

## bergson, lovejoy and radical vitalism

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Researchers who make a more or less automatic association between Bergson and vitalism, particularly keeping in mind *Creative Evolution*, are in for a great surprise when they read the critical edition by Arnaud François of this book, published in 2007 by *Presses Universitaires de France*. Based on the analysis about vitalism made by Félix Ravaisson (1813-1900) in his *La philosophie en France au XIXe siècle (Philosophy in France in the 19th Century)*, supposedly used by Bergson as a reference for the construction of his own views on the subject, François is categorical: Bergson cannot be considered, in any way, a vitalist. Moreover: Bergson must be understood as an “animist”, an ancient theoretical lineage that must be distinguished not only from vitalism, but also from “organicism” and, of course, from “mechanism”. In Ravaisson’s own words that seem to inspire François’s position:

Since Bichat's time, organicism, in appealing to that great physiologist, reigned almost unchallenged in the medical school of Paris, whereas vitalism, systematised by Barthez, governed that of Montpellier. Organicism explains life by properties of the organs; vitalism explains it by a special principle different from matter, and no less different from spirit. Animism, which relates life to the soul, had almost no supporters.<sup>1</sup>

In addition to Ravaisson's book, François also relies on Bergson's 1913 text on Claude Bernard (1813-1878), which remarks on the "superficiality" of "doctors and physiologists" who use a "vital principle" (let's keep in mind that Bergson uses the term "superficial vitalism" ("vitalisme superficiel")) as if it would be possible to think of a non-superficial, a truth vitalism<sup>2</sup>. In short, in his precious work of contextualization, François seeks to circumscribe vitalism to its strictly historical dimension, keeping such an unstable concept under control as much as possible, in a theoretical position that we could call cautious: it's a medical school with a date and a place of birth. The criticism that Bergson addresses in the first chapter of *Creative Evolution* to the "contemporary neo-vitalism"<sup>3</sup> of Hans Driesch (1867-1941) and Johannes Reinke (1849-1931), must be referred to the criticism of the vitalism of the Montpellier school, expressed not only in the first chapter, but also in a brief passage from the third chapter of the same book<sup>4</sup>, as well as in the text about Claude Bernard.

In other words, the objections made to the "vital principle" of the montpellierans are the same as those addressed to the "entelechy" and the "dominants" of the Germans neo-vitalists. Although, as we will see later, my intention is, let's say, to scramble the pieces of this theoretical puzzle a little, the surprise we mentioned earlier does not stem only from the information contained in the critical edition; the caution by François is, I believe, fully justified, and for at least four reasons<sup>5</sup>. First, because Bergson recognizes the great influence that Ravaisson's book had on both him and his generation, as attested by the text from 1904, dedicated to his old master, where he writes that "Twenty generations of students have learned them by heart"<sup>6</sup>. Second, because there are various statements by Bergson that understand organism to be a machine ("machines for the production of unpredictability") or that associate life with death ("death is perhaps what is essential in life"<sup>8</sup>), facts that would undermine not only a too hasty approach between the philosopher of duration and vitalism, but also with animism. Third, because Bergson uses the expression "vitalism" or "vitalist" very rarely, and when he does – as in *Creative Evolution* and in the text on Claude Bernard – it is, as we have seen, in an eminently critical sense, rejecting any resemblance between his philosophy and this school

of thought. I say “eminently critical” because not all mentions have this character, as we will see later. And, finally, because the very term “vitalism” is extremely vague and difficult to conceptually apprehend outside the historiographical frame chosen by François. Even though it circulated in the works of some figures more or less contemporary with Bergson, such as Antoine-Augustin Cournot (1802-1877)<sup>9</sup> and Otto Bütschli (1848-1920)<sup>10</sup>, besides the already mentioned Ravaisson and Claude Bernard, its entry in the philosophical scene in a more specific way often served as a detraction, and it is difficult, at certain moments, to distinguish it from other theoretical labels no less controversial and confusing, also linked to the idea of life, as *Lebensphilosophie*, “philosophie de la vie” or “philosophy of life”<sup>11</sup>.

