

MARXIST

PHILOSOPHY

PART I

By Ron Tabor

## IS THERE A MARXIST PHILOSOPHY, AND IF SO, WHAT IS IT?

It should be clear by now that I think there is, in fact, a Marxist philosophy. Throughout this book, I have tried to show that Marxism is best understood as a philosophical worldview – specifically, a variant of Hegelian Idealism that sees itself and presents itself as materialist. Beyond this, I believe Marx and Engels did hold to a conscious ontological position, a view of the nature and structure of the natural world, one that has come to be called “Dialectical Materialism.” Although I suspect that most Marxists, especially the “orthodox” Marxists of the Stalinist, Leninist, Maoist, and Trotskyist persuasions, would agree with me, some commentators have argued that there is not, and cannot be, a truly Marxist philosophy of nature, and definitely not one called “dialectical materialism.” Among these figures are the Hungarian philosopher and literary critic, Georg Lukacs (at least in his book, *History and Class Consciousness*); the former Polish dissident, once-Marxist, and ultimately religious thinker, Leszek Kolakowski; and the major French spokesperson of the philosophy of Existentialism, Jean-Paul Sartre. In the view of those who hold to this position, Marx, in contrast to Engels, was not interested in questions of “metaphysics,” that is, abstract speculation about the nature of the universe, and as a result, did not have an ontology/philosophy of nature of any kind, and certainly not one describable by the term “dialectical materialism.”

The contention of Lukacs, Kolakowski, Sartre, and the others who share their opinion, rests on several interrelated claims and arguments, some implicit, some explicit. The first of these is that neither Marx nor Engels ever used the term “dialectical materialism.” This is literally but not substantially true. Although the precise words, “dialectical materialism,” do not occur in any of Marx and Engels’ works, Engels does use the term “materialist dialectic” in his *Ludwig Feuerbach and the Outcome of Classical German Philosophy*, originally published in 1888 (C.P. Dutt, ed., International Publishers, New York, 1941, p. 44).

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*Editors’ Note: This article is Chapter 7 of a work in progress on Marxism.*

This, it seems to me, amounts to the same thing as “dialectical materialism.” Moreover, in this work, Engels approvingly credits Joseph Dietzgen, a German worker who, according to various sources, was the first person to coin the term “dialectical materialism,” with coming up with the idea independently of Marx and himself, in a work published in 1869. So, it seems safe to say that while Marx may not have used the term, “dialectical materialism,” Engels (basically) did. The precise formulation, “dialectical materialism,” later appeared in a book about Engels by Karl Kautsky, the major theoretician of the Second or “Socialist” International, and was eventually popularized by the “father of Russian Marxism,” George Plekhanov.

The second claim of the deniers of “dialectical materialism” is that the mature Marx – by all accounts, including Engels’, the dominant and intellectually superior partner of the Marx-Engels collaboration – never wrote a systematic work on philosophy. All we have from Marx’s pen that explicitly address philosophical questions are works that are considered to be “immature”; that is, material written before he had come to his fully Marxist conclusions. These works include: (1) Marx’s doctoral dissertation on the philosophies of the ancient materialists, particularly, Democritus and Epicurus; (2) *The Economic and Philosophic Manuscripts of 1844*, which take up such questions as “alienation” and advocate what some, such as Raya Dunayevskaya, Erich Fromm, and Kolakowski himself, have characterized as a “humanistic” Marxism; (3) *The Holy Family*, a polemical, almost satirical, critique of several of Hegel’s disciples; (4) the “Theses on Feuerbach,” terse comments, adding up to just a few pages, on the philosophy of the German materialist, Ludwig Feuerbach; and (5) *The German Ideology*, a work co-written with Engels that attempts to come to grips with their philosophical past. All of this was written prior to late 1847–early 1848, the date generally considered to denote Marx’s arrival at his supposedly mature and scientific world-view. The only substantial writings devoted specifically to philosophical questions produced by the pair after they had reached their maturity were written by Engels, and the position Engels propounds in these works is not, according to Lukacs, Kolakowski, Sartre, and others, really Marxist at all.

The third, and more meaningful, argument of those who contend that Marxism (or at least Marx's Marxism) does not have an ontology is that the "dialectic" – roughly (and this is my definition), the conception of reality as a complex and contradictory process whose component parts simultaneously interpenetrate, oppose and negate, modify and generate each other – applies to history, but not to nature. More specifically, to these thinkers, the dialectic primarily characterizes the socio-economic process, involving material reality, consciousness, and self-consciousness, in which human beings change the material world, themselves, and their conception of themselves (and of the world), through work (labor) and struggle. (Among some Marxist theoreticians and others knowledgeable about Marxism, this process is called praxis, from the Greek word for "practice.") It is in and through this process – according to Marxism – that human consciousness arises and develops, simultaneously shaped by and shaping that work, struggle, and nature itself. Only praxis, these commentators insist, displays "internal relations," that is, constitutes an organic whole whose components/internal parts interact in an interpenetrating and mutually generating – in other words, in a truly dialectical – fashion. In contrast, this argument goes, nature does not exhibit "internal relations." The relations among natural phenomena are "external"; the entities and processes of nature always stand outside of each other, do not interpenetrate, and therefore cannot be said to interact in a dialectical manner. As a result, since nature itself is not and cannot be dialectical, there can be no such thing as "dialectical materialism," in the sense of a Marxist philosophy of nature.

At the risk of simplifying, I would say that for Lukacs, Kolakowski, Sartre, and those who think as they do (and they believe for Marx, but not for Engels), if a process does not involve consciousness or ideas, it cannot be dialectical. Pure nature – that is, nature as it supposedly is in itself, outside of humanity's interaction with it, which is what an ontology attempts to describe – exhibits no dialectic.

Fourth, to these philosophers, the very notion that Marx might have had a philosophy of nature is false on the face of it. This is because, from what they see as the real Marxist point of view, nature as it is in itself cannot be conceived.

Since, to Marx, knowledge emerges out of praxis, that is, humanity's efforts to transform nature through labor, humanity cannot know nature in any other way than through how human beings interact with it. In other words, all humans can know is nature as we relate to it – as we interact with it and change it, as we exercise our labor, including our scientific labor, on it – not how it is in itself. As a result, a Marxist ontology/philosophy of nature is an absurdity, and the concept of "dialectical materialism" or a "materialist dialectic," as put forward by Engels and other Marxists, is un-Marxist.

Last, in the view of these thinkers, Marx could not have held to a philosophy of "dialectical materialism" because such a philosophy implies a rigid deterministic framework that is alien to Marx's view of history, which, based as it is on the centrality of praxis, is open-ended and undetermined. According to this claim, in Marx's view, but not in Engels', humanity determines its own future and its own fate, and is not bound by the determinism postulated by dialectical materialism.

I do not believe the standpoint of these thinkers on this question can be sustained. While it is true that there are contradictions between certain facets of the Marxian theory of history (the "materialist conception of history" or "historical materialism") and the Marxian conception of nature (the "materialist dialectic" or "dialectical materialism"), as well as within each of these, it is much too pat (and too convenient) to describe this simply as a contradiction between the fully Marxist outlook of Marx and the supposedly "positivist," "scientific," and ultimately un-Marxist, position of Engels. In light of the evidence, it is much more reasonable to argue that Marxism as a whole, including the supposedly "real" Marxism of Marx, contains "positivistic," and "scientific" elements that coexist uneasily with other aspects of the Marxian worldview.

Let's try to answer these contentions in more detail.

First off, Marx and Engels were life-long friends, collaborators, and, as the Marxist movement often describes them, comrades-in-arms. They met as young men and discovered that they were thinking along similar lines and had reached

similar conclusions. They struggled together in various arenas throughout their adult lives, were in constant communication, as shown by their voluminous correspondence, and spent hours in broad-ranging conversation when they had the opportunity to do so. It is hard to believe that they did not discuss all the subjects that interested them, including those of philosophy and science, at great length. It is also difficult to imagine that they were not in fundamental agreement on what to them would have been fundamental questions. Both were men of extremely strongly-held opinions (as reflected in the many, usually ferocious, polemics they wrote against those who differed with them), and if they had disagreed with each other in meaningful ways, this would almost inevitably have been reflected in their correspondence. (In fact, it probably would have led to a break in their personal/political relations.) But there is no evidence of this.

Second, two of the books, and the most important ones, Engels wrote that deal with questions of philosophy/ontology were written, or were at least begun, while Marx was still alive. The first of these, *Herr Eugen Dühring's Revolution in Science*, now known as *Anti-Dühring*, a polemic against a recent convert to socialism, was first published as a series of articles in the Leipzig *Vorwärts*, the central organ of the German Social-Democratic Party, in 1877 and 1878, and later compiled in book form. It is extremely unlikely that these articles, and later the book, would have been published had Marx not agreed with and approved of them. In fact, according to Engels' preface to the second edition of the book:

"...it was of course self-understood between us that this exposition of mine should not be issued without his [Marx's – RT] knowledge. I read the whole manuscript to him before it was printed..." (*Anti-Dühring*, International Publishers Co., Inc., New York, 1939, p.13.)

The second book, left by Engels as an unfinished manuscript and published much later as *The Dialectics of Nature*, was begun some time after 1871, probably 1872. This was when Engels came to London (from Manchester, where he had managed the family textile business) and began to immerse himself in the scientific literature of the day. According to the British scientist and Marxist, J.B.S. Haldane:

"He (Engels) had always been a student of science. Since 1861 he had been in close touch with the chemist Schorlemmer at Manchester, and had discussed scientific problems with him and Marx for many years." (Preface to Engels, *Dialectics of Nature*, International Publishers, N.Y., 1940, p. viii.)

Moreover, in his preface to the book, Haldane indicates that quotations from Greek philosophers, written in Marx's handwriting, appear in Engels' manuscript, suggesting that Marx had read Engels' work at some point.

In light of this, to draw a sharp distinction between Engels' and Marx's views on questions of science and philosophy seems far-fetched. It is possible, indeed, probable, that Marx would have expressed himself differently from and better than Engels. But it is not likely that he would have disagreed substantially with what Engels wrote.

