

POTENTIALITY, ENERGY AND SWAY:

FROM ARISTOTELIAN TO MODERN TO POSTMODERN PHYSICS?

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Heidegger argues in several texts that modern science embodies a way of revealing that dominates its objects. That is, science “mathematically” projects an axiomatic conception of objectivity, and then accepts only those data which are verifiable and calculable in accordance with this projection.¹ Modern science is thus inherently “technological,” even before it is applied to the construction of machines: our modern surveillance of beings is a type of cognitive manipulation, even when we refrain from mechanical manipulation.²

Well after he had established this interpretation of modern science, Heidegger encouraged us to think through the problem of the relation of science and technology for ourselves, perhaps in order to remind us that philosophy is nonmathematical—that it is not the application of any axioms, Heideggerian or other. He asked at the end of his life, in 1976, “Is modern natural science—as one supposes—the foundation of modern technology, or is science itself already the fundamental form of technological thinking, the determining preconception and constant incursion of technological representation into the executing and organizing machination of modern technology?”³ This essay takes some steps toward addressing Heidegger’s question.

¹ On the “mathematical” character of modern science, see MARTIN HEIDEGGER: *Sein und Zeit*, 7th ed. (Tübingen: Niemeyer, 1953), p. 362; MARTIN HEIDEGGER: *What is a Thing?* tr. W.B. Barton, Jr. and Vera Deutsch (Chicago: Henry Regnery Co., 1967), esp. pp. 92-3, 96-8; *Die Frage nach dem Ding* (Tübingen: Max Niemeyer Verlag, 1962), pp. 71-2, 74-6.

² Vide e.g. MARTIN HEIDEGGER: “The Question Concerning Technology,” in: *The Question Concerning Technology and Other Essays*, tr. William Lovitt (New York: Harper & Row, 1977), pp. 22-3; “Die Frage nach der Technik,” in: *Vorträge und Aufsätze*, GA7, pp. 23-4; “Ἀρχιτεκτονική,” in: *Feldweg-Gespräche (1944/45)*, GA77, pp. 11-12. — “GA” in notes indicates Heidegger’s *Gesamtausgabe* (Frankfurt am Main: Vittorio Klostermann), followed by the volume number.

³ “Neuzeitliche Naturwissenschaft und moderne Technik. Grußwort an die Teilnehmer des zehnten Colloquiums vom 14.-16. Mai 1976 in Chicago,” in: *Reden und andere Zeugnisse eines Lebensweges 1910-1976*, GA16, p. 747. The German text and another English translation are also available in *Radical Phenomenology: Essays in Honor of Martin Heidegger*, ed. John Sallis (Atlantic Highlands, N.J.: Humanities Press, 1978), pp. 1-4. An earlier form of the present essay was read at the 2001 Heidegger Conference at Fordham University, which was organized by Prof. Babette Babich and devoted to the question that Heidegger asks in his “Grußwort.” My thanks go to Prof. Babich for hosting the conference, to Prof. Lawrence Hatab for his commentary on my essay, and to the other participants in the conference for their insights.

Ὁ δράκων

Ξαναβγάζει ἀπὸ τὸ στόμα του τὸν Ἰάσωνα, τὸν ὅποιον εἶχε καταβροχθίσει.
(Λεπτομέρεια ἀγνωστή ἀπὸ φιλολογικὲς πηγές). Τὸ χρυσομάλλο δέρας εἶναι
ἀναρτημένο στὸ δένδρο, ἐνῶ ἡ Ἀθηνᾶ πάνοπλη, μὲ κράνος, αἰγίδα καὶ
γοργόνειο στὸ στήθος καὶ δόρυ στὸ δεξιὸ χέρι παραστέκει στὸν ἦρωα.

Στὸ ἀριστερὸ χέρι κρατεῖ τὸ ἱερὸ πουλί, τὴ γλαύκα.

(Ε' αἰ. π.Χ., Μουσεῖο Βατικανού).

It will be obvious that I am constantly indebted to Heidegger, and I will refer to him at several points, but my goal is to initiate an independent line of thought.

What should be our first steps in thinking through the essence of modern science and technology? In the case of science, we could ask whether it has its own distinctive conception of being. In the case of technology, we could ask what it means to make and use things. (Whether or not technology is ultimately something more than making and using—such as a way of revealing—and whether or not modern technology essentially differs from traditional handicraft, modern technology certainly emerges from the universal human activities of making and using things, and has some essential relation to these activities.)

These first steps soon lead us to the question of power. One of the central ontological concepts of the fundamental modern science, physics, is the concept of power as energy: beings use energy, receive it, conserve it, and are transformed into it and out of it. Furthermore, in order to use and make things, one must deploy one's own power and employ the power of things. Is the modern physical concept of energy related to the modern technological way of deploying and employing power?

This essay focuses on the first part of this problem—understanding the conception of energy that characterizes modern science. This can be done only by way of contrast to other modes of “science,” that is, organized ways of knowing—for only if there are other, at least partially legitimate, ways of knowing is there any such thing as “modern Western science,” as distinguished from science as such. We might compare Western science to Chinese science, for instance. It may make more sense, however, to contrast modern Western science to Aristotelian science. Modern Western science defines itself in opposition to its own predecessor, Scholasticism. Scholasticism relies on Aristotle's project of understanding the principles and causes of beings, and this project attempts to preserve and surpass the best of earlier Greek thinking. The thought of Aristotle, then, is the crux of pre-modern European knowing.

In what follows, then, I compare Aristotle's concept of *δύναμις* (potentiality) to the modern concept of power as energy. I then propose that both the Aristotelian and the modern standpoints have problematic limitations. Modernity's difference from Aristotle thus suggests the need for a transformation—not a return to Aristotle, but the development of a postmodern alternative to both Aristotelian *δύναμις* and modern energy, which I label “sway.” An extensive exploration of sway and its relevance to technology falls beyond the scope of this essay—but we can expect that a change in our understanding of power would have deep consequences for our use of power and our approach to the powers of nature.

1. THE PROBLEM OF COMPARISON

What does it mean to “compare” modern and Aristotelian science? Can we simply point out a series of different features and discuss their respective advantages? If so, what language, what concepts, can we use as a neutral medium in which to represent those differences? One might reply that the neutral medium is the *natural* medium—the concepts and words that come naturally to anyone who is experiencing nature without prejudice. But phenomenology has taught us just how difficult—perhaps impossible—it is to be “natural” and “unprejudiced” in our description of phenomena. As Heidegger puts it, “the ‘natural’ is always historical”; in other words, what we take for granted is just the residue of a historical process in which sense is constituted and configured.⁴

⁴ HEIDEGGER, *What is a Thing?* p. 39, *Die Frage nach dem Ding*, p. 30.

