Revista ARACÊ
ISSN: 2358-2472

FROM MAGIC TO SCIENCE: THE "RITUAL" OF PASSAGE FROM SUPERSTITIONS TO SCIENTIFIC KNOWLEDGE

https://doi.org/10.56238/arev7n1-173

Submitted on: 12/22/2024 **Publication date:** 01/22/2025

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ABSTRACT

The text discusses the evolution of scientific knowledge, from its mystical and superstitious origins to the consolidation of modern empirical science. Science and magic coexisted for centuries before separating, and history reveals a complex intersection between reason, religion, and esoteric beliefs.

Keywords: Scientific knowledge. Magic.

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ISSN: 2358-2472

INTRODUCTION

What we now call scientific knowledge had a *sui generis epistemological trajectory*. The prestige that the word "science" enjoys today, which refers to an unprecedented methodological rigorism, testifies against its origins, which are often superstitious and based on the imagination of common sense. It was between mistakes and successes, bets and predilections guided by magic, intuitive impressions and esotericism that positive science builds its path in modernity. This implies that some of our pioneering pioneers in the scientific field were gullible, religious, devout and practitioners of alchemy and other related knowledge that intersected the empirical method with the belief in the supernatural. From this it can be inferred that science and magic walked side by side, Siamese sisters, as Scliar well recalled: "in its origin, science was confused with magic" (2007, p. 14), until they converged into rivals and lethal enemies with the passage of time.

The ways of access to this data are not clear, since it was the intention of men of science to camouflage their involvement in magical practices. The general rule for establishing any form of knowledge should be empirical demonstration. Those who somehow circumvented this paradigm would not be well received in the circles of educated men.

THE "RITUAL" OF PASSAGE FROM ESOTERIC KNOWLEDGE TO SCIENTIFIC KNOWLEDGE

We could ask ourselves about the real reasons why historiography often hides from us the initial stage of scientific knowledge, still strongly attached to the beliefs that it had belatedly disapproved. The most sensible inference we find to justify this historical silence is perhaps the scarcity of sources itself. In a word: men of science who made use of magical practices did not present themselves as magicians. In fact, "the alchemists of the time (Newton's century) referred to each other by pseudonyms", as White observed (2000, p. 138).

This fact is clearly explained by the context of the seventeenth and eighteenth centuries responsible for the consolidation of what we call scientific knowledge. The astonishing development of mathematics, the recent formulations of chemistry in the fields of thermodynamics and electromagnetism, the increasingly correct and precise calculations of scientific physics have consolidated a universal certainty, so to speak, that the true interpretation of the world could only be provided by science. Consequently, anyone who

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ISSN: 2358-2472

wanted to illustrate his personality in the eighteenth and nineteenth-century era would show himself to be a faithful follower of this new tendency. Thus, at a time of the rise and apogee of science as the queen of knowledge, those who got involved with other forms of knowledge considered inferior or, even worse, superstitious would not be notable in the academic scenario.

Therefore, we have historically witnessed a cut between knowledges, a dynamic of exclusion in which A does not interact with B and both hostile each other without any possibility of harmonic confluence. From this tragic separation emerges an ideological dogma: all pure knowledge is derived from scientific data and all illusion and daydream proceed from the religious field!

Carl Sagan, a renowned philosopher, in his work *The World Haunted by Demons* (2006) verifies that this split whose effect was to polarize science and religion did not have a positive result: "The notion that science and spirituality are somehow mutually exclusive does a disservice to both" (Sagan, 2006, p. 48).

A biographer of Isaac Newton, Michael White (2000) thoroughly excavated the still hidden documentation of Newton's life, unveiling a previously unknown side of this thinker: in addition to being a mathematician and physicist, he was an alchemist. The information brought to light by White was so great and numerous that it gave rise to the work: *Isaac Newton: The Last Sorcerer*. In fact, the incompatibility between truth and suppletion, understanding truth as synonymous with science, aborted from the circle of intellectuals the magical and alchemical operations, so fashionable in the preceding centuries. In fact, we can read in Voltaire the epistemological status in vogue in the new times, now detached from the magical conceptions that populated ignorant minds: "Name the name of a people among whose bosom unbelievable prodigies have not been wrought, especially in the times when people knew how to read and write" (Voltaire, 2003, p. 5). And in another passage of the Questions on Miracles he reinforces: "The more societies improve knowledge, the fewer prodigies are produced" (Voltaire, 2003, p. 14).

