

Cornelius Borck  
**Animism in the  
Sciences Then  
and Now**

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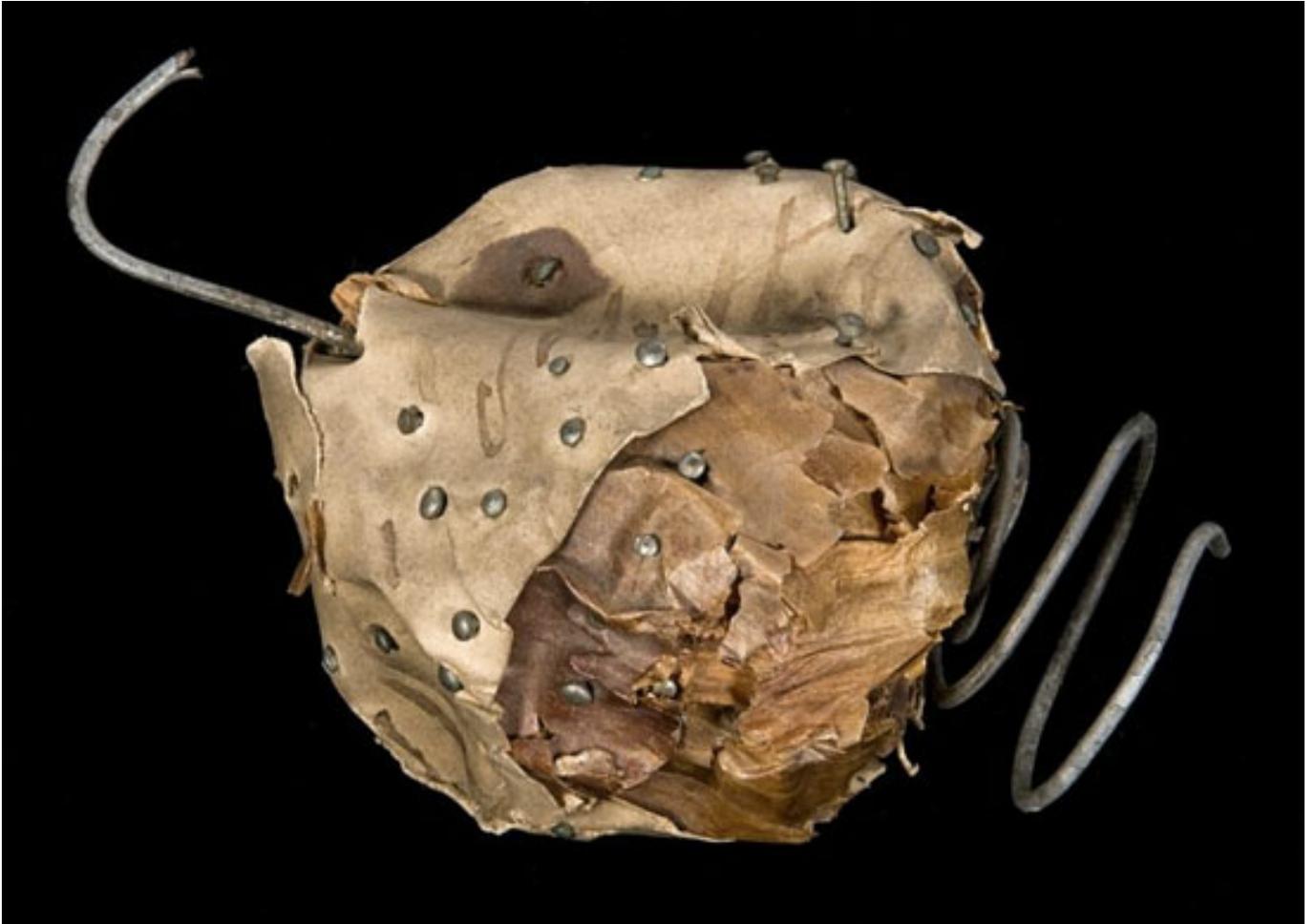
Animism began in the sciences, when the chemist and physician Georg Ernst Stahl coined the term for describing the specificity of living matter, its distinctive character vis-à-vis non living things. Its modern, almost inverted meaning, however, goes back to the Anthropologist Edward Burnett Tylor who used it to characterize a worldview that does not discriminate – or at least, not properly – between living and non-living matter but believes in “universal animation of nature” (Tylor: *Primitive Culture* (1871), chapt. VIII). Tylor’s concept of “animism” as a deviant worldview points to an irrevocable – and perhaps irrecoverable – separation of the spiritual from the material. If animism named the belief in having no separation between the material and the spiritual worlds, then the very coining of the term would indicate that such an inclusive worldview had already become anomalous by the time he introduced it in his book *Primitive Culture* (1871). Regardless of the concept’s clear history and of the processes that motivated Tylor (1832–1917) to elaborate his theory of religion – though such a point of rupture would be difficult to locate historically – dichotomizing regimes that classify things and beings as either animate or inanimate, material or spiritual, can well be traced to different places and periods throughout history; they certainly predate the progressivism of the nineteenth century, which was a driving force in Tylor’s theory. The same applies to alternative, holistic, or integrative worldviews, which are also shaped by vastly different places and perspectives – with some dating back to the beginnings of human cultures and others stemming from the current interest in animism.

