

*Pythagorean ethos: a reflection on Gestell as a concept
and as a phenomenon*

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Martin Heidegger writing about technology put it in historical perspective. He distinguished between an ancient concept of technology and a modern one. By focusing on what constitutes the essence of modern technology according to him, I illustrate how it lies in continuity with Antiquity, both as a concept, drawing a comparison with Pythagorean thought, and as a phenomenon, using the emergence of the concept of space as an example.

On 18 November 1955 in Munich Heidegger delivered a lecture entitled *Die Frage nach der Technik* (The question concerning technology). He put technology in historical perspective focusing on its etymology which he traced to *Technikon*, as in “that which belongs to *techne*”[1]. *Techne* related both to the skills of the craftsman and to the arts of the mind. It had a *poietic* nature as it brought something forth i.e. it was a modality of *aletheuein*, (unveiling). This was the most relevant aspect of *techne*, rather than manufacturing something.

Heidegger distinguished between technology in Ancient Greece and what he called *modern technology*. Modern technology was related to unveiling too. But it was a different type of unveiling which had to do with the challenging (*herausfordern*) of Nature, the act of its turning into *Bestand* (standing reserve), a resource ready to be used. He named it *Bestand*, and not stock, because Heidegger wanted to emphasise that that resource had been commanded and organised[2]. The essence of modern technology was *Gestell* [3](Enframing). Modern technology modality of revealing is one that, when summoned, orders.

Heidegger tied together *techne* and *episteme* (scientific knowledge) as they both are “names for knowing in the widest sense”[4]. Such connection exists in Modernity too because Heidegger also tied together modern technology and modern science. In fact, Humankind’s ordering attitude displays itself in the “rise of modern physics as an exact science”[4]. Modern physics

is not experimental, because “it applies apparatus to the questioning of nature[5]”. Physics as pure theory sets nature up to show itself as a “coherence of forces calculable in advance”[6].

To understand this, it is necessary to illustrate the essence of the concept of *theory*, its evolution, and the meaning and implications of the words *exact* and *calculable*. In a lecture entitled *Wissenschaft und Besinnung* (Science and reflection) delivered on 4 August 1953, Heidegger, among other matters, reflected on what *theory* meant in the statement “science is the theory of the real”[7] and how it changed across the Western tradition. Theory stems from the word *theorein* whose noun is *theoria* with its meaning being the result of the coalescing of *thea* and *horao*. *Thea*, connected to theater, is the external appearance in which something offers itself. For Plato, having seen this aspect is to know. *Horao* means to “look at something attentively”[8]. So, “*theorein* is *thean horan*”[9] i.e. to look attentively at the external appearance through which something manifests itself.

The current meaning of *theoria* is detached from the original one. Heidegger explained that by looking at the Latin and German translations of the word. The Romans translated *theorein* by *contemplari*, *theoria* by *contemplatio*. *Contemplari* means “to partition something off into a separate sector and enclose it therein”[10]. Latin *templum* is the equivalent of Greek *temenos*, which has an origin entirely different from *theorein*, as *temnein* means to divide. Latin *templum* originally refers to a sector carved out of the sky which diviners used to make their prophecies based on the behaviour and habits of birds.

In German *contemplatio* becomes *Betrachtung* (observation). Theory is the observation of the real. At a first glance this seems similar to the original Greek meaning of *theoria*. In fact, that is not true. *Betrachtung* derives from *trachten* (to strive) corresponding to the Latin *tractare* (to manipulate). To strive after something means “to work one’s way toward something, to pursue it, to entrap it in order to secure it”[11]. Accordingly, theory as *Betrachtung* corresponds to an entrapment and refining of the real. Modern science claims to wish to grasp the real in its purity. In reality, it traps it and refines it. The real is “what presences as self-exhibiting”[12]. Modern science sets up the real and captures it in its *objectness*. In this way, the real becomes surveyable.

The words *exact* and *calculable* are related to this process of pursue, entrapment, and securement. Max Planck is quoted saying: “that is real which can be measured”[13]. The principal modality through which the pursuing, capturing, and securing of the real is achieved is through the act of *reckoning* i.e. “to set something up as an object of expectation”[14]. All objectification of the real is a reckoning (causality, morphology, etc.) as long as it “secures and guarantees some coherence of sequence and order”[15]. Mathematics is reckoning too, but not simply because it undertakes operations with numbers with the goal of obtaining quantitative results. Mathematics is reckoning because it “has set up as the goal of its expectation the

harmonizing of all relations of order”[16].

If modern technology and modern science are tied, if the essence of modern technology is ordering, and if the essence of modern science is a capture allowed by reckoning through mathematical instruments, the modernity of this concept is questionable. It seems very ancient in fact. Many Presocratic philosophers shared the idea of a *cosmos*, an ordered world, including the Pythagoreans. While Pythagoras has not left any writings, some who followed in this tradition did. Among them, one of the most prominent is Philolaus of Croton who was probably the first Pythagorean to write a book, *On Nature*, of which a few fragments remain. In Fragment 1 Philolaus wrote that *physis* is *cosmos*: “Nature in the world-order was fitted together both out of things which are unlimited and out of things which are limiting both the world-order as a whole and everything in it”[17]. In Fragment 6 Philolaus underlined the importance of harmony: “it is necessary that such things be bonded together by a harmony, if they are going to be held in an order”[18]. Because of harmony, this ordered world, this *cosmos*, is accessible, it can be captured. The modality through which such reckoning can take place is mathematics as in Fragment 4 Philolaus wrote: “Indeed, everything that is known has number, for nothing is either understood or known with-out this”[19] i.e. one can really understand something when one can decipher the structure of, and the relationship between, its various parts[20]. The acts of ordering and reckoning through mathematical means that characterise *Gestell* are already present here.

