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Was J.B.S. Haldane a Marxist when he produced his theory on the origins of life?

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Abstract In this paper, I deal with the issue of the possible links between J.B.S. Haldane's production of an evolutionary theory of abiogenesis in 1929 and his political and intellectual commitment to Marxism in the thirties. Such a relationship has often been asserted, and this idea has certainly been strengthened by the fact that the same question arise with Oparin (who independently produced a theory of abiogenesis and also claimed to be a Marxist).

My examination of the ways we can determine when Haldane became a Marxist leads to the conclusion that Haldane cannot have been directly influenced by dialectical materialism in 1929. However, I discuss how his work on the origins of life at the time can be understood in the context of the intellectual process that was to lead him to adopt Marxism and dialectical materialism as a philosophy (and in particular as a philosophy of science) in the mid-thirties.

Keywords J.B.S. Haldane, abiogenesis, Marxism, dialectical materialism

Introduction

It may in general seem a difficult if not pointless exercise to try to link a scientific theory with a particular philosophical outlook. Nevertheless, it is tempting to do so when a theory is independently discovered by different scientists all of whom share the same general philosophy. Although the observation of this kind of coincidence does not permit any straightforward conclusion about a causal link, it nevertheless raises the question. This is probably the reason why historians of the theories of the origins of life, as well as scholars specifically studying the possible influence of philosophical ideas on scientific work, have often emphasized that both Oparin (1924) and Haldane (1929), who first independently formulated an evolutionary theory of abiogenesis, were Marxists. The claim was first made by C.H. Waddington (1968), and can still be regularly read today. For example, Iris Fry notes that “it is noteworthy that many of those who contributed to the early-20th century philosophical breakthrough in the study of the origin of life were Marxists: notably Oparin, Haldane, the virologist N.W. Pirie and the English physical chemist J.D. Bernal” (Fry, 2006, p. 27). One can, therefore, see the temptation of drawing conclusions concerning the conceptual relations between dialectical materialism as the philosophy of Marxism and ideas about the biochemical origins of life, at least as a heuristic influence in the development of such theories in the 1920s.¹

In this paper, I will not investigate the general issue of the possible influence of Marxism on the theories of the origins of life of “Marxist scientists”² but will limit myself to the question of the possible role of Marxism in Haldane's publication of his theory of the origins of life in 1929.

Was Haldane a Marxist in 1929?

Several authors have treated J.B.S. Haldane's scientific and intellectual biography, and some of them question the place of Marxism in the evolution of his thinking. The most significant contributions to this debate are Clark (1968), Werskey (1978), Sheehan (1985), Sarkar (1992) and Shapiro (1993).

Already, it is no easy matter to determine precisely when Haldane adopted Marxism as a general philosophical worldview. Haldane himself is never very precise on this question, offering contradictory accounts in his published work. Thus, in a book based on lectures on Marxism and science given in January 1938, he declares: “I have only been a Marxist for about a year” (Haldane, 1938a, p. 13), implying a conversion at the beginning of 1937. However, in a reply to A.P. Lerner's criticism of a paper on dialectical materialism and biological evolution published in *Science & Society* by Haldane in 1938, he writes that “the process [of becoming a Marxist] took [him] some six years” (Haldane, 1938b, p. 242). On this account, the conversion process began around 1931. Thus, Haldane gives two versions of his adoption of dialectical materialism: a brutal shift in 1937 or a gradual process beginning in the early 1930s.³ Consequently, most of the authors who have studied Haldane's intellectual evolution remain vague as to the date when he adopted Marxism. But we can note that even in the gradual conversion scenario, Haldane's evolution toward Marxism only began around 1931, two years after he first published his ideas on the origins of life. Sheehan is the only one to claim that there is a direct influence of dialectical materialism on these ideas (Sheehan 1985, p. 319-320), basing the claim on the fact that Haldane's interest in communism and the philosophy of dialectical materialism seems to have increased markedly following his trip to the USSR in 1928. Therefore she advocates that an influence of Marxism on a work published in 1929

1 Not all the authors cited above engage this debate, for example Fry is quite careful not to do so.

2 There is already a (controversial) debate over the relationship between Oparin's Marxism and his theory of the origins of life (see especially Joravsky 1970 and Graham 1973).

3 These two version are not necessarily contradictory; if by “becoming a Marxist” we mean “studying and assimilating Marxist ideas and theory”, and by “being a Marxist” we understand “being politically involved on the basis of Marxism” then it is clearly established that Haldane “was a Marxist” from 1937 on.

is possible. But even though we can find clues concerning this interest in some of Haldane's writings *circa* 1930, it appears that until 1934 he mainly focused on the idea that the Soviet Union could be the model for a “scientific State” (Haldane, 1932b, p. 135). In the collection of essays *The Inequality of Man* published in 1932, in which we can find the first positive statements about USSR scientific policy (and in which the 1929 article about the origins of life is reprinted), several articles deal with philosophical issues, but none of them with dialectical materialism. Furthermore, during the same period, Haldane wrote in *The Causes of Evolution*, that “science is committed to the attempt to unify human experience by explaining the complex in terms of the simple” (Haldane 1932d, p. 156-157). Such a reductionist statement is hardly compatible with dialectical materialism (and especially with Haldane's eventual use of it, precisely as a non-reductionist materialism). It is much more consistent with Sarkar's point of view that until the mid-thirties Haldane's main philosophical influence in science was the (quite sophisticated) mechanistic materialism of Frederick Gowland Hopkins with whom Haldane was working at this time in Cambridge (Sarkar 1992, p. 395-396).