Regarding this, let us remember René Berthelot’s harsh criticisms of Bergson, in whose books the term vitalist appears in the form of an accusation, that is, as an irrational theoretical attitude whose bases must be referred to romanticism, even though its roots are even deeper, attached to figures like Paracelsus (1493-1541). Berthelot (1872-1960) also uses the expression “romantic evolutionism”<sup>12</sup>. In fact, as some researchers show, even Paul-Joseph Barthez (1734-1806), in *Nouveaux éléments de la science de l’homme* (1806) (“New Elements of the Science of Man”), rejects the use of the term “vitalist”, which first appears in the years 1780-1781 in the works of the doctor Pierre Thouvenel (1745-1815)<sup>13</sup>, later being used as an accusation by Claude Bernard’s master, François Magendie (1783-1855), in 1809<sup>14</sup>. Furthermore, in recent and more general studies on the state of philosophy at the turn of the 19<sup>th</sup> to 20<sup>th</sup> century<sup>15</sup>, the term “vitalism” hardly appears, which throws doubts if not on its importance, at least on its centrality<sup>16</sup>. The same can be said about the spiritualist philosophers, Bergson’s thesis adviser Paul Janet (1823-1899), as well as Elme-Marie Caro (1826-1887) and Charles Pendrell-Waddington (1819-1914), to whom the alternative to materialism should be not vitalism (but spiritualism) and in whose works the term hardly appears<sup>17</sup>. This situation also echoed in one of the most ferocious opponents of the spiritualist school and one of the forerunners of scientific psychology in France, Théodule Ribot (1839-1916)<sup>18</sup>. As an example, from the same period on the other side of the Rhine, it should be noted that Friedrich Albert Lange (1828-1875) mentions the term “vitalism” only once – and in the first edition, after removing it – in his influential *Geschichte des Materialismus* (*History of Materialism*, 1865), a work consulted a few times by Bergson. Within the framework of the more general manuals more or less from the period, the histories of philosophy, Wilhelm Windelband (1848-1915)<sup>19</sup> (who wrote the Preface to the German edition of *Matter and Memory*), Dominique Parodi (1870-1955)<sup>20</sup> and Jean Baruzi (1881-1953)<sup>21</sup> (both contemporaries and readers of

Bergson), and Émile Bréhier (1876-1952)<sup>22</sup> (a former student of Bergson) also do not address the idea of vitalism<sup>23</sup>. Thus, taking into consideration this state of affairs, a cautious attitude towards the possible connections between Bergson and vitalism is more than justified.

However, I would like to return to the second reason mentioned above that justifies François' caution (the presence of anti-vitalist themes in Bergson's *oeuvre*) and develop two ideas. The first one is linked to the fact that if we understand vitalism as a position that thinks that life has a specificity in relation to the non-living world, and that the physical and chemical laws as well as mechanical causality cannot fully grasp its nature, it is very difficult not to classify, one way or another, Bergson as a vitalist, since throughout its history, the word gained a very general sense, under which numerous anti-mechanistic currents could be grouped. Since *Time and Free Will* Bergson postulates the distinct character of living beings ("organized matter") in relation to inert matter, thinking their intelligibility, along with that of conscious beings (which he distinguishes from living beings *tout court*), different from that postulated by the conservative laws of mechanics<sup>24</sup>. What about *Matter and Memory*, where life is located precisely at the apex of the cone's scheme (associated with the concept of "attention to life"), between matter and memory, even though the three dimensions are considered different rhythms of the same duration? And as for *Creative Evolution*, would it not be possible to defend that there is a kind of "energetic vitalism", which conceives a new form of energy, proper to life? The explicit affiliation to American neolamarckism and the idea of *catagenesis* (drop of energy) and *anagenesis* (rise of energy) posited by Edward Drinker Cope (1840-1897) in terms of destruction/creation, would not allow us to understand the book of 1907, among other things, as a reaction to the project that aims to unify, in mechanical terms, all types of energy, started with Julius Robert Mayer (1814-1878), radicalized by Helmholtz (1821-1894) and, above all, by Emil du Bois-Reymond (1818-1896) who, in *Creative Evolution*, is placed with Laplace (1749-1827), Thomas Henry Huxley (1825-1895) and Herbert Spencer (1820-1903) as one of the main exponents of the idea that must be fought that "everything is given"<sup>25</sup>?

It should be noted that the concept of *élan vital* – frequently linked with vitalism – was used first in 1899 not by Bergson, but by André Lalande (1867-1963), in his *La dissolution opposée à l'évolution*<sup>26</sup> (*Dissolution opposed to evolution*, book cited by Bergson in *Creative Evolution*) against the primacy of Spencer's "law of evolution", which was based on the principle of the "Persistence of Force" and unaware of the facts brought by the "law of degradation of energy" or "entropy". This subject

was widely discussed by many philosophers contemporary to Bergson, as Alfred Fouillée (1838-1912), Émile Meyerson (1859-1953), Abel Rey (1873-1940) and Pierre Duhem (1861-1916)<sup>27</sup> (all of them quoted by Bergson or at least readers of him), thinking of biological phenomena as contrary to energy degradation). The same could be said of biologists with a more speculative spirit, like Albert Dastre (1844-1917), a student of Claude Bernard, whose second part of his *La vie et la mort* (*Life and Death*), quoted in *Creative Evolution*, is entirely dedicated to “the doctrine of energy and the living world”<sup>28</sup>. Although some, like René Berthelot, label such an attitude “energitism” (“énergétisme”)<sup>29</sup>, the idea that there would be a specific vital energy that would be capable of suspending the inevitable degradation postulated by entropy was far from being an idiosyncrasy, as showed by the studies challenging Ernst Haeckel’s “law of Substance”<sup>30</sup> (“*Substanz-Gesetz*”) by the British physicist Oliver Lodge (1851-1940)<sup>31</sup> (quoted in the first version of the essay “Life and Consciousness”, from 1911) and more recently by Walter Elsasser (1904-1991), an individual linked to “emergentism” and a careful reader of Bergson<sup>32</sup>.

