SCIENCE OR RELIGION
THE POETIZING THOUGHT OF
GASTON BACHELARD AND MICHEL SERRES

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Abstract

The authors explain how the poetizing language of Epistemology that is deeply immersed in mythology and poetics determined Michel Serres's thought on Philosophy. The poetizing word, in penetrating the beginnings of the Universe, set the ultimate horizons for the philosopher's brilliant insights. Insofar as every perspective is predetermined by an ultimate goal; Serres's thought was deeply symbolic. This article shows that when describing the world, scientific language has always been inaccurate, incomplete and even erroneous in its relation to logic (truth). That is why the thinking of Bachelard and Serres, in turning to mythology and poetics with its material imagination, took the form of a religious and mystical attitude towards knowledge.

Keywords: epistemology, philosophy, poetics, thinking, thought

1. Introduction

For Serres, the epistemology of education unfolds within the framework of a large-scale poetic-mythological paradigm. From this, education receives a paradoxical philosophical justification, revealing the heuristic value of knowledge for civilization in its historical movement. Changing previous priorities becomes inevitable. As a historian of science and a visionary, Serres differed from his contemporaries primarily in that he included relevant social upheavals in the continuous evolution of man [1]. In a series of his texts: *Detachment*, *Geometry*, *Rome*, *Statues*, *The Natural Contract* and *The Troubadour of Knowledge*, under the general heading *'Equilibrium and Foundations*', Serres reaches his truth through respect for Nature and humanity per se. Through hermeneutic labyrinths and the mysterious language of symbols, he tries to rise to a sense of the uniqueness of events. His parallels between old

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and modern events are amazingly strong. In this, facts and symbolic description merge into the indistinguishable unity of poetic appreciation.

Although poetic thought does not exclude the language of poetry (after all, the poet poeticizes his imaginative perception, generating new images), this in itself does not mean that Serres's works should be read as poetry. True poetics belongs to the depth of reasoning and the language of pre-philosophical (pre-Socratic) inventions associated with a radical rethinking of reality. In other words, it is a creative combining of linguistic elements into a new unity in order to understand the world and not a concept of purely philosophical reasoning: that is "nonsense", as Serres said [2]. This is why Serres's poetry is, least of all, poetry [3]. To suspend the naive belief in the ability of language to represent, he re-binds it, as the ancient Greeks said. This is not a question of a new synthesis of literary qualities or stylistic features or abstract concepts. On the contrary, in his poetics, Serres does not rethink literary devices, but, rather, the beginning and end of Western civilization, i.e. the 'figure of time'. Trying to rethink the foundations of the old culture, indifferent to human problems, an lively and significant subject and traditionally considering the main object of Philosophy in the new topological (information) space, Serres [4] delves into the archaic depths of Western thought and broaches the topic of the "boundaries" of European thought: its "beginnings" and "ends", this whisper (le non-sens), which is so lacking for thought to be creative and not linear [P. Nivelle, *Petite Poucette, la génération mutante*, 2011, https://www.liberation.fr/debats/2011/09/03/petite-poucette-la-generation-mutante_758710, accessed on 31.01.2021].

2. Methods

The authors have the following goal: to show how the poetizing language immersed in the depths of mythology, mimesis, music, poetics and Theology shaped Serres's thought on Science and Philosophy. The following tasks were implemented. 1) Since poetics, as a poeticizing word that penetrates the beginnings of the Universe and its ultimate goals, sets the boundaries for the future digital era, it is necessary to characterize the connection between words and phenomena in the scientific description of the world. Science is a description of phenomena, a symbolic description and therefore, not alien to allegory. 2) Further, because of the ambiguity of scientific knowledge in its relation to logic and accuracy (and ultimately the truth), the thought of Bachelard and Serres is deeply symbolic and has a certain finality, making great insights possible [5]. Such thought forms a religious and mystical attitude towards knowledge. 3) Thus, Serres's epistemology is an unusual method for a symbolic (allegorical) worldview based on a poetic-mythological imagination, indicating that his thought has a deep connection to the philosophical legacy of Bachelard. According to Kuhn [6], a well-known and clear feature of "normal" development within the scientific paradigm is the refinement of known constants and the acquisition of new pieces of knowledge. By adopting the current "community of views", one recognizes that all fundamental, philosophical, and

