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Does Dialectical Materialism Need a Defense?

A Rejoinder

It is not often that a note on dialectical materialism receives the honour of a detailed twenty-eight page reply from a comrade who is passionately concerned with the rights and wrongs of the issues under discussion. Regrettably, the pleasure in receiving such a response is dampened by its ungenerous title, “In Defense of Dialectical Materialism: A Response to T. Jayaraman” leaving the unwary reader with the unfortunate impression that the author mentioned in the title had somehow attacked or cast doubt on dialectical materialism which thus stood in need of stout-hearted defense. But subjective considerations alone, such as the demonstration or re-iteration of my fealty to dialectical materialism, would hardly make a pressing case for writing a rebuttal. However, Com. Theckedath’s response raises some more general issues with regard to the place of dialectical materialism among contemporary world-views and the method of its study and development in this context, particularly in resolving the contradictions emerging in the development of the physical sciences, that I believe are worth commenting upon.

The three substantive issues that the response raises are the following: First, what is the relationship between dialectical materialism and other philosophical trends, ranging from idealism to mechanical materialism to scientific realism, both in their classical or contemporary forms

(though it is the somewhat positive attitude that I adopt to the latter that seems to perturb Theckedath the most) ? Second, what is the relationship between the categories of philosophy and the categories of science in the perspective of dialectical materialism? Third, what role does dialectical materialism play or rather should play in the actual concrete development and advance of the specific sciences or the resolution of specific contradictions in the sciences, the case in point here being that of the issues relating to quantum mechanics?

Before I address these questions, let me also point out that the two “provocations” that Theckedath purports to find in my writing, that prompted him to the defense of dialectical materialism, amount to a caricature of what I have actually set down in writing in a more nuanced way in the two articles that he cites. In connection with Hegel, Theckedath states that I have argued that “the categories of dialectics need to be drawn from a renewed study of Hegel, so that dialectical laws are derived not from Science (in view of the unsolved issues particularly in the field of quantum theory) or nature, but from a study of concepts, a la Hegel, starting from basic concepts and moving on to more and more complex concepts.” I have indeed argued nothing of the kind and have stated exactly the opposite in the lines of the last two paragraphs of section 3 of my paper titled “Dialectics and Materialism”. I have of course pointed out the need to understand the relationship between dialectics and science in a more nuanced way, but certainly not in the crude and idealist fashion that Theckedath attributes to me. Similarly with reference to scientific realism, Theckedath appears to think that any account of the current state of the debate on the philosophy of science is itself completely unnecessary (such an account forming the bulk of my 2007 paper) . Theckedath singles out and highlights for criticism the positive remarks that I made with reference to scientific realism, implying, incorrectly, that I am not aware of the shortcomings and weaknesses of scientific realism vis-a-vis dialectical materialism. Theckedath ignores the fact that while I have said that it is worth following this debate on scientific realism, I have not exactly specified the precise manner in which it may be of assistance to and have implicitly left it for future work. Nor have I simplistically placed dialectical materialism on par with scientific realism.

Theckedath also appears to have overlooked another note that I had written, titled “Dialectical materialism and developments in contemporary science”, published in the Marxist, Vol. 26, October-December, 2010. In this work I had illustrated how many of the key developments of twentieth-century science had provided a number of remarkable illustrations of the validity of the basic propositions of dialectical materialism. These propositions are of course identical with those that Theckedath has mentioned in his response. In the same note I had also briefly commented on other philosophical positions on the philosophy of science and had commented on their validity vis-a-vis dialectical materialism. In particular I had emphasised some of the critical shortcomings, illusions or contradictions that were characteristic of these other philosophical positions. However, even in this paper I had singled out scientific realism for specific mention, regarding it as a position that, while certainly not being dialectical materialist, had nevertheless some positive features that gave it a status that was different from the others in its view of science. For the record, may I add that I am in agreement with the brief summary of basic dialectics that Theckedath presents in the first part of his response. Of course, since for the most part they are a stringing together of a number of quotations from various Marxist classics, interspersed with brief comments, the nub of the issue lies in how we understand these statements and apply them. Broad agreement on the statements themselves may be taken as given.