Third, even if we leave all these considerations aside, even if we just consider Marx himself, it is virtually impossible to come to a different conclusion. Marx was a person with an extensive background and ongoing interest in philosophy, including philosophies of nature. As mentioned, he had written his doctoral dissertation on the outlooks (the ontologies) of ancient materialist philosophers, while a significant section of his book, *The Holy Family*, consists of a discussion of the English empiricists and the French materialists. For a time, he considered himself to be a follower of Hegel (who did have a philosophy of nature) and openly admitted Hegel's great influence on his thinking. In addition, all of Marx's early writings are highly philosophical in both content and form, and even his mature, supposedly scientific, works, such as *Capital*, are laced with philosophical terminology and concepts. Indeed, as I have argued in previous chapters, these mature works are fundamentally philosophical in nature. Not least, Marx was a systematic thinker. He was interested in, was extremely knowledgeable about, and had written substantial works that touched on, a large number of fields. Indicative of this, his theory of history encompasses, and attempts to explain in a logically consistent way, virtually all areas of human endeavor, including ontologies. It is difficult to believe, as Lukacs, Kolakowski, and Sartre

imply, that Marx was not interested in ontological questions and even harder to accept that he did not have an ontology, a systematic conception of the nature and structure of the universe, of his own.

And if Marx did have such an ontology, what kind could it have been except something that might be called “dialectical materialism”? In the first place, how could it have been anything but materialist? Marx’s theory of history is, at least consciously, materialist, and militantly so. He considered non-materialist, that is, Idealist, theories of history to be little more than a cover for religion, which he viewed as a noxious delusion, an example of “false consciousness.” Is it reasonable to accept that Marx was a materialist in matters of

history and an Idealist (or something else – and if so, what?) in matters of ontology? Marx also considered his view of history, indeed, his entire conception of socialism, to be scientific, and like many observers of science at the time and since, he considered science to be inherently materialist. So how could he have been anything but a materialist?

Beyond this, Marx criticized previous materialists for being mechanical and one-sided. This one-sidedness is what, he said, led to the active side of philosophical/critical thought being developed by the Idealists. How, then, could his materialist ontology have been anything but “dialectical,” a concept borrowed from the Idealists, particularly Hegel. In sum, if we accept this line of reasoning, how could Marx not have

$$\int_{\mathcal{R}} T(x) f(x, \theta) dx = \int_{\mathcal{R}} \frac{\partial}{\partial \theta} T(x) L(x, \theta) dx$$

$$\frac{\partial}{\partial a} \ln f_{a, \sigma^2}(\xi_1) = \frac{(\xi_1 - a)}{\sigma^2} f_{a, \sigma^2}(\xi_1) = \frac{1}{\sqrt{2\pi\sigma}} \exp\left\{-\frac{(\xi_1 - a)^2}{2\sigma^2}\right\}$$

$$\int T(x) \cdot \frac{\partial}{\partial \theta} f(x, \theta) dx = M\left(T(\xi) \cdot \frac{\partial}{\partial \theta} \ln L(\xi, \theta)\right) \int_{\mathcal{R}} \frac{\partial}{\partial \theta} T(x) L(x, \theta) dx$$

$$\int T(x) \cdot \left(\frac{\partial}{\partial \theta} \ln L(x, \theta)\right) \cdot f(x, \theta) dx = \int_{\mathcal{R}} T(x) \left(\frac{\partial}{\partial \theta} \frac{L(x, \theta)}{L(x, \theta)}\right) L(x, \theta) dx$$

$$MT(\xi) = \frac{\partial}{\partial \theta} \int_{\mathcal{R}} T(x) f(x, \theta) dx = \int_{\mathcal{R}} \frac{\partial}{\partial \theta} T(x) L(x, \theta) dx$$

had an ontology, and how could it have been anything but something that might accurately be termed “dialectical materialism”?

(The fact that Lukacs, Kolakowski, Sartre, and others believed that the dialectic applies only to praxis and history but not to nature does not mean that Marx did, too. Interestingly, Lukacs, Kolakowski, and Sartre are in agreement with Hegel on this point. Hegel insisted that nature is not dialectical; only the realm of the Ideal, that is, the realm of spirit, mind, consciousness, exemplifies the dialectic. In Hegel’s conception, nature is the alienated “other” of mind or spirit, and, as such, exhibits no truly dialectical processes or structure.)

Finally, in the previous chapter, I dealt with the question of Marx’s theory of history, including its ambiguity on the question of whether history is open-ended or determined. As I’ve argued throughout this book, the insistence on the part of both Marx and Engels that their brand of socialism is “scientific” as opposed to “utopian” ultimately rests on their contention that socialism/communism, to be achieved through a revolution and the establishment of the dictatorship of the proletariat, is the “necessary” and “inevitable” outcome of human history. Marx believed this as much as Engels. It is this that explains why the terms “necessary,” “historical necessity,” “necessarily,” “inexorable,” etc., appear so often throughout the writings of the pair, not only the works of the supposed “positivist” Engels, but also those of the “real” Marxist, Marx himself. The use of such language strongly suggests that the fundamental position of Marxism, including Marx’s Marxism, is that history is determined and predictable, not contingent. This question will be taken up at greater length in the next chapter.

Based on all this, I think it is safe to say: (1) Marxism does have a consciously held ontological standpoint (a philosophy of nature); (2) This outlook can accurately be described as “dialectical materialism”; (3) Engels’ writings on philosophy can be taken to be an adequate representation of what Marx also believed and therefore an accurate presentation of the Marxist viewpoint (however embarrassing this may be to some people).

(The most substantial case for the un-Marxist nature of “dialectical materialism” is made by Kolakowski in his three-

volume magnum opus, *Main Currents of Marxism* (Oxford University Press, 1978). Among other things, this is a very erudite, very sophisticated, and ultimately very strained, attempt to delineate and defend a humanist, libertarian version of Marxism, and to blame the Stalinist outcomes of Marxism on Engels, Plekhanov, Lenin, and other supposed misinterpreters of the “real” Marxism of Marx (although Kolakowski does not let Marx entirely off the hook). Interestingly, although Kolakowski discusses Engels’ “scientific” views at some length in Volume One, he never mentions the fact that, as I indicated above, Marx read, and apparently approved, Engels’ writings on ontological questions.)

With this said, we can proceed to a discussion of dialectical materialism.

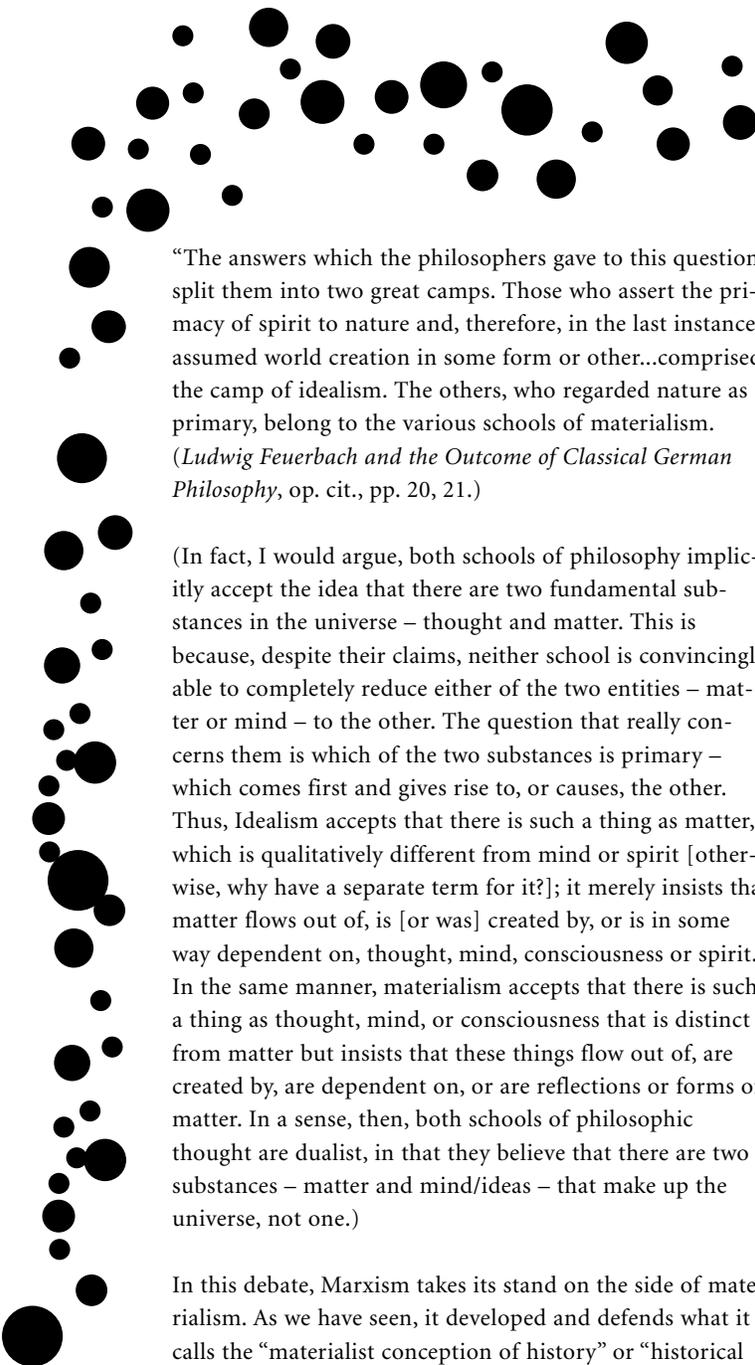
## MATERIALISM

As the term implies, dialectical materialism (or the “materialist dialectic”) consists of two facets: materialism and dialectic. Let’s take a look at them, starting with materialism.

Marx and Engels divided the various philosophies expounded over the millennia into two major categories or schools – Idealism and materialism – based on these philosophies’ stance on the nature of the fundamental substance in the universe. (In contrast to other writers, I capitalize Idealism to delineate it from the more commonly understood sense of the word.) Idealists believe that thought (or ideas – including, spirit, mind or consciousness) constitutes the fundamental substance, and that matter flows out of, is created by, or is otherwise based on, thought, mind, spirit, or consciousness. Materialists, in contrast, contend that matter is the fundamental substance in the universe and that it is matter that gives rise to thought, mind, consciousness, and what other people (though generally not materialists) call spirit.

Here is how Engels puts it, in his *Ludwig Feuerbach*:

“The great basic question of all philosophy, especially of modern philosophy, is that concerning the relation of thinking and being.”



“The answers which the philosophers gave to this question split them into two great camps. Those who assert the primacy of spirit to nature and, therefore, in the last instance, assumed world creation in some form or other...comprised the camp of idealism. The others, who regarded nature as primary, belong to the various schools of materialism.

*(Ludwig Feuerbach and the Outcome of Classical German Philosophy, op. cit., pp. 20, 21.)*

(In fact, I would argue, both schools of philosophy implicitly accept the idea that there are two fundamental substances in the universe – thought and matter. This is because, despite their claims, neither school is convincingly able to completely reduce either of the two entities – matter or mind – to the other. The question that really concerns them is which of the two substances is primary – which comes first and gives rise to, or causes, the other. Thus, Idealism accepts that there is such a thing as matter, which is qualitatively different from mind or spirit [otherwise, why have a separate term for it?]; it merely insists that matter flows out of, is [or was] created by, or is in some way dependent on, thought, mind, consciousness or spirit. In the same manner, materialism accepts that there is such a thing as thought, mind, or consciousness that is distinct from matter but insists that these things flow out of, are created by, are dependent on, or are reflections or forms of, matter. In a sense, then, both schools of philosophic thought are dualist, in that they believe that there are two substances – matter and mind/ideas – that make up the universe, not one.)