worldview problems have already been solved, and all that is left to researchers is to apply their abilities to clarify certain details [6, p. 38, 46]. That is why the authors believe that, in its internal structure, the scientific paradigm of Serres, who strove for greater mathematization and more complex mathematical functions, focuses on the ability to tirelessly invent more and more new forms of science and thus give a definite interpretation of existence and a concept of truth. It is worth emphasizing that the subjection of our world today to modern science with its religious aspiration to knowledge is growing. Understanding the essence of this phenomenon requires a dialogue with these thinkers.

3. Aspiration to knowledge - the interpretation

3.1. Language as a symbolic description of reality

Serres believes that language is born of things. Accordingly, things have their own language [7]. The fact that atoms are letters, and bounded bodies are sentences is certainly not a metaphor; if that were not so, there would be no existence [7, p. 141, 150]. For Serres, the word is only an agency of thought and an indispensable condition for understanding the world and oneself because initially it is a symbol representing 'vertical' time and spreading around all the power of the material imagination. To call a spade a spade means to have a decisive influence on epistemological education by asking about the ultimate parameters of the future digital culture, and to delve into the archaic subsoil of Western thought through the analysis of the semantic 'fabric' of phenomena. In following Serres, one is immersed in sound as well as in air and light.

In the book *Genesis,* Serres likens this situation to a canvas covered with "a delirious chaos of colors, shades and forms, a disorder with nothing to be seen or understood in it" [8]. This is pure noise, 'black multiplicity'. But if you look closely at the canvas, you can see a certain form - 'white,' i.e. the semantic field of the phenomenon. The discovery of this form changes everything, since it provides a point around which further viewing of the picture is structured. The detected shape (foot) is the tiny differentiation that transforms the noise of the colours and lines into anticipated order. Serres calls this state 'emptiness', i.e. the point and centre of all possibilities. Further concretization of 'emptiness', like the turbulence in the poem of Lucretius, requires a minimal differentiation to arise from the noise. Serres uses the archaic term 'noise' to refer to primordial disorder, an undifferentiated continuum of consciousness that contains the ability to differentiate. The word 'le parasite' turns out to be just as profound in meaning. Surprisingly, its first meaning is associated precisely with noise, interference, interruption, deception and even murder [9].

Through a chain of translations, Serres rises to a sense of the uniqueness of the events taking place, connecting the 'beginnings' and 'ends' of European thought. So, according to the thinker, archaic thought is initially characterized by parasitism and follows a 'parasite logic' based on the rule: to take and not give anything, to interrupt the usual order of phenomena, to force others to act in a

new way. Human parasitic chains are the result of humans abusing the equal exchange with Nature and then with their own kind in order to parasitize them [10]. All kinds of parasites are "flowers of evil" combining murder, worship of the sacred and collective violence [11]. According to Serres, the crowd worshiped the legendary Hercules as a god, although in fact he deserved to be punished as a thief and a murderer. The lie became the last argument, for in the parasitic chain everyone personifies white multiplicity, the noise of injustice, addressed to both murder and divinity. The local dignitary Evander salutes Hercules, a thief and murderer as the son of Zeus. The Roman elders welcome Romulus, the murderer of his brother, as the god-king and founder of Rome, the city Fathers tear Romulus apart and carry his limbs away, hiding them in the folds of their clothes, etc. - all these events take place against the backdrop of murder and sacrifices, the triggers for the emergence of a new order and the division of power [12]. The birth of a new science and consciousness of the forthcoming communications society, according to Serres's deep conviction, is inseparable from the genealogy of crimes (cemeteries are filled with the bones of scapegoats, separation of power is the dissection of a corpse) and the transformation of things into objects, and then into quasi-objects. Thus, religion as a form of social practice, on the one hand, turns sacred objects into 'fetishes' to unite believers, and on the other hand, prudently resorts to exchange and wars, just as trade relies on its violence and forms of sacrifice, and the army - on its fetishistic and economic aspect. As for communication, it is also a universal means of sociality. To a certain extent, it is connected with modern science and should discard 'unreasonableness'. Instead, by absorbing the growing financial mass, contracting with a society of mercenaries, science as a means of communication is 'overflowing' with fetishes, stakes and commodities. Its objects have become fetishes to be worshiped, valuable and competitive stakes and desirable commodities [8, p. 90-91]. Science has returned to the most archaic society. It is no longer science; it no longer solves our crises or our horrors. So, it no longer depends on us that everything depends on us [13].

