

## Bergson and the theory of natural selection

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### Abstract

In this paper I compare Henri Bergson’s theoretical attitudes towards life with the ones embedded in the theory of natural selection, as found in Charles Darwin’s *Origin of Species*. I identify five “meta-theoretical attitudes” along the lines of which this comparison is made. I also argue that Bergson attempted to provide a general theory meant to solve certain difficulties of the theory of evolution by natural selection that occupied the mind of the evolutionary theorists of his time – and most notably that of the “co-ordination of parts”, found, among others, in works by Herbert Spencer and August Weismann. But the general allure of Bergson’s view of evolution is, I argue, Lamarckian (though not neo-Lamarckian!) in some crucial respects and is thus at odds with the Darwinian view. Therefore, though Bergson seems to adopt (even in a more radical form than Darwin himself) some of the meta-theoretical attitudes that are inherent to the theory of natural selection, his reintroduction of a “principle” of life (conceived of as an interiority, i.e. as a striving, tendency or impetus) leads him to positions that are, in fact, across the board opposed to those embedded in the theory of natural selection.

**Keywords:** Henri Bergson; Charles Darwin; natural selection; *élan vital*; anti-essentialism; anti-determinism; relativism

### 1. Introduction

The aim of this article is to examine the similarities and differences between Henri Bergson’s approach to the evolution of life and the theory of natural selection. But I do not aim to unpack here all the aspects of Bergson’s relationship with the theory of natural selection. Indeed, there are many questions that I will not dwell upon in this paper. Does (in Bergson’s view) the theory of natural selection explain the evolution of life

on Earth or does it leave some crucial phenomena unexplained? What strength does Bergson's critique of the theory of natural selection possess? And did this critique stem from or was it at least partly based on a misunderstanding of certain aspects of the theory of natural selection? These questions are legitimate and interesting ones, but I will not engage with them here for a number of reasons. First, because these issues have already been addressed by various authors or are in the process of being addressed (e.g. Barreau 2007; François 2020; Tahar, unpublished manuscript). But, most importantly, because these are factual issues. For Bergson, there are certain evolutionary *facts* that the theory of natural selection cannot explain (the homology of the human eye and that of the Pecten; the extreme complexity of certain organic structures; the accuracy of certain instincts) and this inability to explain is, in his view, also a fact. Also, the infinite task of interpretation of texts notwithstanding, whether or not Bergson partly misunderstood Darwin's theory is a matter of fact. Of course, on all these facts we may carry out endless pro and con debates, but at the end of the day these debates will always concern the factual adequacy of a theory to certain facts pertaining to life on Earth or the factual inadequacy of a particular reading of a particular corpus.

In this paper, I do not intend to address issues of fact, but issues of principle. My goal here is that of determining to what extent (some of) the main principles of the approach to life embedded in the theory of natural selection's are or are not embraced by Bergson's own approach to life. The way in which Bergson directly relates to the theory of natural selection – his critique of its logic, his indication of the facts it leaves unexplained – does not directly concern me here, though some of the points I will make below may shed some light on the biological sources of Bergson's critique of the theory of natural selection and of how these sources helped shape Bergson's alternative theory about the evolution of life on Earth. Here, I am more interested in determining to what extent Bergson's position and the theory of natural selection diverge with respect to their meta-theoretical attitudes towards life. In other words, the main question I will try to provide an answer to is the following: what fundamental assumptions about how life should

be theoretically approached render Bergson incapable of straightforwardly accepting the theory of natural selection?

As it has become obvious, my approach here is contingent upon the assumption that there are such “meta-theoretical attitudes” that one adopts when dealing with the problem of life and that these attitudes have such a high degree of generality that they may characterize both a scientific (i.e. biologic) and a philosophic approach to life, thus rendering a comparison between them feasible. I will not make a full-fledged defense of this assumption here, but I hope that my discussion of these meta-theoretical attitudes will show that making such an assumption is not completely without ground or promise.

In order to reach my objectives, I will first identify five meta-theoretical attitudes with respect to life that are inherent to the theory of natural selection, as it was presented by Charles Darwin in the *Origin of Species*<sup>1</sup> (Section 2). I will then show that Bergson seems to adhere to at least three of these attitudes (Section 3). Finally, though, I will show that Bergson’s dissent with respect to the other two attitudes distinguishes his view of life from that of the theory of natural selection in such a radical way (Section 4) that even the points of apparent agreement between the two views actually become – when seen in this new light – points of partial disagreement (Section 5).

The guiding intention of this paper is to start a discussion that would eventually allow us to provide a more accurate placing for Bergson’s theory among the biological and philosophical theories on the evolution of life, rather than simply cast him into the “orthogenesis” category (as biologists and analytic philosophers of biology too quickly do) or rather than too hastily claiming that there is a fundamental convergence between the Bergsonian and Darwinian points of view (as continental philosophers and Bergson scholars sometimes tend to do).

## **2. Five meta-theoretical attitudes inherent to the theory of natural selection**

In this section, I will briefly describe five meta-theoretical attitudes towards life that are inherent to the theory

of natural selection, using Darwin's *Origin* as the main reference. I will discuss each of these attitudes in turn.

a) *The indifference with respect to the origin of life*

The first meta-theoretical attitude I will briefly discuss is the decoupling of the problem of the evolution of life from that of life's origin. To put it more bluntly, one of the innovations brought forth by Darwin's theory of evolution by selection is the idea that the way in which life presents itself today to our eyes – the forms it takes, its levels of organization etc. – is not dependent on the issue of how life appeared in the first place. Darwin is very clear about this:

I must premise, that I have nothing to do with the origin of the primary mental powers, any more than I have with that of life itself (Darwin 1872<sup>2</sup>, 205).

The expression “I have nothing to do with” is as blunt as could be and it leaves no doubt in the reader's mind<sup>3</sup>. While this might be viewed as a secondary attitude of his, I believe it serves as a clear demarcation of Darwin's approach to the study of life from previous ones. Obviously, studying the evolution of life without reference to its origin boils down to going in the exact opposite direction to that of natural theology (e.g. Paley 2006 [1802]) and, more specifically, goes against the doctrine that each species has been created by a “special act of creation” (Darwin 1872, 44) in order to fit its conditions of existence. But Lamarck's evolutionism – against which many of Darwin's ideas may have been forged (Gould 2002, 194-95) – also required an assumption about the origin of life, and it required it precisely in order to account for the way in which life presents itself today. Indeed, if, as Lamarck teaches, life has an inherent tendency to progress, one has to explain why there are still simple forms of life on Earth today, and Lamarck's answer is that this is due to the fact that organisms at the very bottom of the ladder of the organization of life are continuously born by spontaneous generation (Lamarck 1809, 65). Darwin discusses this point and shows that his theory of natural selection does not have any difficulty in explaining the continuous existence of simple forms, but also adds, with respect to Lamarck's idea of a spontaneous generation of life that: “Science has not as yet

proved the truth of this belief, whatever the future may reveal” (Darwin 1872, 98).

