesis and synthesis of Hegelian logic). These laws of dialectics are manifest at every level of reality and so come to be manifest in thought as a result of the evolutionary development of human beings as thinking beings. Hegel had mystified the dialectic by presuming that it was a logical part of thought prior to experience and then tried to impose the dialectic onto history. Engels' claim was that this is, in Marx's famous words, standing the dialectic on its head. The dialectic exists in the structure of reality

¹ This discussion is based on Frederick Engels, *Dialectics of Nature and Anti-Duhring*, vol. 25 *Karl Marx, Frederick Engels: Collected Works*, (New York: International Publishers, 1987).

² The term "Dialectical Materialism" was coined shortly after Engels' death. It is used here because the term is now commonly associated with the philosophical side of Marx and Engels' writings.

and then comes into thought as a result of thinking beings evolving and interacting with the world.

Therefore it seems to me that Dialectical Materialism is a uniquely powerful tool for the theoretical examination of reality: natural reality, human historical reality, and thought itself.

Marx was primarily concerned with human history and thus political economy and his work focused on how human history moves according to these dialectical laws. Hegel uncovered the dialectical laws in thought. Marx discussed these dialectical laws operating in human history.

Then Engels put it all together in discussing the dialectical laws in nature and their relationship to Marx and Hegel's claims. Dialectical Materialism does not supercede science but instead agrees with the most basic claim of science that the only true path to knowledge is through the scientific method: observe reality, as it is, theorize based on those observations, and test.

Dialectical Materialism is the speculative examination of the results of scientific knowledge, and does not pretend to be above science, only to be helpful to understanding science and offering theoretical clarification on matters of logic and theory to science.

The word dialectic is itself complex and widely and variously used, so perhaps a few examples might help clarify Engels' meaning. The first law of Dialectical Materialism is the change from quantity to quality, and vice versa. This basic insight has a colloquial equivalent in the concept of "critical mass" (the phrase comes from nuclear physics but is used colloquially now). This law holds that when the quantity of something reaches a certain point whatever is under examination can change into something qualitatively different. In history, Engels noted that Napoleon was able to defeat the Marmelukes even though they were individually more skilled as warriors than his own troops. What Napoleon discovered was that the disciplined close order training of his horseman enabled them to achieve a strategic advantage when they

had a critical mass, (the increased quantity of lesser but more organized horseman produced a qualitative advantage). So two Marmelukes could easily defeat three Frenchman, but 1000 Frenchman could defeat 1500 Marmelukes by virtue of the French working together. In nature, Engels noted a phenomenon that we are all familiar with, namely the transition of water from liquid to gas. As one adds heat to a given amount of water the temperature will rise to a certain point. At that point the addition of more heat does not increase the temperature of the water, rather it changes the water from a liquid to a gas. This is the transition from quantity (more heat) to quality (different form). In thought, and this is a modern example, researchers in education have observed that the ability to contrast two similar things is a “quantum leap” (another colloquial term from physics for this law) from the addition of information. Students need to learn a certain amount of detail before they are able to contrast things that when one looks back on it could be quite straightforwardly contrasted.

The second law is the mutual interpenetration of opposites. All of reality is one whole, one totality, and it turns out the same is true of individual things in themselves and their interactions with other things. In colloquial terms this is the idea that extremes meet. For example, a magnet has a north and south pole. The magnet cannot exist without both poles, yet the poles are opposites, are contradictory. The magnet is the totality of these opposites interpenetrating each other. In thought, Hegel observed that it is quite difficult to sort out cause and effect. This might seem straightforward but when looked at closely cause and effect are really mutually penetrating opposites that cannot exist without each other. In history (and this will help illuminate Hegel’s logical point), Marx observed that workers and capitalists are interpenetrating opposites that cannot exist without each other: capital creates workers and is

created by them (through the extraction of surplus value). The worker is therefore the cause and the effect of capital.