In this debate, Marxism takes its stand on the side of materialism. As we have seen, it developed and defends what it calls the “materialist conception of history” or “historical materialism” in the realm of human society, while in the realm of nature or natural phenomena, it propounds what came to be called “dialectical materialism.”

Significantly, the meanings of the terms “material,” “materialist,” and “materialism” differ substantially in these two facets of Marxist theory. In historical materialism, “material” basically means “economic,” or somewhat more broadly, “socio-economic.” Thus here, “materialism” means the belief that economic production plays the determinant role

in human history – specifically, determining the nature and evolution of each form of society – and probably most importantly, that “social being determines social consciousness.” In dialectical materialism, “material” means “having to do with matter,” that is, material particles and other material entities. As a result, “materialism” in this realm refers to the view that human consciousness/ideas/mind are products of the human brain, as well as the claim that consciousness and ideas are ultimately caused by the impact of material particles on the human body through the five senses. These two meanings of the terms “material,” “materialist,” and “materialism” are never clearly differentiated in Marxist thought; nor are the differing conceptions of the role of the “material” world in determining human consciousness ever integrated. In fact, in neither facet of their theory do Marx or Engels ever try to explain precisely how these two (somewhat distinct) “material” worlds actually determine human consciousness.

Beyond this, Marx and Engels never really argue for their materialist standpoint, in the sense of presenting an elaborated case in favor of their position. They merely assert it and assume it to be true. Insofar as there is an implied argument in their discussions, it is that materialism is the only truly scientific standpoint – that materialism is the actual, proper, and only possible philosophy of science. In other words, Marx and Engels’ argument in favor of materialism comes down to the assumption that science is inherently materialistic; as a result, materialism is scientific and hence true, while Idealism is “metaphysics” – religion in disguise, mere speculation – and thus false.

What enables Marx and Engels to get away with this is that, at first glance, science does appear to be materialist. In fact, this view is commonplace in much writing on science, certainly that found in popular science publications. It is also the opinion of many scientists. And a superficial look at specific natural sciences suggests that this is the case: physics, chemistry, biology, geology, and their various subdivisions all seem to be concerned with material entities and seek exclusively natural explanations for the phenomena they study, while rejecting God, disembodied minds/consciousnesses, and spirit as explanatory principles. As a result, it would seem, they should be classified as

materialist. But further thought suggests that this seemingly obvious contention might not be true.

The problems with the idea that science is materialist are most clearly seen in physics. This is ironic, since physics, in some sense the foundation of the other sciences, would appear to be the most materialist of them all, dealing as it does with material bodies and processes. In fact, though, materialist descriptions of physical phenomena have become quite problematical ever since the developments that occurred in physics in the early 20th century, particularly the theories of relativity and quantum mechanics. Yet, the problems of the materialist standpoint can be seen even in earlier stages of physics.

Materialism, in one of its classic definitions, insists that the universe is made up of matter in motion. Let us assume, for the moment, that matter is what Marx, Engels, and most materialists throughout the millennia thought it was: little hard particles whirling around in space. But this leaves a crucial question: What makes matter move; what causes the material particles to whirl around? Some materialists, including Engels, insist that motion is intrinsic to matter. But this is merely a tautology that evades the question; it doesn't explain why and how matter moves, it just defines it as moving. A more substantial answer is that matter is moved by energy, a term that came into existence in the 19th century with the development of thermodynamics. This formulation results in another statement of materialism: the universe consists of matter and energy. But what, then, is energy? It is not simply matter; if it were, why don't we say simply that the universe consists of matter? Moreover, to say that energy is something

that moves matter does not get us very far, because this still does not tell us what energy is. According to Einstein's theory of relativity, matter and energy are equivalent. One can change or be changed into the other according to the equation  $E=mc^2$ : energy equals mass times the speed of light squared. But this does not help us conceptually. It merely tells us that matter can be turned into energy – and vice versa – according to a specific mathematical ratio. Even if we assert, as some scientists do, that “matter is energy and energy is matter,” this does not give us a clear conception of what energy is. We have a pretty clear common-sense idea of what matter is, but what, exactly, is energy (aside from the assertion that it is really matter)? A source of this difficulty is the fact that energy is not directly perceived; its existence and quantity are inferred by its effects – by the motion of matter that it causes and that we sense and measure, for example, as heat. In sum, we cannot clearly conceive – and scientific theory does not really tell us – precisely what energy is.

Since we have reached a dead-end here, let's turn to another formulation of materialism. This is that the universe consists of “matter and its laws of motion.” But what, exactly, are these “laws of motion”? At the time Marx and Engels wrote, these laws included those discovered by Isaac Newton, including his famous three laws of motion and his law of universal gravitation, the three laws of planetary motion discovered by Johannes Kepler, the laws of thermodynamics, Maxwell's laws (equations) about electro-magnetism, and the various other scientific laws already discovered or in the process of being discovered in other fields of science. These “laws” describe how matter behaves under various circumstances. When they take mathematical form, as they usually do (at least in

physics), they are (or are represented by) mathematical equations. When they do not, they represent different kinds of logic, descriptions of the behavior of matter under specific conditions. But once again, we have a problem. These “laws” and logics – the mathematical equations and descriptions – are not themselves material; they are not matter. They describe how matter moves or behaves, which is different. We might say that these “laws” are descriptions of fundamental structures of the universe. But the laws themselves do not further describe these structures. Are these structures themselves material? This is questionable: matter is material; the structures are something else, and the laws themselves do not tell us what they are. Meanwhile, all we can really say about these structures is that they are described by laws, which, in turn, are... mathematical equations and descriptions; in other words, they are ideas.

Physicist Mario Livio, in his book, *Is God a Mathematician?*, put it this way:

“Once many repeated scientific experiments or observations produce the same functional interrelationships, those may acquire the elevated status of laws of nature – mathematical descriptions of a behavior all natural phenomena are found to obey. (Livio, *Is God a Mathematician?*, Simon and Schuster, New York, London, Toronto, Sydney, 2009, p. 96.)

What I am getting at here is that when we attempt to describe the world scientifically and materialistically, we come up against something that is not material, something that cannot be defined in, or reduced to, strictly materialistic terms. In the case of scientific “laws,” they can only be

defined, described, and understood as ideas, in other words, as ideal.

We can see this even more clearly when we turn our attention more narrowly to matter itself. As I mentioned, when Marx and Engels were alive, matter was thought of in atomistic terms, that is, as tiny particles moving around in space. Atoms, and this is the meaning of the word, were conceived as the fundamental building blocks of the universe; they could not be broken down any further. This certainly reinforced the notion that materialism was the true philosophy of science.

But today science tells us that atoms are not fundamental, in the sense understood in the 19th century, but themselves consist of component parts – protons, neutrons, electrons, and a myriad other subatomic particles, all of which are made up of still other entities called quarks – along with a vast amount of empty space (in fact, most of matter consists of empty space). Moreover, these particles are held together by three distinct forces: the electro-magnetic force, which holds the electrons in their orbits around the nucleus; the strong or nuclear force, which holds the particles in the nucleus together; and the weak force, which governs radioactive decay, all of which are conveyed through yet other particles. And these forces themselves cannot be fully described materialistically. Like energy, forces are inferred, in other words, recognized by their effects, and they, too, are scientifically described in terms of mathematics, specifically as fields, that is, as sets of numerical values at defined points in various kinds of space.

To make things more complicated, science now tells us that what we usually think of as material particles – electrons,

protons, neutrons, and photons (the particles that make up visible light and other forms of electromagnetic radiation) – are not fully particulate. In fact, they have a dual nature: sometimes they act as particles and sometimes they act as waves. Or, to put it differently, they exhibit two types of behavior, one of which can be explained by thinking of them as particles – they have defined positions in space, momenta (the products of their masses times their velocities), and kinetic energy (energy of motion) – while the other can be explained by thinking of them as waves – they have wavelengths and frequencies, refract (change direction) when going from one medium to another, diffract (change direction when passing the edges of solid objects or through small apertures), interfere constructively and destructively with each other, and behave in other wave-like ways. Intriguingly, these entities never exhibit both types of behavior simultaneously: at any given point in time, they act – and can only be understood – as either particles or waves, but not both. Nor have scientists ever been able to reduce these two forms to one underlying, more fundamental entity. According to the standard “Copenhagen” interpretation of quantum mechanics, this dual, but mutually exclusive, characteristic of the nature and behavior of matter is called “complementarity.”

Moreover, while the particulate behavior of subatomic particles is at least somewhat consistent with a materialist conception of reality, their wave-like behavior is not. Most waves are not themselves material; they are characteristics – modifications, perturbations, undulations – of the material media in which the waves are propagated, primarily liquids, such as water, and gases, such as air. Given this, for many years, light, whose fundamental behavior was understood in terms of wave mechanics, was assumed to travel through a highly refined medium, called the “aether”; visible light and other forms of electromagnetic radiation were conceived to be periodic, wave-like, undulations of this aether. Eventually, however, it was demonstrated that the aether did not exist (this was one of the events that lead to the development of relativity), and that, in contrast to more common wave phenomena, such as water waves and sound waves, electromagnetic waves are not periodic undulations of a material medium, but something else. But exactly what they are cannot be fully explained in common-sense, materialistic terms. They are scientifically represented and understood in terms of the mathematical equa-

tions that describe their behavior, specifically, as intertwined electrical and magnetic fields that generate each other at right angles to each other. As a result, today, electromagnetic radiation (photons) are now understood to be somewhat, but not entirely, discrete “packets” of energy, called “quanta,” also with a dual nature, sometimes acting as particles, sometimes acting as waves, but never both at once.

So, whereas energy was once conceived to be infinitely divisible – like a liquid – while matter was believed to be entirely particulate, today, both energy and matter are understood to be “quanta,” semi-discrete entities that exhibit, at different times, the respective behaviors of particles and waves. Some physicists call them “wavicles.”