The second idea that I would like to present is more circumscribed, and is related to the passages where Bergson declares himself a vitalist, which seems to have gone unnoticed either by those who do not associate him with such a theoretical label and by those who do associate him<sup>33</sup>. In any case, all interpretations that characterize Bergson as a vitalist do so on a conceptual and speculative basis, not textual or material; it is precisely this aspect that I would like to explore in the next part of the text.

#### BERGSON’S REFERENCES TO VITALISM AND THE CORRESPONDENCE WITH LOVEJOY: A RADICAL VITALIST?

The first occurrence that I would like to draw attention to is the conference “Phantasms of the living’ and ‘Psychical Research”, given in 1913 at the *Society for Psychical Research* in London, then presided over by Bergson (we recall that William James and Hans Driesch, among others, also held the same position). He states an idea that begins to be formulated in the 1910s and that will be further developed in the “War Speeches” before acquiring its final formulation in the “law of double frenzy” of *The Two Sources of Morality and Religion*. According to Bergson the 20th Century would inaugurate an “Era of the spirit” that would counterbalance the primacy of matter, until then largely privileged by the sciences. That’s when Bergson raises the possibility of a ‘vitalist biology’, “totally different from ours”. In his own words:

the most general laws of mental activity once discovered (as, in fact, the fundamental principles of mechanics were discovered), science would have passed from pure mind to life; biology would have been constituted, but a vitalist biology ‘...’ which would have sought, behind the sensible forms of living beings, the inward, invisible force of which the sensible forms are the manifestations. On this force we have today taken no hold, just because our science of mind is still in its infancy; and this is why men of science are not wrong when they reproach vitalism with being a sterile doctrine: it is sterile today, it will not be so always, and it would not have been so now had modern science at its origin taken things at the other end. Together with this vitalist biology there would have arisen a medical practice which would have sought to remedy directly the insufficiencies of the vital force; it would have aimed at the cause and not at the effects, at the center instead of at the periphery; healing by suggestion or, more generally, by the influence of mind on mind might have taken forms and proportions of which it is impossible for us to form the least idea. So would have been founded, so would have been developed, the science of mind-energy (“activité spirituelle”).<sup>34</sup>

This extravagant passage, to say the least, is distinct from the vitalism in, so to speak, its more scientific version, which perhaps could be found in previous works, although the context in which this conference was given must be considered, since the *Society for Psychical Research* aimed to study parapsychological or paranormal phenomena. Two years later, however, in 1915, in a letter to his friend Harald Höffding (1843-1931), Bergson is much more prudent, classifying, in his own words, the “vitalism’ of *Creative Evolution*” to the identity between life and duration, namely, “That life develops a history, that is, a succession in which there is no repetition, in which every moment is unique and carries in it the representation of the whole past”. This idea, according to him, would have begun to find some resonance in some biologists, although they are generally “so little receptive to vitalism”<sup>35</sup>. Bergson does not specify who such biologists would be. But it is in another correspondence, of July 4, 1911, this time with the American philosopher Arthur Lovejoy (1873-1962), that Bergson calls himself a vitalist in an explicit way<sup>36</sup>. Lovejoy, a former student of Josiah Royce (1855-1916) and William James (1842-1910), is the author of *The Great Chain of Being* and was an attentive reader of Bergson’s philosophy, having written several articles about the French philosopher as well as about Driesch and vitalism<sup>37</sup>. The letter is a response to two articles that were sent by the American, one of which is entitled “The Meaning of Vitalism”<sup>38</sup> and that, according to Bergson, “extracts the essence of vitalism with

perfect clarity”. “As you well noticed in your conclusion”, continues Bergson to his correspondent, “a position such as mine may well be called vitalism if we start to agree on the meaning of the word. I reject vitalism only if it intends to constitute all living beings as an independent entity”. But in addition to this explanation, which rejects life understood as an “independent entity” (which refers not only to the criticism of Barthez’s classic vitalism, but also to the idea of internal purpose defended by neovitalists, already rejected in *Creative Evolution*), what is the definition given by Lovejoy, that Bergson considers so precise as to recognize himself in it?

Lovejoy’s article was published in the American journal *Science* also in the year 1911 and is, in fact, an answer to the text “The Controversy between Materialism and Vitalism: Can it be ended?”<sup>39</sup>, published in the same journal, a month earlier, by the American biologist William Emerson Ritter (1856-1944). According to the testimony of Ernst Mayr, Ritter is the first, in his 1919 book *The Unity of the Organism, or the Organismal Conception of Life*, to use the word “organicism” to refer to biological entities<sup>40</sup>. Ritter begins his text referring to what would be the irreconcilable division between materialism and vitalism; the former, understanding that all biological phenomena are to be explained based on the material elements by which organisms are made, and the latter, difficult to apprehend, being understood more as a reaction to materialism, although it would be possible to define it as a position that considers that life inaugurates something non-material. However – and this, according to Ritter, cannot be ignored by biologists, although it belongs to the field of “philosophical biology” – both terms are philosophically fragile. In a curious analysis, especially for a scientist, that considers epistemology from an anthropologic point of view, Ritter understands that both materialism and vitalism have their origins in primitive beliefs. Materialism in magical thinking (“magical roots”), and vitalism in animism (“animistic roots”), both assuming the existence of “something” to explain certain observable phenomena, while the “material” and the “non-material” on which each of these explanations is based, in reality, do not exist or, at least, have never been observed directly.