If we accept this view, then what is left of our project of comparing two modes of science? Maybe we should abandon the notion of a neutral language and use two languages—one ancient, one modern. Then we can simply let the contrast between the two show itself. In this case, however, do we also give up all right to judgment? Are we then reduced to making the innocuous observation that two approaches are “different,” without hope of showing that one discourse, language game, or *ἐπιστήμη* is truer than the other? Indeed, one of Heidegger's remarks on the topic seems to suggest that because ancient and modern science are completely incommensurable, all judgment would be inappropriate:

“[We cannot] say that the Galilean doctrine of freely falling bodies is true and that Aristotle's teaching, that light bodies strive upward, is false; for the Greek understanding of the essence of body and place and of the relation between the two rests upon a different interpretation of beings and hence conditions a correspondingly different kind of seeing and questioning of natural events. No one would presume to maintain that Shakespeare's poetry is more advanced than that of Aeschylus. It is still more impossible to say that the modern understanding of whatever is, is more correct than that of the Greeks.”⁵

Do we, then, have to give up the very question of the *truth* of a way of doing science?

Heidegger is not claiming exactly that, however. He forbids us to say that the modern understanding is “more correct” (*richtiger*) than the Aristotelian understanding.⁶ Since truth, for Heidegger, is not correctness but unconcealment, we might still be able to ask whether one or the other mode of science goes deeper in its unconcealing of beings. We will not be able to make this judgment by counting up the number of successful predictions made by each mode of science, or by establishing that one approach is practically more advantageous than the other; however, we may come to see that the *way* of unconcealing that is typical of an approach is relatively rich or impoverished.

The crucial question is what “rich” and “poor” would mean here. I propose that a “rich” way of unconcealing is a way that brings a qualitative plurality of phenomena to light, that remains open to genuinely new experiences, and that makes it possible to discern connections between human beings and other beings without reducing all beings to the same level. A “poor” way of unconcealing forces all experience into a single mold, leveling the phenomena and making them display themselves only according to its strictures. In particular, such a way of unconcealing might tend to conceal the distinctively human features of our being, highlighting instead certain features that we share with all beings—the ontological lowest common denominators, such as presence at hand. This approach would lead to a reductive and crude self-understanding—or, for those who suspected its inadequacy, it could create a sense of a violent and inexplicable rupture between humanity and the rest of the universe.

Even a superficial acquaintance with Heidegger's writings on science and technology makes it clear that he sees modern science as a “poor” way of unconcealing in

⁵ MARTIN HEIDEGGER: “The Age of the World Picture” (1938), in: *The Question Concerning Technology and Other Essays*, p. 117, “Die Zeit des Weltbildes,” in: *Holzwege*. GAS, p. 77.

⁶ The opening of the passage just quoted does forbid us to say that Galileo's doctrine is “true” (*wahr*). But this clearly means “true” in the sense of “correct,” since Heidegger contrasts it with “false” (*falsch*). The issue here concerns ways of describing natural phenomena, rather than the accuracy of particular descriptions. These ways of describing cannot be termed correct or incorrect—although, as I am about to argue, they can be said to unconceal beings either richly or poorly.

the sense just explained. Modern science, in his judgment, powerfully reveals an abundance of correct facts, but at the price of reductiveness.

If it is fair to try to form a judgment about the relative richness or poverty of a way of unconcealing, then we do not have to give up the question of truth when we realize that “the ‘natural’ is always historical.” Instead, we have to find a way of thinking historically about truth as historical. Comparisons between two modes of science, two scientific discourses, might then be possible—not from the secure standpoint of some neutral, ahistorical language, but with the tentative touch of bilinguals (or polyglots) who try to venture as far as they can into the things themselves with the help of the languages into which they have been initiated, always trying to push themselves and their words to their limits.⁷

If the project of comparing two modes of science seems provisionally legitimate, then we are faced with a series of questions:

- (1) What is the crucial difference between Aristotelian and modern science?
- (2) Despite the undeniable productivity of modern science, is Aristotelian science superior in some respects? That is, is Aristotle’s way of unconcealing somehow “richer”?
- (3) Does Aristotelian science in turn have its weaknesses—aside from its inability to generate the theoretical and technological payoffs that are distinctive of modern science? In other words, is there a nonmodern way of criticizing Aristotle?
- (4) If we find that both Aristotelian and modern science prove to be limited or poor in certain respects, then can this judgment point us toward a new way of knowing—a postmodern science, so to speak?

While I cannot fully answer these questions here, I propose that we can make some inroads into them by focusing on the Aristotelian concept of *δύναμις* and the modern conception of energy, and assessing the difference between them with Heidegger’s help.

2. ARISTOTLE ON POTENTIALITY

Near the beginning of the *Nicomachean Ethics* (I, 5) Aristotle lists some popular candidates for the good: the life of pleasure, the life of moneymaking, the life of study, and the political life. To the modern reader it may well seem that he has left out an important candidate: the life of power. The closest relative to such a life in Aristotle’s list is the life of politics—but he tells us that its goal is either honor or virtue. Why is power not even worth mentioning as a possible ultimate goal?

The answer must be that Aristotle would dismiss the power-seeking life for much the same reason that he dismisses the moneymaking life. Money is essentially a means to an end—it is extremely useful, but it is good only if it is used. It proves its value only in its own disappearance, only in the event in which it is replaced by some further good.⁸ The possession of money is only a special case of power. Power is the capacity to do something, and it is only an indispensable means to this end, not the

⁷ The Gadamerian notion of a “fusion of horizons” would be relevant here, although I would prefer to speak of opening pathways between two regions of discourse that can never be completely “fused” because they are incommensurable.

⁸ A developed ontology of economy would have to qualify this statement by considering the phenomenon of interest. Money that is lent is “used” without being used up—in fact, it is increased. This sort of legerdemain traditionally makes moneylenders suspect not only morally but metaphysically—they create something from nothing.

end itself. Power need not use itself up in its use, as money normally does (my power to write is not destroyed by my act of writing). But power always has its being only as a way to some further goal. To anyone who said, “Power is the good,” Aristotle would reply, “The power to do what?” He would point out that this “what,” whatever it might be, would necessarily be a higher good than the power to do it.