Here is how Darwin defends his indifference with respect to the problem of the origin of life:

It is no valid objection [against the theory of natural selection] that science as yet throws no light on the far higher problem of the essence or origin of life. Who can explain what is the essence of the attraction of gravity? No one now objects to following out the results consequent on this unknown element of attraction; notwithstanding that Leibnitz formerly accused Newton of introducing “occult qualities and miracles into philosophy.” (Darwin 1872, 421)

Interestingly, Darwin couples here “the essence” and “the origin of life,” as if to suggest that one cannot explain how life has originated without also proposing a theory about what life is.<sup>4</sup> Regardless of whether this is indeed so, it is obvious that, for Darwin, the theory of natural selection is only meant to provide an answer to the question: “how do *forms* of life *change* in time?” The theory of natural selection is not concerned with “life itself”, but only with the forms it takes (particular species, varieties, individuals etc.); and it is not concerned with how life in general has originated, but only with the modifications that its forms undergo.<sup>5</sup>

#### *b) Anti-essentialism*

This second meta-theoretical attitude is directly opposed to the view that, having been created by a “special act of creation,” each species remains identical with itself – i.e. its “type” is forever fixed – even though the individuals of that species may accidentally – and fleetingly – vary around the type. This sort of position involves, of course, a kind of Platonism, given that it grants a higher ontological dignity to what is general as opposed to the individual, the latter being what it is only insofar as it participates, in its own imperfect way, to the general type. According to this essentialist view, there is therefore a qualitative difference between species (there is a discontinuity between essences or *eide*) and these essences are immutable: only individuals vary, the species itself does not.

Darwin’s position that we should explain the current status of life forms by way of “descent with modification” (i.e. by

viewing each species as deriving from another species via a modification of some of its traits) is, of course, the exact opposite of the essentialist view. For him, the individuals constitute the starting point, it is the individuals that exist in the first instance and the “type” of a species is nothing more than an average taken over the individuals belonging to that species.<sup>6</sup> Darwin does not shy away from this endorsement of nominalism:

I look at the term species as one arbitrarily given, for the sake of convenience, to a set of individuals closely resembling each other, and that it does not essentially differ from the term variety, which is given to less distinct and more fluctuating forms. The term variety, again, in comparison with mere individual differences, is also applied arbitrarily, for convenience sake (Darwin 1872, 42).

Two points need to be highlighted here. First, once we assume that there are no qualitative differences, but only quantitative ones, between the differences exhibited by individuals, those exhibited by more marked varieties of a species and those exhibited by species, it becomes possible to argue that the latter differences – the differences between two or more species – are obtained simply by the augmentation and fixation of the differences between individuals. The mechanism by which this augmentation and fixation are obtained is, Darwin argues, natural selection.

But Darwin also sets some limits for this pure nominalism, and these limits stem from his dynamic view of life. Indeed, contrary to the above quotation, for Darwin, it is not enough for a set of individuals to “closely resemble each other” in order to belong to the same species. The similarity of structure, no matter how great, is not enough to place these individuals in the same species. What is also required is that they have a common ancestry, a common evolutionary past: “On my theory, unity of type is explained by unity of descent” (Darwin 1872, 166). A species is thus not just a grouping of individuals based on their present similarities, but also a grouping based on a common genealogical past.

Similarly, in the case of sexually reproducing organisms, a grouping of individuals – even closely resembling ones – must also share a potential evolutionary future in order to be

grouped in a single species. Indeed, in such species, only organisms that are able to breed and produce fertile offspring together will be considered part of a single species. In other words, these organisms must *together* be the potential ancestors of possible future embranchments of life (e.g. of possible varieties, subspecies, species, clades etc.). This is how Darwin's dynamical view of life limits his own nominalism about species: "similarity" of structure is not sufficient for grouping individuals into a species; what is also required is a common evolutionary past and, for sexually reproducing organisms, also a potential evolutionary future.

However, note that this limitation of nominalism about species does not revert back to any form of "essentialism." On the contrary, it transforms the mutability of species into a necessary criterion for identifying them: given that Darwin identifies species on the basis of the past or future evolutionary trajectories of their individual members, no form of essentialism survives in his theory.

*c) Anti-determinism*

Darwin's anti-determinism is manifested by the significant role his theory gives to chance. To understand this role, we need to connect it to one of the crucial thought mutations operated by Darwin's theory, namely his shifting of the center of gravity of natural history from individuals to populations. Think of Lamarck's notion of adaptation: according to him, a given environmental feature will force individual organisms to alter their habits; in turn, these altered habits will alter the organism's structure and, finally, this modified structure gets, at least in part, transmitted to the next generation. The environment acts upon individual organisms here, "bending" their traits (e.g. their morphology or physiology) in this or that direction.

The theory of natural selection completely transforms the picture: it is not individuals that get adapted to environmental features, but populations. Rather than altering the habits (and consequently the structure) of individual organisms, the environment now chooses those organisms whose structure is better suited to it: it discriminates between

parts of the population (this is, of course, why the theory bears the name of natural *selection*) and thus alters the population's composition. Unlike Lamarck, for Darwin the environment modifies the average trait of a population, instead of modifying the traits of the individuals of that population.

But this conceptual shift operated by Darwin also introduces chance into the theory of evolution by natural selection: by acting on the average trait of a population, the environment will have a probabilistic effect on the population. Darwin does not emphasize this probabilistic effect too much, but his formulations do not let any doubt linger about this. Here is an example:

any being, if it vary however slightly in any manner profitable to itself, under the complex and sometimes varying conditions of life, will have a *better chance* of surviving, and thus be *naturally selected* (Darwin 1872, 3, emphasis of "a better chance" added).