To make the question even more obscure, photons and other subatomic entities exhibit bizarre types of behavior that are not characteristic of what we think of as matter in our normal, macro world. In the super-atomic realm, at any given time, material entities, such as baseballs and planets, can be precisely located in space, while their physical characteristics, such as their momenta, can also be precisely determined. This is not so in the subatomic realm. There, the more precisely the position of a subatomic particle, say, an electron, is determined, the more indeterminate becomes its momentum, and vice versa; the more precisely its momentum is determined, the less defined is its position. As a result, the behaviors of subatomic entities are not describable in the exact, deterministic manner that we use in the macro world. Instead, they are described in terms of probabilities that represent the chances of finding a given particle in a given place at a given time. And, it turns out, one form of the mathematics that describes these probabilities is the very same as that which represents the wave-like behavior of these particles. Moreover, rather than being describable as they are, in themselves, the characteristics of these subatomic entities are determined, to some degree, by the very act of observation. Thus, when scientists look for (that is, set up an apparatus to measure) the particulate characteristics and behavior of, say, a single electron, its wave-like behavior disappears. Conversely, when they wish to observe the wave-like behavior of electrons, their particulate behavior vanishes.

The weirdness of the nature and behavior of subatomic particles has been neatly summed in a book that attempts

to explain the conceptual difficulties of quantum mechanics by resorting to an explicitly Idealistic standpoint.

“Behold the following quantum properties:



A quantum object (for example, an electron) can be at more than one place at the same time (the wave property).



A quantum object cannot be said to manifest in ordinary space-time reality until we observe it as a particle (collapse of the wave).



A quantum object ceases to exist here and simultaneously exists over there; we cannot say it went through the intervening space (the quantum jump).



A manifestation of one quantum object, caused by our observation, simultaneously influences it correlated twin object -- no matter how far apart they are (quantum action-at-a-distance).

(Amit Goswami, Ph.D. with Richard E. Reed and Maggie Goswami, *The Self-Aware Universe*, Jeremy P. Tarcher/Putnam, a member of Penguin/Putnam Inc., New York, 1993.)

(In fact, physicists believe that quantum mechanics does describe the behavior of super-atomic entities, although until recently, it was assumed that in this realm quantum effects were negligible and could, for all practical purposes, be ignored. However, scientists are currently discovering a variety of significant quantum effects that occur on the molecular, that is, super-atomic, level. [See “Living in a Quantum World,” by Vlatko Vedral, *Scientific American*, June 2001.]

What this adds up to (among other things) is that the more science has plumbed the depths of the supposedly material world, the less material does it appear to be. This is what led some scientists and philosophers of science, from the begin-

ning of the 20th century on, to abandon, or at least to question, materialist explanations of subatomic phenomena. (One of the more prominent of these figures was the physicist and philosopher, Ernst Mach, who was one of the main targets of Lenin’s polemical defense of materialism, *Materialism and Empirio-Criticism*.) It is also what led other scientists, including Albert Einstein, to challenge the conclusions of quantum mechanics (even though he had been instrumental in its early development): “God does not play dice with the universe,” he insisted. And to this day, there is no universally agreed-upon philosophical interpretation of quantum mechanics (or of many of the other discoveries of modern physics, for that matter), a fact that has led most scientists to avoid philosophical speculation altogether (at least while they are doing their work) and to accept, and to base their work on, the mathematical apparatuses (“formalisms”) that describe that world. Significantly, these mathematical apparatuses, that is, the equations and mathematical procedures that describe the nature and behavior of the subatomic world, work and have been consistently corroborated in the more than eight decades of their existence.

As a result, it can be argued that from a scientific point of view, the fundamental reality of the subatomic world (and, by implication, the entirety of the universe) is not matter at all, but mathematics, that is, ideas. In other words, according to modern science, the ultimate reality of the universe consists not of matter, but of the mathematical equations that describe the behavior of the entities that our “common sense” understanding conceives of as matter.

(We can see the same thing in the macro realm. According to the general theory of relativity, space, which Einstein called “space-time” [to incorporate the notion that, according to his theory, time is not absolute], is curved, the degree of curvature in any given vicinity being dependent upon the amount of matter found there. This curvature is not itself material; it can only be conceptualized and analyzed mathematically, through the geometry of curved surfaces [tensor analysis], in other words, ideationally.)

And what is true of physics is true of the other sciences. More fundamental than the material entities with which they deal are the descriptions, the structures or patterns, of

the processes through which these entities move and interact. These, too, are conceptual, ideational, that is, ideas.

If we accept this, we have to accept the counter-intuitive conclusion that science is not really materialist at all, but a special form of Idealism: for it, the fundamental reality of the universe consists not of matter, but of ideas. True, these ideas (the mathematical equations, categories, rules of procedure, descriptions, and theories of science) are not the mind, spirit or consciousness of traditional Idealism. They are, in contrast to the latter, pure abstractions from which the personal characteristics of thought have been eliminated. But they are ideas, nonetheless.

That science is, at least in some sense, Idealist is not really as surprising as it might seem at first. After all, human beings conceive of the world in terms of our ideas – our concepts, our categories, our rules of logic (including mathematics), and our theories – and insofar as we think about it, or about anything in it, we do not, and cannot, get beyond them. Our thinking is, in a sense, trapped within the realm of our ideas. And this is true both of our thinking about the natural world and of our thinking about our thinking, that is, about philosophy. This leads to an ironic conclusion that was most concisely raised by Hegel. He said that all philosophies, including materialism, are really forms of Idealism. What differentiates materialism from other types of Idealism is that its fundamental category is matter, which is, as Hegel saw it, a dull (uninteresting) and dead (undialectical) one. Yet, it is still a category, an idea.

If this conclusion is correct, then Marxist “dialectical materialism” is also a type of Idealism. Intriguingly, Engels

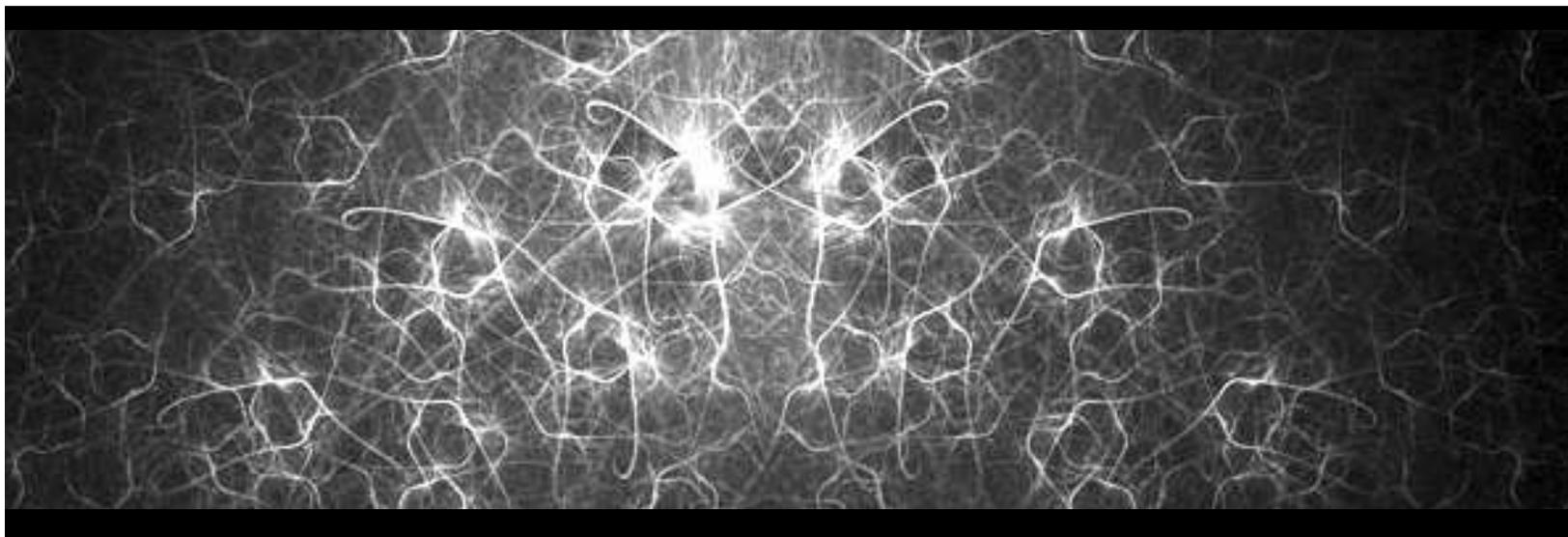
seems to sense the problematic nature of matter. In his *Dialectics of Nature*, he writes:

“Matter as such is a pure creation of thought and an abstraction. [My emphasis – RT] We leave out of account the qualitative difference of things in comprehending them as corporally existing things under the concept matter. Hence matter as such, as distinct from definite existing pieces of matter, is not anything sensuously existing.” (*Dialectics of Nature*, op. cit., pp. 322-323.)

He goes on to try to rescue himself from this (not entirely welcome) conclusion by drawing a distinction between the concept of matter itself and specific material entities.

“If natural science directs its efforts to seeking out uniform matter as such, to reducing qualitative differences to merely quantitative differences in combining identical smallest particles, it would be doing the same thing as demanding to see fruit instead of cherries, pears, apples, or the mammal as such instead of cats, dogs, sheep, etc., gas as such, metal, stone, chemical compound as such, motion as such.” (*Dialectics of Nature*, pp. 322-323.)

But this is precisely what science does do; that is, it reduces qualitative differences to more abstract quantitative ones (hence the mathematical treatment, the scientific “laws,” the equations), leaving aside the fact that categories such as “cherries, pears, apples,” and “cats, dogs, sheep, etc.,” are just as much abstractions (ideas, categories, products of human thought) as are “fruit” and “mammals”; they are just somewhat narrower.



If, then, underneath the appearances, science is Idealist, what distinguishes science from philosophy? As I see it, science is distinguishable from philosophy by three things: (1) The categories, equations, and “laws” of science are totally depersonalized, that is, they are mindless, spiritless; they are not, and do not represent, the minds, consciousness or spirits (God or the Ego) of the explicit forms of Idealism; (2) As depersonalized thought, the categories, equations, and “laws” do not embody or represent any sense of meaning or purpose, any teleology. In other words, the universe has no underlying purpose; it is not evolving toward some humanly meaningful historical or ethical goal; (3) The conclusions of science – the concepts, hypotheses, theories, and equations – are subjected to precise testing and hence to corroboration or falsification (loosely, proof or disproof), while those of philosophy are not. This insistence on testing is what lies behind the fact that different realms of science and different scientific theories often represent different and even contradictory philosophical principles. In physics, for example, the macro world as described by the theory of relativity is fully determined and, at least in principle, predictable, while the micro world of quantum mechanics is non-deterministic and probabilistic. Thus, most scientists (and hence, one might say, science itself) assume that there is a realm “out there” that is (more or less) independent of our theorizing that science is attempting to explain.