To turn now to the first of the substantive issues that we have indicated as the subject of our main discussion. What is the relationship of other currents of thought, such as scientific realism in particular, to the dialectical materialist world-view? Theckedath’s notion of a dialectical materialism “that has no need of support” appears to be a very sectarian formulation.

But even before I elaborate why, it is not evident to me that he has appreciated the variety of scientific realism that I had described in my 2007 article. Unlike the realism of Karl Popper (which is the example that he cites) who was only partially a realist (he was clearly in the camp of positivists in his rejection of historicist theories, in his view of causality and in his adherence to verificationism, even if through falsification), the variety of scientific realism that I describe has a far more consistent position on causality, the nature of truth and the role of practice in establishing the claim of science to grasp the nature of objective reality. There is also some variation in the range of positions on different issues that can be found among such realists including some, like the early Roy Bhaskar (who wrote the entries on Marxist philosophy and scientific realism for Tom Bottomore’s Dictionary of Marxist Thought) or Christopher Norris, whose positions draw from or are sympathetic to Marxism.

But to return to the main question, is it that there is nothing to learn for a dialectical materialist from a philosophical viewpoint which is not explicitly Marxist? Certainly the founders of dialectical materialism were frank in their acknowledgement of what they acquired from their various intellectual sources, both in minor ways in point of detail or in a much broader sense (as with Fierbach or Hegel). This intellectual debt was acknowledged by Lenin in his well-known work on the sources and component parts of Marxism. Of course, the further development of Marxism meant that the limitations of these intellectual sources had to be transcended or determinately negated before their insights could be absorbed or utilised. But nevertheless, the point remains that the founders of Marxism did learn from the work that had gone on before them and built on their intellectual legacy. The continued study of the sources of Marxist philosophy did not cease to be relevant with the work of Marx and Engels. Even as Lenin creatively enhanced dialectical materialism with his critique of Machism in Materialism and Empirio-Criticism, he also devoted attention to the study of Greek philosophy including Aristotle and the writings of Hegel. Surely, what was good for Lenin, ought to be even more appropriate for lesser lights like us.

But is then one to argue, that this critical learning from other viewpoints is applicable to the initial stages of the development of Marxism but not to its later stages, especially after the large-scale study and development of dialectical materialism in the socialist countries? It is certainly true that in these countries, especially in the Soviet Union, there was independent development of dialectical materialist thought in a number of different ways, that remains a valuable resource today. But philosophers in the Soviet Union also worked on a range of other philosophical viewpoints from the perspective of dialectical materialism.

Surely if there were nothing to learn from other viewpoints, this enormous effort must have been pointless!! Even on a purely pragmatic note, given the rapid growth of science and knowledge in general, it would be too much to expect that a limited number of dialectical materialists could alone do justice to understanding, evaluating and absorbing the implications of this explosion of knowledge, without utilising the efforts of those who could be described as “friends of materialist thought”.

The larger question is however whether dialectical materialism can grow as a world-view without a dialectical confrontation with a number of other viewpoints on a number of different philosophical questions. To argue that it can indeed do so, would be the philosophical equivalent of arguing that the Party of the working class and its ideology could grow and develop without struggle. In similar fashion, how could dialectical materialism possibly grow without engaging or confronting other philosophical viewpoints in struggle? And it would be quite undialectical to argue that struggle here could only one-sidedly mean simply rejection or dismissal. Struggle must also involve the ability to appreciate how, these viewpoints represent, even if (and however much) one-sidedly, the striving of human thought and its attempt to understand the world, even if they succeed only in partial fashion.