In the *Politics*, too, Aristotle avoids granting power a paramount status. He distinguishes among various types of rule—such as the rule of master over slave, of husband over wife, and of a political leader over fellow citizens—insisting that each is different in kind and has its own distinctive end (*Pol.* I, 1-2). Those who view the goal of politics as domination are confusing political rule with rule over slaves (*Pol.* VII, 2). Even in the case of rule over slaves, the goal of this rule is not “sheer power,” as we might call it, but the furthering of the master’s *πράξις* of living well (*Pol.* I, 4, 1254a7). Power is always the power to achieve some particular end, and there is no such thing as power *per se*, or power for its own sake regardless of its further purpose.

As insightful as these thoughts might be in regards to human action, they are rooted in an interpretation of being that far exceeds ethics and politics. Given Aristotle’s understanding of being, the very notions of “power in itself” and “power for its own sake” are ontologically incoherent. We need only recall a few points from the *Physics* and *Metaphysics*.

Although Aristotle does not have a finished system, if there is a master concept in his thought it may well be actuality—*ἐνέργεια* or *ἐντελέχεια*. (Heidegger calls *ἐντελέχεια* “the fundamental word of [Aristotle’s] thinking.”)⁹ The concept of *ἐνέργεια* is so primordial that it cannot be defined (*Met.* Θ, 6), but in rough terms, it indicates being-at-work—the performance of the function (*ἔργον*) that is the distinctive end (*τέλος*) of a certain kind of thing and is thus crucial to the thing’s form or essence. (This is, at least, the central meaning—for there may be as many meanings of actuality as there are meanings of being: *Met.* Δ, 7, 1017b1-3.) As Heidegger puts it, *ἐντελέχεια* is “standing-in-the-work in the sense of presencing into the appearance”: in actuality (if we may keep the traditional translation), the entity comes forth, emerges as what it is.¹⁰

Actuality’s helpmate is *δύναμις*, potentiality—or as Heidegger suggests we should call it, appropriateness.¹¹ Aristotle insists that potentiality has being—it is not noth-

⁹ MARTIN HEIDEGGER: “On the Essence and Concept of *Φύσις* in Aristotle’s *Physics* B, 1” (1939), trans. Thomas Sheehan, in: *Pathmarks*, ed. William McNeill (Cambridge: Cambridge University Press, 1998), p. 216, “Vom Wesen und Begriff der *Φύσις*. Aristoteles, *Physik* B, 1,” in: *Wegmarken* (Frankfurt am Main: Vittorio Klostermann, 1967), p. 352 (this pagination is also provided in the margins of GA9). Heidegger comments in 1936 that Book Θ of the *Metaphysics*, which deals with *ἐνέργεια* and *δύναμις*, is “the most worthy of question of all the books in the entire Aristotelian corpus”: *Nietzsche*, vol. I, *The Will to Power as Art*, tr. David Farrell Krell (San Francisco: Harper & Row, 1979), p. 65, *Nietzsche. Erster Band*, GA6.1, p. 62.

¹⁰ HEIDEGGER: “On the Essence and Concept of *Φύσις*,” p. 218, “Vom Wesen und Begriff der *Φύσις*,” p. 356. Heidegger would strongly object to keeping the traditional translation, for he proclaims that with the Latin translation of *ἐνέργεια* as *actus* “the Greek world was toppled” (*ibid.*). I will consider his reasons for this histrionic claim below (section 4), but it seems convenient to use the traditional translation, with the caveat that we may need to reinterpret the meaning of the word along Heideggerian lines.

¹¹ *Ibid.*, English p. 218, German p. 355. Again, Heidegger objects to the traditional translation, for reasons that I explore in section 4 below. Heidegger’s most extensive reading of Aristotle on *δύναμις* is the 1931 lecture course *Aristotle’s Metaphysics Θ 1-3: On the Essence and Actuality of Force*, tr. Walter Brogan and Peter Warnek (Bloomington: Indiana University Press, 1995), *Aristoteles, Metaphysik Θ 1-3. Von Wesen und Wirklichkeit der Kraft*, GA33. This is a sympathetic interpretation that only hints at the limitations of Aristotle’s thought (e.g. pp.

ing (*Met.* Θ, 3)—but also that it is subordinate to actuality. Actuality is prior to potentiality in three ways. Every potential being (say, a chicken egg) is generated by an actual being of the same kind (in this case, a mature chicken); the potential being is intelligible only in terms of the actual being; and the potential being possesses the form less than the actual being does (*Met.* Θ, 8). To sum all this up in a way that Heidegger would prefer, we can say that those beings that are apt to come forth yet have not fully emerged into presence are less complete in their presencing than those that have fully emerged.¹² The principle seems circular, almost tautological—but perhaps this is the case with all first principles, and we should not confuse being circular with being inconsequential. The implications of the priority of the actual over the potential pervade Aristotle's thought—from ethics to physics, from biology to theology. If, for instance, there is no place in Aristotelian ethics and politics for power as an end in itself, this is because *δύναμις*—the potential or appropriateness for a certain work—is subordinate to *ἐνέργεια*—the performance of this work.

The priority of actuality over potentiality also permeates Aristotle's *Physics*. Here he considers the realm of the beings that are intrinsically subject to motion, where "motion" (*κίνησις*) is understood broadly, encompassing not only local motion (change of place) but also change of quality, quantity and form. Aristotle's most general definition of motion is, notoriously, that it is the actuality of the potential insofar as it is potential (*Phys.* III, 1). I take this to mean, for example, that before I walk from Central Park to Times Square, I have the potential to do so, but the potential is not being actualized. After I have walked to Times Square, the potential is not being actualized either—for I am actually there already. The motion, then, is precisely the process during which my potential to walk from Central Park to Times Square is being actualized as potential: it is unfolding itself, displaying itself in its capability. In Heideggerian language, to move is to come to presence.¹³

Coming to presence, however, always remains subordinate to full presence. To put it in a formula, "becoming is for the sake of being" (*De Partibus Animalium*, I, 1, 640a19). In particular, motion is subordinate to the active actuality that Aristotle in some contexts calls *πρᾶξις*. A *κίνησις*, or motion, tends intrinsically toward its own termination—for just as money is fulfilled in being spent, motion is fulfilled when it is consummated and consumed in actuality (for example, when I reach Times Square). A *πρᾶξις*, however, is ongoing even when it is fully actualized. According to Aristotle, such activities include seeing and thinking (*Met.* Θ, 6, 1048b30-35). The act of seeing is fulfilled at every moment in which it goes on; it does not tend toward its

¹¹ (cont. from 31 p.)

