
G.W.F. Hegel

EVOLUTION AND HEGEL

by *Robbert Veen*

Response to Mike Marchetti's article "Hegel and Evolution"

It is true that Hegel did not accept the idea of evolution. But it is important to note why he did not accept it and how we can (and must) go beyond Hegel in order to understand evolution in a dialectical manner. In this response to Mike Marchetti I will focus on these two issues:

What systematic reasons did Hegel present to contradict the concept of natural evolution? And are they sufficient? In what manner can evolution be understood with the means of Hegelian method? Is there a systematic place in Hegel砖 Philosophy of Nature that will allow for the modern concept of evolution? I will not go into the scientific argument for evolution as it may be presented by specialists in that field. More than ever, a philosopher is dependent on what is presented to him by specialists whose research he cannot ever hope to fully understand and evaluate.

Mike Marchetti opened his argument by stating:

"Hegel clearly established himself against the concept of a Darwinian-type of evolution, i.e. evolution in the objective sense."

We must note first of all that Hegel did not know the Darwinian concept of evolution. What he knew about were the first efforts in formulating an hypothesis concerning natural evolution in Lamarck, which were vehemently opposed by contemporary biologists as baron Cuvier. The same goes for theories concerning the origin of the solar system as proposed by Laplace and Immanuel Kant. The purely hypothetical status of Lamarck's and Laplace砖 theories reinforced Hegel砖 idea that an evolution of organisms was impossible, something he had found also in Aristotle砖 critique of Empedocles.

But we must note, that Darwin砖 theory was in many ways superior to these early efforts, for one thing because Darwin had proposed an explanation for the verifiable facts of species-variation and had suggested that this variety could be seen as a result of an universal characteristic of all individuals of a species to try to optimize the conditions of survival, resulting in the survival of the 'fittest" and the consequent passing on of properties that were better suited for that purpose in changing environments. If Hegel had known about the Darwinian stage of the development of evolution as scientific explanation, he might have changed his mind?

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- Philosophy of History
- Phenomenology of Spirit
- Science of Logic
- Encyclopedia Logic
- Encyclopedia Nature
- Encyclopedia Spirit
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Nevertheless, Hegel does indeed reject the concept of any development in nature on the level of organism. Why was it necessary for him to do so?

Hegel believed that space was the dimension of nature while time was the dimension of the Spirit. Worldhistory was the explication of the Spirit in time, in the same sense in which the Idea as nature developed itself in space. The Spirit is not found in the form of beside-each-other, but in the form of after-each-other. Worldhistory is not geography after all and we cannot find the separate stages of freedom in neighboring countries side by side. Because nature expands in space and not in time, all processes in nature are subservient to time, which means that they are circular and repetitive. There are no irreversible processes in nature and therefore there is no such thing as a real development in nature.

In that sense Mike Marchetti did repeat the Hegelian position when he wrote:

"We have to be mindful that for Hegel the Concept is the Reality of which Nature is the Appearance. So actual movement occurs in the Concept and is only reflected in Nature."

That is quite true as far as Hegel砘 text is concerned. The question remains whether Hegel was right. Are there no irreversible processes in nature? The laws of thermodynamics for one thing indicate that at least for closed systems, entropy will always increase, never decrease. Many such processes have been discovered, e.g. the life cycle of a sun till its final collapse to white dwarf or black hole. The movement in the concept in such cases is not only reflected in the spatial determinacy of natural entities, but also in the inner transformation in such real processes. Vittorio Hoessle (Hegel砘 System, vol. II, pp. 311, 312) rightly suggested that we should have a concept of real development taking sides with the concept of conceptual development, and searching for a "logic of development" in the real transformation. As he suggests, it might be part of the concept of at least some realities, that they presuppose other entities in a real sense. Animals do not only presuppose plantlife because the concept of vegetative life is part of the inner determinacy of their concept, but also because animals cannot exist without plant-life to support them. Their dependence on the existence of plantlife is not the same as their inner sublation of the concept of plantlife.

Of course, the conceptual analysis and the real analysis must go hand in hand here, but that does show a possibility to understand evolution as reflecting the inner movement of the concept not as if appearing in space alone, but also as being reflected in the process of development of organismic life itself. The suggested criticism of Hegel therefore supports the concept, that Hegel held back too much by speaking about the concept appearing in nature, because he failed to see that this is true also for the conceptual development in itself.

Mike Marchetti maintained that Hegel砘 philosophy would not be open to this suggestion in principle:

"For this reason we could not expect Hegel to ever agree with Darwin's theory."