As Lenin points out in his “Summary of Dialectics” in Vol. 38 of his *Collected Works*:

Philosophical idealism is *only* nonsense from the stand-point of crude, simple, metaphysical materialism. From the standpoint of *dialectical* materialism, on the other hand, philosophical idealism is a *one-sided*, exaggerated development of one of the features, aspects, facets of knowledge, into an absolute, *divorced* from matter, from nature, apotheosised. Idealism is clerical obscurantism. True. But philosophical idealism is (“*more correctly*” and “*in addition*”) a *road* to clerical obscurantism *through one of the shades* of the infinitely complex *knowledge* (dialectical) of man.

If Lenin could be as charitable to philosophical idealism, a viewpoint such as scientific realism, that endeavours to support and understand the work of science is surely worthy of even greater consideration. Note that Lenin draws attention here to the important point that different world-views are not necessarily mistaken in the choice of the particular feature, aspect or facet of knowledge that they seize upon or explore, but err in their exaggeration, absolutisation, and divorce from nature of these particular aspects.

One may also consider the issue of whether developments in bourgeois philosophical viewpoints come to a halt, or are of no further value, after the rise of dialectical materialism. There is a sense in which in the sciences such as economics, one may talk of a vulgar approach, that persists in the study of appearances, even when the essence has begun to be understood. This of course does not mean that bourgeois economic theory continues to offer no lessons, especially as it attempts to grapple with the contradictions of capitalism. In similar fashion, it would be incorrect to assume that developments in other philosophical viewpoints would come to a halt, especially when the growth of knowledge in the sciences of nature and society continues at a dramatic pace, raising new questions and challenges for human thought. To give a common example from contemporary debates, one may consider the question of uncertainty and decision-making under uncertainty in the context of climate change or other environmental questions. These are new challenges and it would be incorrect to assume, as indeed life demonstrates, that bourgeois philosophy would have nothing to say in the matter *from which dialectical materialists could also learn*. One could easily multiply the number of such examples.

Nor can dialectical materialists be neutral with regard to other philosophical debates where anti-realism, of say the post-modernist variety, confronts a realist view of science. Dialectical materialism can find friends in the realist camp in the course of these debates, providing the basis for a larger ideological alliance in the face of some of the more reactionary philosophical tendencies of our time.

Last but not least, there is a certain irony in Theckedath’s outright refusal to see any positive aspect to scientific realism. As a result he is unaware of the fact that his own position on some critical philosophical issues in the understanding of quantum mechanics is far closer to that of the scientific realists. However he shares with them the same weaknesses too that seem to cry out for a proper dialectical understanding of the philosophical questions involved. We will return to this question shortly.

The second issue raised by the response is the relationship between the categories of dialectics and the categories of science. Towards the end of his initial homily on basic dialectical materialism, Theckedath himself routinely recites a number of philosophical categories (such as matter and mind, motion and rest, etc.), a list that ends with the words, "and so on." Of course, we are also aware as materialists, as Theckedath with a ritualistic quotation from Lenin reminds us, that these categories arise not from the pure working of the mind, but from the experience, practice and thought of humanity through evolution and social practice. But does that exhaust the philosophical issues involved? That was precisely the question that I sought to address in the note on Dialectics and Materialism, the central point of which seems to have escaped the attention of my critic. The obvious answer to the question is of course, no. One can ask a number of questions regarding these categories. Are the categories of dialectics related to each other? If so, how? Is the set of categories fairly set, or will new categories arise out of scientific practice? In what sense do these categories transform their meaning, even though their nomenclature remains the same? Do the different categories have a determinate relationship to each other, arising from each other in logical progression, which of course is drawn, in the ultimate analysis, from practice, but which also requires the work of thought to be understood as such? In attempting to understand these questions, which I may add were among the issues of active research in philosophy in the Soviet Union, I had also drawn attention to the work of Marx in the Grundrisse, where he develops the categories relevant to the study of political economy, closely following the work of Hegel in his development of the categories of dialectics as described in his Science of Logic. In Marx's study of the laws of motion of capitalism as derived in detail in the Grundrisse, we see how he develops the logical structure of capital, where by "logical", we mean the step-by-step development of the entire structure of capital, starting from the unit cell, as it were, of commodity production and the notion of use and exchange value.