155, 172-3, GA33, pp. 181, 201; the passage at the top of p. 173 of the English should read, "...in Aristotle and in antiquity in general even the essential means of clarifying the question as a question are lacking"). Heidegger points out (p. 60, GA33, p.72) that *δύναμις* could be rendered by ten different German words with different shades of meaning.

¹² "Ἐνέργεια fulfills the essence of intrinsically stable presencing more essentially than *δύναμις* does": HEIDEGGER: "On the Essence and Concept of Φύσις," p. 219, "Vom Wesen und Begriff der Φύσις," p. 357. Heidegger writes that in Aristotle's claim that *ἐνέργεια* is prior to *δύναμις*, "Aristotle's thinking and *pari passu* Greek thinking, reaches its peak" (*ibid.*, English p. 218, German p. 356). But for Heidegger, the usual translation of this thought in terms of "actuality" and "potentiality" is a disaster. Once again, I believe the traditional translations in themselves are not so dangerous as long as we remember that they are merely placeholders for meanings that must emerge from a careful and extensive reading of Aristotle. In this paper I can do no more than suggest the results of such a reading.

¹³ "We ... must ... learn to see how for the Greeks movement as a mode of *being* has the character of emerging into presencing": *ibid.*, English p. 191, German p. 319.

own termination, and thus is not a motion. In short, seeing and thinking are ends in themselves; for Aristotle, this is not a "value judgment" but an ontological truth.¹⁴

The question of *πρᾶξις* takes us full circle to Aristotle's ethics and politics: any behavior that must be understood as *κίνησις* rather than *πρᾶξις*—for example, the production of useful things and the *τέχνη* that guides it—is inferior to *πρᾶξις*, is "slavish" (*Pol.* III, 4, 1277a36). It should thus be assigned to slaves—whose purpose is to further the *πρᾶξις* of the masters.

A few other consequences of the priority of actuality over potentiality are worth mentioning. For one, the principle makes evolution impossible: if a chicken egg is always produced by a chicken, then the species chicken is eternal. It is inconceivable that there should be a process by which new forms of beings might develop. Furthermore, in theology the principle implies that the perfect being is the most actual being, and thus has no potential at all. Aristotle's god is not omnipotent but *omnipotent* (*Met.* Λ, 7, 1072b5-16).¹⁵ Rather than potency, the god is sheer actuality, the pure performance of the highest *πρᾶξις*—thinking.

What does all this have to do with the character of Aristotle's science, with the richness of his mode of knowing as a way of unconcealing? We are not ready to make any judgments on Aristotelian science before we contrast it with modern science, but if the highest actuality of the omnipotent being has turned out to be *thinking*, then surely the question of power is not irrelevant to the question of science.

In keeping with Heidegger's insight that all knowing presupposes a sense of being, I have not laid out Aristotle's "epistemology" and then shown how it applies to the question of the potential. Instead, I propose that Aristotle's views on knowledge are determined by his understanding of actuality and potentiality. Briefly: for Aristotle, knowing is fulfilled or actualized when, provoked by our perceptions of present beings, we grasp them in their very way of presencing—in their being. (In more traditional terminology, human experience moves toward intellection, toward the "inductive" grasping of essence.)¹⁶ Intellection (*νοῦς*) grasps being, and does so without motion, without any residue of potential—which is why it is the divine activity. In *νοῦς*, the presencing of present beings becomes fully present to us.¹⁷ Then we can proceed to "demonstrate" (make evident) various patterns and characteristics of beings.

¹⁴ In "On the Essence and Concept of Φύσις," Heidegger blurs the distinction between *κίνησις* and *πρᾶξις* by insisting that *ἐντελέχεια* is "the highest state of movedness" (English p. 217, German p. 354). This interpretation is at best misleading, and I can only suppose that Heidegger is trying to give the Aristotelian understanding of being a reading that is literally as "dynamic" as possible, for the sake of bringing it closer to his own conceptions. To counter Heidegger's reading, we need only point out that he refers to "the movement of seeing" (*ibid.*), whereas Aristotle's point is precisely that seeing is *not* a *κίνησις* or movement. It is odd that Heidegger does not even mention the word *πρᾶξις*, which Aristotle uses to characterize seeing. We could also note that the Aristotelian god, who is complete *ἐνέργεια* and is performing the *πρᾶξις* of thinking, is utterly free of *κίνησις*—the god is precisely the *unmoved mover* (*Met.* Λ, 7, 1072b5-10).

¹⁵ As Heidegger puts it in an elucidation of Aristotle's *δύναμις*, "God is not powerful, and 'omnipotence,' considered properly, is a concept which dissolves, like all its companions, into thin air and is unthinkable. Or, if God is powerful, then he is finite and in any case something other than what is thought in the vulgar representation of a God who can do anything and thus is degraded to an omnipresent being": *Aristotle's Metaphysics Θ 1-3*, p. 135, GA33, p. 158.

¹⁶ For Heidegger's interpretation of induction as leading toward being, see "On the Essence and Concept of Φύσις," p. 187, "Vom Wesen und Begriff der Φύσις," p. 314.

¹⁷ Because *νοῦς* is both a grasping of actuality and an actuality itself, Aristotle can conclude that the divine activity (the activity that is most fully) is a self-presencing, a presencing of and to itself (*νόησις νόησεως*: *Met.* Λ, 9, 1074b35).

This is the heart of Aristotelian “science” or ἐπιστήμη (*Post. An.* I, 2-3; *Nic. Eth.* VI, 3). The τέλος of ἐπιστήμη is to actualize our own potential to know by grasping beings in their actuality.

3. ENERGY IN MODERN PHYSICS

Rather than investigating the texts of a particular modern thinker as we did those of Aristotle, we can approach the modern scientific understanding of power by reflecting on a few concepts that are ubiquitous in modern physics.

The transformation of the sense of the word “energy” in modernity is so complete that it must be a sign of a transformation in the understanding of being—for while Aristotle used the word ἐνέργεια to mean actuality, in modernity “energy” means potentiality.¹⁸ More precisely, it means “potentiality” in a distinctively modern sense that no longer coincides with δύναμις and no longer points toward ἐνέργεια.