In fact, the first explicit mention of dialectical materialism in Haldane's writings dates from 1934, where it appears both in a paper in *Philosophy of Science* entitled *Quantum Mechanics as a Basis for Philosophy*, and in the preface of a collection of essays entitled *Fact and Faith* (Haldane 1934a and 1934b). As Haldane points out in this preface, most of the articles in this book are reprints (including the paper on the origins of life) and many of his philosophical views have changed since these texts were first published. Here, he provides the following explanation: “I have begun to assimilate Dialectical Materialism, a doctrine very different from the Mechanistic Materialism of the eighteenth and early nineteenth centuries, and to my mind far more plausible” (Haldane, 1934a, p. vi). In *Quantum Mechanics as a Basis for Philosophy*, Haldane deals with the issue of mechanism and vitalism, where he argues for the first time that dialectical materialism could be a solution for the opposition between mechanical reductionism and idealistic holism. My aim here is not to examine closely Haldane's use of dialectical materialism in this 1934 paper, but simply to point out that it represents his first attempt to use dialectical materialist ideas to think about science. We should also note how, in the context of this paper, he remains quite tentative about the use of this philosophical outlook. It is only in 1937, when he openly becomes a communist sympathizer, that he developed a more systematic attempt to expose dialectical materialist views on nature and science (especially in Haldane 1937, Haldane 1938a, and in Haldane 1948). This gives us a coherent way of understanding the two versions of the history of his conversion given by Haldane. First, around 1934 (maybe a few years earlier but certainly after 1931) he begins to try to use ideas drawn from dialectical materialism to think about science, and that's when “the process of becoming a Marxist” started. Subsequently, between 1934 and 1937, probably both for theoretical and political reasons that I will discuss shortly, he becomes increasingly convinced of the utility of these ideas and at the same time of the necessity of becoming politically involved on that same basis. Finally, in 1937 he declares himself a Marxist and becomes a communist sympathizer (before joining the Communist Party in 1942) in what appears to be a sudden conversion but is in fact the result of a process that was drawn out over several years. Anyway, it is clear that, even though he may hear of Marxist ideas and be attracted by them, he makes no use of them before the beginning of the thirties. Therefore, if by the influence of Marxism or Marxist ideas one means a direct use of the philosophical categories of dialectical materialism in the shaping of a theory, we can assert quite firmly that there is no such influence on Haldane's theory of the origins of life as it is presented in his 1929 article.

Is there a link between Haldane's conversion to Marxism and his theory on the origins of life?

The statement I just made does not imply that there is absolutely no connexion between Haldane's philosophical turn to Marxism in the mid-thirties and his attempt around 1929 to give a

biochemical explanation of the origins of life. Even though Haldane can't be said to have been a Marxist in 1929, we may understand his adoption of this philosophical outlook as the result of a process that started in the twenties. Some authors have emphasized the many political factors in Haldane's growing involvement with the Communist Party (especially his involvement in the Spanish civil war (see, for example, Clark 1968, p. 132-138)), suggesting that the causes of his moving towards Marxism are mainly political and thus that the fact "that Haldane moved [...] to the far left in a matter of years was largely a result of the logic of history – he did not move so much as was pushed" (Clark 1968, p. 162). While the political context surely plays a major role in his intellectual evolution, this is not a reason to dismiss his claim that he (also) adopts Marxism for philosophical and scientific reasons, and to see Haldane's Marxist papers on science (such as *A Dialectical Account of Evolution* (1937)) as mere propaganda, aimed at justifying political beliefs using scientific arguments (or philosophical arguments about science). For, as Sarkar remarks, "it was possible for somebody in Haldane's circle of socialist scientists to remain a non-Marxist (for example, Hogben)" (Sarkar 1992, p. 405). Above all, such a reading would not account for the fact I mentioned earlier that Haldane asserts the utility of dialectical materialism *before* his political involvement with the Communist Party and this on the basis of philosophy of science.