With Tylor, however, these alternatives became widely associated with questions about evolutionary progress, and animism became the label for a primitive form of belief. The concept of animism hence entails a twofold discrimination: the differentiation between two classificatory regimes as well as between hierarchical divisions. Consequently, animism henceforth described a double loss, one of access to spirits (whatever they be and wherever they supposedly reside) and one of an understanding for people who communicate or interact with them.

Demarcating a premodern and allegedly primitive worldview, animism was the name for a distancing and exoticizing view from a “superior” European perspective. Classifying alternative worldviews as lower steps in a rigidly evolutionary schema helped to define (and exert) European superiority. In noting a lack of progress, and with deep ties to nineteenth-century progressivism, the concept of animism is constitutive of the very emergence of modernist

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Onion stuck with pins found in Somerset England, 19th century. Exhibit used by Edward Burnett Tylor as demonstration of sympathetic magic at the International "Folk-lore Congress," London, 1891.

epistemologies. Addressing foreign cultures as it did, the notion of animism fostered the European perspective on materialism, rationality, objectivity, and the all-in-all modern – in contrast to allegedly irrational, superstitious, and nonobjective worldviews. Among the many divergent and partly contradicting modern agendas, the cultural evolutionary program gained its shape and sense of direction from a supposedly clear and obvious opposite. Whatever modernism's peculiarities or specificities, we can say with some certainty that the modernist program itself was not primitive.

It is this history that makes animism problematic and difficult. Animism is not just rooted in a historical context that now appears highly problematic – the very phenomenon that animism was supposed to capture cannot easily be detached from the historical baggage, from the very perspective from which it derived, from the strictly evolutionary focusing lens and the sense of superiority that was inscribed into it. Whatever animism did or referred to, its potential does not so much depend on the question of how to regain perspectives that have been discarded, but more on the problem of finding a perspective outside a separation of worldviews.

For the historian of science, animism is first of all a nineteenth-century category deserving critical scrutiny. Animism can obviously no longer be naively used to describe certain forms of religion; instead, the concept's colonizing strategy must be decoded. Any inability to comprehend someone or something relates back to the actor's limited capacities and should not automatically translate into incomprehensibility. In a truly globalized world, in which mediation

and articulation become increasingly recognized as multidirectional, any effort to explain and declare someone or something as primitive must be considered as a problematic and objectionable strategy. This problematic legacy of animism has meanwhile been widely acknowledged. At the same time, however, Tylor's diagnosis of primitive culture did not question universal human intelligence, nor did he share the concern of his contemporaries about degeneration.

More importantly, and possibly more problematically, the critique of animism as a scientific concept hardly leads to a straightforward revival of its rejected content, even once the pejorative labeling has abated. Attempts to swiftly take the concept as a guide to recuperate lost meanings will probably end in an unfounded nostalgia, as long as such aims do not account for the transformative powers of the modernism that still separates contemporary theorizing from pre-evolutionary thinking. This skepticism towards efforts to reanimate the world (regardless of the meaningfulness of such endeavors) calls for a more nuanced recognition of animism's embeddedness in the very concept of evolutionary progress and its epistemological implications.

In this respect, a reflexive and critical engagement with animism opens a discursive space for reworking the history of modern ways of knowing from a postcolonial perspective. Designed for labeling allegedly primitive systems of belief, at the colonial periphery, in contrast to supposedly advanced and more rational European styles of knowing, animism inadvertently points to core problems of the modernist epistemology. Like animism itself,



Neonatal macaque monkey imitating facial expressions. Photographs from study on mirror neurons.

modern epistemology rests on fundamental, dichotomizing oppositions – nature versus culture, rational versus irrational, subject versus object, objective versus subjective, straight versus queer, and so forth. The concept of animism epitomizes the constitutive but highly problematic role of this dichotomization in modern epistemologies, particularly in the oppositions of foreign versus familiar and spiritual versus material.

