

such delusions, which steer a society toward the brink of self-inflicted destruction such as that gripping the Americas and Europe today. Unless those pathological elements of widely accepted, or merely tolerated popular opinion, are overridden, there will be no future existence of our U.S.A. The trolley-line has broken off at the edge of the cliff just ahead. The conductor of the trolley, popular opinion, would rather go over the cliff than break faith with habituated, if presently illusory senses of progress.

To be the kind of leader who fits today's crisis-stricken requirements, the actor can not merely act out the appearance of the part; he must, as the best professional actors understand, actually "own the part," gripped by all the passion that part implies. The exceptional leader for a time of systemic crisis "owns the real-life part he, or she must play." He is exceptional, because he is immortal, and owns the part of immortality he must play. He wears no mask; he is the part he plays. His reflection on Christ's sublime mission in Gethsemane and on the Cross, and the kindred reflection of the sublime Jeanne d'Arc, will help such a leader draw upon himself the specific quality of strength which Hamlet lacked, the strength needed for the immortal mission to be performed by a man of Providence for mankind.

The desire to be such a person is commendable, but not sufficient. He must actually know what needs to be done, and he must be capable of knowing what past and future generations require of him at this moment of juncture of the Tragic and the Sublime. Without that knowledge of the principles of physical economy, as I have summarized that matter here, the leader who might be otherwise exceptional could not grasp competently that economic mission, without which humanity's escape from the present crisis were not foreseeable for earlier than a very long time to come.

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## Power vs. Energy

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# The Difference Between *Dynamis* and *Energeia*

by Jonathan Tennenbaum

Since at least the time of Plato (427?-347 B.C.) and Aristotle (384-322 B.C.), and most likely even long before Pythagoras (fl. 530 B.C.), the struggle between oligarchical and republican conceptions of physics has turned on the relationship between what the Greeks called *dynamis* and *energeia*. To a rough first approximation, the Greek *dynamis* might be rendered, in its broad usage, variously as "ability," "potential,"

"potency," "power"; whereas *energeia* corresponds (roughly) to "activity" and (in Aristotle, especially) to "actuality," in the sense of "actively existing."

Plato's dialogues demonstrate, however, that Plato and his circles possessed a precise and highly developed scientific conception of *dynamis*, having no direct equivalent in today's degenerated modern language usage.

Perhaps the best illustration of that degeneration, and its causes, is the freak-out by virtually every modern translator, at the implications of a celebrated passage in Plato's *Theaetetus*, to which Lyndon LaRouche has often referred. It is there that the young Theaetetus recounts to Socrates a preliminary discovery concerning the nature of the "powers" connected with the doubling, tripling, etc. of a square, and which lie beyond the domain of simple linear magnitudes. Rejecting the implications of Plato's actual term, *dynamis*, modern translators typically try to bring the passage into conformity with the "academic correctness" of textbook mathematics, using "root" or "surd" in place of "power," and apologizing in footnotes for the supposed "inappropriateness" of Plato's choice of language.

Actually, as the *Theaetetus*, the *Meno*, and other dialogues demonstrate, Plato's conception of *dynamis* belongs uniquely to the domain of *physics*, not mathematics per se. In particular, the subject of Theaetetus's account is not solving an equation, but rather discovering the unseen principles of generation of the Universe—physical principles—focussing for this purpose on the paradoxical characteristics of the visual domain.

It is Plato's conception of *dynamis*, as revived and developed by Nicolaus of Cusa and Kepler, that leads to Leibniz's founding of physical economy and what Leibniz called "the science of dynamics," as opposed to Newton's mechanics; the pathway leads thence into the work of Gauss and Riemann, and finally to Lyndon LaRouche's discoveries in physical economy. It is not by accident that LaRouche, in his book *In Defense of Common Sense*, cites exactly the indicated passage of Plato's *Theaetetus*, in the context of presenting his own conception of "rate of increase of relative potential population density" through the process of individual human discovery and the successive integration into social practice, of new physical "powers." That latter conception constitutes, in my view, the highest development reached so far, in unfolding what was implicit in Plato's *dynamis*.

To shed further light on these matters, I propose now to take a brief look at the oligarchical side of the coin, which goes back to Aristotle. What sticks out in examining Aristotle's *Metaphysics*, is his insistence on the primacy of *energeia* over *dynamis*. That insistence went hand-in-hand with Aristotle's attack on metaphor and the Platonic ideas. Aristotle writes (*Metaphysics*, Book IX):

"Since all abilities (powers) are either inborn, as are our senses; or are acquired by practice, as the ability to play a flute; or are acquired by learning, as the powers of the sciences; in all cases one can gain such powers, as are acquired by practice

or learning, *only* through the aid of something that was *already* realized (actualized). . . .