(The precise nature and meaning of the process of corroboration and/or falsification of scientific hypotheses and theories, and of the very nature and meaning of the hypotheses and theories themselves, have long been subjects of intense discussion and debate among scientists and philosophers of science. Beyond the general notion that scientific hypotheses and theories are, through some type of [often messy] intellectual, cultural, social, and historical process, corroborated or refuted, there is no general agreement on what this precisely means. In light of this, one might add a fourth distinction between science and philosophy. This is that science, unlike philosophy, is not reflexive; it does not generally subject itself to analysis and takes its own methods and procedures for granted. When scientists do attempt to analyze science, they enter the realm of philosophy.)

Where, then, does this leave us? It leaves us, I think, with several conclusions: (1) Science is not, in fact, materialist,

despite its appearance of being so. (2) What distinguishes science from philosophy is not science’s supposedly materialistic nature but the extremely abstract and depersonalized nature of its categories and concepts, its denial that natural phenomena embody purposes or goals, and the fact that it subjects its conclusions to systematic testing (along with the implication of this – that it is attempting to explain a reality that is independent of it); (3)

Materialism, in the sense of a class of philosophy counterposed to Idealism, is an illusion; it, like the rest of philosophy, is a form (a subset) of Idealism. Materialism is a form of Idealism that denies that it is Idealistic. (4) Marxism’s claim to be materialist, to be based on a materialist philosophy, is false; moreover, as per (1), such a claim, by itself, does not make it scientific.

## DIALECTICS

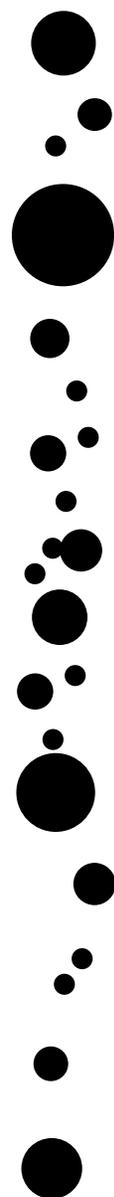
With this said, let’s turn to the question of dialectics.

To Marx and Engels, “dialectics,” in the most basic sense of the term, refers to the fact that, in their view (and, they believed, in the view of modern science), all natural and historical/social reality is and can only be understood as a process, or more precisely, as a complex of processes.

“[T]he world is not to be comprehended as a complex of ready-made things, but as a complex of processes...”  
(Engels, *Ludwig Feuerbach and the Outcome of Classical German Philosophy*, op. cit., p. 44.)

In this conception, everything in the world is in motion, and everything reacts and interacts in an extremely complex way that cannot be fully grasped by static, mechanical modes of thoughts. For Engels and Marx, dialectics is a way to more effectively conceptualize and understand the process-like nature of reality.

Dialectics (or better said, dialectical ideas and methods) has a long history in Western philosophy, especially in Idealism. (It also appears very early in Asian philosophy, most notably, in the interpenetrating, mutually generating relations of “yin” and “yang.” But since Marx and Engels describe their own philosophical development exclusively



in terms of Western philosophy, I will limit my discussion to that tradition.)

Although Engels, in *Anti-Dühring*, cites some of the Greek pre-Socratic materialist philosophers, particularly Heraclitus, as early sources of dialectics, to get a deeper understanding of what dialectics is one must look to the Idealists, first off to Plato. As those who have read some philosophy know, Plato elaborated his outlook in the form of dialogues, specifically, dialogues involving his mentor, Socrates. Socrates, an eccentric citizen of ancient (5th century B.C.) Athens, went around the agora (the market place/public square) of the city questioning those men who claimed to be philosophers and to know something about the world. In contrast to these individuals, Socrates insisted that he himself knew nothing. But through a series of probing questions, he would get those he interrogated to contradict themselves, thus demonstrating that, despite their claims to be knowledgeable, they, too, did not know anything. (At least Socrates knew that he knew nothing.) All Socrates claimed to know (but to know not quite in the same sense as those he questioned claimed to know) was what his “daemon” – a little voice in his head – told him, particularly, by raising doubts about specific ideas. (Today, we would recognize this voice as Socrates’ conscience.) Because of his annoying habits, and even more, because he set his individual conscience above the ancient, venerated laws and customs of Athens, Socrates was tried (essentially, for treason), convicted, and sentenced to death, which sentence he willingly, even cheerfully, carried out by drinking the poisonous hemlock.

Although Socrates insisted that he knew (almost) nothing, and as a result, never articulated a fully developed, logically coherent philosophy, Plato used the “Socratic dialogues” to do just that. Ironically, then, Plato utilized the modest, skeptical figure of Socrates to elaborate a philosophy of absolute knowledge, a metaphysical point of view that asserted not only that absolute knowledge was possible but also that his (Plato’s) philosophy represented just that knowledge.

In a nutshell, Plato argued that the world consists of two distinct but interconnected realms. One is the world of everyday objects, events, processes, and ideas that we feel/perceive

through our five bodily senses and think about with our untrained minds. The other, behind and beyond this world, is a realm of Ideal forms that are the basis for and determine the everyday world, not only the physical things – inanimate objects, plants, animals, human beings – but also the values Athenians held to, such as beauty, honor, virtue, valor, filial piety, patriotism, and truth. Although most people only recognize the sensible, physically perceivable world and the world of common-sense ideas, the realm of the Ideal forms was, in Plato’s view, the more fundamental, the more real, one, and it is only a very few individuals (true philosophers, such as himself) who have the ability – indeed, the privilege – to recognize and understand it, which they do through philosophical contemplation. It was because of this that Plato believed that the only people capable of governing society in a truly rational manner are those very philosophers, and he elaborated a vision of an ideal society, governed by “philosopher-kings” (who would be reared and educated via Plato’s curriculum and methods), in what is perhaps his most famous dialogue, *The Republic*. He actually tried to set up such a society in a couple of places, becoming an adviser to what were then known as “tyrants” (essentially, political strongmen) to do so. Fortunately, these efforts to establish what were, in effect, totalitarian states were not successful.

Although Plato does not use the term, we might say that for him, “dialectics” is a logical process involving a confrontation of ideas. Impelled by this conflict or dialogue, this process moves toward, and eventually arrives at, the Truth, which, for Plato, meant absolutely certain knowledge.

This conception of dialectics was summed up by a later Greek, Diogenes Laertius, in his book on the Greek philosophers:

“The dialectic is the art of discourse by which we either refute or establish some proposition by means of question and answer on the part of interlocutors.” (Cited in Matteo Motterlini, editor’s introduction, *For and Against Method*, by Imre Lakatos and Paul Feyerabend, The University of Chicago Press, Chicago and London, 1999, p. 1.)

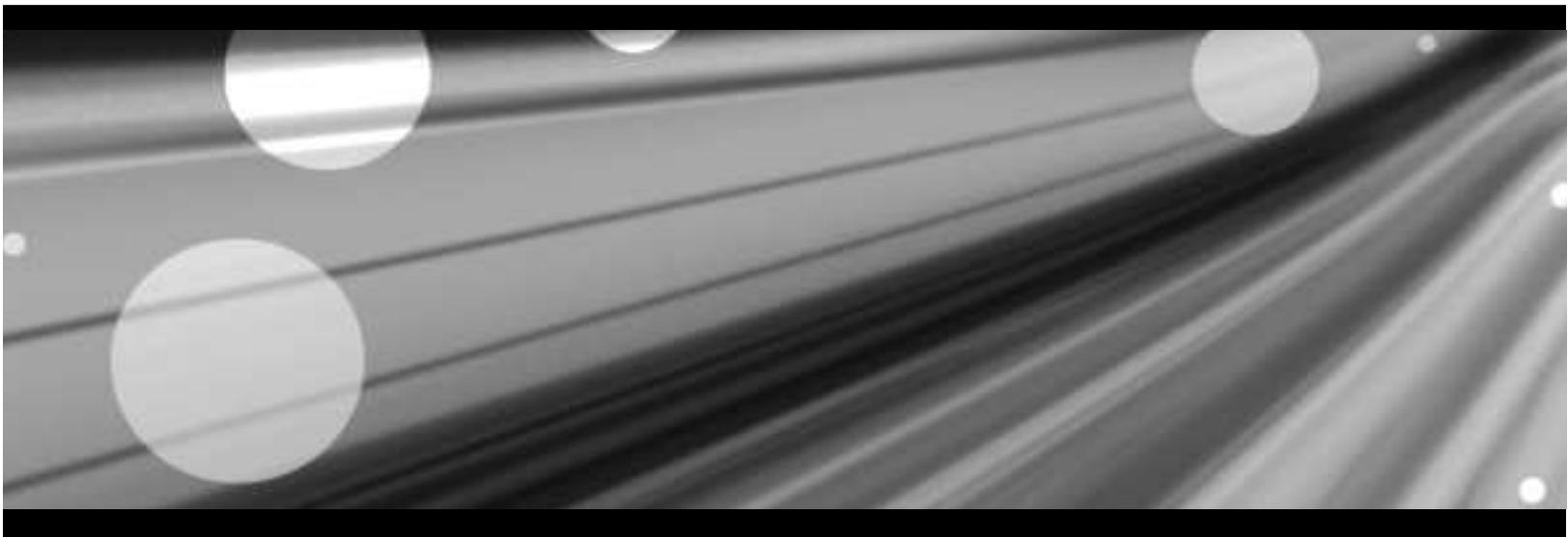
Aside from dialectics and the notion of absolute truth, there can also be seen in Plato’s thought a division of the cosmos into two distinct realms. One is that of appearances, the

world of everyday and natural objects, events, and processes, of phenomena. The other, behind and/or beyond the world of phenomena, is the more fundamental realm of the noumena, or essences. To Plato and to most philosophers after him, it was the ultimate purpose of philosophy to penetrate behind the phenomena in order to discern the nature, structure, and dynamics of the noumena, which is where the truth lies.

A much later version of dialectical thinking can be seen in the philosophy of the 18th century German, Immanuel Kant, as put forward in his masterpiece, *The Critique of Pure Reason*. Kant saw the reasoning faculty of the human mind as compartmentalized into distinct spheres; one of these he termed the “understanding;” another, “pure reason.” The understanding is that part of the mind that perceives and analyzes the world of phenomena, which, for Kant, includes both the world of everyday people, places, and things, and the world of science. Built into the understanding are certain fundamental “laws” and structures, such as the notion of cause and effect and the three-dimensional (Euclidean) nature of space. To Kant, these laws and structures are not characteristics of physical reality itself but serve to shape what we ultimately cognize with our minds, specifically, by our understanding. One way to understand this is to see these structures as constituting a kind of framework, or filter, through which we sense, but do not fully and precisely perceive, the ultimate reality. This ultimate reality is the world of the noumena, the world of essences, or what Kant called the “thing-in-itself.” This latter realm can be conceived only through pure reason, by which he meant philosophic contemplation or speculation.