In retrospect, it is easy to see how the concept was designed to function; after one hundred and fifty years, its ideological background has become tangible. Situating animism against this background, however, brings to the fore yet another important aspect: the approach appears to apply no less violently to the European condition than to the colonized perspectives. Of course, since the enlightenment, science and society were believed to develop rational faculties in people. But the rapid progress of science and technology themselves had left many bewildered when confronted with ever newer powers and strange inventions. For the historian of science, animism is indeed part of an epistemic transformation – though not of a move towards rationalism, secularism, and materialism, but of a larger and more complex transformation that also saw occultism and spiritualism rising to find a “home” in Europe.

Vitalism and spiritualism have an especially long history in the humanities and life sciences; with the beginning of industrialization, particularly the emergence of new communication technologies, speculations about knowledge beyond its ordinary limits became widespread and connected to the newest advances in science. It is thus because of the historical confluence of animism with a heightened interest in occultism, as well as the emergence of the psyche as the new concept of subjective experience, that animistic activities and concerns come to be of particular interest. For the purposes of this short paper, it may suffice to mention how, around the end of the nineteenth century, the discovery of new waves and rays, for example, extended the realm of material forces ostensibly into more mysterious realms. At the same time, new media technologies fostered the possibility to communicate across time and space – with the emergence of new forms of “media” and specially designed events and sites for their transmission and reception. In the midst of these turbulent transformations, the rational subject of the enlightenment intimated a rather contested and problematic concept of the “psyche” – a painfully dominant space that developed throughout the twentieth century,

forcing psychology and several other humanities into existence.

Was the ban on animism a prerequisite for the emergence of the psyche? The history of ideas rarely follows such an oscillating logic, but the two were certainly intertwined. Given, that the very act of conceptualizing 'animism' for characterizing allegedly primitive forms of religion followed from a colonialist European perspective upon non-European cultures, given furthermore, that animism owed its plausibility to the newly established evolutionary framework, and finally given, that animism addressed implicitly also many epistemological problems back in Europe at the time, it becomes obvious that these problems were not solved simply by the invention of this concept. In fact, "animism" in its polemical and ideological sense did not and will not solve any epistemological problems; but it may acquire new meaning as a descriptive term for capturing the eerie qualities of scientific practices themselves. In this regard, it could be said that animism is the flip side of rationalism and the belief in techno-scientific progress. Here, animism acquires another layer of meaning – one that does not point to a strange form of religion but to the paradoxical and animating effects of endorsed technological and scientific practices. In addition to its potential for the history and philosophy of science and religion, animism may hence also serve as a descriptive, heuristic concept in the historical epistemology of the emergence of today's powerful nano-, techno-, and biosciences.



Possible sewel donated by Edward Burnett Tylor to the Pitt Rivers Museum, and recorded as specimen of a “Witches Ladder.”

On the surface, modern sciences – including the humanities, biology, and life sciences – still appear to subscribe to a similar, if not the same, scientific epistemology that Tylor regarded as progress towards rationality, and that he celebrated as the evolutionary victory of Europe. Regardless of the many spiritualists, speculative esoterics, and mystics among the eminent scientists since Tylor's days, there is

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Etienne-Jules Marey, from the series *Mouvements de l'air*, 1830-1904.

officially no space for spiritualism, religion, or extranatural powers within the sciences; they strictly follow their naturalizing agenda, searching across the material world for finer-grained analyses of the various powers at work. At the same time, however, and despite their modern, rational agenda to naturalize the world in the bright and cold light of scientific explanation and technological control, today's technosciences are characterized by ways of knowing and doing that hardly comply with this epistemology.

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*Spirit Technology Inboard 1000* authored by Robert A. Waters.

Today's technosciences constitute ever more entities with agency in relation to biological, individual, subjective, collective, or political levels of being. In this context, animism may demonstrate an unexpected potential as a conceptual tool for highlighting and describing precisely those deviations from modern epistemology that pass under its own guidance. In the name (or under the disguise) of a naturalizing epistemology, animation seems to flourish as a powerful topic in research, development, and interaction in both the social and spiritual worlds. Nearly twenty years ago, Bruno Latour alarmed us when he declared, "We have never been modern," and that there are all kinds of nonhuman actors in contemporary science and technology. Latour has been criticized for the animism implicit in this position and perhaps quite rightly so, because his "hybrids" remain nonspecific; they are too general, ignoring specificities and local circumstances. However, one could equally argue that, if anything, such hybrids are not animistic enough for evaluating the dynamics and efficacies of new ontologies in the technosciences. There is much that can be said here, but for the sake of brevity I will highlight just two examples of the animism of contemporary technoscientific practices.