Similar statements pepper the presentation of his theory in the *Origin* (e.g. Darwin 1872, 49, 63, 71, 81, 109). Their point is clear: each and every individual possessing a given trait may not survive for longer or reproduce more than a member of the population that does not possess it, but it is likely that, on average, the individuals that possess the trait will survive and reproduce better than the others. Thus, the theory of natural selection is not about deterministic forces driving evolutionary change, but about how modifications in environment have a bigger or smaller likelihood of operating changes in average population traits (and, in time, the augmentation of these changes might lead to the formation of new species).<sup>7</sup> The theory of natural selection is thus intrinsically probabilistic precisely because it is concerned with the effects of the environment on populations and not on individuals.<sup>8</sup>

*d) Eliminating vital "interiority" from evolution*

The following quotation will give a first idea about what this meta-theoretical attitude consists in:

It may metaphorically be said that natural selection is daily and hourly scrutinising, throughout the world, the slightest variations; rejecting those that are bad, preserving and adding up all that are good; silently and insensibly working, whenever and wherever opportunity offers, at the improvement of each organic being in

relation to its organic and inorganic conditions of life (Darwin 1872, 65-66).

What I would like to emphasize in this fragment is the exterior relation between living and being “scrutinized” by natural selection: organisms go about their living in their own way, but over and above this living-making of each organism, there is the “silent and insensible” exterior look that evaluates each organism and compares it to the others with which it shares an ecological niche. The theory of natural selection thus institutes a coextensiveness between living (or being alive) and being weighed up and compared to other living organisms: being “scrutinised” is coextensive to being alive, the “silent and insensible” work of selection is carried out for each organism (“throughout the world” for “the improvement of each organic being”) and without cessation (“daily and hourly scrutinizing”). Each way of living is, concomitantly and necessarily, seen from the outside in order to be weighed up against other ways of living. The theory of natural selection essentially consists in seeing life in its entirety from the outside.<sup>9</sup>

Another way to make this point is to say that the theory of natural selection is fundamentally a theory about the traits that organisms bear, rather than about what these organisms are or do. In Aristotelian terms, we would say that the theory of natural selection is about attributes, and not at all about substances. The theory marks a shift from “being” or “doing,” to “having.” What matters is what traits organisms have and everything about these living beings is turned into a possessed trait: a way of doing things by a particular organism thus becomes a behavioral trait possessed by that organism. In Lamarck’s theory of acquired characteristics, the form taken by an organism’s offspring will depend on what the parent organism did, on its habits. In the theory of natural selection, acting one way or another is just a trait on which selection may act from the outside (and, if found advantageous, the trait will survive and spread in future generations).

More profoundly, this shift from substances to attributes consists in a rejection of any potential metaphysical “principle” that would allegedly be intrinsic to all living forms. Assuming that, today, all living forms exhibit something like

Schopenhauer's "will to live," does this mean that this constitutes a sort of "essence" of life? Not at all: it just means that this "will to live" is a trait among others that has reached fixation at some moment of the biological history of our planet. Any inherent principle that would characterize life is thus eliminated by trivialization. No "vital principle" could survive once the interiority of life is evacuated by turning the theory of evolution into a theory about attributes or traits, rather than a theory about substances or acting subjects.

*e) Relativism*

According to the strict logic of natural selection, there are no intrinsically good traits, there are no traits that are universally preferable to others: whether a trait is good or not depends entirely on the context, i.e. on the living conditions encountered by the organisms in question. In certain living conditions, one trait may be better than others, in other living conditions, it may be worse. A trait is only as good as the "fit" it ensures in a particular context. What takes the center stage in the theory of natural selection is not some universally preferable trait or complex of traits, nor the environment that would somehow directly change the organisms (as in Lamarck): what matters is the *relationship* between traits and environment, as only this relationship determines whether a trait is good or not. This is what I mean by the "relativism" of the theory of natural selection: the fact that there is no ontological superiority of one trait over others, but only a factual superiority that depends upon its relationship with the environment.

This relativism entails that there is no ultimate goal of evolution: natural selection does not work towards the attainment of some ultimate trait or complex of traits, it only works to improve the fit between the traits of a given population/species and the context that they happen to encounter at a particular time. Darwin says this much, for example when he states about Foraminifera that:

When advanced up to any given point, there is no necessity, on the theory of natural selection, for their further continued process; though they will, during each successive age, have to be slightly

modified, so as to hold their places in relation to slight changes in their conditions (Darwin 1872, 308).

If there is no ultimate goal of evolution, then progress is not a “necessity” according to this theory. We can thus understand why Darwin has openly claimed, in a letter to Alpheus Hyatt on December 1872, that: “After long reflection I cannot avoid the conviction that no innate tendency to progressive development exists” (see Gould 2002, 468). Again, Lamarck is the target here, with his progressive becoming of life under the influence of “the cause that progressively composes the organization”<sup>10</sup> (Lamarck 1809, 132). But if there is no necessary progress inherent to the theory of natural selection, this does not mean that it cannot accommodate *actual* progress as long as some additional assumptions are made. Indeed, as Gould (2002, 467-79) has shown, given the predilection he granted to the biotic environment in selection (and especially to the intraspecific competition and to competition between related species) and given his assumption of a relative uniformity of the environment (with no major, radical or cataclysmic disruptions), Darwin could also see natural selection as leading to actual progress in the complexity of forms of life, i.e., in his terms, to the increase in the “the degree of differentiation and specialisation of the parts in organic beings” (Darwin 1872, 307). Therefore, relativism, in the sense used here, is not incompatible with the idea of actual progress, it is only incompatible with the idea of a necessary progress leading towards some ultimate goal or with the idea of some intrinsic tendency towards progress manifested by organic beings.

To sum up, we could say that the five meta-theoretical attitudes sketched in this section mark just as many ways of carving up the domain of the theory of natural selection: the issue of evolution is decoupled from that of the origin of life; the “steps” in this evolution are conventionally separated species, but it is the mutability of species itself that provides the limits for this conventionalism; the environment operates the selection via its interaction with the population, not with individuals, and this marks Darwin’s statisticalist type of anti-determinism; the “exteriorization” of life limits the scope of the

theory to “properties”, “characters” or “traits,” rather than to substances or acting subjects; finally, setting the relationship between environment and populations at the heart of the issue of evolution eliminates the possibility of intrinsically good traits. Anti-originarism, anti-essentialism, anti-determinism, the rejection of the “interiority” of life and relativism thus form the backbone of the theory of natural selection.

### 3. Common attitudes (or seemingly so)

In this section I will briefly discuss, in turn, three meta-theoretical attitudes towards life that Bergson seems – at first sight, at least – to share with Darwin.

#### *a) Anti-essentialism*

Saying that Bergson is an anti-essentialist is, of course, an understatement. One would be hard pressed to find an author more opposed to the fixity of things in general, let alone that of consciousness or life. For Bergson, becoming is, as a general rule and in all aspects of existence, more real than being. Without dwelling too much on this here, let us recall that, in *Creative Evolution*, Bergson proposes a distinction between two kinds of definitions, static and dynamical ones. A definition in the proper sense of the term may only be offered of realities that are already “made,” realities whose properties are fixed once and for all. This is precisely *not* the case for properties of life:

A perfect definition applies only to a *completed* reality; now, vital properties are never entirely realized, though always on the way to become so; they are not so much states as tendencies (Bergson 1944, 16).