Serres's book *La Légende des Anges* is very revealing in this respect [14]. It deals with the problem of combating global parasitism [15]. An angel announces a new message. In this struggle, it is preferable to choose a religion, since it minimizes sacrifices, forcing one scapegoat to pay for everyone, and modern media technologies, although contributing to the spread of parasitism, make the form of a global community possible via virtual space [14, p. 187]. Sociality ('those things that depend on us') and nature ('those things that do not depend on us') are increasingly coming under the complete control of modern techno science. Random acts of parasitism spread spontaneously and reach grandiose proportions. The thinking person, who has collectively become a beast, is now becoming connected through global communication with others and has turned into stone. A new world has been built on this rock [16].

3.2. The origins of modern science are in mythopoetic form

The scientific paradigm is deeply symbolic. The ambiguity of scientific knowledge, according to Serres, is addressed in allegories and myths. In them, the most torn being gains integrity and the continuity of coherent time is violated. The stream of innumerable simultaneities connects. In the *The Birth of Physics* Serres explains that Lucretius's main work 'De rerum natura' is a 'hymn of glory' to Venus, the goddess of love and lust. Mars, the god of war and death is her opposite. These characters symbolically represent two different ways of relating to nature, two different 'contracts' (foedera) between the human world and the natural world. According to Lucretius, the poetic is closely intertwined with scientific atomism. The origins of modern Physics should be sought precisely in the mythopoetic form. It describes the process of the birth of the world from a vortex that comes from the initial deflection of atoms, which endlessly fell into the void beforehand. At first there is a 'zero state' of dead geometric repetition, subject to the rule of Mars. In a deterministic world of cause-and-effect relationships, the fate of all things is predetermined and unchanging. Here, a person's relationship with the world is regulated by a contract of fate (foedera fati), which ensures absolute control and obedience. When a sudden turbulent state occurs (a revolutionizing turn, a spontaneous deflection for no reason and without end), arising from a random minimal deviation (clinamen) of an atom, it means that the time of Venus has come. Her reign opens up a world of a completely different kind, where there is no place for the rule of reckoning [7, p. 145].

In a changeable and turbulent world, the relationship between causes and effects is determined freely, i.e. stochastically. This means that "we can always go from the thing produced to its conditions, but never from the latter to the former" [7, p. 115]. By the law of Nature (foedera naturae) the flow of the identical is broken and its dominance is overcome. Finally, a catastrophic chain of collisions is replaced by the stabilization of atom movement in a vortex pattern. The difference comes to the forefront: a new mind and a new law are affirmed. For Serres, Science followed in the path of Mars, relying on the principles of control and determinism. The rediscovery of fluid mechanics and a new understanding of turbulence herald the return of foedera naturae and the onset of the era of Venus [7, p. 110]. Thus, Science itself finds its origins in the sacred and in myth. For Serres, this means that knowledge is in tatters, like Harlequin's coat, made from an infinite number of rags [15, p. 6]. Knowledge is interwoven among these 'stromata' in some way. The image of weaving and wickerwork refers to the myth of Penelope (from the ancient Greek λέπειν, to weave), weaving and connecting the threads of events together. In mythology, Serres seeks more than mere legends. They are the life-giving source of modern knowledge, and the sciences 'leak' and strive to them [17].