Considering that biologists, “more perhaps than any other class, need the regenerating touch of Bergson’s *L’Évolution Créatrice*”, in which “evolution means indeed something new coming on every moment ‘..’ that there is not a trait, physical or spiritual, of ours, that is wholly finished off and at a standstill”<sup>41</sup>, Ritter proposes, in a kind of transcendental dialectic of the ultimate constitution of life, that we abandon both materialism (which he equates with mechanism) and vitalism, since the “sophisticated thinker” differs from the “untutored savage”

because he apprehends the fact that “the universe is perpetually in the throes of ‘Creative Evolution’”<sup>42</sup>. The limitation of knowledge in face of the “mystery” (the expression is his) due to the “incalculable” and “unpredictable” reality of the universe, especially the “living world”, and the refusal of dogmatisms that seek to enclose in a single explanation the nature of life, is the lesson, according to Ritter, to be drawn from Bergson’s thought, which could answer the question that gives the title of his text and end, once and for all, the controversy between materialism and vitalism, which is nothing more than primitive beliefs on which men rely to avoid the inevitability of change.

Lovejoy’s response to Ritter’s article is quite critical, and the philosopher does not shy away from pointing out the scientist’s naivety, whose positions are characterized as “*ad hoc* definitions”. But after that first moment, Lovejoy distances himself from Ritter’s text and expresses his opinion on the subject, pointing out three topics that he considers essential to the controversy between mechanism and vitalism. The first concerns the identification of the contenders: “the full mechanistic program would be realized if biological laws could be shown to be special cases of chemical laws, these in turn of physical, and these finally of the laws of mechanics ‘..’ the vitalist, on the other hand, however much more he may assert, keeps at least the impossibility of this reduction of organic processes to the laws of the sciences of the inorganic”. Two examples from each school are offered. The German Pathologist Wilhelm Roux (1850-1924), a student of Ernst Haeckel (1834-1919), and his mechanics of development (or developmental mechanics, *Entwicklungsmechanik*), for whom it is necessary to reduce «the organic event” (Roux uses the expression *geschehen*) to inorganic modes of action (*Wirkungsweisen*) would be an example of mechanism. In the case of vitalism, Lovejoy indicates not a scientist, as was the case of Roux, but a philosopher, Edward von Hartmann (1842-1906) – a pessimist Schopenhauerian! –, author of *The Philosophy of the Unconscious (Philosophie des Unbewußten, 1869)*, for whom the organic cannot arise/emerge (*entstehen*) from the inorganic. But, Lovejoy asks, what is the meaning of this reduction, this “deduction” (or “non-deductibility”), or to use Roux’s own vocabulary, this *Zurückführung* (reconducting) that would be in the center of the dispute between these two theoretical currents? “The undeductibility of biological from other laws”, to remain in the case of vitalism,

is not simply the undeductibility due to a lack of the specific empirical information called for by those other laws. What the vitalist maintains is that, even given a complete knowledge both of the laws of motion of

inorganic particles and of the current configuration of the particles composing a living body at a given cross-section of time, you could not from such knowledge deduce what the motion of the particles, and the consequent action of the living body, would be.<sup>43</sup>

“What he [the vitalist] asserts primarily, in short”, concludes Lovejoy, “is the doctrine of the logical discontinuity, at certain points, of scientific laws”; or, as is stated in other moments of the article, “scientific autonomism” or “logical pluralism”, while mechanism would advocate the unification of scientific laws. However, according to Lovejoy, this would be, let’s say, a “weak” vitalism, since such discontinuity does not imply any violation of the principle of “causal uniformity”: the behavior of the bodies would still be understood as a function of the number and the configuration of the material particles that compose them, a way of proceeding, by the way, that could be adopted in other forms of epistemological autonomy, either by chemistry in relation to physics, or by psychology in relation to biology. Lovejoy does not indicate the representatives of the weakened version of vitalism. But if there is a “weak” vitalism, it is assumed that there is a “strong” vitalism, and here Lovejoy is much more comprehensive in his characterization. Such a more radical version implies that “the action of the living bodies is not strictly a function of the number and configuration of the particles composing them at any given instant”. In other words, “organisms not only have unique laws of their own, but these laws cannot even be stated in terms of the number and arrangement of the organism’s physical components”<sup>44</sup>. Much could be said here, but it is not difficult to recognize in this passage one of the most central arguments in *Creative Evolution*, especially at the beginning of the first chapter, when Bergson distinguishes unorganized bodies from organized bodies in terms of predictability and time, asserting the impossibility of a mathematical instant to apprehend the continuity of the past that is incessantly updated in living bodies<sup>45</sup>.