Any biological property is therefore not fixed, it is only “on its way” towards completion and any essentialism (about species, about higher taxa and even kingdoms) appears to be out of the question. A conclusion that Bergson does not fail to draw, with regard to biological groups in general, by saying that “*the group must not be defined by the possession of certain characters, but by its tendency to emphasize them*” (Bergson 1944, 118).

Note the similarity with Darwin. For the latter, a species could not be identified simply as a grouping of individuals with a similar structure; what was additionally needed was the common ancestry of these individuals and, in the case of sexually reproducing organisms, also the potential to create together new evolutionary trajectories. “Defining” a species was, for Darwin, not a static endeavor of comparing traits or structures of organisms; it also implies a dynamical assessment of the evolutionary past and future of these organisms. While Bergson’s view on defining biological groups is not the same, he shares with Darwin the idea that any definition of a biological group should be made with a view towards its potential future, rather than simply on the basis of the present possession of traits.

*b) Anti-determinism*

Darwin’s statisticalism amounted to two theses: a) even though not all the organisms possessing a trait *t* will fare better than non-*t* organisms, it is likely that, if trait *t* is advantageous, on average, *t*-organisms will survive and reproduce better than non-*t*-organisms; b) but this “likelihood” is just what it says it is: it is not a certainty, not something that will necessarily happen, but a possibility that has a certain probability of occurring attached to it. Along with certain other conditions that I will not dwell upon here, point b) above may serve as a premise for the idea that there are no certainties in evolution, that even if we were to perfectly recreate the conditions of life of a given past ecosystem, the evolution of that experimental ecosystem may lead to different outcomes than the ones that were obtained the first time around. This thesis has been famously developed by Stephen Jay Gould’s idea that if we were to “replay the tape of life,” we would likely get a different outcome (Gould 1989; see, also, Beatty 2010). On the whole, Bergson would agree with this point: if, for Bergson, life is – like duration itself – the creation of novelty, then “replaying” it may not – and indeed should not – lead to the same outcome.

But Bergson’s anti-determinism is certainly much more radical than Darwin’s. For Bergson, determinism is an essentially retrospective view of things, a perspective one takes

by placing oneself *after* the event under consideration has taken place and asserting that this event could not have been any different than it actually was. For Bergson, such a view denies the very existence of duration by only taking into account an already completed reality and ignoring reality in the making. But a statisticalist position of the type adopted by Darwin is equally unacceptable for Bergson, insofar as it regards the future as a set of predetermined possibilities, only one of which will eventually be realized. This position also denies the existence of duration and it also amounts to a retrospective view on the considered event: there may be multiple possibilities for the future, but they are known in advance, they are already given; and, even though only one of them will be realized, nothing is created, nothing new appears. We are dealing here with nothing more than an arbitrary or, as Bergson sometimes likes to say, a “capricious” choice between multiple predetermined possibilities: with respect to human action, this very scenario had been rejected by Bergson in his *Time and Free Will*, when, along with determinism, he also rejected the doctrine of free will (Bergson 2001, 174-83). For Bergson, there can be no predetermined possibilities in life’s evolution just as there are no such possibilities in human action: “it would be wrong to regard humanity, such as we have it before our eyes, as pre-figured in the evolutionary movement” (Bergson 1944, 289). Darwin’s statisticalism is therefore too shallow an anti-determinism, in Bergson’s eyes.

### *c) Relativism*

Bergson also provides us with examples in support of the idea that there are no intrinsically “good” traits in evolution. When, for example, Bergson wants to highlight the main directions of the evolution of animals, he does not proceed in a deductive manner, i.e. he does not try to identify, on some *a priori* grounds, the main traits of what animals “should” be; on the contrary, Bergson proceeds in an empirical manner, by trying to find out which of the numerous animal forms mark the “culminating point” of life’s main phyla. As for how we could pinpoint these “culminating points” or how we can determine

which species is more advanced than others, Bergson's main strategy is the following:

It is unquestionable, for example, that success is the most general criterion of superiority, the two terms being, up to a certain point, synonymous. By success must be understood, so far as the living being is concerned, an aptitude to develop in the most diverse environments, through the greatest possible variety of obstacles, so as to cover the widest possible extent of ground. A species which claims the entire earth for its domain is truly a dominating and consequently superior species. Such is the human species, which represents the culminating point of the evolution of the vertebrates. But such also are, in the series of the articulate, the insects and in particular certain hymenoptera (Bergson 1944, 147-48).

Thus, there are no intrinsically superior traits; superiority must be determined on empirical grounds, on grounds of the survival success that the traits bring about, which Bergson identifies with the ability to develop in heterogeneous environments, to overcome the various obstacles raised by these environments and consequently to thrive in vast geographic areas. According to these criteria, in Bergson's eyes, the human species and eusocial insects are the culminating points of animal evolution.

Note that this superiority is "relative" in two important ways. First, it is relative to the environment, in the sense that the superior species is the one that manages to thrive in the more diverse environments and on the largest area or areas. Second, it is relative to other species, given that "superiority" is a comparative term: a species is only superior with respect to other extant species, just like a trait is not "good" in itself, but only *better* by comparison with other extant traits.

Incidentally – and interestingly – let us note that Bergson also provides a second criterion for superiority, a chronological one. Here is Bergson's argument: "On the other hand, a group of species that has appeared late may be a group of degenerates; but, for that, some special cause of retrogression must have intervened. By right, this group should be superior to the group from which it is derived, since it would correspond to a more advanced stage of evolution." (Bergson 1944, 148) Though Bergson does not insist much on this – only noting that man seems to be the last development in the Vertebrate

phylum and that Hymenoptera are the last one in the Arthropod phylum, with the exception of the “parasite” or “degenerate” order of Lepidoptera (*ibid.*, 148) –, it is worth noting that this secondary criterion is somewhat similar with Darwin’s endorsement of *actual* evolutionary progress, as discussed above. The difference is that, for Darwin, this actual progress was based on the theory of natural selection *when combined with* the assumption of the all importance of biotic competition in the struggle for life and with the assumption of relative geological uniformity. For Bergson, the idea that, in evolution, what comes later is “by right” better (unless some intervening factor of degeneration kicks in) seems to be undergirded by the conviction that what comes later corresponds to a new creative impulse that propagates itself in the most recent life forms. But this point of divergence already brings us on the threshold of the main differences between Bergson’s position and the theory of natural selection. To this we now turn.