To understand the theoretical reasons for Haldane's adoption of Marxist philosophy in science, we would therefore have to give an account of the whole process of his intellectual evolution through the twenties and early thirties relying on a precise examination of his popular writings in that period. I cannot here give the full results of such an investigation but will present some of the central elements. If we study Haldane's main popular writings produced before he turns to Marxism (namely *Daedalus*, (1923), *Possible Worlds* (1927) and *The Inequality of Man* (1932a)), we can note a theoretical search for consistency and unity between his conceptions of science, philosophy and politics. This can be seen in a series of texts on topics such as the social and political applications of science or his attempts to describe the political, scientific and evolutionary future of mankind. One major issue in this search for unity is the attempt to reconcile views on the nature of the material world originating in his scientific practice with a more general philosophical outlook. This process goes through different stages of partial synthesis, each one raising specific contradictions. For example, at the same time that he states (as I have already quoted) that science is "condemned" to use a reductionist method, he claims (in an article entitled *Some Consequences of Materialism*) that he refuses materialism because "if Materialism is true, it seems to me that we cannot know that it is true. If my opinions are the result of chemical processes going on in my brain, they are determined by the laws of chemistry, not those of logic" (Haldane 1932c, p. 169). Thus, Haldane deploys logico-philosophical arguments against a reductionist outlook (and clearly, here, "materialism" means "reductionism") which he believes is the core of the scientific method. This contradiction produces a split between a methodological reductionism and an ontological anti-reductionism. In itself, such a dualism could be acceptable, but it clearly isn't for Haldane. Indeed, it appears that his eventual use of dialectical materialism is precisely an attempt to resolve such contradictions. This is precisely the way Haldane himself describes retrospectively his adoption of Marxist philosophy. Thus he writes in 1940:

"Although I was a materialist in the laboratory, I was a rather vague sort of idealist outside, for the following reason. [...] Clearly, if matter had the properties attributed to it by physicists and chemists, something more was needed to account for living organisms. [...] I was, however, too painfully conscious of the weakness in every idealistic philosophy to embrace any of them, and I was quite aware that in practice I often acted as a materialist.

The books which solved my difficulties were Frederick Engels's *Feuerbach and Anti-Duhring*, and later on V. I. Lenin's *Materialism and Empirio-Criticism*." (Haldane 1940, p. 29-30).

And in a later article promoting the use of dialectical materialism in science, Haldane states that "an increasing number of biologists have become more or less completely Marxists, and are no

longer condemned to oscillate between a mechanistic and a vitalistic standpoint” (Haldane, 1948, p. 3).

We can, therefore, understand the 1929 article on the origins of life in the context of Haldane's desire to unify his views on the nature of the world. A biochemical historical explanation of the origins of life may have represented for him one way to overcome the problem that “something more [than matter] was needed to account for living organisms”. Clearly, this is insufficient to solve the whole theoretical contradiction raised for Haldane by the reductionist method, but it is reasonable to think that it contributed to undermining his idealistic beliefs, and prepared the way for the subsequent synthesis following his adoption of dialectical materialism. From this perspective, Haldane's 1929 theory on the origins of life and his eventual turn to Marxist philosophy around 1934 are not merely coincidental, the former being a step in the process producing (or contributing to the production of) the latter.

Conclusion

This short study leads us to reject the hypothesis of a direct causal influence of Marxism in the formulation of Haldane's 1929 theory based essentially on a chronological argument. Nevertheless, the most plausible hypothesis concerning a relationship between Haldane's Marxism and his work on the origins of life is not to see them as independent but to consider Haldane's theory of abiogenesis in the context of his intellectual development from the mid-twenties to the mid-thirties that eventually led him to accept Marxist philosophy. This evolution can be seen as being motivated by the (not necessarily conscious) desire to construct a theoretical synthesis encompassing his conceptions of science, philosophy and politics. At one point, Marxism appeared to provide the means for such a synthesis, and a relatively stable one.⁴ Thus, Haldane's adoption of a Marxist philosophy can be considered to have resulted from this unifying trend as well as evolutions in his different fields of interest. During these same years Haldane's political views moved towards the left under the influence of international events such as the rise of fascism in Germany and the Spanish civil war. At the same time, on the scientific side, Haldane moved from mainly devoting himself to biochemistry towards taking an increasing interest in evolutionary biology, culminating with the co-founding of theoretical population genetics. The 1929 paper on the origins of life seems to fit well into this general framework of Haldane's intellectual development. Thus, in terms of scientific orientation, it is clear that this paper offers both a biochemical *and* an evolutionary explanation of the origins of life, just at the time when he was gradually shifting his scientific attention from biochemistry to evolutionary biology. Nonetheless the paper can also be seen as marking a step in his evolution from more or less vitalist views (for example in Haldane 1927b) to a materialism that went beyond a mere methodological stance. From this point of view, it is also interesting to note that if the theory exposed in 1929 remained strongly reductionist, and from what would eventually become Haldane's Marxist point of view, undialectical, it already presented life as an evolutionary, historical process, making it possible to incorporate the origins of life into the broader general outlook of dialectical materialism. This, does not in the end mean, however, that Marxism had in general no influence on Haldane's science, but any enquiry concerning such an influence would have to begin with Haldane's work starting from the time when he began explicitly to accept dialectical materialism and deploy its concepts.

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4 Haldane claims that he used Marxism as a general worldview and a tool for scientific research at least until 1950, when he broke with the Communist Party over the Lysenko controversy. Even afterwards, however, he openly remained a Marxist, though he referred less frequently to dialectical materialism in his writings.

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