

A Bergsonian Conception of Matter as Knowing Substance

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Abstract

This article describes a novel approach to the understanding of the mind-matter relationship in the tradition of Bergson's conception of matter, falling, in his words, in the middle between materialism and idealism. The first part is a historical review of Bergson's ideas, and the second part is a sketch of the proposed equating of mental (brain) states and material (particle) states.

Key Words: Bergson, philosophy, quantum physics, consciousness, mind matter

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Trying to negotiate the philosophical crossroads of several scientific disciplines may represent a challenge not only to the aspiring graduate student but also to the seasoned philosopher, and the union of these disciplines may even seem a little artificial to some, but fortunately, this is not a virgin territory; the roads have been paved already by giants of thought who have left a mark not only on their time, but also for generations after them. And when I think of the common foundations of psychology, neuroscience, and biology one philosophical approach easily springs in my mind: Bergson's "middle way" between materialism and idealism, which fuses mind and matter in a single idea, animating the material world and endowing the mental substance with the

faculty of creative action. Being over a century old, Bergson's conception of reality may need some refurbishing, which is the main goal of the present paper; however the main thrust of his legacy still remains functional.

Before laying out in detail the proposal of the conceptual union of the material and mental realms, I want to set the stage by presenting some remarkable facts from Bergson's outstanding biography. As a young student Bergson excelled in mathematics and classical studies. (Soulez, 1997) Although he was able to solve a long-standing mathematical problem, he chose to delve into philosophy as a university student, much to the displeasure of his mathematics teacher. He graduated with the second-best result in his class from one of the most prestigious philosophy

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programs in France at that time. In his doctor's thesis, *Time and Free Will* (Bergson, 1889), which became his earliest published work, Bergson develops his criticism of the spatialization of time, a conceptual error which in Bergson's terms still governs scientific thought. After spending a few years teaching at a provincial school, which gave him the opportunity for quiet reflection and meditation, Bergson returned to Paris where he turned to the studies of mental function, exploring the scientific literature within the nascent field of psychology. His introspective method led to the maturation of the idea central to his philosophy – the notion of *duration* – and in 1896 he published what is considered his most complex and probably most insightful work – *Matter and Memory* (Bergson, 1896).² It is in this work where he conceives of matter as animated, acting substance. After 11 years of further deliberation and exploration the seeds

from the “middle way” approach brought to fruition the notion of the *élan vital*, or the vital impetus, as a central theme in his most popular and most acclaimed work – *Creative Evolution* – dating from 1907 (Bergson, 1907). For that work mainly, for the masterful use of language and the originality of his thought, he became immensely popular in France and abroad, with his fame culminating in the award of the Nobel Prize for literature in 1927. It discussed evolutionary theory, which at the time was still a novel and controversial idea, from a very unconventional perspective.

As flashy as this biography may seem, Bergson's approach did not catch on. It apparently crashed on the authority of Einstein and his theory of relativity, which Bergson found at fault in its most fundamental premises. This controversy, although little known, may be even more significant than the attempt to revise the foundations of biology with the notion of the *élan vital*. And the reason for this is that Bergson's discussion of matter and the physical processes of its transformations, as depicted already in *Time and Free Will* and *Matter and Memory*, is highly reminiscent of the strange phenomena manifested in the behavior of material objects as described

² With regard to this work, William James – the father of the American psychological tradition – remarked: “I have been re-reading Bergson's books, and nothing that I have read since years has so excited and stimulated my thoughts. I am sure that that philosophy has a great future, it breaks through old cadres and brings things into a solution from which new crystals can be got.” Later, after the publication of Bergson's most acclaimed work *Creative Evolution*, James wrote: “So modest and unpretending a man but such a genius intellectually! I have the strongest suspicions that the tendency which he has brought to a focus, will end by prevailing, and that the present epoch will be a sort of turning point in the history of philosophy”. He also noted that it gives him confidence to be “able to lean on Bergson's authority.” (www.searchspaniel.com)

by quantum physics³. However, Bergson's works date from around the turn of the 20th century, decades earlier than the first discoveries of these strange and inexplicable phenomena, which revolutionized physics and the conventional conception of reality! That means, Bergson was able to anticipate the new understanding of matter, which imposed itself on the established tradition in physics from the weight of the empirical evidence, by studying the mind and introspecting about its properties and behavior. Could all this have happened if there is no truth at all in his propositions? Before turning to the contemporary, revised version of Bergson's ideas, I want to note in addition that Einstein was probably the staunchest and most

longstanding opponent of the quantum view on reality, famously proclaiming that "God does not play dice!". That is pretty much the opposite of Bergson's intuition!