#### 4. Diverging attitudes towards life

The greatest difference with respect to the theory of natural selection undoubtedly consists in the Bergsonian principle of all life, the “*élan vital*.” And pointing out that Bergson did demarcate himself from vitalism – and even refused the notion of “vital principle” – is not a valid objection here. Indeed, in the two passages where Bergson seems to push back against vitalism, he is, in fact, only rejecting certain forms of vitalism, thus clearing the path for his own version of it.<sup>11</sup> In the first passage (Bergson 1944, 48-50), he simply deplores the fact that the forms of vitalism of his day constitute a kind of fragmentary finalism, a finalism that is deemed internal to each individual organism (each organism having a “vital principle” coordinating all its parts for the organism’s own sake). Bergson shows that such a position is problematic (given that it is nearly impossible to trace the diachronic and synchronic boundaries between living individuals) and goes on to state that “if there is finality in the world of life, it includes the whole of life in a single indivisible embrace” (Bergson 1944, 50). Instead of a miniaturized “vital principle” for each living

individual, we should, Bergson argues, look for a vital principle that allows us to make sense of life as a whole.

The second passage where Bergson demarcates himself from the vitalisms of his day deals with the way in which we should conceive the relationship between matter and the vital principle. Instead of thinking that the vital principle is a kind of “skilled foreman” (Bergson 1944, 246) that coordinates the countless bits of material that are needed to create living forms, we should, Bergson argues, see matter simply as the flipside of vital activity, as the decaying part of the simple acts that are the source of life and of its evolution. Matter and the “vital principle” are not two realities that exist independently of one another and that influence each other from the outside, with the latter coordinating the former as a “skilled foreman” would; on the contrary, matter is simply the inner limitation of the “vital principle.” For Bergson, therefore, vitalism is not wrong in postulating a “vital principle;” rather, it is wrong in the way it portrays the relationship between this principle and matter.

It follows that Bergson’s “vital principle” cannot be a “substance” of any sort, a substance that would complement (inform, model or coordinate) matter. This principle can only be a “consciousness,” which, for Bergson, always means a series of synthetic acts.<sup>12</sup> While the theory of evolution essentially deals with attributes or properties that organisms possess, for Bergson life and its evolution is a matter of acts, the simple acts whose paradigmatic example is provided by the one of the invisible hand moving through iron filling<sup>13</sup> (Bergson 1944, 106-107). When an invisible hand moving through iron filling arrives at the end of its effort, the filling will automatically take the shape of the hand. This is not because some force – be it chance accompanied by selection (as Darwinians would say) or a vital principle (as finalists or vitalists may say) – has set about arranging each and every one of the individual bits of iron in this pattern. Rather, it is because the form that the filling takes is just the flipside of the hand and this is due to the fact that the filling is the environment through which the hand moves, i.e. the resistance that the hand encounters. The organs of living organisms – the eyes of various species, as per Bergson’s famous example – are thus not obtained by painfully

arranging and coordinating infinitesimal parts; on the contrary, the very different eyes of evolutionary history always appear fully coordinated, fully formed, as so many different arrests or fixations of a unique “progress towards vision” (Bergson 1944, 107) that is an inherent tendency of the *élan vital*.<sup>14</sup>

Let me note that, with this daring hypothesis that may seem overly speculative today, Bergson aims to provide an answer to problems that were occupying the minds of evolutionary theorists of his day. The issue of the “co-operation of parts” in evolution was at the center of a dispute between Herbert Spencer and August Weismann in 1893<sup>15</sup>. For Spencer (1893), any modification of an already existing organ or tissue may not be useful or even viable unless it were coordinated with a whole host of other adjoining (or sometimes not) organs or tissues. A viable variation in a part of the organism would thus have to be accompanied by a myriad of coordinated variations in other parts of the organism and, for Spencer, this marks an important limit for the theory of natural selection (at least when superior or more complex organisms are our focus); the only way out of this difficulty is, for Spencer, the theory of the inheritance of acquired characteristics. In turn, Weismann (1893, 318-19) argues – following an argument from Darwin’s *Origin* that he curiously fails to quote – that the case of neuter insects clearly shows that the inheritance of acquired characteristics is not a requirement for the radical anatomical modifications that appear in various lineages. In certain ant species, for example, worker and fighter ants have over time become very different from one another even though they extremely rarely, if at all, reproduce. Therefore, even admitting that worker or fighter insects may acquire certain characteristics during their existence, they cannot pass these modifications down to future generations. Weismann concludes that natural selection remains the only valid explanation for the coordinated modifications of parts, but openly admits that, when it comes to the manner in which such complex coordinated variations are obtained in functional organs, “we know, indeed, nothing at all but the chief foundation of the process” (Weismann 1893, 320). This is a striking, though by no

means singular, admission of ignorance made by Weismann in this article.

Bergson does not quote this debate. But there are reasons to believe that its central issue spurred Bergson in his own proposal of a view of evolution. First, Bergson's expression of "co-ordination of parts" (e.g. Bergson 1944, 72, 74-75) and Spencer and Weisman's expression of "co-operation of parts" refer to this exact same problem<sup>16</sup>. Second, the issue of the "co-ordination of parts" is at the very heart of Bergson's critique of Darwin. Rather than saying that selection cannot explain co-ordination (as Spencer did), Bergson claims that, in order to explain how an organ or tissue may remain viable despite variation in one of its parts, Darwin is forced to presuppose this variation "insensible". But then, Bergson argues, Darwin is incapable of explaining how these variations may be accumulated over time in a directional manner: because these variations are insensible, selection may not account for their accumulation (Bergson 1944, 72-73). Third, Bergson's view of evolution seems geared precisely towards solving the issue of co-ordination of parts and the solution he proposes is that an organ is not formed by painstaking accumulations of infinitesimal modifications, but is formed in one piece, by one single movement:

In reality, the cause, though more or less intense, cannot produce its effect except in one piece, and completely finished. According as it goes further and further in the direction of vision, it gives the simple pigmentary masses of a lower organism, or the rudimentary eye of a *Serpula*, or the slightly differentiated eye of the *Alciope*, or the marvelously perfected eye of the bird; but all these organs, unequal as is their complexity, necessarily present an equal co-ordination (Bergson 1944, 106-107).

A similar statement reads:

the materiality of the organ is made of a more or less considerable number of mutually coordinated elements, but the order is necessarily complete and perfect. It could not be partial, because, once again, the real process which gives rise to it has no parts (Bergson 1944, 106).

These three points provide ample support for the conclusion that, far from being a mere metaphysical fancy, Bergson's position was aimed at proposing a solution for

difficulties that evolutionary theorists of his day clearly recognized as such.