Although in this sense Kant was in agreement with Plato, in contrast to Plato, Kant felt that pure reason was not capable of arriving at philosophic (as opposed to scientific) truth. On all the great metaphysical questions of his day, in fact, of the entire history of philosophy – such as, Does God exist?, Is the universe finite or infinite?, Did the universe have a beginning in time or has it existed forever?, Are human actions determined or is there free will? – Kant felt that pure reason was capable of arguing both sides (pro and con) equally well. One result of this is an endless dialogue – idea contending with idea, philosopher arguing with philosopher, each philosopher debating with himself, in effect, reason arguing with itself – that never actually arrives at the truth. Kant’s dialectic is thus infinite and eternal. For Kant, certainty and true (scientific) knowledge were possible only in the realm of phenomena, not in the realm of the noumena, which was the more fundamental reality. Here, then, we have a form of the dialectic that, unlike Plato’s, goes on forever and never arrives at a conclusion, a synthesis, or (philosophical or metaphysical) truth.

Understandably, many philosophers after Kant were dissatisfied with this conclusion. Among these was Hegel. In many respects, Hegel’s philosophy, and particularly his conception of the dialectic, can best be seen as a reply to Kant’s. Where Kant left the dialectic inconclusive, forever debating with itself but never reaching the truth, Hegel tried to demonstrate that if left to itself, the dialectic, the dialogue of consciousness or mind with itself, does in fact lead to philosophic/metaphysical truth. In his *Phenomenology of Mind*, Hegel starts with what is apparently the



most certain type of knowledge, what he called “sense certainty” (the seeming assurance that when one touches something, one knows that it is there), and shows how, at each level of thinking, one thought generates its opposite, and how the conflict between these two ideas leads to the recognition that each thought is both true and false, that each thought contains some truth but is also limited and one-sided. The result of this conflict/dialogue is a kind of synthesis of both ideas, a new idea that preserves what is true in each thought, discards what is false, and ultimately transcends the debate between them. This synthesis – this new idea, which represents a new and higher level of thinking – then splits in two and undergoes the same dialogical process, but at a still higher level. This process is repeated at ever higher, broader, and more sophisticated planes of thought, until consciousness eventually arrives at the absolute truth.

As we have seen, for Hegel, this truth is that God does exist, that God is ultimately mind, consciousness, or spirit, and that our minds/consciousnesses/spirits partake of and are the embodiments of the cosmic mind/consciousness/spirit that is God. In this dialectical process, we start out with perceptions of phenomena but wind up with knowledge of the noumena, what Kant had called the “thing-in-itself,” thus, breaking down the barrier Kant and other philosophers had erected between these two realms and between the “understanding” and “pure reason.” For Hegel, this process is simultaneously the journey of the thought of each philosophical inquirer, of the consciousness (and hence, for Hegel, the philosophy and history) of all humanity, and of the spirit of God. While for us humans, as individuals and as a collective entity, this journey takes place in time, for God (as Hegel explains in the semi-mystical final section of the *Phenomenology* that has baffled some readers [see Merold Westphal, *History and Truth in Hegel’s Phenomenology*, Humanities Press, New Jersey, 1982.]), this process occurs repeatedly and continually, in a truly dialectical fashion, in a realm beyond time.

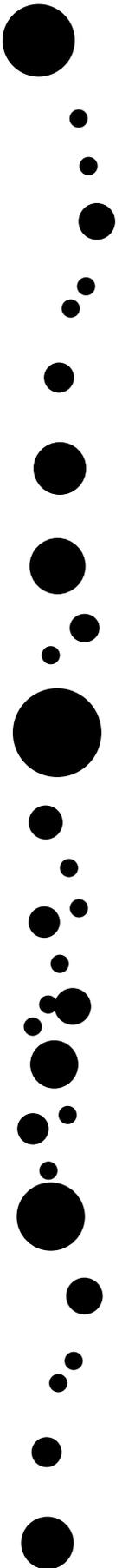
In contrast to Kant’s conception, in Hegel’s view there is no unsolvable problem of knowledge or truth. Truth – real truth, Absolute Truth – is obtainable through the dialectical process of philosophical thought, what Hegel called specu-

lation. All one has to do is to allow the process to work itself out, to go along with it, so to speak, to follow where it leads. The fundamental reason why, for Hegel, there is no insurmountable problem of knowledge of the noumena is that our minds partake of the same substance – ultimately they are the same substance – as that of the cosmos and of God. As a result, the laws of our thinking, of our consciousness (that is, our logic), are precisely the same as those laws (and the logic) that underlie and determine the evolution of the cosmos, the laws (the logic, the mind or spirit) of God. (This logic is extensively – indeed, exhaustively – laid out in Hegel’s most impressive work, *The Science of Logic*.)

The above examples of the dialectic relate exclusively to the realm of ideas; to the thinkers I’ve discussed, the dialectic is an ideal process; it characterizes only thought/consciousness and processes based on it. Since the purely natural world does not entail meaning or consciousness, the dialectic, in these versions, does not apply. However, Hegel’s philosophy, whose Idealism is not subjective, but objective (he believed the world exists independently of the consciousness of any given individual), provides a transition to a conceivable materialist dialectic. Although Hegel did not consider the natural world to be governed by dialectical processes or logic, he did think, as we have seen, that human history was. Thus, in contrast to Plato and Kant, where the dialectic is a purely subjective process (a dialogue of ideas in minds or consciousness), for Hegel, the dialectic has an objective reality; it exists “out there”; it actually exists in, underlies and impels, the objective reality of history. Basing oneself on this, it is possible to assert the existence of an objective dialectic in the material universe. This, in essence, is what Marx and Engels do.

## MARXIAN DIALECTICS

The dialectic of Marx and Engels, as they admit, takes its point of departure from Hegel’s but claims to be different, and this in three ways. First, Marx and Engels insist that their dialectic is materialistic: in contrast to Hegel, they believe material reality, including natural processes and nature itself, is dialectical; this includes the notion that the material uni-



verse has a history, that it evolves. Second, they contend that their dialectic is a “method” and not, as it is in Hegelian philosophy, a “system.” Third, Marx and Engels believe (although they never say this explicitly) that their conception of the dialectic has predictive value, that is, it allows its practitioners to project past trends into the future. This, too, is in contrast to Hegel, who felt that the dialectic is *ex post facto*: it only enables one to understand/explain/interpret events after they have occurred. As he put it, “The owl of Minerva (the Roman goddess of wisdom – RT) only flies at night.” In short, as Marx and Engels see it, their dialectic is not an Idealist construct but a scientific method of analyzing material reality that enables one to make accurate predictions about the future.

Here is Engels’ explication:

“It is, therefore, from the history of nature and human society that the laws of dialectics are abstracted. For they are nothing but the most general laws of these two aspects of historical development, as well as of thought itself.”

“And indeed they can be reduced in the main to three:

The law of the transformation of quantity into quality and vice versa;  
The law of the interpenetration of opposites;  
The law of the negation of the negation.

“All three are developed by Hegel in his idealist fashion as mere laws of thought: the first, in the first part of his *Logic*, in the Doctrine of Being; the second fills the whole of the second and by far the most important part of his *Logic*, the Doctrine of Essence; finally the third figures as the fundamental law for the construction of the whole system.”

Engels then describes what he sees as Hegel’s fundamental error:

“The mistake lies in the fact that these laws are foisted on nature and history as laws of thought, and not deduced from them. This is the source of the whole forced and often outrageous treatment; the universe, willy-nilly, is made out to be arranged in accordance with a system of thought which itself is only the product of a definite stage of evolu-

tion of human thought. If we turn the thing around, then everything becomes simple, and the dialectical laws that look so mysterious in idealist philosophy at once become simple and clear as noonday....

“We are not concerned here with writing a handbook of dialectics, but only with showing that the dialectical laws are really laws of development of nature, and therefore are valid also for theoretical natural science.” (All of these citations are from Engels, *Dialectics of Nature*, International Publishers, op. cit., pp. 26-27.)

(The rest of *Dialectics of Nature* consists of Engels’ attempts to demonstrate the dialectical nature of material reality as it is revealed in the discoveries of the science of his and Marx’s day.)

Despite Engels’ insistence that his and Marx’s notion of dialectics is materialist, their conception is just as much of an Idealist construct as is Hegel’s. This is because:

(1) The “laws” of dialectics that Engels claims have been abstracted from nature and history have never been corroborated and accepted by the scientific community. Specifically, they have not been established as scientific laws in the same sense as have, say, the laws of modern physics or the Darwinian theory of evolution through natural selection. At the time Marx and Engels were writing, it might have appeared reasonable to believe that these laws would eventually be accepted as scientific by the community of scientists, and Marx and Engels seemed to have shared this idea. As Engels put it,

“For the revolution which is being forced on theoretical natural science by the mere need to set in order the purely empirical discoveries, great masses of which are now being piled up, is of such a kind that it must bring the dialectical character of natural events more and more to the consciousness even of those empiricists who are most opposed to it. (Engels, *Anti-Dühring*, op. cit., p. 17.)

But despite their beliefs (and hopes), the laws of dialectics have not been accepted by the scientific community and are not likely ever to be so accepted. This is because they are

too broad, too vague, and too general to be systematically tested in a scientific fashion: they can be subjected to many different interpretations; they apply to some phenomena but not to others; they apply to some phenomena some of the time but not all the time, etc. Above all, Marx and Engels' laws do not make predictions specific enough so they can be held to account; as a result, there is no way they can be judged as true or false (corroborated or falsified) in the scientifically-accepted meaning of these terms. In the absence of such corroboration, the Marxian "laws of dialectics" remain logical constructs, not scientific truths. (For whatever it's worth, if the theories of relativity and of quantum mechanics had not been empirically corroborated, they, too, would be nothing but logical – in this case, mathematical – constructs.)

(2) Although Engels contends that the laws of dialectics were abstracted from the history of nature and human society, this is not so. Where? When? How? By whom? Certainly not by any significant number of scientists. As I've said, these laws have never been accepted by mainstream science. Moreover, they were not even abstracted from the history of nature and society by Marx and Engels. Marx and Engels were introduced to dialectics through their academic backgrounds in philosophy, specifically, through their study of Hegel and Hegel's disciples, and through their involvement in the post-Hegelian philosophical milieu of their youth. It was this study and debate, along with their participation in radical politics in the early and mid-1840s, that led them to their mature political outlook, which was most succinctly articulated in the *Communist Manifesto*. And it was only after they had formulated this outlook that they began the systematic study of

capitalism (as Marx himself admits), and much later, of natural phenomena. In other words, rather than abstracting the laws of dialectics from the history of nature and human society, as Engels insists, Marx and Engels, under the influence of the materialism of Ludwig Feuerbach, first recast the Hegelian schema in materialist terms (in effect, synthesizing the Hegelian and Feuerbachian philosophies), and then looked to human society/history and nature to confirm the validity of the construct. *Dialectics of Nature* was part of this program. It was an attempt to prove the validity of the dialectical schema by demonstrating that it manifests itself in natural, material reality.