So, can we put an equality sign between the notions of mind and matter, and if yes, would this be a productive approach, teaching us something that we did not know before? The key idea is to equivocate states of matter, say, particles and the phenomenology of their interactions, as described by quantum physics, and states of mind, which are supervenient on physical processes occurring in the brain, as described by modern psychology and neuroscience. First, we can observe that particles are envisioned by quantum physicists as "probability clouds", without definite boundaries, and more importantly, without a determined location in space. The uncertainty of the location of a particle is thus analogous to the uncertainty of a belief or another mental state one may hold, which, when expressed in an action, acquires a definite character, but does not necessarily possess this character while unexpressed. (We may also think of mental states being similar to each other in different degrees, thus forming a similarity space, with dimensions corresponding to the different ways in which states compare to each other. A thought process would constitute

³ Louis De Broglie, one of the most renowned French physicists, and founder of quantum theory of light, says about Bergson's ideas: "Personally, from our early youth we have been struck by Bergson's very original ideas concerning time, duration, and movement. More recently, turning again these celebrated pages and reflecting on the progress achieved by science since the already distant time when we first read them, we have been struck by the analogy between certain new concepts of contemporary physics and certain brilliant intuitions of the philosophy of duration. And we have been still more surprised by the fact that most of these intuitions are found already expressed in *Time and Free Will*, Bergson's first work and also perhaps the most remarkable, at least from our point of view: this essay, its author's doctor's thesis, dates from 1889 and consequently antedates by forty years the ideas of Niels Bohr and Werner Heisenberg on the physical interpretation of quantum mechanics.

Without doubt it would be taking things too far to state that one found in Bergson, formally stated, certain principles of quantum physics: one cannot identify the precise statements of quantum physics with the profound, but often vague and fleeting, intuitions of the celebrated thinker. The analogies exist nonetheless..." (De Broglie, 1947)

a movement in this space, according to some dynamical laws.) The particle's identity is defined through its "wave function", which is a kind of content-bearing entity⁴, containing information that governs its manifest behavior in a way similar to the content of an individual being. We may call it also a representation, in the sense that it represents knowledge about the rest of the world, since all that is knowable about it are the rules for production of future actions.

The interaction between particles occurs through the exchange of quanta, and in a similar fashion the interaction between mental states (which need to belong to different physical beings in order to be two separate, independent states) occurs through the exchange of meaningful information, e.g., language, gestures, but also simply when observing movements or actions. One may say that the simple act of perception, which shapes the mental state by virtue of the perceived reality producing a representation in the mind, defines the position in virtual space, while the transfer of meaning in an interaction between minds is akin to exchange of quanta between particles.

⁴ It is merely a mathematical construct, while its physical nature remains unclear within the philosophy of quantum physics. (Griffiths, R., *Consistent Quantum Theory*, Cambridge University Press 2003)

One may continue this analogy by incorporating more and more of the phenomenology on both sides; however, this is an undertaking of a much broader scope than a paper which is to be presented at a conference. I can only hope to be able to indicate the approach, and to claim that it is a promising one, given the time and size constraints of a conference presentation. I want to say a few words in conclusion regarding the implications of adopting the monistic conception of reality to the scientific disciplines of interest to this conference. In most practical terms, an analogy allows transfer of knowledge from one field to another, and even solely the benefit of gaining some insight about the laws governing thought processes from the corresponding laws stipulated in quantum physics, would be quite substantial. It would not be like ploughing virgin soil, however, since there is already a close correspondence between fields of study on both sides of the "great divide", e.g., the rules of fuzzy logic and decision making theory in psychology closely resemble quantum physics calculations (Starks et al., 1997); there is a formal equivalence between the behaviour of certain neural networks and quantum phenomena in physical systems (spin glasses and Hopfield networks (Perus et al., 2003), for example).

The main unresolved problem in relating quantum phenomena to brain activity is, in fact, how activity in physically separate locations in the brain becomes correlated and produces a unified conscious state. One approach assigns a role to microtubules producing long-range entanglement (Hameroff, 1998), however, if we adopt the monistic view, this may not be necessary. Brain lesions offer circumstantial evidence hinting on how the singular mental state is produced by the activity in the brain. When part of the brain tissue stops functioning, the result is not simply a loss of certain functionality, like in a mechanism, but transformation into a being with different identity, which has modified functionality. In other words, if we think of the brain as representing the external world, a partial deletion of the

representation results in a different representation, but not a partial representation (there is no such thing as a partial representation). Hence, the unified mental states arising from the coherent activity of matter in the brain exhibit the same nature as the particle states, whose identity is defined through the wave function (when the wave function is transformed during an interaction we say that the old particles are destroyed and new particles are produced).

As a consequence, the mental state must evolve in a fashion similar to that of the wave function of particle, and on the large scale this would lead to the picture of the creative evolution, as envisioned and described so beautifully by Henry Bergson.

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