But I think he might have, "speculative" as this reasoning is, if he

could have seen that the concept of natural development as proposed by Darwin actually reinforces his own concept that nature is the concept as it appears in space. For now we could have added that the inner conceptual development is at least partially reflected in the real development of living entities and species. The difference between Darwin and Lamarck is in this respect crucial. Lamarck砖 theory merely stated that species came into existence after one another, in the order of their complexity. He launched the fallacious idea that acquired properties could become hereditary without understanding how that might work. He hypothesized about the transition between various species without sufficient empirical data to provide evidence for such theses. But merely saying that there were first plants and then later animals, seems to use a simplified conceptual scheme of the order of life and add to that the concept of time. The idea that the real existence of living entities were interlinked in such a way, that they interacted with each other and their environment to form specific variations resulting in different species never occurred until Darwin proposed a reasonable explanation for the ?mechanics" of such a process. Darwin took evidence from comparative anatomy, embryology, paleontology and experiential knowledge in breeding cattle and had a theory of natural selection of positive variations that fitted all of that evidence (up to a point). And even when Darwin砖 proposed cause of evolution is now considered to be only one of several causes, this was the first explanation that "worked."

Let砖 now take a closer look at the par. Mike quoted in favor of his position:

Nature is to be regarded as a system of stages, the one proceeding of necessity out of the other, and being the proximate truth of that from which it results.

In par. 248 of the Encyclopedia Hegel argued that nature is determined both by necessity and chance as opposed to freedom. The stages meant here however are the various concepts of the sciences of nature. Mechanics is the first, dealing with motion, then physics, science of organisms (starting with the "geological nature") and after dealing with the human organism we have the transition into anthropology. The necessity of the transitions between conceptual stages is only determined by the conceptual contents. The Spirit moves in its own time through the various stages and in this we have development. But the real processes under scrutiny are mere appearances of their concept and indifferent in themselves. They are necessary in their conceptuality, but completely accidental in their real appearance. The order of our understanding of nature is proclaimed to be the only developmental logic in nature; development within nature is restricted to that what occurs in the reality of an existing individual. (I.e. growth of a seed into a plant, an embryo into an adult organism etc.)

This is not to be thought of as a natural engendering of one out of the other however, but as an engendering within the inner Idea which constitutes the ground of nature.

If we agree at the outset, that development is merely logical and an inner property of the logic of natural sciences, it is important to state that we are not dealing with a ?real" order. Space does not "engender" time, nor does heat produce individuality.

Metamorphosis accrues only to the Concept as such, for development is nothing but the alteration of the same. In nature

the Concept is however partly a mere inner principle, and partly an existence which is simply a living individuality; existent metamorphosis is therefore limited solely to this individuality.

Only the living individual shows a development in time, but it is in itself a cyclic repetition of a development that is its eternal form. But what does Hegel mean by saying that the concept is "partly a mere inner principle"? According to the remark, it is the "dialectical Concept which is the inner principle of the same, and guides its stages forward". If it is an "inner" principle it apparently has no empirical reality and as such belongs to the ideality of natural science and not nature. Because Hegel is taking nature to be completely "external" unto itself, as externality as such, there can be no "inner" concept in a real sense. It is true that in the organism we find a structure of ?reflexivity" in some sense, surpassing the pure reciprocal causality of the chemical process. Life can expand because in the organism chemical processes are not simply external unto themselves and independent from each other, but are reflexive and the end of the process is also the beginning. (Cf. # 335)

Hegel would argue that this reflexivity of natural processes is due to the inner idea and is as such not open to biological and empirical understanding. But can we accept that in our time? Is it true that the ?reflexivity" of life-processes is an "inner idea" instead of an observable fact of the reality of the living entity? DNA molecules for one thing have the property of duplicating themselves. Life is impossible without this duplication, and the accompanying catalytic function of proteins. This catalysis and reduplication at a molecular level has a structure and cycle that determines the coming into existence of a living organism. Not only that, when catalysis and reduplication are combined in what is known as "autokatalysis", i.e. in combined DNA and protein-chains, we have a form of natural reflexivity. The protein catalyst functions in order to trigger the DNA-reduplication which will again form proteins that govern the process. The infinite process inherent in chemical structures, is now bent unto itself to form a specific cycle with two types of agents: catalysts and information carriers that together form a reflexive structure.

This reflexive structure is precisely the kind of natural and real process, that at the same time shows an ?irreversible" and non-cyclic processes. Every living species through its individuals shows a history of transformation, that is based on the peculiar and in some sense unique character of its DNA-reduplication. And what can be said about the inner structure of the life-process can now also be said about the external process of how living organisms deal with their environment. Autokatalysis and self-reduplication at the molecular level ground the concept that not only living organisms in their maturing process, but through them their species-specific qualities, are subject to historical and irreversible changes.