“For from the potentially existing, the actually existing is always produced by an actually existing thing, e.g., man from man, musician by musician; there is always a first mover, and the mover already exists actually. We have said in our account of substance that everything that is produced is something produced from something and by something, and that the same in species as it. . . .

“Obviously, then, actuality (*energeia*) is prior both to potency (*dynamis*) and to every principle of change.”

Rather than get entangled in the ins and outs of Aristotle’s theory of existence and becoming, focus on the systematic, axiomatic flaw in Aristotle’s whole manner of argumentation: He rejects—or at least disregards, as if it were nonexistent—the power of human creative discovery, of human reason, and of a creative principle underlying the Universe as a whole. In other words, Aristotle denies the possibility of a *self-developing, or self-actualizing potential*, that which Nicolaus of Cusa later called the *posse-est* (*posse* corresponding to Plato’s *dynamis*). Lurking behind Aristotle’s notion, that existence can only flow from what he calls “actually existing things,” is a mindset which can attribute “actual existence” only to such objects and motions as have the quality of objects of sense perception.

These points require elaboration. For the present purposes, however, as a short-cut, and to throw the issue of “*dynamis* vs. *energeia*” into strategic perspective, I propose turning to one of the more effective British operations of the 19th Century, one which—as so much British wickedness—drew originally from Aristotle.

## The Cult of Energy

From the early decades to the middle of the 19th Century, parallel with operations leading to the unleashing of the Confederacy and the U.S. Civil War, a scientific cult was launched by Lord Kelvin and the Thomas Huxley-Herbert Spencer “X-Club” circles, Hermann Helmholtz, Rudolf Clausius et al., directed against the influence of Leibniz and his successors, including Gauss in particular. Although that cult involved several interrelated “theme parks”—such as the so-called Darwinian theory of evolution and Herbert Spencer’s fraudulent concept of an “iron law of progress”—we might fittingly refer to it as “the Cult of Energy.”

Crucial to the operation was the relative success, achieved by the conspirators, in foisting two fraudulent formulations on the scientific community: the “First and Second Laws of Thermodynamics,” and their monstrous corollary, the supposedly inevitable “heat-death of the Universe.”

The utopian political thrust of the operation was more or less obvious from the beginning, but became luridly explicit in the “Energeticist Movement” associated with Wilhelm Ostwald around the turn of the 20th Century. Ostwald advocated a World Government based on the use of “energy” as

the universal, unifying concept not only for all of physical science, but for economics, psychology, sociology and the arts.

Although the energeticists and the myriad, competing materialist (including “Diamat”—“dialectical materialism”), reductionist, and positivist movements and countermovements of the late 19th Century and early 20th Century, are now mostly forgotten, the axiomatic germ of the Cult of Energy remains deeply embedded in European culture, like the modified genome left over in the tissues of a patient after an acute lentivirus infection has subsided. In particular, for over a century nearly everyone has been miseducated to believe that “energy” is an objective scientific reality, and that the First and Second Law constitute proven scientific truths.

Not accidentally, the Kelvin-Helmholtz doctrine of “energy,” became a key feature of Anglo-American geopolitics, from the British launching of Middle East “oil politics” at the beginning of the 20th Century, to the orchestration of the so-called “energy crisis” of 1973-74, and, not least, the present march toward a new Middle East war. This is not to say that “energy” per se (or “oil supplies”) has anything really significant to do with the present war drive. Rather, the reasons that people permit themselves to be manipulated into tolerating actions leading to perpetual war and a new “dark age,” are inseparably connected to those axiomatic flaws in thinking, that underlie popular belief in the cult doctrine of “energy.”