The general outlook of evolution that stems from adopting the “*élan vital*” as a vital principle presents some strikingly Lamarckian features often neglected by the Bergsonian exegesis<sup>17</sup>. Let me state, though, that by “Lamarckian” I refer here to Lamarck’s original views, and not to the partial reading of them that is often made today and was already often made in Bergson’s time. For Lamarck, the evolution of life was the work of two main factors. The first one is “the cause that incessantly tends to compose the organization” (Lamarck 1809, 132), which is responsible for the progressive evolution or “improvement of the organization plan” (*ibid.*, 160) of the forms of life on Earth. The second is what Lamarck succinctly calls the “influence of circumstances”: changes in environment bringing about changes in the habits of organisms (e.g. in their using or disusing organs), which in turn modifies their anatomy and – by inheritance of acquired characters – the anatomy of their descendants. If only the first of these two factors had acted, the results of evolution would have offered us the spectacle of a “nuanced and regular gradation” (*ibid.*, 160). We would have witnessed an “everywhere very-regular” progression (*ibid.*, 132) were it not for the influence of circumstances that intervenes and sees the progressive work of nature “often altered, countered and even changed in its direction” (*ibid.*, 160).

Bergson, in his turn, would say that “the act by which life goes forward to the creation of a new form, and the act by which this form is shaped, are two different and often antagonistic movements” (Bergson 1944, 142). Indeed, “evolution in general would fain go on in a straight line” (*ibid.*, 141), but “each particular species, in the very act by which it is constituted, affirms its independence, follows its caprice, deviates more or less from the straight line, sometimes even remounts the slope and seems to turn its back on its original direction” (Bergson 1944, 20). This “caprice” or independence is, in other places called “convenience”, the convenience of adapting as best as possible to local environmental conditions instead of pursuing further directions of life in general: “each of

the species, through which life passes, aims only at its own convenience. Absorbed in the form it is about to take, it falls into a partial sleep, in which it ignores almost all the rest of life; it fashions itself so as to take the greatest possible advantage of its immediate environment with the least possible trouble” (ibid., 142). In a very Lamarckian (and decidedly anti-Darwinian) fashion, “adapting” to environmental conditions is a deviation, a side alley, and not the main evolutionary alley. The definitive formulation given by Bergson about this fundamental gap between the act by which life sets about creating a new form and the act by which a species is born is certainly the following: “The truth is that adaptation explains the sinuosities of the movement of evolution, but not its general directions, still less the movement itself. The road that leads to the town is obliged to follow the ups and downs of the hills; it *adapts itself* to the accidents of the ground; but the accidents of the ground are not the cause of the road, nor have they given it its direction” (Bergson 1944, 113-14).

This ties in with a second important Lamarckian feature. Given that the progressive order of life as it is produced by “the cause that progressively composes the organization” “had to experience various deviations in its products” (Lamarck 1809, 132) at the hand of the influence of circumstances, this progressive order may only be visible at levels higher than that of species. The “graspable degrees” in the progression of life cannot be found “in the species, not even in the genera” (Lamarck 1809, 107), but only at the level of what Lamarck calls “the main masses of the general series” (ibid.), i.e. the higher taxonomic ranks in the tree of life, “the classes and the grand families” (ibid.,108). In a very similar fashion, for Bergson, though the general evolution of life may continue through them, each species is a stop, an arrest, a deviation; in Bergson’s plastic terms, each species is “absorbed in the form it is about to take,” “partially asleep” (Bergson 1944, 142), hypnotized by its own form (ibid., 115), self-absorbed. Studying the direction of life at the level of species would lead us astray, and we need, according to Bergson, to move to a higher vantage point. So, like Lamarck who aimed to study the progression of life by analyzing the appearance and improvement of new

organs and new functions above the species level, in the “main masses” of life, Bergson would study life not at the deceiving level of the self-absorbed, locally adapted species, but at the level of the main functions of life which were, for him, its main directions: the direct fixation of energy reserves, on one side (the vegetable world), and the two ways of acting guided by instinct and intelligence, on the side of the animal world.<sup>18</sup>

Thus, studying the evolution of life is not a matter of analyzing the superficial attributes that organisms and species possess and their utility for survival and reproduction, as it was for Darwin; studying life is essentially about determining the main directions of life, i.e. what life essentially strives for. Indeed, adopting a vital principal that is specifically defined as an *élan*, as a “vital *impetus*” boils down to linking what life is at core with what life strives for: life is not a substance, nor a sum of attributes, but it is itself an *élan*, an impetus, a striving. The “being” of life is nothing else than its striving interiority, than its inner most striving-for-something: and this is why the notion of “will” makes its presence felt in a few key passages as a main determinant of the *élan* (see François 2009). Bergson thus aims to reinstate, at the center of our view of life, with one and the same movement, both a vital principle and the interiority of life, by means of “an original impetus, I mean an *internal* push that has carried life, by more and more complex forms, to higher and higher destinies” (Bergson 1944, 113, my emphasis).

But, as the term “original impetus” shows in the above quotation – and in other places in the book (Bergson 1944, 58, 97-98, 107, 277) –, the *élan* is not just the interior principle of life, but also its source. Reinstating a principle and an interiority of life also entails reconnecting the study of the evolution of life with the issue of its origin: „The profound cause [of the transformation of species] is the impulse which thrust life into the world” (Bergson 1944, 146). And Bergson does not hesitate to place this origin of life further in the past than everything we may identify as an actual life form<sup>19</sup>.

## 5. Consequences

One important consequence of this Lamarckian view of the evolution of life is that the meta-theoretical attitudes that

Bergson seemed to share with Darwin – and even seemed to possess in a more radical form than Darwin – need to be amended to some degree.

Let us start by discussing how Bergson's anti-essentialism needs to be nuanced. No doubt, for Bergson, no species is fixed once and for all and the idea that species would have a higher ontological dignity than individuals is also not one he shares. However, this is because species are seen by Bergson – in a similar manner to Lamarck – as accidental. Each species, in its selfishness of adapting to its local environment, in its convenient following of its own momentary interest of drawing as much as possible from the environment with the least effort, each species therefore is nothing but an accident of evolution. What is at stake in this evolution, what really matters therein is, just like for Lamarck, not to be found at the species level, but at the superior level of the grand "directions" of evolution. We thus find in Bergson's *Creative Evolution* something that might be called a deeper or "superior" (in the sense of above-species level) Platonism: when Bergson speaks of a „contrast between life in general, and the forms in which it is manifested" (Bergson 1944, 142), he is distinguishing between the inner-most tendencies embedded in the *élan vital* and the accidental manners in which each species – each form of life – is formed (even though, to some extent, these accidental "forms of life" incarnate one or more of these essential tendencies of life). Thus, each species exists insofar as it "participates" to one or more directions of life, but in incarnating it, it is also bound to – at least in part – deny it, deviate it, obscure it etc. because of the other characteristics that the "selfish" emergence of each species implies (i.e. because of adaptation). Platonism rings distinctly through this position.