However, strong vitalism goes even further and, as its representatives do not have a “positivistic temper”, it ends up “hypostatizing special forces or agents as causes” of the “peculiarity or uniqueness of organic *processes*”. And it is from this observation that Lovejoy divides strong vitalism into 3 subgroups of “biological philosophers”, although he admits that perhaps none of them would gladly accept being called a vitalist. The first group, associated with the physicist Wilhelm Ostwald (1853-1932) and the Italian philosopher Eugenio Rignano (1870-1930) is called “qualitative energism”, which posits that there is a “specific vital or neural form of energy” outside the conservative parameters of energetic transformations suggested by the law of conservation. The second,

composed of psycho-vitalists, who would also be “biological animists”, holds that life, from its simplest configurations, is characterized by a rudimentary form of consciousness and purpose, a kind of animistic interior life (*seelisches Innenleben*). Obscure figures such as August Pauly (1850-1914), Raoul Heinrich Francé (1874-1943) and Friedrich Strecker (1879-1959), were all analyzed by Lovejoy some years before, in a long review of Driesch’s *Gifford Lectures (The Science and Philosophy of the Organism)* and Strecker’s book, *Das Kausalitätsproblem der Biologie (The Problem of Causality in Biology)*, published in 1909 as well by the journal *Science*<sup>46</sup>. Finally, we would have the neovitalism of Driesch and Reinke, which aims to establish an empirical proof of the insufficiency of the explanation of the functioning of organisms, which is why Lovejoy appears more inclined to this group, although the inferences that Driesch extracts from his experiments with the blastomeres of sea urchin embryos are, from the logical point of view, a “flaw”. Bergson is then placed as a separate case, in which the doctrine of organic autonomy takes on a special and extreme form, marked by an “elusive explanation” based on a creative efficacy of organic evolution, a psychological effort beyond that thought by the neo-Lamarckians<sup>47</sup>, although Lovejoy puts the French closer to the psycho-vitalism tendency mentioned above.

Keeping in mind the nuances of Lovejoy’s definitions of vitalism, it is difficult to understand Bergson’s peremptory tone in the correspondence with his American colleague in his self-identification as a vitalist. Had he really read the text that had come to him by mail? Access to the letter’s manuscript might help us in this regard, although, I believe, such conjectures would not take us very far. In any case, and as a very provisional conclusion, I hope that this text has helped to clarify not only the relation between Bergson and vitalism, but also to show that life, in *Creative Evolution*, cannot be understood as *only* an expansion of the psychological *durée* of *Time and Free Will*<sup>48</sup> or the “field of images” of *Matter and Memory*<sup>49</sup>, as many canonical interpretations defended, despite Bergson’s own warnings. “We could never have extracted from our book *Matter and Memory*, which precedes *Creative Evolution*, a true doctrine of evolution”, after all, “for each new problem, an entirely new effort”<sup>50</sup>. What is the new problem of the book of 1907? Life. This novelty, albeit it has emerged not *ex nihilo*, will require new efforts, that is, a deep debate with biology, as the scientific controversies surrounding the letters exchanged with Lovejoy seem to show. In an attitude not without theoretical risks, Bergson effectively took sides in the biological debates of his time, and, as Lovejoy puts it, “anti-mechanism in *biology*” (our italic) and the position that states the discontinuity between the laws of organic and inorganic “should be called vitalism ‘..’ And in that sense, of course, Bergson is an

unmistakable and a radical vitalist”<sup>51</sup>.

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## NOTES

1. Félix Ravaisson, *La philosophie en France au XIXe siècle*. Paris: Hachette, 1895 [1868], 180. I sincerely thank one of the reviewers for suggesting this translation.
2. Henri Bergson, “The philosophy of Claude Bernard”. *The Creative Mind*. Trans. M. L. Andison. New York: Philosophical Library, 1946, 242. Here and in *Creative Evolution* – and throughout his work, with the exception of an elliptical allusion in the text “La philosophie française” (first version in 1915 and second version in 1933) – Bergson does not mention the name Barthez or another physiologist of the same theoretical constellation. Ravaisson, besides mentioning them in the *Rapport*, was directly influenced by such doctors and physiologists, as shown by Jean Cazeneuve, *La philosophie médicale de Ravaisson*. Paris: PUF, 1958. Also: Mark Sinclair, *Being Inclined. Félix Ravaisson’s Philosophy of Habit*. Oxford: Oxford University Press, 2019, 24-61, 96-125.
3. Henri Bergson, *Creative Evolution*. Trans. A. Mitchell. London: Macmillan., 1911, 44. Also page 14, where there is a reference to Driesch’s experiments with the embryo of the sea-urchin, although his name is not mentioned.
4. Bergson, *Creative Evolution*, 237-238.
5. I will leave aside the designation of Bergson as an “animist”, but I would like to state a small digression in form of a question: would he be then a follower of Stahl or even Van Helmont, since, as in the case of vitalism, animism also has its historical and geographic scope well defined?
6. Henri Bergson, “The life and work of Ravaisson”. *The Creative Mind*. Trans. M. L. Andison. New York: Philosophical Library, 1946, 284. “Twenty generations of students have learned them by heart. They have counted for a great deal in the influence exercised by the *Report* on philosophy as studied in the universities, an influence whose precise limits cannot be determined, nor whose depth be plumbed, nor whose nature be exactly described, any more than one can convey the inexpressible coloring which a great enthusiasm of early youth sometimes diffuses over the whole life of a man”.
7. Henri Bergson, *L’évolution du problème de la liberté. Cours au Collège de France 1904-1905*. Paris: PUF, 2017, 110, 115. In the lesson of January 27, 1905: “Machines, mechanisms whose end is to cross somehow the meshes of universal necessity, machines of contingency and, somehow, machines of anti-mechanical action. A living organism, briefly, from the standpoint that we situate ourselves, a living organism is always of this gender”. In the next lesson, of February 3, 1905: “The organism is ‘..’ a contingency machine, a mechanism built to fabricate anti-mechanical actions; it’s a machine of fabrication of unpredictable”.
8. Henri Bergson, *Histoire de l’idée de temps – Cours au Collège de France, 1902-1903*. Paris: PUF, 2016, 52. In the lesson of December 12, 1902: “What is the fundamental characteristic living beings? It’s aging, it’s going in the direction of death, death is perhaps the essential in life, what is inevitable; all living beings are beings that, through a determinate process, go towards death and age, aging is what is inevitable and essential to life, and that means that life is movement”.
9. Antoine-Augustin Cournot, *Matérialisme, vitalisme, rationalisme. Étude sur l’emploi des données*