For modern physics, “energy” means the power to do “work,” where “work” too has a non-Aristotelian meaning: to do work is to change the velocity or direction of a body. Energy can be either “kinetic,” in which case it takes the form of motion (that is, change of position), or “potential,” in which case it takes the form of a certain state of a system that is ready to do work (for example, a charged battery).

In short, modern physics measures phenomena and conceives of forces in terms of bodies changing positions. Power is understood as the power to alter the rate of a change of position or the direction of such a change—but without reference to any particular direction. In other words, power is not power for a specific type of “work,” but transcends the specificity of all particular motions. For instance, electric power can be used to propel any sort of vehicle in any direction, to power any sort of device, to do any sort of job—and none of these uses is “unnatural.”¹⁹

This is a sort of liberation, and it is tempting to say that modernity liberates potentiality from actuality. But here we have to pay close attention to the problem of comparison and to the lack of a neutral language in which to discuss these issues. It is not that modernity simply reverses Aristotle’s priority of the actual over the potential—this would make no sense—but that an entirely new language, a new web of concepts, replaces the old.

We can see this if we consider how strange, how unspeakable, the modern concepts are from the Aristotelian point of view. For Aristotle, a “potential ἐνέργεια” would be an ontological contradiction. Even “kinetic ἐνέργεια” is paradoxical, since κίνησις is not full actuality, but only the actuality of the potential as such. κίνησις is on the way to full presence, to πράξις. But the modern concept of motion not only restricts motion to change of place (local motion), but eliminates the τέλος, the πράξις toward which motion is pointing. There are no intrinsic goals, there is no absolute center. In

¹⁸ *The Oxford English Dictionary*, s.v. “energy,” documents a range of meanings for the word, ranging from the more or less classical sense “exercise of power” (the word is used thus by Bacon before 1626) to “power not necessarily manifested in action” (earliest citation 1677). Senses between these two extremes include “power actively and efficiently displayed or exerted” (1665) and “vigour or intensity of action” (Coleridge, 1809–1810). The *OED* attributes the physicists’ sense of “energy” as what is now called kinetic energy to Thomas Young (1807) and the sense of “energy” as potential energy to William J. M. Rankine (1853).

¹⁹ When Descartes writes that his philosophy opens the possibility of using the forces of nature for all the ends for which they are “appropriate” (*Discourse on Method*, AT 62), the word “appropriate” (*propres*) can no longer have any natural meaning. The question of appropriateness is now left to the subject, not to the object—or, at most, Descartes may mean that some forces have more power than others and can thus be applied to more demanding tasks.

Newton’s formulation, masses tend to continue moving in a straight line—but toward nothing in particular.²⁰ The notion of πράξις drops out of physics. Seeing and thinking—Aristotle’s favorite examples of πράξις—now have to be conceived in terms of change of place, as complex systems of local motion. (This approach cannot do justice to the phenomena in question—at least, if we follow the modern philosophers who distinguish consciousness from matter because they find it inconceivable to reduce perceiving and thinking to local motion. They assume, however, that nature is intelligible in terms of local motion—which is precisely the assumption that makes these thinkers modern instead of Aristotelian.)

Instead of merely inverting Aristotle, then, modern physics establishes a new language that prescind from both Aristotle’s “actuality” and his “potentiality.” What does this new language achieve? First, there is no doubt that it brings clarity, unity and mathematical precision to our descriptions of spatial motion. But aside from this type of fruitfulness, the modern approach generates a new pair of concepts—energy and work—whereby power is freed from function. No longer are potentiality and movement mere anticipations of full presence. To be present means nothing other than to move (rest is only a special case of motion), and movement is itself power—for it is kinetic energy. This power is literally in-finite: it is not bound to any particular “end,” but is simply the capacity to resist or redirect other movements. To resist which movements, to redirect them toward what? It does not matter.

Just as Aristotle’s principle of the priority of actuality has an aura of circularity, modern physics operates in accordance with a principle that seems no less self-evident: energy (the power to affect a motion) makes possible all work (the establishment of any particular motion or system of motions). But the liberation of power that is expressed in this tautology has implications just as far-reaching as those of Aristotle’s principle. In biology, a theory of evolution becomes not just a possibility but a demand (Descartes already calls for it).²¹ It is no accident that “existentialism”—the liberation of human freedom from a preestablished human essence—makes its appearance already in Renaissance humanism.²² Freedom—not “goodness” as the actualization of a form—now becomes the ground and goal of distinctively modern ethics and politics. Banished from nature, goodness takes refuge in the subject, where it will take the form of freely posited “values.” God, metaphysically conceived as the “perfect” (that is, fully actual) being, has already been sentenced to death in early modernity, and Nietzsche’s “will to power” lies just around the corner.²³ Power in itself, power for the sake of power, now becomes thinkable.

²⁰ For Heidegger’s comments on the Newtonian concept of force in contrast to Aristotelian physics, see *What is a Thing?* pp. 85-8, *Die Frage nach dem Ding*, pp. 66-8.

²¹ DESCARTES: *Discourse on Method*. AT 45. One could argue, however, that the origination of new forms is still unintelligible, as it was for Aristotle. The classical concept of form no longer has any role in modern natural science (the biological concept of “species” is a remnant that has to be reconceived). As effectively as we can describe different species of living things and reconstruct their evolution, we are puzzled if we are asked to identify the ontological differences among humans, fish, amoebas and amino acids. The “higher” beings are more complex, but in essence, from the modern point of view, all these systems are just configurations of local motions. As Nietzsche puts it (*The Gay Science*, §109), what is living is just a special case of what is dead.

²² See GIOVANNI PICO DELLA MIRANDOLA: *On the Dignity of Man*, tr. Charles Glenn Wallis. In: *On the Dignity of Man, On Being and the One, and Heptaplus*. (Indianapolis: Bobbs-Merrill, 1965).

²³ As Heidegger puts it, Nietzschean will to power is as much δύναμις as it is ἐνέργεια (HEIDEGGER: *Nietzsche*, English vol. I, p. 64, GA6.1, p. 61). Of course, this means that will to power is neither δύναμις nor ἐνέργεια, for in Aristotelian terms it makes no sense to identify the two.