Of course, we are dealing with a peculiar Platonism, one in which "life in general" (Bergson 1944, 30, 141-42, 164, 194, 269, 281) is inherently multiple, one in which the principle of life is characterized by its inner indistinct multiplicity.<sup>20</sup> Therefore, the "essentialism" at work here is far from a Parmenidian self-identity. But, in a way, this deepens Bergson's Platonism insofar as each form of life not only deviates or partly falsifies one or more inner tendencies, but

insofar as it inevitably leaves aside, it inevitably abandons one or more of these inner-most tendencies of life. Thus, every species not only deviates or partly falsifies the tendencies of life it incarnates, but also truncates life. To substantiate this, here is how Bergson describes, at one point, the evolution of life on Earth:

„It is as if a vague and formless being, whom we may call, as we will, man or superman, had sought to realize himself, and had succeeded only by abandoning a part of himself on the way. The losses are represented by the rest of the animal world, and even by the vegetable world, at least in what these have that is positive and above the accidents of evolution (Bergson 1944, 290).

What is “positive,” what is above the “accidents of evolution” that each new species brings with it is, in the vegetable world, the ability to accumulate energy, while in the non-human animal world it is the ability to act instinctively. Thus, even the human species (which, as we will see, Bergson regards as the “end” of evolution) truncates life.

This leads us to an interesting position about determinism. Evolution, for Bergson, is not and cannot be predetermined. And this, in two ways. First, the course of evolution is fully contingent and it may neither be predicted, nor “prefigured” in any way in some past state. Second, there is no predetermined end-state of evolution in the sense that there is no species that were in some way “destined” to constitute the final stage to which the previous transformations of life were to lead to<sup>21</sup>. But this only means that the path of evolution is contingent and that the forms of life it creates are similarly contingent. It does not mean that the main properties that these forms of life possess or that the main type of acts that characterize these forms of life are similarly contingent. Bergson even goes so far as to state the contrary, i.e. that the realization – in one form or another – of the inner-most tendencies of the *élan vital* is necessary:

“The part played by contingency in evolution is therefore great. Contingent, generally, are the forms adopted, or rather invented. Contingent, relative to the obstacles encountered in a given place and at a given moment, is the dissociation of the primordial tendency into such and such complementary tendencies which create divergent lines of evolution. Contingent the arrests and setbacks; contingent, in

large measure, the adaptations. Two things only are necessary: (1) a gradual accumulation of energy; (2) an elastic canalization of this energy in variable and indeterminable directions, at the end of which are free acts” (Bergson 1944, 278).

In this very particular sense, there is “determinism” in evolution. This determinism does not concern the course of biological transformations, nor the forms of life obtained by these transformations. Rather, it concerns or applies to the abilities of these beings or, more precisely, to the main acts that these beings are capable of staging. And, perhaps, even to the abilities that support the main ones, given that, at least in one place, Bergson argues that there is “determination” in the course of the evolution of the eye (and, consequently, of visual perception as an aid for animal action):

“Of course, the evolution of the organic world cannot be predetermined as a whole. We claim, on the contrary, that the spontaneity of life is manifested by a continual creation of new forms succeeding others. But this indetermination cannot be complete; it must leave a certain part to determination. An organ like the eye, for example, must have been formed by just a continual changing in a definite direction. Indeed, we do not see how otherwise to explain the likeness of structure of the eye in species that have not the same history (Bergson 1944, 96).

But how about Bergson’s relativism? If he may be suspected of a form of essentialism and if he may claim that some things are necessary in evolution, may we still say that he is a relativist? Yes and no. To understand why, let us take a step back. We stated above that Bergson’s relativism consisted in the idea that there is no intrinsically good trait and that an empirical criterion must be sought for the superiority of one species over another, a criterion that Bergson identifies as evolutionary “success” in the sense already discussed. But, at the end of this analysis, the main directions of life on Earth determined by Bergson were photosynthesis, on one part, and instinct (eusocial insects) and intelligence (human species). However, Bergson may later state that „in the last analysis, man might be considered the reason for the existence of the entire organization of life on our planet” (Bergson 1944, 203). Does this mean that intelligence was the intrinsically good or desirable trait that the *élan vital* sought to realize on Earth?

The answer is no. Intelligence – like instinct – is not an intrinsically good trait, and a good deal of Bergson’s work (including *Creative evolution*) consists in a critique of the illusions of intelligence: in this sense, relativism still stands in Bergson’s oeuvre.

But intelligence also overcomes the mere comparative superiority (according to which its success is its ability to lead to the occupation of diverse and vast environments) initially granted to it by Bergson. If, for Bergson, the whole movement of the *élan vital* is meant to introduce indetermination into nature or into the realm of matter, then intelligence allows the human species to *indeterminately* introduce indetermination in nature:

„The human brain is made, like every brain, to set up motor mechanisms and to enable us to choose among them, at any instant, the one we shall put in motion by the pull of a trigger. But it differs from other brains in this, that the number of mechanisms it can set up, and consequently the choice that it gives as to which among them shall be released, is unlimited. Now, from the limited to the unlimited there is all the distance between the closed and the open. It is not a difference of degree, but of kind.” (Bergson 1944, 287)

Intelligence enables the human species to imitate the *élan vital* in the sense that it enables it to change indefinitely, to constantly produce or bring forth novelties into the realm of matter. Intelligence is therefore not an intrinsically good trait, nor the end-state of some plan, but a trait that enables our species to reiterate the action of the *élan*, to reenact the *élan* by allowing it to indefinitely bring novelty into the world. Every form of life is a “continuation” of the *élan vital*, but every form of life is also a dead-end because it is not open to indefinite possibility and endless novelty. On the other hand, “man (...) continues the vital movement indefinitely” (Bergson 1944, 290): the only real continuation of the *élan vital* is the “indefinite” one. If “the spontaneity of life is manifested by a continual creation of new forms succeeding others” (*ibid.*, 96), it is only by repeating, by reiterating the *endless* creation of novelty that one can properly continue the movement of the *élan vital*. It is in this sense that the *élan* finds its “end” on Earth in the human species. And it is in this analogical sense – the human species reiterating or reenacting the openness of the *élan* – that intelligence ceases to be a merely relative trait whose

importance must be assessed based on the relationship with the environment.