Indeed, it is Hermes, the god of communication, who is the beloved figure of Serres. Hermes is also the inventor of the lyre, from which both music and technology emerge. Moreover, Hermes is the god of trade, the inventor of

weights and measures, as well as the defender of borders and the patron of travellers. Based on this, Hermes's journey becomes a way for Serres to explore and reconnect between broken sections of knowledge. Neither religion nor any discipline can become a guide for their systematization. The Rationalists viewed the rational as the old zealots viewed virtue. They extolled mind as a substance and condition for the existence of certain things [10, p. 13]. According to Serres, the mind is actually what is acquired; this is the 'third space' (undifferentiated continuum of consciousness), it is always a transition and transference 'between' (something woven and acquired); not some particular form of understanding or way of acquiring knowledge, but the risk of testing oneself by moving into the space 'between' and abandoning any kind of pre-established disciplinarity. Indeed, the intervention of the archetypal mediator Hermes is not based on rational arguments at all. Hermes is a kind of trickster, a restless wanderer, a type of mythological rogue and joker, in which the features of comic and demonism, cunning and intelligence are intertwined. He is neither here nor there; he is in the space "in between" [9, p. 257].

Bachelard's reflections on the connection between fire and fantasy are extremely interesting. A linguistic metaphor that has come down to us from ancient times that fire feeds like a living being, sometimes has more power over us than the most rigorous scientific evidence. They well reveal the ambiguity, allegorical and poetic orientation of scientific thought [18]. Bachelard deliberately does not adhere to strict logic. Re-composing a new discourse for comprehending the world, he superbly combines the professionalism of an epistemologist and the inspiration of a poet. He can be perceived as an apostle, father of the Church, apologist and preacher. He resembled Saint Bernard with his sermons on the biblical 'Song of Songs', but his, Bachelard's 'Song', was Science. He loved this science, and when it was criticized, he defended it, saying that it was not understood [19]. Serve Science with zeal and religious enthusiasm, tirelessly invent new forms of it, solve its difficult problems, realize a mathematical dream that prescribes the laws of reality - and you will be saved! This is the formula of the scientific progress of G. Bachelard. This thinker had a very real faith in Science and Mind. Mind itself determines the mode of being of things, proceeding from its own world project [20]. Now it is clear why Bachelard replaces the terms 'world', 'reality' and others with the terms 'scientific world', 'scientific reality', etc. Being has meaning only under one decisive condition: if it is determined on the basis of scientific data, i.e. on the basis of phenomenological technical design. But the projective is, as we already know, a mathematical form; something that can be measured and quantified, but this is the expression of the mystical in modern form [21].

In general, rational, natural-scientific knowledge comes from dreams caused by natural experiences. "For", as Bachelard explains, "in verbal creativity everything - and even the simplest description - is first dreamed, and then seen" [22]. A person's direct sensory contact with the subject of cognition is only an obstacle on the path of objective cognition in modern life. If cognition requires maximum rigor, then our cognitive acts must be organized in such a way as to

completely replace the given essence with an imaginary construction. Everywhere, Science, as Bachelard notes, replaces empirical constants with theoretical constructions, thereby expanding the field of the rationally explained [23].

3.3. The mystical in our pursuit of maximum mathematization of knowledge

In the book *Philosophie du non*, Bachelard [24] acknowledges that dream and imagination play a key role in Science. The scientific dream and imagination are, firstly, radically different from the ordinary dream, and secondly, simply the attempt to mathematize natural science. The mystical dream in its modern scientific manifestation is primarily related to Mathematics. It strives for more mathematization, for the formation of more complex mathematical functions. Thus, the mystical and even religious attitude to reality is something different than the pursuit of the maximum mathematization of knowledge. The imagination's creative impulse should also be directed towards the ultimate algebraization and axiomatization of scientific syntax [25]. For Bachelard, the 'matter' of scientific cognition is not there to explain phenomena, but to complicate the experience, which is the true function of objective research. According to Serres, the usefulness of models is not so much in their objective connection with the realities being studied, but in creating temporary connections between other disparate phenomena and their subsequent consideration. He broadly describes an important aspect of his methodological approach as 'structural'. However, the type of structuralism that Serres promotes is inspired primarily by the algebraic work of the Bourbaki group, not structural linguistics or Anthropology. This mathematically grounded (and eminently mystical!) understanding of structure leads to a model that suggests functions associated with a set of elements, whose exact composition is not predetermined [10, p. 16].