Peter Mainka's article *Witchcraft in Modern Times: Symptom of Crisis in the Transition to Modernity* (2002), which analyzes witchcraft in modern times, considers that the attacks that culminated in the banning of European witchcraft were not only filed by the Christian Church moved by the aversion to the heterodox and/or heretical. The discussion goes far beyond the religious field and the doctrinal clash that accompanies it. Mainka verifies, like Michael White, that the so-called esoteric knowledge was very different from

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ISSN: 2358-2472

the vision of reality imposed by the power of science. There was no more room in the so-called modern times for any model of knowledge that escaped the geometricized rules scrutinized by the compass of mathematics. In fact, it is worth noting that Christianity itself, which joined modernity to conjure and burn witches, was later also the source of the attacks of science, which also considered it as false knowledge. After all, Christian dogmas also did not resist the precision scrutiny that the exact and natural sciences demanded. The future atheistic formulations of contemporaneity, in fact, came from an insufficiency of Christian dogmatics in explaining the world and man through the path of scientific rationality. Everything, therefore, should be understood by the inerable laws of master science.

However, it was not in a simple way that modern rationality imposed itself on humanity. She, Mrs. Reason, we cannot forget, was a construct inherited from the medievalist centuries. Accustomed as she was to walking side by side with religion, in a regime often of subservience, she did not detach herself so quickly from her spiritualized womb. In the golden century of medieval Scholasticism, the famous phrase was established: *Philosophia ancilla theologiae* (Philosophy is the servant of theology). Both dependent on customary beliefs in one sense and linked to the Church in another, reason did not find the path of its autonomy and emancipation. He then slipped on the shaky ground of the supernatural without finding the security of stepping on solid ground. It abandoned certain religious paradigms without, however, disfiguring itself from others, intersecting reason and religion with religion and reason, unnoticed.

In the third chapter of the famous *Skeptical Essays* (1957), the British philosopher Bertrand Russell asks: *Is science superstitious?* The author verifies that "the scientific creator, like all others, tends to be inspired by passions to which he gives intellectual expression equivalent to an undemonstrated faith" (Russell, 1957, p. 29-30). This characteristic that merges the man of science with the man of faith was not perceived at the dawn of modernity, allowing the self-penetration of this knowledge. Science was done without dispensing with religion and religion was thought of as a safely scientific platform. Russell goes on to note that "the pious young man Luther revered a free-thinking pope who allowed the sacrifice of oxen to Jupiter on the Capitol to propitiate his cure" (1957, p. 30). Hence it is seen that the superstitious ballasts of ancient paganism powerfully held their suction cups in the erudition of modern scientificity. And nothing seemed contradictory.

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We are mistaken in thinking that the general theories of specialties such as mathematics or physics or chemistry of the elements came strictly from sophisticated calculations that founded universal equations and formulas.

> The unscientific beliefs that inspired the work of the pioneers in the sixteenth and seventeenth centuries are admirably exposed with the aid of many little-known original sources. It seems, for example, that Kepler's inspiration was, in part, a kind of neo-Zoroastrian solar worship that he adopted at a critical point in his youth. It was primarily because of considerations such as the divinization of the sun and its placement at the center of the universe that Kepler, in the years of adolescent fervor and burning imagination, was led to accept the new system (Russell, 1957, p. 32).

From this it can be seen that it was with the help of magic, superstition, beliefs, non-rational intuition and the injunction of ingredients of the most varied expedients, that science was formed and crawled mixed with multiple knowledges, including, notably, rational knowledge. And only very slowly did the empirical characteristic mold itself, consolidate and impose itself on the others until, in the nineteenth century, it became the exclusive and extirpated from the *documentary corpus* of science everything that was not methodically demonstrated.

Thinking of reaching a *status quo* that would guarantee him stability and security, after overcoming his early childhood marked by the eclecticism of knowledge, the modern and contemporary sciences once again find themselves frustrated in their attempt. This time from an internal critique of its own theorists, such as those suggested by Karl Popper and Thomas Kuhn, who masterfully denounce the limits and imperfections of empiricality and the impossibility of sustaining a systemic and generalized ideal, making the pretension that fed the project of infallible knowledge for centuries fall to the ground.