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Today's sciences constitute plenty strange techno-nature-cultural hybrids, take, for example, cancer genetics. More than one hundred years of cancer research has resulted in several new treatment options; leukemia in children is in many cases now regarded as a curable disease. Cancer research, however, has not been a smashing success across the board, regardless of insights including those from nineteenth-century pathology or twentieth-century endocrinology and immunology, among many others. The new horse in the stable is molecular genetics, and indeed very promising results have been reported, with strong correlations between the disease and instances of mutation. Circumventing a very complex regulatory process, cancer has now been declared to be the effect of a gene. This is a clear case of magical thinking, as this can only operate within a framework that bridges directly from gene to disease when the many mediating factors, circumstances, alternative scenarios are not taken into account. Potentially more dangerous are the very concrete and real consequences of this fantastic theorizing. Breast cancer diagnostics transform a whole life yet to be lived into one that will fall under the spell of a gene, and with a threatening disease that may never occur placed as the imagined end of this life. There certainly are cases in which genetic testing has proven to provide significant, medically relevant, and existentially useful information, enabling those involved to get on with their lives (sometimes better than before).

Another current example of the animistic powers of modern technosciences can be found in the communicative powers of digital social networks. How exactly new media will change the political sphere, and the conceptualization of the political, is still far from clear, yet social media has already interrupted traditional processes of representational decision making. Facebook and Twitter have been identified as important means for bringing nondemocratic regimes into collapse, and most recently, as Facebook's lauded IPO offering demonstrated, to interrupt economic speculation. Where is power situated in these new forms of communication and interaction? Where can control be localized? Does the efficacy of these networks relate to the plain fact that all electronic equipment is utterly material?

A particularly revealing example of the animistic effects of an allegedly naturalizing epistemology can be seen in the wonderworlds of mirror neurons that connect humans and other primates through networks of empathy. This is not to say that mirror neurons are not real; on the contrary, they are the focus of studies and ever more experiments at the top neuroscience

laboratories around the world, and have been analyzed in thousands of publications. Mirror neurons are the latest result in a sequence of investigations that once began under the imperative to debunk speculative and spiritualistic entities by means of dissolving them into strictly natural, material processes – perception, feeling, reasoning, decision-making, and memorizing, once understood as results of neurophysiological processing.

The agenda still holds, but the tools to pursue it have become so powerful that they allow sophisticated questions to be addressed. Within the framework of the modern, naturalizing epistemology, these experiments no longer “reduce” speculative stuff to the hard facts of action potentials, gene expression, and causality; instead, they increasingly constitute aspects of social interactions as “real,” as experimentally detected and objectively verified items. Materializations were once the results of séances and strange encounters with ghostly powers, and photography was mobilized to document these instances typically in the form of milky and plasmalike substances protruding somewhere from the “medium.” One hundred years later, today’s high-tech machines detect the results of social interactions as amorphous color blobs in the active brains of the participants. This is truly fascinating stuff, attracting large sums of funding; it is the latest tool to demonstrate that matter can be animated.

The list could easily go on. The patenting of DNA and its mutations has already been identified as new avenue for biocapitalism, an economization of the potentialities of biological substances; smart technologies turn everyday objects into responding allies that “learn” quickly and adapt to the special needs of their users; psychoactive drugs adjust behavior and learning abilities to social needs; the brain is, anyway, a universe of plasticity. I do not intend to say that all of these activities are the same, but rather that these examples share certain features that might begin to assemble an animist epistemology – of which some contours have already become recognizable, though its general shape and structure remain unclear. These examples allude to practices that constitute entities of new ontologies beyond the nature/culture divide. These new things are clearly constructed but are also nonetheless natural entities; they are very real, materially as well as conceptually, and their multiple effects move in several directions, from matter to self and throughout society.

The fantastic rise of functional neuroimaging recently provoked a clever MIT cognitive science student to accuse it of

mingling “voodoo with science.” The charge was made in defense of critical rationalism and proper methodologies; and the accused accordingly responded by asserting that their science followed the strictest methodological principles. In fact, “voodoo” is perhaps precisely where science and technology are heading – animation everywhere.

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