- de la science en philosophie*. Paris: Hachette, 1875. Cournot was a philosopher and a mathematician.
10. Otto Bütschli, *Mechanismus und Vitalismus*. Leipzig: W. Engelmann, 1901. Claude Bernard is the only non-German analyzed. Reinke and, above all, Driesch are largely discussed. Bütschli was an important German zoologist and is mentioned in the first chapter of *Creative Evolution* (page 35).
11. Giuseppe Bianco, “Philosophies of Life”. *The Cambridge History of Modern European Thought, Volume 2 – The Twentieth Century*. Peter E. Gordon, Warren Breckman (eds.). Cambridge: Cambridge University Press, 2019.
12. René Berthelot, *Évolutionnisme et platonisme, Mélanges d’histoire de la philosophie et d’histoire des sciences*. Paris: Félix Alcan, 1908. *Un romantisme utilitaire. Étude sur le mouvement pragmatiste* (Volumes I, II, III). Paris: Félix Alcan, 1911-1922.
13. Charles T. Wolfe, *La philosophie de la biologie avant la biologie: une histoire du vitalisme*. Paris: Classiques Garnier, 2019, 226 (footnote 4). I thank Charles Wolfe who, in the congress when I first presented this text, warned me about the dates and figures involved in the first appearance of the word “vitalism”/“vitalist”.
14. Roselyne Rey, “Lignes de force et tendances actuelles des études sur le vitalisme”. *Vitalisms from Hallert to Cell Theory*. Guido Cimino, François Duchesneau (eds.). Firenze: Leo S. Olschki Editore, 1997, 21-22. Roselyne Rey, *Naissance et développement du vitalisme en France de la deuxième moitié du 18e siècle à la fin du Premier Empire*. Oxford:Voltaire Foundation, 2000.
15. Herbert Schnadelbäch, *Philosophie in Deutschland. 1831-1933*, Frankfurt: Suhrkamp, 1983. Frederick Beiser, *After Hegel*. Princeton, Princeton University Press, 2014. Maurice Mandelbaum, *History, Man, and Reason. A study in nineteenth-century thought*. Baltimore: The John Hopkins University Press, 1974. Léo Freuler, *La crise de la philosophie au XIXe siècle*. Paris: Vrin, 1997. Léo Freuler. «Les tendances majeures de la philosophie autour de 1900». *Les savants et l’épistémologie vers la fin du XIXe siècle*. Marco Panza, Jean-Claude Pont (eds.). Paris: Blanchard, 1995.
16. Both Ernst Cassirer’s and Stephen Gaukroger’s last book of their series, dedicated to the 19<sup>th</sup>-20<sup>th</sup> century, give attention to the subject, but ignore Bergson completely. Ernst Cassirer, *The problem of knowledge. Philosophy, Science, and History since Hegel*. New Haven: Yale University Press, 1950, 170-175. Stephen Gaukroger, *Civilization and the Culture of Science: Science and the Shaping Modernity, 1795-1935*. Oxford: Oxford University Press, 2020.
17. Paul Janet, *La crise philosophique: MM. Taine, Renan, Littré, Vacherot*. Paris: Germer-Beillière, 1865. Paul Janet, *Le cerveau et la pensée*. Paris: Germer-Beillière, 1867. Paul Janet, *Le matérialisme contemporain*. Paris: Germer-Beillière, 1875 (where there are two mentions, referred to the German context). Paul Janet, *Les causes finales*. Paris: Germer-Beillière, 1876. Elme-M. Caro: *Le matérialisme et la science*. Paris, Hachette, 1868.
18. Théodule Ribot, “Philosophy in France” *Mind* 2:7 (July 1877, 366-382).
19. Wilhelm Windelband, *Geschichte der Philosophie*. Freiburg Breisgau, 1892.
20. Dominique Parodi, *La philosophie contemporaine en France; essai de classification des doctrines*.