Is the modern conception of power linked to the modern way of knowing, the modern mode of science? As we have seen, according to Heidegger modern science is essentially “mathematical”: it projects the character of its objects in advance. This mode of knowing is not unrelated to the Aristotelian comprehension of forms through intellection; in both cases, what is grasped is present beings in their own way of presencing. (For modern physics, this means representing the invariant laws of nature by means of formulas.)²⁴ However, for Aristotle *voûs* is essentially *receptive* of form.²⁵ For the moderns, in contrast, the mind *constructs* form—as Kant argued so emphatically.²⁶ This means that the modern mind or subject is conceived as preceding form, as the ground of form. The subject’s power to construct form is thus prior to actuality as form—and this subject, when it constructs the form of objects, constructs it precisely in such a way that the power of objects is construed as prior to their actuality. Just as in Aristotle, there is a peculiar symmetry between modernity’s way of knowing and modernity’s understanding of what it knows. It may be that an age’s unspoken interpretation of being is the basis for both that age’s knowledge of beings and its knowledge of knowledge itself, even though it may sometimes seem that one of these two sorts of knowledge precedes the other.

4. THE POVERTY OF MODERN SCIENCE

How can we begin to assess whether the Aristotelian and modern conceptions of potentiality and power are “rich” or “poor”—that is, whether their ways of unconcealing beings are fertile or reductive?

Aristotle seems to have an immediate advantage because of the intrinsic pluralism of his concept of actuality. For Aristotle, nature consists of *natures*—distinct ways in which beings actualize their specific forms and functions. Although we can investigate “being qua being,” the investigation of a distinct region of beings—living things, for example—will always require a fresh appreciation of the unique characteristics of this region (cf. *De Anima* I, 1, 11-19). The specific natures cannot be derived from the universal.

In contrast, modern science displays a leveling tendency. Even though in practice psychologists, biologists and chemists use concepts that are unique to their disciplines, there is a widespread conviction that these concepts ought, in principle, to be reducible to the concepts of the fundamental modern science—physics.²⁷ There is a tendency to focus on factors that lend themselves to study by our physics (what

²⁴ Although it eludes the priority of *ἐνέργεια*, modernity does not escape the understanding of being as presence. The energy of a thing is merely a set of relations it has to the motions of other things, relations which can be calculated in accordance with the permanent laws of nature. What is possible, then, is still understood in terms of what is fully present—namely, natural law.

²⁵ ARISTOTLE: *De Anima* III, 4. *voûs* also has a productive aspect, but—so it seems—its activity consists in “producing” the reception of the forms by the passive *voûs*, where production means an enabling, much as light enables colors to shine forth (*De Anima* III, 5). This producing is not a *making*, but an allowing-to-come-to-presence.

²⁶ DAVID R. LACHTERMAN makes a good case in *The Ethics of Geometry: A Genealogy of Modernity* (New York: Routledge, 1989) that for the ancients, even geometrical “constructions” were more a matter of discovery than a matter of human making.

²⁷ According to a recent manifesto of this conviction, EDWARD O. WILSON’s *Consilience: The Unity of Knowledge* (New York: Alfred A. Knopf, 1998), all the phenomena studied by the humanities ought to be explainable in terms of human evolution, which in turn is explainable in terms of physics. For Wilson’s confessed “ontological reductionism,” vide p. 9.

Aristotelians call the material and efficient causes) at the expense of the distinctive ways in which phenomena are actualized (the so-called formal and final causes).²⁸ For instance, today it is a commonplace to claim that some cognitive ability is “really” the functioning of a particular part of the brain—as if discovering the material basis for the ability were all we needed in order to understand the essence of this ability.²⁹

Why does modern science have this reductive tendency? The answer may seem easy to readers of Heidegger. Modern knowledge takes a “mathematical” approach to beings: rather than receiving their multiplicity of forms, it stamps them with a single form of its own, representing them as uni-form. For the same reason, modern science is intrinsically “technological”: things become nothing but objects that are representable by the subject, objects that are susceptible to conceptual molding. This is the case well before the triumph of mechanical manipulation, “technology” in the usual sense.

But perhaps this answer is a little too easy. We should at least pause to consider the paradox that the reductive tendency of modern science coincides with a conception of power that seems, on the face of it, liberating and open-ended. Power is no longer the potential to actualize a preestablished form—instead, it has an open future, an infinite realm of flexible possibilities. Nature is no longer mere reproduction, but allows for genuine creativity—one might think. However, maybe the in-finitude of modern power is purchased at the price of a restriction of the character of beings in general. They are conceived in terms of non-teleological change of place; the lack of a *τέλος* liberates the power, but it is set loose upon a universe that has been reduced to the merely calculable and measurable. It is as if in order to create infinite freedom, we had leveled all the mountains and filled all the valleys, setting up an infinitely traversable wasteland—one endless road, with no curbs and no destinations.

We could also consider the poverty of modernity via Heidegger’s terse proclamation in 1939 that with the Roman translation of *ἐνέργεια* as *actus*, “with one blow the Greek world was toppled.” In the Roman conception, according to Heidegger, “actuality” means doing or effecting, and “potentiality” means “the ability [*Vermögen*] ... that something has.”³⁰ He claims that this way of thinking makes it seem plausible that potentiality is prior to actuality—which I have argued (although Heidegger does not say so here) is precisely the modern view. From Heidegger’s attack on the “Roman” concepts, then, we may gather something about how he would judge modernity (this may be true of all his remarks on the Romans and the Roman Empire). What does the “Roman” approach miss? If we extrapolate a little from Heidegger’s essay, we can see that the “Romans” take potentiality and actuality as features possessed by individual entities—as an entity’s power to act and its action itself, understood as altering itself or other entities. What has been lost is the *ontological* sense of *δύναμις* and *ἐνέργεια*—the way they describe the *emergence* or *pres-*

²⁸ As Heidegger says, natural processes are reduced to measurements of local motion: *What is a Thing?* p. 87, *Die Frage nach dem Ding*, p. 68.

²⁹ “What we’re seeing here [the lateral prefrontal cortex] seems to be a global workspace for organizing and coordinating information and carrying it back to other parts of the brain as needed,” Dr. Duncan said ... It is the relative performance of this cerebral workspace, he said, that intelligence tests appear to measure”: NATALIE ANGIER: “Study Finds Region of Brain May Be Key Problem Solver” In: *The New York Times*, July 21, 2000. For Aristotle’s claim that both formal and material investigations are necessary when studying living things, vide *De Partibus Animalium* I, 1, 640b5-641a18; *De Anima* II, 1. In making this claim Aristotle is combating the reductive tendencies of many of his predecessors; reductionism is not an exclusively modern vice.