Third, and most classically, dialectics is the negation of the negation. The most well known colloquial example of this is the Second Law of Thermodynamics, which holds that for every action there is an equal but opposite reaction. It is important to note that negation in this sense does not mean just saying no or destroying something, the nature of the negation varies. The most famous example derived from history is Marx's observation that capitalist private property is the negation of feudal property, and socialist collective property will be the negation of capitalist property's negation of feudal property. In nature, Engels used the example of a grain of barley. When the barley is planted the grain is negated through the action of soil, water and light, in the growth of a new barley plant. The plant grows and then when harvested—negated—produces 20 or 30 grains of barley. So the negation of the negation of one grain of barley yields a vast increase. In thought, a good example is how Dialectical Materialism understands itself. Dialectical Materialism is the negation of Hegelian philosophy's negation of 18th Century (crude) materialism.

Taken together these laws of dialectics enable us to understand how things that seem to be irreconcilable contradictions in ordinary logical actually work. Engels used the example of mechanical motion, mere change of place. As an object moves it goes from one place to another, but in the process is in the first place but also not in it. In biology our bodies are always taking in matter from the outside world and excreting matter, our individual cells are constantly dying and being created. We are ourselves and yet in any moment are also not ourselves. In differential calculus it is possible that a straight line and curve can be the same thing, but by definition a curve is not a straight line. Dialectics helps us understand how something can be itself

and yet not itself, and it is this kind of basic insight that Heraclitus made when he observed that things are always changing, moving and becoming. Simple analytic logic is useful for understanding a thing in isolation but dialectics is necessary to understand things as they really are—always changing and interacting.

This all applies to religion in that Engels' philosophy of Dialectical Materialism understands reality to be undergoing constant change—in a sense every moment is unique because it is different from what was. The patterns we see in, or even impose on, the world around us, are a comfort to us. In actuality, the ever-changing world is changeless only in that change itself is constant. It is no wonder, then, that people occasionally discover things that are different, unique, mysterious, and even awesome. I argue that these things and events are not actually *hierophanies* in the technical sense, but are so in a more mundane sense because the world seems to us magical by virtue of what we do not know, which therefore appears mysterious. This mysterious quality is part of the nature of reality due to its movement or constant change. More technically, space has three dimensions, but reality has at least four. The fourth dimension of reality, time, is the dimension in which everything that moves or changes. In Engels' words:

Motion is the mode of existence of matter. Never anywhere has there been matter without motion, nor can there be.... Matter without motion is just as inconceivable as motion without matter. Motion is therefore as uncreatable and indestructible as matter itself; as the older philosophy (Descartes) expressed it, the quantity of motion existing in the world is always the same.³

We do know now that this is not quite true, Albert Einstein taught us that there is a constant relationship “between the mass (inertial property of matter) of a system and its capacity to

³ Engels, *Dialectics of Nature*, 55-56.

undergo transformation from one level of organization and integration to another (energy).”⁴ Thus, “dialectical materialism in [the 20th] century, especially after [V.I.] Lenin’s infinity of matter, focuses on the changes in the hierarchical structure of systems of matter resulting from the interpenetration of oppositional tendencies and forces among the different structural levels as well as within the individual levels.”⁵ This is the point at which the sacred becomes relevant. The “sacred” and “numinous” are concepts we use to express that which we cannot understand and therefore must appreciate on another level: emotionally. This relates to changes because that which we cannot understand is usually a change from what was, what we thought we understood before it changed, especially when that change involves something that seems counterintuitive like the interpenetration of opposites, or qualitative change out of quantitative changes.

Before concluding this discussion it is important that I acknowledge some context. My presentation of Dialectical Materialism is much more in line with the philosophy that came out of the Soviet Union in its early years than it is with Marxism as it developed in Europe after the Great October Revolution. But it also differs from Soviet philosophy in that I emphasize the metaphysical implications of Engels work as opposed to his scientism. Which is not to say that what Engels said about science is not vital, it is. The Soviets just tended to emphasize the science rather than the speculative philosophy, although they emphasized the systematic nature of Marxism. In the west, the move was away from the idea of Dialectical Materialism as a system, and was more favorable to Historical Materialism as a methodology. Eventually this led to a real decline in the emphasis put on dialectics in the philosophy (but not necessarily in the historical methodology). I am recapturing what I think is the lost speculative importance of Engels writings on Dialectical Materialism. This will become more evident in later chapters.