Paris: Alcan, 1920.

21. Jean Baruzi, R. Poirier, *Philosophes et savants français du XXe siècle. Extraits et notices. Tome I. Philosophie générale et métaphysique. Tome II. La philosophie de la Science. Tome III. Le problème moral.* Paris: Alcan, 1926.

22. Émile Bréhier, *Histoire de la philosophie.* Paris: PUF, 2012 [1926-32].

23. I'm focusing specifically on the uses and disuses of the term "vitalism"/"vitalist" related to Bergson's cultural circle. It goes without saying that I'm not referring to the debates about the vital force ("*Lebenskraft*") in 19<sup>th</sup> century Germany, especially among philosophers and scientists with philosophical ambitions (in France, at the same period, apart from Claude Bernard – who was mostly critical towards vitalism – it was not a widely discussed subject. The same, I believe, could be said about the British intellectual scene). On the German perspective: Frederick Gregory, *Scientific materialism in nineteenth century Germany.* Dordrecht: D. Reidel Publishing Company, 1977 (especially "Chapter VIII. Controversies in Biology"). Timothy Lenoir, *The Strategy of Life. Teleology and mechanics in nineteenth century Germany biology.* Chicago: University of Chicago Press, 1982.

24. Henri Bergson, *Time and Free Will.* Trans. F. L. Pogson. London: George Allen & Unwin, 1910, 153.

25. Bergson, *Creative Evolution*, 40.

26. André Lalande, *La dissolution opposée à l'évolution.* Paris, Félix Alcan, 1899, 399. "The living being is characterized by a stream of development absolutely without parallel in the inorganic world: germ, embryo, differentiation of tissues, adult state, senility and death. It struggles for life, it deforms itself more or less in this struggle. And according to all probability, the species behave as individuals, having a modest beginning, an 'élan vital' that tends to multiply them without limits, finally a triumph more or less complete from which it follows regression and decadence". Actually, the term was used before by obscure figures. Among Bergson's references, Alfred Fouillée doesn't use exactly the term élan vital, but employs expressions with more or less the same meaning, like élan de l'évolution, etc. I thank Giuseppe Bianco and Mathilde Tahar for the brief discussion on the subject.

27. Alfred Fouillée, *La liberté et le déterminisme.* Paris: Félix Alcan, 1884, 129ss ("Chapitre 5e – L'indéterminisme mécanique"). Émile Meyerson, *Identité et réalité,* Paris: Félix Alcan, 1908. Abel Rey, *Le retour éternel et la philosophie de la physique.* Paris: Flammarion, 1927. Pierre Duhem, *L'évolution de la mécanique.* Paris: A. Hermann, 1905.

28. Albert Dastre, *La vie et la mort.* Paris: Flammarion, 1903. Dastre speaks of an "elementary life" (nutrition, reproduction, etc), object of physiology, that has to be distinguished from the object of anatomy (where living beings differentiate themselves), but doesn't stop there. If we go lower in the scale of living beings/anatomical organization, we will find the following scheme: from the systems (circulatory, respiratory, digestive, nervous) to the organs, from the organs to the tissues, and from the tissues to the anatomic elements or cells. "The cell, the anatomic element

still is a complex structure. The elementary fact is further and lower: it's in the living matter, in the molecule of this matter". That's where we will find, according to Dastre, the biological energy or, as he puts it, the "vital energy", the "specificity of energy in the living beings", although, "the phenomena of life are energetic metamorphosis as well as the other phenomena of nature". Three laws can be deduced from that: 1. the irreversibility of the vital energies (though there are vital phenomena there are reversible); 2. all vital energies are employed to the potential chemical energy of food sources; 3. the term of the energetic transformations of animals is thermic energy.

29. René Berthelot, *Un romantisme utilitaire. Étude sur le mouvement pragmatiste – Le pragmatisme chez Bergson*. Paris: Félix Alcan, 1913, 237-238.

30. "This supreme basic law of the cosmos actually consists of two intimately related laws: of the 'law of the conservation of matter', for which we are indebted to the great French chemist Lavoisier, and of the 'law of the conservation of energy' whose founding is shared by two German intellectual heroes: the South-German Robert Mayer and the North-German Hermann Helmholtz. As 'matter and energy' are inseparably combined in everything, so also these two basic "conservation laws" hang together in one law of substance". Ernst Haeckel, „Die Wissenschaft und der Umsturz“. *Die Zukunft* 10 (1895, 199).

31. Oliver Lodge, *Life and matter. A criticism of Professor Haeckel's "Riddle of the universe"*. New York/London: Putnam, 1905.

32. Walter M. Elsasser, "A Reformulation of Bergson's Theory of Memory." *Philosophy of Science* 20:1 (January 1953, 7-21). Walter M. Elsasser, "Quantum Mechanics, Amplifying Processes, and Living Matter." *Philosophy of Science* 18:4 (October 1951, 300-326). Also, from the same author: *Reflections on a Theory of Organisms: Holism in Biology*. Baltimore: John Hopkins University Press, 1998, where there is a serious attempt to understand the relation between the physical and biological phenomenon from a non-reductionist or mechanist perspective.