This is not simply an abstract comparison between concepts in Heideggerian and Pythagorean thought. One can observe it as a phenomenon too. Vincenzo De Risi in *Mathematizing Space* reflected on the definition of geometry as the “science of space”[21], on space emerging as a concept, and on its mathematization. In Antiquity, the concept of space did not exist as an independent being that could have been mathematised[22]. While for Plato matter itself was unknowable because one’s experience was always informed by Platonic forms and never independently of them, for Neoplatonic metaphysics matter became quantified and extended. Among the many developments that occurred, a notable one concerned the idea of *place*. While place used to be only an ecological concept, in late Antiquity, the Middle Ages, and the Renaissance, it acquired a three-dimensional dimension becoming an extension which could have been quantified and mathematised. However, it was considered measurable only by virtue of its capacity to receive matter. Towards the end of the Renaissance, these developments originated something new. Ficino when translating Plotinus’ *Enneads* translated γκος (mass) usually deployed to mean “quantified matter” (understood as “pure extension”) as *spatium*. Ficino did not draw consequences from his translation. However, years later, Francesco Patrizi, a Neoplatonic disciple of Ficino had the idea of superimposing the “metaphysics of quantified matter onto that of three-dimensional space”[23] obtaining as a result

a “three-dimensional infinite extension which is independent of matter and bodies, and is pre-existent to them as a condition of their own existence”[24]. This was probably the first occurrence of such a claim. While Patrizi did not have the mathematical skills to change Classic geometry, a mathematical reflection on space started to emerge in painting when thinking about perspective and about a new form of spatial organization found in pictorial representation. Piero Della Francesca and Albrecht Dürer, among others, contributed to its mathematical codification. The emergence of the concept of space and its mathematisation show that the process that sees the ordering effort accompanied by the reckoning one through mathematical instruments existed long before Modernity.

Therefore, while perhaps less sophisticated and effective in their conceptual and phenomenal manifestations in Antiquity and later on, the essential elements of Gestell do not seem an exclusive of Modernity then, but rather the embodiment of what one could call a Pythagorean ethos.

[1] P. 12, Heidegger, Martin. *The Question Concerning Technology and Other Essays*. Translated by William Lovitt. Works. New York, NY: Harper and Row, 1996. [2] P. 17, ibidem.

[3] Heidegger used the term Gestell at least twice before, once in “The Origin of the Work of Art” (1935-1936), and in a lecture entitled “Das Gestell” presented on 1 December 1949 in Hamburg. In “From Gestalt to Ge-Stell: Martin Heidegger Reads Ernst Jünger”, Wolf Kittler described how Heidegger was impressed by Jünger’s work and reflected upon it. In “Heidegger’s Confrontation with Modernity: Technology, Politics, and Art” Michael E. Zimmermann wrote that Heidegger’s Gestell is “analogous” (p. 80) to Ernst Jünger’s concept of Gestalt. I would not go as far as Zimmermann when he wrote: “This later usage of Gestell is, in fact, Heidegger’s term for Jünger’s Gestalt of the worker” (p. 124). Heidegger was influenced by Jünger, but he was influenced by Friedrich Nietzsche as well (among others). In “Die Frage nach der Technik”, there are (at least) two elements that make Heidegger’s Gestell an original concept and not a mere analogy: the relation with “rechnendes Denken” (calculative thinking) and the relation with Ancient Greece. Also, Zimmermann seems to compare Heidegger’s “beingness” (sic) (p. 81) to Jünger’s Gestalt rather than comparing Gestell and Gestalt themselves, Ed. [4] P. 13, Heidegger, Martin. *The Question Concerning Technology and Other Essays*. Translated by William Lovitt. Works. New York, NY: Harper and Row, 1996.

[5] P. 21, ibidem. [6] Ibidem. [7] Ibidem. [8] P. 163, ibidem. [9] Ibidem. [10] Ibidem. [11] Ibidem. [12] P. 167, ibidem. [13] Ibidem. [14] P. 169, ibidem. [15] P. 170, ibidem. [16] Ibidem. [17] Ibidem. [18] P. 37, Huffman, Carl A., and Philolaus. *Philolaus of Croton: Pythagorean and Presocratic: A Commentary on the Fragments and Testimonia with Interpretive Essays*. Cambridge [England] ; New York, NY, USA: Cambridge University Press, 1993. [19] P. 124, ibidem. [20] P. 58, ibidem. [21] P. 71, ibidem. [22] P. 1, De Risi, Vincenzo, ed. *Mathematizing Space: The Objects of Geometry from Antiquity to the Early Modern Age*. Trends in the History of Science. Cham: Birkhäuser, 2015. [23] P. 4, ibidem. [24] P. 8, ibidem. [25] Ibidem.

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