In the note, Dialectics and Materialism, these were precisely the issues that I wished to highlight and I did so at some length. Even though Theckedath opens his response with the criticism that I am idealistically following Hegel, he does nothing later to substantiate the charge. Indeed, apart from some general remarks in the introductory part of his response on the categories of dialectics he has little to say on the content of my note on dialectics and materialism.

However, while I shall not repeat the material of my earlier note here, I will re-iterate only one point. Why is it that the categories of science alone will not do? Take for instance the category of necessity or appearance. One may of course take in the meaning of these concepts from every single science as providing a separate definition or meaning to this concept, but that clearly takes away from the sense in which we use these words. Even more significantly, between the study of the natural world and the study of the social world, appearance or necessity may have quite specific and varying content in specific contexts. Thus if we wish to understand necessity, for instance, as a general dialectical category, we cannot simply be satisfied with one particular meaning from one particular science. As Theckedath himself points out, categories like necessity and appearance belong to the category of dialectics. However, it is equally true, that from a broader definition of what is necessity and how it is related to other categories, we cannot therefore infer how necessity would be manifest in any specific science or class of phenomena. That, as I have emphasised ad nauseum in my note on dialectics and materialism, is something that has to be inferred by specific work in the specific science.

But these two issues that I have discussed so far, are, I believe, only of peripheral interest to Theckedath. The main issue is really with reference to the question of the interpretation of quantum mechanics and a dialectical understanding of the physics of the micro-world. It is on this question that Theckedath differs quite strongly with my understanding and reading of the current state of the debate. I also believe that his reaction to my remarks on quantum mechanics colours his entire view of my articles, even where the bulk of the articles in question do not deal with the issue of quantum mechanics for the most part.

In order not to tax the reader, I will begin with a comment, in more general terms, on the third substantive issue that I had raised earlier, namely the relationship between the dialectical method and the specific advance of specific sciences. Subsequently I will make more specific comments (for those readers who may be interested) on particular aspects of Theckedath's position on the relevance of the work of David Bohm, as well as aspects of the philosophical positions that he appears to share with Bohm.

Within the broader scope of philosophical research in the Soviet Union, especially in the immediate post-October revolution phase but even later, there was intense activity in utilising the insights of dialectical materialism to drive specific advances in specific sciences, especially when the mainstream of the scientific community would fall prey to various confusions, created especially by positivist viewpoints. A marvelous account of the great effort that Soviet scientists undertook based on such motivations is provided by Loren Graham in his classic, *Science and Philosophy in the Soviet Union*. What was the balance-sheet of such efforts in the end? In some cases, as in the study of the origin of life or in the study of psychology, especially in child development, dialectical materialism provided broad and useful guidelines and much inspiration to open new directions in thought and concrete research. However, in other established sciences, such as in physics, chemistry, genetics and the like, while dialectical materialism provided the insights for a critique and understanding of the fundamental contradictions of the discipline, it could not obviously provide any means for judging and selecting from the number of possible ways of resolving these contradictions. Such resolution had to await the concrete development of the science itself, especially in terms of the advance of praxis, in the form of various attempts at theory-building and in terms of accumulating experimental evidence that would reveal eventually the full nature of the contradiction and thus the means whereby the contradiction could be resolved. The situation was particularly serious in the case of logic and mathematics and there appears to have been a long and inconclusive debate on the nature of dialectical logic. At the same time, a more instrumental approach to the study of mathematics finally took hold, which registered some remarkable successes.