33. Sebastien Normandin, *Visions of Vitalism: Medicine, Philosophy and the Soul in Nineteenth Century France*, PhD, University of McGill, Montréal, 2005. Sebastien Normandin, Charles T. Wolfe (eds.) *Vitalism and the Scientific Image in Post- Enlightenment Life Science, 1800–2010*, Dordrecht: Springer, 2013, especially "Chapter 1. Vitalism and the Scientific Image: An Introduction", written by Normandin and Wolfe, "Chapter 6. Vitalism Versus Emergent Materialism" by Brian Garrett and "Chapter 8. Wilhelm Reich: Vitalism and Its Discontents" by Sebastian Normandin, chapters that dedicate a special attention to analyze Bergson's philosophy *vis-à-vis* vitalism. Olivier Perru, "Le vitalisme bergsonien dans *L'évolution créatrice*". *Repenser le vitalisme*. Pascal Nouvel (dir.). Paris: PUF, 2011. Hee-Jin Han, "L'heuristique du vitalisme: le principe vital de Barthez et l'élan vital de Bergson". *Annales bergsoniennes IV – L'évolution créatrice 1907-2007: épistémologie et métaphysique*. Frédéric Worms (éd.). Paris, PUF, 2008. Charles T. Wolfe, Andy Wong, "The Return of Vitalism: Canguilhem, Bergson and the Project of a Biophilosophy". Miguel Beistegui, Giuseppe Bianco, Marjorie Gracieuse (ed.). *The care of life: transdisciplinary perspectives in bioethics and biopolitics*. London/New York: Rowman & Littlefield International, 2015. It should also be remembered that

older comments on the topic give Bergsonian vitalism a wide meaning, not only biological or epistemological, but also aesthetical, religious and ethical (cf. P. A. Y. Gunter's bibliography on the entry dedicated to "vitalism").

34. Henri Bergson. "Phantoms of the living' and Psychical Research". *Mind-Energy*. Trans. H. Wildon Carr. New York: Henry Holt and Co., 1920, 99.

35. "15 Mars 1915 – Bergson à Harald Høffding" in Henri Bergson, *Mélanges*. Paris: PUF, 1972, 1146-1150, republished in Henri Bergson, *Écrits Philosophiques*. Paris: PUF, 2017, 441-445. The letter was first published in a book of the Danish philosopher dedicated to Bergson, from 1916, *La philosophie de Bergson*.

36. Henri Bergson, *Correspondence*. Paris: PUF, 2002, 419-420, republished in Henri Bergson, *Écrits Philosophiques*. Paris: PUF, 2017, 403-405.

37. A good analysis of the interest and dialogue that Lovejoy maintained with biology, especially with the geneticist H. J. Jennings (1868-1947), through the figures of Bergson and Driesch: Doug Russel, "Toward a Pragmatist Epistemology: Arthur O. Lovejoy's and H. S. Jennings's Biophilosophical Responses to Neovitalism, 1909–1914". *Journal of the History of Biology* 48 (2015, 37–66).

38. Arthur O. Lovejoy, "The Meaning of Vitalism". *Science* 33: 851 (April 1911, 610).

39. William Emerson Ritter, "The Controversy between Materialism and Vitalism: Can it be ended?". *Science* 32:847 (March 1911).

40. Ernst Mayr, *The growth of biological thought*. Cambridge, Harvard University Press, 2000, 437-441.

41. William Emerson Ritter, "The Controversy between Materialism and Vitalism: Can it be ended?", 439.

42. *Ibid.*, 440.

43. Arthur O. Lovejoy, "The Meaning of Vitalism", 612.

44. Arthur O. Lovejoy, "The Meaning of Vitalism", 612.

45. Henri Bergson, *Creative Evolution*, 12-24.

46. Arthur O. Lovejoy, "Review of The Science and *Philosophy of the Organism* by Hans Driesch and *Das Kausalitätsproblem der Biologie* by Friedrich Strecker". *Science* 30 :778 (November 1909), 761-766.

47. "an effort [that] must [...] be taken in a deeper sense [...] than any neo-Lamarckian supposes [...] an effort of far greater depth than the individual effort, far more independent of circumstances". Bergson, *Creative Evolution*, 81, 92.

48. Henri Gouhier, *Bergson et le Christ des évangiles*. Paris: Librairie Arthème Fayard, 1961, 20-21. Also: Gilles Deleuze, *Le bergsonisme*. Paris: PUF, 2014, 103.

49. Bento Prado Júnior, *Presença e campo transcendental. Consciência e negatividade na filosofia de Bergson*. São Paulo: EDUSP, 1989, 166-171. French translation: *Présence et champ transcendental. Conscience et négativité dans la philosophie de Bergson*. Hildesheim: Georg Olms Verlag, 2002.

50. Henri Bergson, "Introduction (Part II). Stating the Problems". *The Creative Mind*. Trans. M. L. Andison. New York: Philosophical Library, 1946, 105.
51. Arthur O. Lovejoy, "The Meaning of Vitalism", 614.