Mike Marchetti moves to an even more principled attack on the concept that science of nature could in any way contribute to the philosophical understanding of nature. He had this to say about the nature of movement:

"In fact, Nature is entirely ossified (the world as 'petrified intelligence' for Shelling or the 'statue of the intellect' for Proclus) with respect to Spirit, and this is a fact established even in the most fundamental principles of physics: there is no fundamental

or absolute principle of movement found in physics. "

It is true that from a purely idealist perspective movement cannot be determined purely in terms of time. If we have a succession of moments in time called t1, t2, t3 etc. then either t2 must be fully identical to t1 and could not be seen as a second moment, or t2 must be seen as different from t1, and then we would have no succession of moments. There is no moment in time that could function as a point of view in which the relative identity or similarity of t2 and t1 can be held together, because this would have to occur in a t3 that poses similar problems. This provides us with an infinite movement that does not allow for any differentiation of time in past, present and future. And if time as such is so completely elusive, then movement cannot be an absolute. Movement appears as the destruction and rebirth of space "in" time, i.e. as "place" (German: Ort, cf. # 261). When we posit space in the ideality of time, we get movement.

The problem is again, that Hegel separates completely between space and time as Immanuel Kant did. He did make the effort to see their synthesis as "matter" (Enc. # 261 ff.). Hegel moves quite close here to Aristotle idea that movement emanates from an entity as if a property of a body. That might be an antidote to the pure mechanistic concept of movement of a comparison of two points in a grid. If the same body x is at point y1 at moment t1 and at point y2 at moment t2, then that body x has moved the distance of y1 to y2 within the time lapse between t1 and t2. If we cannot however in an absolute sense determine the place of x at any given time, nor determine the exact moment of t1 and t2, then movement is indeed not absolute. On the level of electrons this is surely the case and the uncertainty principle of Heissenberg expressed as much.

But what does this mean? It does not follow that there is no development in nature nor that movement does not exist. It should not be read as an invitation to return to the universe of Aristotle. It destroys the world-view of a naive realism, but does not prove that science has no understanding of the world. It does show, that Hegel砖 understanding of the meaning of time as an "ideality" still makes sense. If time is an abstract negativity as Hegel claims, it follows that it cannot be determined. Nevertheless, time can be "observed", even if that does require space (the "negated time") to do that. Only in space can there be past, present and future. (Cf. # 259) Time is dependent on space, which is the negation of time; space is dependent on time, which is negated space. Only in a two-dimensional system where space and time are combined, can there be space AND time. Time in itself cannot be, nor can there be space on its own. The inability to determine time and hence movement, does not mean that time is a pure ideality and therefore no real motion exists in reality. It only means that whenever we try to determine time or space on their own, we try to achieve the abstract: time in itself as is purely one dimensional and has no measure. All of which means that the following dictum by Mike Marchetti is quite true but also without the consequence he attaches to it. he wrote

It only takes as a given fact that there is movement and then tries to describe it. This is what provoked Wittgenstein's use of the term "simply placed matter." In all the formulae of physics we find particles, however elementary they may be, simply placed in time and space - movement itself is nowhere derived.

This is quite true. But what does it mean? Evolution is not simply about the determination of movement. In a way, it is dependent

on the accidentality of things. Its basis is not pure necessity but the combination of reproductive identity and unpredictable variation, the combination of DNA information and catalytic proteins as a reflective system implies that living beings ?evolve" and transform. That we cannot predict and measure their movement is not an argument against the movement, but against a realist interpretation of movement, using space and time as absolutes. To conclude that the Uncertainty principle would in fact invalidate evolution is stating the opposite of the obvious.

"Therefore the origin of movement is not explained in physics, and it cannot be. Evolution, which is basically alteration, can therefore never be accounted for on a purely material basis. The problem of the Prime Mover of nature has simply been ignored and glossed over by modern science."

The crux of the matter is the "purely material basis". I agree when this means that without acknowledging the real appearance of the ?inner concept" within the transformation process, evolution cannot be properly understood as an inner development of nature itself. If the categorical principle of evolution remains outside the reality of it, we have no evolution but a guided transformation and we re-posit the problem of how a dualist system can explain natural events. We in fact return to a Cartesian occasionalism. But it seems equally impossible to me to argue that on the same basis evolution as natural process is impossible.

It seems clear to me that Mike Marchetti砖 position is flawed in at least two areas of discussion. First of all, Hegel砖 position against Lamarckian evolution theory does not provide a basis for the rejection of modern theories of evolution. Second, Hegel砖 position with regard to nature as being a mere external (spatial) appearance of the inner logic of the science of nature can and should be amended when modern scientific evidence is produced of irreversible processes in nature, when we find that scientific concepts of development can be a logic of real development as well, when we find that it belongs to the concept itself of at least some natural entities that they presuppose in a real sense the existence of other natural entities and finally, when we find that there are chemical and biological processes that in themselves show the inner structure of the concept (the "inner" concept is also expressed in the externality of matter) as in the case of the autokatalysis of DNA an protein structures. Third, a general argument for our inability to determine movement, resting on the abstract negative nature of time, is more an argument in favor of evolutionary development than against it.