(Insofar as anybody can be said to have "abstracted" dialectics [although not from nature but from the history of ideas], it was the Idealist philosophers who did so, particularly Hegel and his once-friend and later rival, F.W.J. Schelling, who actually claimed priority in the development of the concept.)

(3) Despite Engels' contention that his (and Marx's) dialectics constitutes a method, he does not really use it that way. To be utilized as a method, the dialectical "laws" would have to be understood as, at best, rules of thumb, general notions to be kept in mind as one investigates natural and social phenomena. I think it is true, as Engels says, that natural and human reality are best understood as a complex of processes that cannot be fully understood by our usual habits of thought. This is because our normal ideas – our concepts, categories, and rules of logic – are abstract, and as a result, simplify and hence distort reality. Specifically, they isolate phenomena from each other in space, looking at each one, or at most a few, as distinct entities abstracted from the rest of

reality. They also stop time, viewing entities as static, inert, and as non-evolving. But if all of reality (including things that appear to be solid, permanent objects) is in fact a process, if everything is in motion, then these traditional modes of thought distort our understanding of that reality. From this standpoint, the purpose of dialectics would be to remind us that reality does consist of a complex of processes, that things that appear to be unitary and stable may, in fact, be constituted by antagonistic forces, and that they may be evolving into something else. If understood in this sense, dialectics would serve to remind us to look at natural and economic, social, and historical events in ever broader contexts of space and time.

But this is not how Engels presents and utilizes these laws. He does not use them as part of a general mode of procedure that serves to remind us that nature is, as he puts it, a complex of processes. Instead, when he looks at natural phenomena, he analyzes them with the intent of finding the specific “laws of dialectics” in them, in other words, with the purpose of proving the validity of the dialectical laws, that is, proving that the “laws of dialectics” determine the development of natural reality. But all he does, in fact, is to find what he is looking for: certain phenomena at certain times do exhibit behavior that is consistent with those “laws.” Rather than serving as a method, Engels’ laws of dialectics function in much the same way as they do in Hegel’s system: they describe a structure or logic which is assumed (but never proven) to underlie, form the basis of, and determine the evolution of all natural and social reality. All that is different is how the two dialectical schemas are conceived and presented. Hegel describes his dialectical method and system

explicitly as Idealistic, as laws of thought/consciousness. In contrast, Engels presents his dialectics as materialistic, specifically, as determining the development of material reality (natural and historical) and its reflection in the human mind as thought. But Marxian dialectics remains just as much of an abstract logical schema, just as much of an Idealist construct, as does the Hegelian. What Engels has in fact done is to take a very specific notion of dialectics – one borrowed directly from the Idealists, particularly, Hegel – and to surreptitiously amalgamate it with a much more general (and generally acceptable) conception, and to put these forward as if they were one and the same. But this is not the case. One can readily agree that nature (and human society) is best understood and analyzed as a “complex of processes” without accepting any of the dialectical “laws” that Engels describes.

Engels’ ultimate motive behind this maneuver, and behind his elaboration of “dialectical materialism” as a whole, is to establish the ontological basis, and thus the validity, of the Marxian conception of history, and through this, to substantiate the claim that the Marxian program is scientific, specifically, that socialism, to be achieved through the dictatorship of the proletariat, is inevitable. If material reality, the world of matter of the natural sciences, is dialectical, that is, conforming to and obeying a dialectical structure, then so, too, must be the material reality of human history, the world of the forces and relations of production, which is ontologically based on the material world of nature and, at least in the view of Marx and Engels, follows the same laws; in other words, human history must also conform to and obey a dialectical structure. And, if we recognize that, for

Marx and Engels, an essential aspect of this dialecticality is that the future is predictable (as the outcome of the “laws” of dialectics, particularly, the “law” of the negation of the negation), the supposed dialectical structure of history seems to prove that the laws of motion of capitalism and all prior history inevitably lead to the proletarian revolution, the establishment of the dictatorship of the proletariat, and the creation of a socialist/communist society through that institution. That this is Engels’ purpose can be seen more clearly if we look at the three “laws” of dialectics that he discusses. Not surprisingly, each one serves to justify one of the key precepts of Marxism.

The first law, the “transformation of quantity into quality,” is essential to the Marxian claim that social development occurs through periodic revolutions. As we saw in the discussion of historical materialism, for Marxism, the (quantitative) growth in the forces of production within specific socio-economic formations leads to periodic social revolutions (qualitative changes) that lead to new forms of economic production, specifically, when the forces of production come into conflict with the relations of production. As a result, capitalism, which develops the forces of production at a far more rapid rate than previous economic formations, is destined to bring about a (working class) revolution.

The second law, the “interpenetration of opposites,” substantiates the Marxian contention that each mode of production, each form of society, must be understood as a dynamic unity of contradictory forces, first and foremost, social classes, and that, as a result, all history is the history of class struggles.

The third law, the “negation of the negation,” justifies the Marxian insistence that the inevitable outcome of human history will be the establishment of a collectivist, egalitarian society, a return to the principles of primitive communism but on the far more technologically advanced basis bequeathed by history, particularly by capitalism. According to the dialectical schema, primitive communism is the starting point, the first positive standpoint. This type of society is “negated” by the establishment of class society, which is thus the first negation. At the end of history, this first negation is negated by the proletarian revolution, which eventually leads to the establish-

ment of (classless) communism, the negation of class society, the negation of the negation.

That this is the case can be seen in Engels’ own presentation. In discussing his and Marx’s “rescue” of the Hegelian dialectic, he writes:

“We comprehended the concepts in our heads once more materialistically – as images of real things instead of regarding the real things as images of this or that stage of development of the absolute concept. Thus dialectics reduced itself to the science of the general laws of motion – both of the external world and of human thought – two sets of laws which are identical in substance, but differ in their expression in so far as the human mind can apply them consciously, while in nature and also up to now for the most part in human history, these laws assert themselves unconsciously in the form of external necessity in the midst of an endless series of seeming accidents. Thereby the dialectic of the concept itself became merely the conscious reflex of the dialectical motion of the real world and the dialectic of Hegel was placed on its head; or rather, turned off its head, on which it was standing before, and placed upon its feet.”

“...the world is not to be comprehended as a complex of ready-made things, but as a complex of processes, in which the things apparently stable no less than their mind-images in our heads, the concepts, go through an uninterrupted change of coming into being and passing away, in which, in spite of all seeming accidents and of all temporary retrogression, a progressive development asserts itself in the end [my emphasis – RT]...” (*Ludwig Feuerbach and the Outcome of Classical German Philosophy*, op. cit., p. 44.)

In other words, according to Engels, the dialectic underlies and drives the evolution of external reality (both natural and historical). In so doing, it ensures, despite all apparent accidents and reverses, that this evolution will be progressive. But this is nothing but the Hegelian schema dressed up in materialist garb! Despite his claim, for Engels (and, I believe, for Marx), the dialectic is a logical structure that is immanent in material reality, both natural and historical, and propels the evolution of that reality toward an inevitable, progressive conclusion. This is philosophy (and

Hegelian philosophy, at that), not science, because, as I've stressed, there is no scientific proof that the dialectic, in the sense of the dialectical "laws," inheres in material (or, for that matter, in social) reality.

Beyond his questionable procedure, Engels' position reveals (at least) three fundamental misconceptions. One is the belief that nature evinces a progressive development. This is a profound misinterpretation of science, in general, and of the Darwinian theory of evolution, in particular. Modern science does recognize evolution in the cosmos. In contrast to Hegel and the French materialists of the 18th century, modern cosmology believes that the universe evolves, that it has a history, that it does not merely evince a purely mechanical repetition, forever returning to the same state. But modern cosmology does not see this as in any sense "progressive"; it does not assert that nature is evolving toward a pre-existing end or goal; it is not teleological. Similarly with the Darwinian understanding of evolution in the plant and animal worlds. While Darwin and modern evolutionary biologists recognize that the organic world has undergone an evolution from very simple life-forms to more complex ones, this is not understood to be "progressive." For the contemporary neo-Darwinian synthesis, currently-existing species all reveal equally successful adaptations to their environments. There are no "higher" or "lower" species – viruses, bacteria, single-cell parasites, molds, fungi, worms, and insects are just as successful as human beings (arguably more so) – and, consequently, there is no "progress" in evolution, no immanent, let alone "progressive," goal.

Engels' position rests on yet another misunderstanding. This is the belief that laws that are found to apply/operate in the realm of nature also apply/operate, and in the same manner, in the world of human social life, specifically, as Engels says, that the laws of dialectics are laws of nature and of history (and human thought). But this is not necessarily so. Each realm of existence, the inorganic, the organic, and the human/social, expresses different dynamics and is described by different "laws"; each realm has its own, unique ("emergent") characteristics which cannot mechanically be reduced to, or deduced from, the laws of the other levels. Thus, even if the Marxian "laws of dialectics" were to be corroborated as being valid (and operating) in the natural world, this, by itself, would not mean that they nec-

essarily apply to, or operate in, human society. This would have to be independently demonstrated, which has never been done. Although Marx and Engels claim to have demonstrated it, they only appear to do so by assuming it from the outset.

Lastly, Engels seems to believe that evolutionary theory enables one to predict the future, to be able to determine at least the broad outlines of future developments. But this, too, is not true. Neither Darwin nor modern evolutionary biologists have ever contended that the theory of natural selection enables one to predict future forms of plant and animal life, beyond the general claim that they will be more or less adapted to their environments. Yet, the belief in the predictability of the future is central to Engels' (and, I believe, Marx's) project.

Although Engels insists, in *Anti-Dühring*, that dialectics cannot be used to prove anything, this is what he is in fact trying to do. Why else spend so much time and effort (in *Dialectics of Nature*, *Anti-Dühring*, and elsewhere) attempting to demonstrate that nature is dialectical, that the "laws" of dialectics inhere in nature? The whole point of Engels' procedure is to establish these laws as universal laws of nature and, hence, of all reality, not only natural, but economic, social, and political, as well. And if, as Engels believes, they are the laws of development of all reality, they can be used to prove something, specifically, that, as he puts it, "in spite of all temporary retrogression, a progressive development asserts itself in the end." But, given the lack of scientific demonstration of the dialectical laws, they cannot, scientifically, be used to prove anything at all. And they certainly cannot be used to predict the future of human society, which is what Marx and Engels claim to be able to do. Yet, without that ability – without the prediction that the (dialectical) logic of nature and history necessarily results in socialism through the establishment of the dictatorship of the proletariat – the Marxian claim to have established the scientific basis of socialism collapses. And with that, it is revealed that Marxian "scientific socialism" is a fraud. Like all other forms of utopian ideology, the Marxian program rests on a moral or ethical claim, not a scientific one.