After the fire of positivism fanned by its defenders, scientific knowledge was forced to reevaluate itself, depretentalizing itself and admitting its weaknesses that resemble it to other forms of knowledge. Therefore, when we speak of reason, religion, superstition, magic, intuition, we refer to expressions that, as history shows, touch and welcome each other, inexplicably penetrate each other, even if reason says no. In the universe we inhabit, the most diverse speeches alternate, conjugate, approach each other to exclude each other and, after being separated, come closer again. This is how reason, overvalued by science, must understand that the *podium* of the first place is not its position, but the coexistence with its sister magic, which can bring it better benefits.

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FINAL CONSIDERATIONS

We commonly dissociate "science" and "magic" as if they were antinomies. Quite a mistake. At least in its origins. This research aims to specify the birth of science as a complex knowledge that knew how to combine superstition with empirical procedures and that, only with the advance of the ages, is disentangled from the other forms of knowledge associated with magic. It is justified in presenting to the interlocutor the epistemological genesis of knowledge, often confusing and hesitant in its first steps. The present format of *the scientific episteme*, as it is found in contemporary times, based on the highest methodological rigorism, represents the most advanced stage of a knowledge whose origins are diluted in the psychological intuition and in the purely religious feeling of its authors. The personality of Isaac Newton is evoked as an illustration figure in our argument. We highlight the intertwining between alchemy and mathematics in Newton, portraying the drama of the scientist who sought to hide his superstitious beliefs from the eighteenth-century public.

Yesterday and today, evidently, there were approximations and chasing away between knowledge of different orders, causing sometimes empathy and sometimes estrangement of spirits. As the contemporary philosopher Peter Sloterdijk pointed out in his famous work Post-God: "Since modern society is now completely post-clerocratic (...) There are, outside of any Enlightenment polemic, growths of knowledge that impose on religious dogmas the unpleasant coexistence with contradictory knowledge and that force them to reformulate" (Sloterdijk, 2019, p. 283-284).

In times when science emerges as the best proposal for interpreting the surrounding reality, Sloterdijk's reflection states that religion and mysticism are not able to war over academic spaces, but they are left with the alternative of navigating other seas of human life, after all, existence is not limited to rationality.

About the limits of science, the twentieth century promoted fierce debates among intellectuals of the most varied philosophical-scientific orientations. Science itself realized that it needed a serious revision of its postulates, many of which were considered outdated and obsolete.

> Throughout the nineteenth century and particularly in the first quarter of the twentieth century, Physics, Chemistry and Mathematics presented profound changes in their theories: the emergence of non-Euclidean geometries, the theory of quanta and the theory of relativity and their repercussions in the scientific field, caused changes in the concepts of reality and in the ideas of subject-object relations, forcing Philosophy to rediscuss the question of the limits and value of

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ISSN: 2358-2472

> scientific knowledge, as well as to try to interpret the history of science, in order to solve the epistemological problem proposed by the evolution of scientific knowledge. The new theories, destroying the world based on Newtonian and Euclidean conceptions, called into question the naïve realism of scientists and philosophers. The new world, which they unveiled, required, in order to be apprehended, new epistemological concepts (Cesar, 1989, p. 9).

The existentialist thinker Karl Jaspers, with precise lucidity, understands that "scientific knowledge refers to certain objects: it does not know what being itself is. Scientific knowledge is not in a position to give any orientation for life" (Reale and Antiseri, 1991, p. 598).

It is precisely in these gaps in which science has no entry, in the recesses of human life, that wide horizons open up for the survival and manifestation of the mystical and the imaginary. In addition to these possibilities, we cannot ignore that today scientificity recognizes points of weakness within itself, even with regard to the empirical, thus extending the entry of other explanations that would better serve to understand the phenomenon studied.

Therefore, the future eventuality of mosaics of knowledge that intersect and merge, complementing each other in their identity antagonisms, is not ruled out. Who knows, posterity may not witness a rhizomatic knowledge, to use the language of Gilles Deleuze.

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ISSN: 2358-2472

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