³⁰ Heidegger, “On the Essence and Concept of *Φύσις*,” p. 218, “Vom Wesen und Begriff der *Φύσις*,” p. 356.

encing of entities, rather than faculties or behavior of present entities themselves.³¹ The Roman understanding of power—and by extension, the modern understanding—is a symptom of the oblivion of being. This oblivion, in Heidegger's interpretation, takes the form of "technology"—an unquestioned understanding of beings as representable objects and exploitable resources.

5. THE POVERTY OF ARISTOTELIAN SCIENCE

Should we return to Aristotle, then? Was modernity a mistake?

This is not, of course, Heidegger's view. Although he interprets Aristotle sympathetically in many texts, he makes it clear that the fundamental experience of being that underlies Aristotle's concepts is not the destination of his own thought. The Greeks understand being "as stable presencing. They give no reasons for this interpretation of being any more than they question the ground of its truth."³² Heidegger does want to question this ground, and his questioning brings him into the region of time and *Ereignis*.

Heidegger would say that even if being could make sense to us only as presence, we would still be called upon to think of the ground of this sense of being—its enabling origin—and that for this reason, we need to go farther than the Greeks. But for our present purposes, we can catch sight of the limits of Aristotle's thought by questioning in a more ontical and empirical direction, and with particular reference to potentiality and actuality. We can ask: are there aspects of our experience of beings that resist Aristotle's principle of the priority of actuality over potentiality?

First, there are facts that are more conveniently and elegantly described in modern concepts, facts that we all think of when we consider the advantages of modern science. Our astronomical observations invite a conception of space not as geocentric, not as heliocentric, but as acentric—essentially without an up and down, without preestablished places for things. By eliminating the natural resting point toward which local motion tends, this view of space shakes Aristotelian notions about movement and actuality.³³ And then there are fossils—the evidence for evolution, which is a completely anti-Aristotelian concept.

But facts and observations alone do not make a revolution. We could have continued to tinker with the Ptolemaic system to accommodate our new astronomical observations, and today's "creation science" reminds us that evolution is not the only conceivable interpretation of the facts, either. Furthermore, we should not list the advantages of modernity over Aristotle while forgetting modernity's own poverty—its reductiveness. We need to respect the richness of Aristotle's conception of nature while catching sight of its weaknesses. The task is delicate, and it brings us back to the problem of language. Do we have the words and concepts with which to criticize Aristotle without simply rehearsing the founding moves of modernity?

³¹ On *ἐνέργεια* and *δύναμις* as modes of presencing, see *ibid.*, p. 219, German pp. 356-7. Only a few years earlier, in 1935-36, Heidegger himself was translating *δύναμις* as "force" ("Kraft," in quotation marks) and "capacity" (*Vermögen*): *What is a Thing?* p. 85, *Die Frage nach dem Ding*, p. 66. Heidegger himself, then, was not fully "de-Romanized" until at least the late thirties (a process, one could argue, not unrelated to his denazification).

³² HEIDEGGER: "On the Essence and Concept of *Φύσις*," p. 204, "Vom Wesen und Begriff der *Φύσις*," p. 336.

³³ For Heidegger on Aristotelian place vs. Newtonian space, see *What is a Thing?* pp. 83-6, *Die Frage nach dem Ding*, pp. 64-7.

Here we can avail ourselves of Heidegger's help. *Being and Time* embraces the strenuous project of finding the words to describe experience in a way that steers clear of both modern and ancient prejudices. The entity at stake in this description is, of course, ourselves. Leaving aside the question of whether *Being and Time* is ultimately a dead end, we can recall some of its fundamental claims about Dasein. Dasein's way of being is "existence," where this signifies that its own being "is an issue" for it: we have a relation to our own being such that we can either win it authentically or fail to win it.³⁴ What enables Dasein to have such a relation to its own being is the dimension of the future, or Dasein's coming to itself "in its ownmost *Seinkönnen*."³⁵ This *Seinkönnen*, usually translated as "potentiality-for-being," is a potentiality that is not subordinate to actuality. We are fulfilled or "actualized"—we come forth as the beings we are—only if our "potentiality"—our "can-be," our ability to be—is preserved.³⁶ To take this possibility as bound to some particular mode of fulfillment would be to misconstrue our very essence.³⁷ Thus, the assigning of an objective *τέλος* to life is "the misunderstanding of human existence in general."³⁸

This statement aligns Heidegger with modernity, in a sense: by raising possibility above actuality, he rejects the Aristotelian priority of *ἐνέργεια*. However, he also avoids the reductiveness of the modern notion of power as energy. To have possibilities is not just to be ready to affect the motion of bodies, but to be enabled to *understand*—to be ready to deal with beings of all sorts, including ourselves, in such a way that they are revealed in the plurality of their various modes of being.

If Heidegger's characterization of Dasein is appropriate, then there is at least one entity—ourselves—for whom the priority of actuality over potentiality is invalid. This is not just a small exception to the rule; it means that the rule is fundamentally inadequate. Not only is a universe that can include Dasein a radically non-Aristotelian universe, but because understanding is a matter of possibilities rather than actualities, we must reconceive our way of understanding this universe. We need a non-Aristotelian and non-modern way of knowing, a new "science."

6. TOWARD A POSTMODERN PHYSICS?

Without losing sight of Heidegger's question regarding the ground of the truth of being, it seems that we are also called to develop an interpretation of being itself—the being of all beings—that avoids the pitfalls of both the Aristotelian and the modern modes of science. Of course, a new understanding of being does not simply drop

³⁴ "Das Sein ist es, darum es diesem Seienden je selbst geht": HEIDEGGER: *Sein und Zeit*, p. 42.

³⁵ *Ibid.*, p. 325.

³⁶ On the "I can," see MARTIN HEIDEGGER: *History of the Concept of Time: Prolegomena*, trans. Theodore Kisiel (Bloomington: Indiana University Press, 1985), p. 298, *Prolegomena zur Geschichte des Zeitbegriffs*, GA20, pp. 412-413. Cf. *Sein und Zeit*, p. 183.

³⁷ Dasein's possibilities are bounded by the possibility of the impossibility of existing—death (*Sein und Zeit*, p. 250). But death is not a fulfillment: when this possibility is actualized, Dasein does not exist at all (*ibid.*, p. 261). For this reason I cannot agree with Thomas Sheehan's Aristotelian interpretation of Heidegger, according to which Dasein's being is *κίνησις* and death is Dasein's "final cause": THOMAS SHEEHAN: "Heidegger, Martin," in *Routledge Encyclopedia of Philosophy*, ed. Edward Craig (London and New York: Routledge, 1998), vol. 4, p. 315.