In light of this, we can now see that the Marxist conception of dialectics encompasses several versions that are, in fact, qualitatively distinct but not clearly differentiated from

each other. One is the broad insistence that the world is to be comprehended as a “complex of processes.” This is something that can be accepted by every scientist (and in fact by every intelligent observer) and is thoroughly compatible with a scientific outlook. If this is what dialectics consists of, then dialectics is (almost obviously) true. An additional, but closely related, meaning of dialectics is the traditional philosophical/Idealist one; that is, it describes processes that are best understood as involving opposing forces or ideas that mutually influence and generate each other.

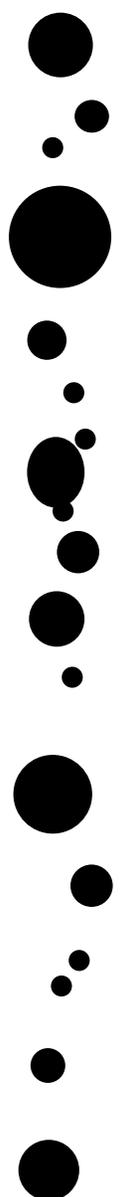
Under this variant we can include the Marxist conception of historical praxis, as well as the notion that philosophical ideas and scientific theories often develop via an ongoing discussion or debate between opposing viewpoints, without this implying that the outcome is progressive, predictable or ordained. This conception of dialectics I also believe is relatively unobjectionable.

But, in addition to these unexceptionable notions of dialectics, Engels puts forward an additional one. This is the dialectics of the three “laws” – the unity of opposites, the transformation of quantity into quality, and the negation of the negation. These laws, which, as I’ve stressed, have not been established as scientific, in fact represent a philosophic construct, specifically, an Idealist system of logic borrowed from Hegel and presented as materialistic. This construct is then utilized to justify a particular ideological claim, specifically, that human history entails a progressive development whose inevitable outcome is communism, or, to put it in philosophic terms, that history is the phenomenological expression of a noumenological telos whose goal is human freedom, as Marx and Engels con-

ceive it. In Marxist literature, including and in particular the writings of Engels, this last, philosophic, version of dialectics has not been delineated from the others. As a result, the unobjectionable variants serve to justify, and to legitimate, the philosophical construct and so to enable Marxists to present it as scientific.

## MARXISM AND SCIENCE

Given all this, it should not be surprising that Marxism has had an ambiguous relationship with, and an ambivalent attitude toward, science. On the surface, of course, Marxism admits of no such ambiguity or ambivalence. It touts science as among the highest achievements of humanity and strongly insists on its own scientific character. Thus, in his oration at Marx’s funeral, Engels contended that Marx had done for human history what Darwin had done for natural history. In addition, Marxism claims that the discoveries of modern science confirm both the details of its outlook and the truth of its philosophical standpoint, dialectical materialism. Yet, as I’ve said, science does not have or embody a specific, unified philosophy, aside from some very general axioms, such as that the phenomena of nature reveal regular patterns, that these can be discovered and expressed as “natural laws,” that consistent empirical corroboration (or lack of falsification) of these laws suggests that these laws are “true” (whatever that precisely means), and that such laws apply, or can be said to be valid, throughout the extent of space and time. Beyond this, a variety of philosophic standpoints are consistent with science, and over the centuries, individual scientists have held to a broad



range of philosophical outlooks – materialist and Idealist, rationalist and empiricist, realist and instrumentalist, atheist and religious, logical and even mystical. Within the accepted realms of science, scientists accept the basic axioms of science, including the (very broadly defined) scientific method, but beyond that, and in interpreting the methods and conclusions of science, they embrace a variety philosophic positions.

As a result of this, despite its claims to be scientific (even to be science itself), Marxism is in at least potential conflict with science insofar as it insists that its philosophic standpoint, dialectical materialism, is the true and only proper philosophy of science. As it sees it, science is inherently dialectical and materialist, whatever individual scientists may think, and only those scientists who hold to dialectical materialism are truly and consistently scientific. Conversely, it insists that those scientists who do not accept dialectical materialism are inconsistent; their outlooks are in conflict with the true philosophy and methods of science. In addition, Marxism, by insisting that dialectical materialism is the proper philosophy of science, implicitly claims the right to judge the discoveries, hypotheses, and theories of science, a priori, on philosophical grounds. That is, it claims the right to judge whether a given scientific explanation or theory is right or wrong, correct or incorrect, true or false, based on the theory's supposed agreement or disagreement with the tenets of dialectical materialism, regardless of the actual scientific status of that theory, regardless, in other words, of whether or not the theory has been empirically corroborated. Thus, even if, according to the consensus of scientists working in a given field, a scientific theory has been consistently corroborated, it may still be deemed "incorrect" and "false" by Marxists if it is seen to violate the tenets of dialectical materialism.

While Marx and Engels were alive, the conflict between Marxism and science was largely dormant. But with the developments in physics in the early years of the 20th century, particularly the theories of relativity and of quantum mechanics, it burst into the open. Although the theory of relativity, by establishing the variability of time, led to physical descriptions of the universe based on four dimensions (mathematical representations of space-time involving four variables, three for space, one for time), while modern cos-

mological theories, such as string theory, entail ten or more, Lenin, in his *Materialism and Empirio-Criticism*, mocked as absurd the idea that reality could have more than three dimensions. Somewhat later, quantum mechanics came under attack by Marxists as anti-materialist, because the standard, Copenhagen, interpretation of the theory posits the inseparability of observer and observed in the sub-atomic realm, and thus denies the existence of a reality independent of observation. (See *The Crisis in Physics*, by the British Marxist, Christopher Caudwell [pen name of Christopher St. John Sprigg].) Still later, the science of genetics was denounced by the Stalin-backed agronomist, Trofim D. Lysenko, in the Soviet Union, because it emphasized the inherited nature of biological traits rather than stressing the paramount role of the environment, which Lysenko deemed the truly Marxist standpoint. Under Stalin's protection, Lysenko drove hundreds of scientists out of their jobs (many were jailed and exiled; some died), and helped set back Soviet genetics and agriculture many years. And in the 1970s, the now generally-accepted theories of ethno-biologist Edward O. Wilson and others, who argued that much of animal (and human) behavior is innate and genetically determined, came under attack by Marxists and other leftists, including Stephen Jay Gould (who would later criticize his role in this), for pretty much the same reason.

Thus, despite its claims to be scientific and to stand on a scientific ontology, Marxism has shown that it is often in conflict with science and, in fact, quite hostile to it. Some Marxists try to explain this away by criticizing modern science as "bourgeois." After all, since, according to Marxism, social being determines consciousness, modern science, developing as it has under capitalism and generally serving its interests, must also be bourgeois, a variety of "false consciousness," in fact a form of, or at the very least, influenced by, bourgeois ideology. This implies the future existence of a "proletarian," or "socialist" science radically distinct from its current "bourgeois" form. Although I think it likely that science under a truly liberated – democratic, cooperative, and libertarian – society will differ in many respects from its current incarnation, to posit the future existence of a radically distinct version of science at this point in time and to use this to oppose the discoveries of science is little more than a cover for dismissing current science because some of

its conclusions do not conform to one's personal philosophy.

Of course, Marxists have the right to their own opinions. But their attacks on science reveal the purely philosophical nature of "dialectical materialism." Rather than being the only true and proper philosophy of science, as it claims to be, dialectical materialism is a philosophical construct whose scientific pretensions have not been established, but which insists, nonetheless, on its right to judge science on the basis of its own (dialectical materialism's) precepts.

## MARXISM AND PHILOSOPHY

In spite of the obviously philosophic nature of dialectical materialism, Engels denies that it is a philosophy in the same sense as other philosophies. Just as Hegel claimed that all past philosophy culminated in his, so Engels insists that all prior philosophy (including Hegel's) culminates in the Marxist standpoint.

He writes (and it is worth quoting the entire passage):

"The realization of the entire incorrectness of previous German idealism led necessarily to materialism, but, it must be noted, not to the simple metaphysical and exclusively mechanical materialism of the eighteenth century. Instead of the simple and naively revolutionary rejection of all previous history, modern materialism sees history as the process of the evolution of humanity, and its own problem as the discovery of laws of motion of this process. The conception was prevalent among the French of the eighteenth century, as well as with Hegel, of Nature as a whole, moving in narrow circles and remaining immutable, with its eternal celestial bodies, as Newton taught, and unalterable species of organic beings, as Linnaeus taught. In opposition to this conception, modern materialism embraces the more recent advances of natural science, according to which Nature also has its history in time, the celestial bodies, like the organic species which under favorable circumstances people them, coming into being and passing away, and the recurrent circles, in so far as they are in any way admissible, assuming infinitely vaster dimensions. In both cases modern materialism is essentially dialectical, and no longer needs any philosophy standing above the other sciences. As soon as each sep-

arate science is required to get clarity as to its position in the great totality of things and of our knowledge of things, a special science dealing with this totality is superfluous. What still independently survives of all former philosophy is the science of thought and its laws – formal logic and dialectics. Everything else is merged in the positive science of Nature and history." (Engels, *Anti-Dühring*, op. cit., p. 31.)

Thus, according to Engels, after the emergence of the Marxist standpoint ("modern materialism"), philosophy (that is, all other philosophies) becomes obsolete. What remains of philosophy is the "science of thought and its laws," that is, formal logic and (the Marxist conception, the three "laws," of) dialectics. In other words, dialectical materialism survives; all other philosophies are superfluous and therefore wrong.

Marxism is not alone in its philosophical arrogance, its insistence that it is right and that all other philosophies are wrong; most other philosophies contend the same. But Marxism differs from these other philosophical standpoints in two crucial ways. First, it denies that its philosophy, dialectical materialism, is philosophy at all; it is, it contends, coterminous with the methods and conclusions of science. Second, consistent with its materialist self-conception, Marxism calls on those who believe in it (that is, its practitioners) to seize political power and establish a dictatorial state as the inevitable outcome of the (dialectical) laws of nature and history. From this vantage point, Marxists are then in a (very material) position from which to establish Marxism's correctness – its truth – in practice, that is, to impose the Marxist standpoint by force, while suppressing all other philosophic outlooks as unscientific, counterrevolutionary, and false. And, in those countries where Marxists have come to power through revolutions or military occupation, this is exactly what they've done.