The logic of the old science is the logic of reductionism, which prevents the qualitative development of scientific knowledge. The logical structure of the new research is fundamentally different. Bachelard emphasized the mathematization of modern Physics. Modern science is more mathematical than mechanical. Mathematics is the universal syntax for the scientific description of the world. Since the object is a 'perspective of ideas', objectivity in Bachelard becomes just a relation, and a relation suitable for mathematical calculus. The path of objectivity is entered upon only when two things are placed in correlation to each other through, of course, the intermedium of the subject, while reducing the intermedium's role and ensuring that its role is the same for both correlated things - in order for it to then be correctly eliminated. This is the very idea of measurement [26]. Measurements are the main objectifying procedure, as mathematical calculations are the source of scientific knowledge. The scope of Science depends on the scope of measurement and Mathematics. Thus, measurement is a description in a new language, endowed with clarity, precision and universality, which are traditionally recognized as the language of

Mathematics. The measurement principle is a "metaphysical postulate of modern Physics": "what is measured exists and is known to the extent that the measurement is accurate" [23, p. 52-53]. Elsewhere, Bachelard states that we can only think mathematically. True unity of reality is mathematical in Nature [24, p. 81; 26, p. 132].

Serres argued that one should not experimentally test the starting positions of our theories: these are just arbitrary axioms, and Science should not be interested in their relation to reality; it is just as senseless to compare the final conclusions with reality: they are unlikely to agree with it any better than the original axioms; what is really important, according to the strict rules of logic, is to transform the axioms into final results, avoiding any participation of the imagination. As noted, Serres's objection to Geometry was based on its commitment to measurement. This applied nature of Geometry orients it towards idealism: the form that is analysed is the abstract truth of a physical object, or nature. While Bachelard saw measurement as a description in a new language (replacing empirical constants with theoretical constructions) and emphasized the leading role of imagination in scientific cognition, Serres avoided intuitively self-evident entities in every possible way. He did not recognize the validity of the geometric approach to Nature. The geometric measurement is specific. It does not detect the abstract form of objects by pretending to truly cognize them. As a result, the idealistic orientation of geometrism leads it to delusion. Geometry should be excluded from educational programs altogether. Abstract rational construction, or modern scientific doctrine, has no direct analogues in the natural world, but it reveals the world on a larger scale than ever. Serres believed that the mathematical process of measuring had nothing to do with physical or geometric intuitive data. On the contrary, it is the purity of Mathematics that frees it from a commitment to the intuitive interface of Geometry and thus from any pretence to tell the truth about Nature. Because of its purity, Mathematics is immersed in itself and therefore is not a derivative of the physical world [7, p. 96]. This is especially evident in his work *Le système de Leibniz* [27], in which he traces the 'archeology' of structural formalism. In it, Serres placed particular emphasis on the concept of information found in Wiener's cybernetics and Bourbaki structural mathematics. By transforming Leibniz's philosophy into a 'model system', Serres developed a 'broadcasting' or 'transformational' structuralism. Serres speaks of two logics: 'symbolic' and 'formal', arguing that there was an epoch-making shift between symbolic typologies of the nineteenth century (Hegel, Nietzsche, Freud) and structuralist formalism. The latter refers to the most important structures from modern algebra, not from linguistics. He reconstructs Leibniz's 'system' in the form of many intricate networks that are unique, individualized and inseparable from the content of the structures, and he creates a model of transdisciplinary perspectivism, which is expressed in his writings on translation equivalence between parallel and self-sufficient languages such as communication, interference, translation and distribution.

4. Conclusion

The mystical dream in its modern scientific manifestation, in our opinion, is primarily related to Mathematics. Today, the mystical and even religious attitude to reality is something other than the desire for the maximum mathematization of knowledge. The creative impulse of the imagination should also be directed towards the ultimate algebraization and axiomatization of scientific syntax. The result of increasing mathematization is the formation of more complex mathematical functions. Scientific thought from time to time not only excludes logic and consistency, but, like poetic thought, relies more on creative imagination rather than on expanding the hypothetical constructions of the mind. The history of Science does not progress through a sudden break and complete transformation of prior knowledge, but moves back and forth along a complex network of intersecting paths, striving for greater mathematization, highlighting the ability to tirelessly invent more and more new forms of science - modern triggers of a truly religious and mystical mood.

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