⁴ Erwin Marquit, Letter to author, 23 December 1998. (Marquit is Professor Emeritus, Physics, U. Minn.).

⁵ Marquit. (I left this in his original scientific language as an experiential example, so that the non-specialist can appreciate the explanation aesthetically.)

My methodological choice of Dialectical Materialism is not based solely on the fact that it helps us to philosophically understand a universe that is constantly changing. More significantly—and this is could be the subject of an entire book so I will cover it in brief—Dialectical Materialism offers a coherent systematic approach for philosophy to deal with modern physics and mathematics, e.g. Quantum Mechanics, Chaos Theory and Fractal Geometry.⁶ There is one bit of trivia in this regard that I find informative. Based on his research, Engels suggested in the late 1890's that for science to be able to model the real behavior of things in their interactions (to map the dialectical complexity of the real world) a solution would have to be found to the square root of negative one. Prior to the 1950's this was thought to be impossible, but then mathematicians in the Soviet Union came up with a solution, a solution that was repeated in the 1970's by U.S. mathematicians.⁷ My theory is that it was the establishment emphasis on dialectical philosophy that gave the Soviets the advantage in this case. Over the last century the new physics and now new math have uncovered complexity in the structure of reality that had never before been imagined. According to dialectics everything that is has a negation or an opposite, and so, for example, when physicists recently developed a theory called "Supersymmetry" this makes perfect sense. The theory "proposes that for every conventional subatomic particle there is a corresponding supersymmetric particle (or 'sparticle') whose magnetic effect is different in a predictable way from its companion's."⁸ Each particle has its antithesis.

Another example, in 1980 Benoît Mandelbrot discovered the Mandelbrot Set and invented Fractal Geometry. What Mandelbrot found was that a simple equation that feeds into

⁶ In fact it has been the subject of at least one book: Kenneth Neill Cameron, *Dialectical Materialism and Modern Science* (New York: International Publishers, 1995).

⁷ See Engels, *Dialectics*, and James Gleick, *Chaos: Making a New Science* (New York: Penguin Books, 1988).

⁸ Washington Post, "Discovery May Lead to New Physics Theory," **Los Angeles Times**, 9 February, 2001, A27.

itself (Z equals z squared plus c) as the dialectic feeds into itself (thesis yields antithesis, they interact to yield a synthesis that becomes a new thesis) and repeated over and over can when graphed yield diagrams (called fractals) of unspeakable beauty that also seem to be able to represent any shape in nature.⁹ Nature has almost no straight lines or smooth curves, it has rough edges that only from a distance look like straight lines or smooth curves, so graphing real shapes seemed impossible before supercomputers could run Mandelbrot's or other similar equations over and over. Each iteration of the equation (the technical term) is a *quantitative* change; putting together these iterations yields something *qualitatively* different. These fractals define the shapes of fern leaves, clouds and coast lines; appear to be encoded in the structure of DNA; and are helping astronomers map the stars. Reality is much more complicated than first thought and this complexity requires a cogent philosophical examination along with informed religious speculation.

Which brings me back to religion. Religion, in its emotional aspect, has always helped us to explain this complex world to ourselves. If we could not understand the immediate reasons for the mysterious ways in which the world moves, we could at least point to the sky, and believe that we have a relationship with the force(s) that cause the movement, the changes. There is really nothing so mysterious about human beings projecting an imagined power into the sky that can then answer the great questions, and soothe the great fears. This projection is about as human a behavior as one can conceive. However, understanding is also part of the human equation. With thoughtful analysis, especially including the tools of Dialectical Materialism, we can see that this activity of projection is unnecessary. We now know that the universe moves of its own accord; the nature of the universe is matter in motion, constant change. There is no mystery to this, except insofar as we do not understand the motion or change. There is "magic" in the

⁹ Clark.

universe and in the world, but the magic is only that which we do not (yet) understand. And this mystery is good. It is the pursuit of mystery, the desire to understand that which we do not yet understand, which drives the human imagination as Einstein remarked in the quotation above.