The common origins of the “energy” doctrine and utopian geopolitics go much further back than the launching of the modern energy cult itself, by Helmholtz, Kelvin et al. From the standpoint of economics, the energy doctrine represented nothing but a rewarming, under “scientific” guise, of old feudalist—and specifically, physiocratic—doctrines of supposedly fixed “natural resources,” ignoring the function of the human mind in discovering and realizing new physical principles. On the other hand, anyone who has thought through what LaRouche and others have written on Gauss’s early work concerning the “Fundamental Theorem of Algebra,” should immediately recognize, in the so-called “First and Second Laws of Thermodynamics,” exactly the same essential fallacy that Gauss refuted in his 1799 attack on the “utopian” mathematics of Euler and Lagrange. Not accidentally, the Euler-Lagrange doctrine of “analytical mechanics” created the mathematical foundation for the Helmholtz-Kelvin energy doctrine. Conversely, the manner in which Gauss generates the algebraic “powers,” in the cited 1799 work, by principles lying entirely outside the mathematics of Euler and Lagrange, is characteristic of the way Man acts as an instrument of the anti-entropic development of the Universe.

On one level, the fallacy of the “First and Second Laws of Thermodynamics” is simply this: These laws have never been demonstrated to be properties of the real Universe, but only properties of certain closed mathematical-deductive sys-

tems, which ignorant or malicious physicists *claim* to represent the real Universe, but which manifestly do not. On this level, the fraud is identical to that of so-called economists who claim to be able to deduce theorems about the real economy, from supposed self-evident properties of “money.” In fact, the elementary error revealed in the very title of Newton’s famous *Principia mathematica philosophiae naturalis* (*Mathematical Principles of Natural Philosophy*) finds itself reproduced, countless times, in textbooks dealing with non-existent “Financial Principles of Economics.”

Contrary to popular academic belief, there are no actual experiments establishing the validity of the “First and Second Laws of Thermodynamics” as *universal* physical principles. To the extent those “laws” have a certain empirical correlate at all, they are both circumscribed by a purely *negative* principle, already identified by Leibniz long before the Kelvin-Helmholtz gang came along: the impossibility of a so-called “*perpetuum mobile*” or “perpetual motion machine”—a hypothetical subsystem of the Universe, able to generate a net surplus of power in the course of a closed cycle, in which the system is supposed to return to exactly its original state, without any other net change in the surrounding Universe.

Just as in the case of so-called “impossible” or “imaginary” numbers, the source of the supposed “impossibility” involved is not a limitation of the real physical universe. The limitation is located rather in the notion of a “machine,” as a system describable by the “utopian” Euler-Lagrange form of analytical mechanics. To put it another way: To the extent a physical system is either chosen or forced to mimic the characteristics of a “machine” in the indicated sense, it will appear to obey the First and Second Laws of Thermodynamics. But the Universe as a whole is not a machine; the Universe not only *never* returns to an earlier state, but its successive states are strictly *incomparable* with each other from a formal-mathematical standpoint. Thus, the extrapolation of the so-called “First and Second Laws” to the Universe as a whole constitutes the crudest, most elementary sort of scientific error.

If “Universe” refers to the most generalized form of Man’s action upon Nature—no other Universe could be known to us!—then the “state of the Universe” changes fundamentally with each discovery, by some human mind, of a new universal physical principle (power). A formal-mathematical system which (to a first, “engineering” approximation) may have more or less adequately described Man’s physical-economic activity up to that point, now breaks down, as technologies based upon the new principle transform the physical economy to the effect of increasing the relative potential population-density of the human species beyond any *a priori* “limits.”

The very fact of the successful increase in human population potential by some three orders of magnitude over documented history and prehistory, attests to the existence of a self-developing “power,” lying entirely outside the domain of visible or visible-like objects, but commanding the visible

Universe to an increasing extent.

This brings us back to the fundamental flaw of Aristotle’s *energeia*.

## Utopianism and the Enlightenment

Before the modern cult of energy could be created, Aristotle had first to be reincarnated in the so-called “Enlightenment” of Paolo Sarpi et al., as a crucial component of the Venetian operation to destroy the influence of the Renaissance and the nation-state principle, and to plunge Europe into decades of religious war.

Sarpi’s “Enlightenment” based itself essentially on Aristotle, but with some differences that are relevant to the mindset of the Utopians to this day. The quarrel between the Enlightenment ideologues and Aristotle was not a matter of substance. From their standpoint, Aristotle was excessively cautious and old-fashioned, wrapping his conclusions in endless distinctions and qualifications. Furthermore, Aristotle felt obliged to at least quote the existence of opposing views; while Locke, Descartes et al. went for a “clean break,” blatantly ignoring the entire preceding history of philosophy and science, and promoting the crudest “post-modernist” sort of reductionism.

In this way, the creation of the modern cult of energy out of Aristotle’s *energeia*, represents just one more case of “putting lipstick on a pig.”

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