## 6. Conclusion

I have argued here that Bergson attempted to provide a general theory meant to solve certain difficulties of the theory of evolution by natural selection that occupied the minds of the evolutionary theorists of his time – and most notably that of the “co-ordination of parts” (e.g. Spencer 1893, Weismann 1893). But the general allure of Bergson’s view of evolution is, I argued, Lamarckian (though not neo-Lamarckian!) in some crucial respects and is therefore at odds with the Darwinian view. Therefore, even though Bergson seems to adopt (even in a more radical form than Darwin himself) some of the meta-theoretical attitudes that are inherent to the theory of natural selection, his reintroduction of a “principle” of life (conceived of as an interiority, i.e. as a striving, tendency or impetus) leads him to positions that are, in fact, across the board opposed to those embedded in the theory of natural selection.

## NOTES

<sup>1</sup> Though I will use Darwin’s *Origin* in order to spell out the meta-theoretical attitudes towards life embedded in the theory of natural selection, this does not mean that I attempt to outline here a direct comparison between Bergson and Darwin (see Miquel 2007 for a brief comparison of this sort).

<sup>2</sup> All quotations of *The Origin of Species* are from the 6<sup>th</sup> edition of the book.

<sup>3</sup> Darwin also makes sure to make this point more than once: “How a nerve comes to be sensitive to light, hardly concerns us more than how life itself originated” (Darwin 1872, 144).

<sup>4</sup> The indifference with respect to the origin is therefore linked, in Darwin’s eyes, with a meta-theoretical attitude that I will discuss below, namely the elimination of any “vital principle” from the study of life.

<sup>5</sup> Darwin even famously leaves open, in the concluding chapter of the *Origin*, the possibility that God has been at the origin of life on Earth. But this indifference to whether science or theology should solve the issue of the origin only serves to emphasize the extent to which it is decoupled from the issues of interest to the theory of natural selection.

<sup>6</sup> If we take varieties (or subspecies) into account, the “type” may be seen as the older variety that has given way to the other varieties.

<sup>7</sup> This is why C. S. Peirce (1955, 7) could state that: “Mr. Darwin proposed to apply the statistical method to biology. The same thing has been done in a widely different branch of science, the theory of gases.”

<sup>8</sup> Elements of what I call Darwin’s anti-essentialism and anti-determinism are sometimes grouped together under the term “population thinking” (Mayr 2002, 80-81). But things are clearer if we take care not to fuse together these two meta-theoretical attitudes (see Hey 2011).

<sup>9</sup> In Jeler (2012), this amounts to adopting a third-person perspective on life.

<sup>10</sup> More on this in Section 4 below.

<sup>11</sup> Recall that, in a letter to Harald Höffding, Bergson counted himself among the vitalists (Höffding 1916, 161).

<sup>12</sup> For more on this point, see Worms (2004, 58-88), Francois (2009, 67-69), Jeler (2019, chapter 7).

<sup>13</sup> The way natural selection acts is often compared to the manner in which global patterns may be obtained through individual actions that have no concern other than themselves, i.e. to Adam Smith’s “invisible hand” theory. It is ironic that Bergson takes the “invisible hand” expression literally and uses it against the theory of natural selection.

<sup>14</sup> As a parenthesis, let me add here that Bergson’s idea that the eye of a particular species is a particular “arrest” of a unique progress towards vision is facilitated by his idea from *Matter and Memory* that our vision is simply the limitation of a vision that is, by right, unlimited, i.e. of a vision that has access to (“sees”) the whole universe. If we were to speak of a different organ than the eye, Bergson’s evolutionary view might become less convincing in the absence of additional theoretical props. Deleuze and Guattari’s (1972) idea that the main act of desiring machines is that of stopping or fragmenting a flux that is, by right, unlimited may be traced back to this Bergsonian idea.

<sup>15</sup> Let me add that this problem of the coordination of parts dated back at least to Joseph John Murphy (1869). And to St George Mivart (1871), who quotes Murphy on this issue. Whether Bergson arrived at this problem by reading Mivart or by way of the debate between Spencer and Weismann or by some other way is an issue I will not directly tackle here. But I insist here on Spencer and Weismann because they are crucial references for Bergson in *Creative Evolution*.

<sup>16</sup> Murphy (1869) also uses “co-operating parts” in the same sense and his version of this argument is extensively quoted by Mivart (1871), one of Bergson’s other potential sources on this issue.

<sup>17</sup> But one paper that does seem to underline the Lamarckian inspiration of Bergson’s view of life – though in a different manner to the one I adopt here – is François (2016).

<sup>18</sup> These similarities between Bergson and Lamarck should not deter us from seeing their significant points of divergence. One of them consists in their contrasting views on materialism. Another one stems from Bergson’s rejection (following Weismann) of the inheritance of acquired characters. As counterintuitive as it may sound for us today, in accepting that the impetus of life towards the creation of new forms makes its present felt in sexual cells, Bergson’s position might be baptized a “Weismannian Lamarckism.”

<sup>19</sup> “Such may have been the condition of life in our nebula before the condensation of matter was complete, if it be true that life springs forward at the very moment when, as the effect of an inverse movement, the nebular matter appears” (Bergson 1944, 280).

<sup>20</sup> “Such is my inner life, and such also is life in general. While, in its contact with matter, life is comparable to an impulsion or an impetus, regarded in itself it is an immensity of potentiality, a mutual encroachment of thousands and thousands of tendencies which nevertheless are ‘thousands and thousands’ only when once regarded as outside of each other, that is, when spatialized. Contact with matter is what determines this dissociation. Matter divides actually what was but potentially manifold; and, in this sense, individuation is in part the work of matter, in part the result of life’s own inclination. Thus, a poetic sentiment, which bursts into distinct verses, lines and words, may be said to have already contained this multiplicity of individuated elements, and yet, in fact, it is the materiality of language that creates it” (Bergson 1944, 281-82).

<sup>21</sup> “Life, we have said, transcends finality as it transcends the other categories. It is essentially a current sent through matter, drawing from it what it can. There has not, therefore, properly speaking, been any project or plan. On the other hand, it is abundantly evident that the rest of nature is not for the sake of man: we struggle like the other species, we have struggled against other species. Moreover, if the evolution of life had encountered other accidents in its course, if, thereby, the current of life had been otherwise divided, we should have been, physically and morally, far different from what we are. For these various reasons it would be wrong to regard humanity, such as we have it before our eyes, as pre-figured in the evolutionary movement” (Bergson 1944, 289). ).

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