³⁸ MARTIN HEIDEGGER: *The Metaphysical Foundations of Logic*, trans. Michael Heim (Bloomington: Indiana University Press, 1984), p. 185, *Metaphysische Anfangsgründe der Logik im Ausgang von Leibniz*, GA26, p. 239.

into our laps, and it cannot be dreamed up in an armchair. If Heidegger's later writings are right, it is a rare gift that we must await with pious patience. Still, it seems permissible to list a few desiderata—a few features we would hope to find in a richer understanding of being, particularly as regards potentiality or power. Have our overviews of Aristotle and modernity suggested any such features? Does Heidegger himself offer us some clues?

If we retrace Heidegger's path in search of ideas on potentiality or power, we find that it travels a wide variety of terrain. As I have argued, *Being and Time's* analysis of Dasein seems to transcend both the Aristotelian and the modern standpoints. Nevertheless, it relies heavily on a traditional word—"possibility"—and does not explain the implications of its new approach to possibility for our understanding of beings other than Dasein.³⁹ Over the next decade or so, questions of power and potentiality mingle with other difficult issues as Heidegger undergoes some dramatic transformations. To characterize these developments briefly: around 1930 Heidegger stresses Dasein's freedom more than ever; in the mid-thirties (*Introduction to Metaphysics* and the early Nietzsche lectures) he tries to develop nontraditional approaches to power; in the portions of the *Beiträge zur Philosophie* devoted to the *Zerklüftung* or "fissure" of being (§§127, 156-9), he flirts with alternatives to the traditional doctrine of modalities (possibility, actuality and necessity); finally, in the late thirties, he turns against Nietzsche and against the very concept of power. According to *Besinnung* (1938-39), being lies in a realm beyond both power and powerlessness.⁴⁰ The notion of *Gelassenheit*, developed in the 1940s, tries to inhabit this realm.

Although there are reasons for all these steps, by the end of this development Heidegger has few resources to offer us for understanding what we normally call power—both human power and the powers that are displayed in nature as a whole. Heidegger's interests no longer lie here; he no longer is seeking to interpret the being of beings. If we still want to understand "power" as part of the being of beings, as part of "nature," we will need to take a path other than his. As we do so, however, we may at least borrow linguistic inspiration from *Introduction to Metaphysics*, where Heidegger wrestles most intensely with questions of power and nature. Here he relies on the word *das Walten*, which can be translated as "sway."⁴¹ If there is ever to be a postmodern physics, it will need some such word as part of its alternative to both the language of Aristotelianism and the language of modernity. (By "postmodern physics," I simply mean a way of investigating and interpreting nature that may succeed or supplement the modern way, and that need not share any of the quirks of today's "postmodernists." The meaning of "nature" itself may change if such a postmodern physics arises. For the purposes of this essay we may leave open the question of whether this physics would be primarily a philosophical reflection on the being of nature, like Aristotle's *Physics*, or an experimental investigation of particular natural phenomena. Probably, as is usually the case, it would begin as philosophy and develop into experiment.)

³⁹ For some brief hints, see *Sein und Zeit*, pp. 144-5.

⁴⁰ MARTIN HEIDEGGER: *Besinnung*, GA66, pp. 83, 187-8.

⁴¹ On the word *Walten*, see the translators' introduction to Martin Heidegger, *Introduction to Metaphysics*, trans. Gregory Fried and Richard Polt (New Haven: Yale University Press, 2000), p. xiii. For a list of the 18 words related to *Walten* that Heidegger uses in this lecture course, see *ibid.*, German-English Glossary, p. 244.

Nietzsche observes that for traditional metaphysics, "the higher is not permitted to grow out of the lower, is not permitted to have grown at all."⁴² The highest must have its own, inviolate sphere of being, where it reigns as *causa sui*. Reductive modern conceptions also prevent the higher from growing out of the lower, in a different way: the "higher" things are merely rearrangements of the "lower," with no qualitative difference from them. The first desideratum for our concept of "sway" is that it allow for the evolution of new forms in such a way that these forms can be understood as higher than that from which they have emerged. The lower must be understood as coming forth with a sway that enables it not only to fulfill itself, but to exceed its own boundaries, to generate new beings with new capacities—including ourselves. Sway is not only sway over this or that, but also an indeterminate sway that opens new possibilities.⁴³

Second desideratum: we need to understand how beings can allow for mathematization, in both the numerical and the broader Heideggerian sense, without being exhausted by this mathematization.⁴⁴ The reductive gaze of modernity is both possible and fruitful—but how? Our notion of "sway" needs to clarify how, as beings burgeon forth in an excess of possibilities, they at the same time leave themselves open to the mathematical and to "technology."⁴⁵

This brings us to a third and final wish. Heidegger suggests that we can learn to use things in such a way that we work with nature and respect its potential, rather than forcing things to yield their energy.⁴⁶ How can the sway of things work both with and in our own sway? If we allow for the excess—for the overflowing possibilities that emerge from each thing—as well as respecting the distinctive sway that pertains to each thing's nature, will we find a way to use things without abusing them? We must hope that an interpretation of the sway of beings would help us answer this question.

⁴² FRIEDRICH NIETZSCHE: *Twilight of the Idols*, trans. Richard Polt (Indianapolis: Hackett, 1997), p. 19, *Götzendämmerung*, "Die 'Vernunft' in der Philosophie," §4.

⁴³ The young field of complexity studies, popularly known as "chaos theory," seems to hold promise here.

⁴⁴ Aristotle offered an analogous interpretation of mathematics (*Met.* M, N): mathematics abstracts from *κίνησις* and *τέλος* in order to focus on the quantitative. But if we abandon the Aristotelian conceptions of motion and actuality, his explanation will no longer work for us.

⁴⁵ Thoughts about the *place* of the mathematical cannot be expressed in purely numerical or axiomatic terms—they require language in all its historicity. Because a postmodern account of nature will have to use historical language, modern scientists will dismiss it as unscientific philosophy or poetry.

⁴⁶ The old windmill's "sails do indeed turn in the wind; they are left entirely to the wind's blowing. But the windmill does not unlock energy from the air currents in order to store it": HEIDEGGER: "The Question Concerning Technology" p. 14, GA7, p. 15.