Thus, as Hegel remarks in his *Science of Logic*, "Just as the subjective understanding also exhibits errors in itself, so the objective world also exhibits aspects and stages of truth that by themselves are still one-sided, incomplete and only relationships in the sphere of Appearance." So it is only in uncovering the complete and many-sided structure and in the move beyond appearance can the correct resolution of the contradiction be found. In the case of quantum mechanics, one of the great landmarks in the development of the subject was the work of John Bell, who designed a set of experimental tests whereby theories like the original proposals of Bohm could be tested. The next step has been the technological advances in atomic physics experiments that have made possible the performing of new experiments. It is unsurprising that the interpretational and foundational issues of quantum mechanics are still unresolved as they have progressively revealed themselves to have their basis in a profound interpretation, namely the seeming incompatibility of the two great discoveries of the twentieth century, viz the special theory of relativity and the discovery of wave-particle duality and quantum mechanics.

Regrettably, Theckedath does not appear to view the Soviet experience (apart from the usual resort to convenient quotation and the passing reference) seriously and critically, including the gross distortion of both dialectics and science in the name of a radical, new approach in biology and crop science that was represented by Lysenkoism.

We now turn to more specific matters, as remarked earlier, regarding Theckedath's insistence on the "correctness" of Bohm and some related philosophical issues. In particular, what I consider to be the weaknesses in Theckedath's position on these two issues are the following:

- i) Over a long period, in a number of writings, Theckedath has continued to one-sidedly insist that Bohm's work is the correct, dialectical version of the understanding of quantum mechanics, citing further in support, Bohm's adherence to Marxist views in his earlier years. Unfortunately, Theckedath omits to pay due attention to other Marxist scholars, including Soviet thinking on the subject that produced a significant and interesting literature. A glaring example of this one-sidedness in Theckedath's current note

is his praise of the great Soviet physicist V. A. Fock for his critical view of “subjective deviations” in the interpretation of Einstein’s general theory of relativity, while he omits to mention that Fock was a firm supporter of the Copenhagen interpretation throughout his life!

ii) In a number of arguments against the so-called Copenhagen Interpretation of Quantum Mechanics (CIQM), the original positivist interpretation of quantum mechanics, Theckedath is really pushing at an open door. The CIQM (though often repeated uncritically in earlier textbooks – in the absence of a credible alternative), has been and is increasingly questioned by experts in the field and contemporary textbooks¹. Notable experts such as the Nobel laureate, Steven Weinberg, have questioned the Copenhagen Interpretation in very critical terms, as in his book, *Dreams of a Unified Theory*.

ii) At the same time, Bohm’s original thinking, though it continues to be highly respected and given due consideration in the literature on the subject, is certainly not considered the last word on the subject, as Theckedath appears to portray. There are also a number of attempts to overcome the issues in understanding quantum mechanics by many other scientists, and it continues to be a field of active research. In respect of both ii) and iii) Theckedath does not appear to take the Leninist view of the instinctive dialectical materialism of science seriously. From such a point of view, one would be driven to examine more points of view than simply one viewpoint that displayed an explicit adherence to dialectical materialism.

iv) Theckedath believes that the work of David Bohm, in the form of the so-called Stochastic Interpretation of Quantum Mechanics (SIQM), or as he confusingly calls it elsewhere, the causal stochastic quantum theory, has “received very strong confirmation in terms of experimental results.”

I believe that Theckedath’s understanding is mistaken. While of course there is room for continuing modification of the original theory to accommodate experimental objections, this results in the original theory becoming increasingly complicated by a number of details and less and less convincing to other physicists (including even those who are not adherents of the positivist viewpoint). The development of the technology of atomic physics experiments has also made it possible to actually perform a number of so-called “thought” experiments that were developed in an earlier era to experimentally distinguish different interpretations of quantum mechanics. Regrettably, Theckedath has little to say on this subject.

v) Theckedath does not acknowledge that Bohm’s theory also has serious flaws and in his attempt to insist on an underlying deterministic interpretation of a superficially stochastic theory, Bohm is driven to abandon the theory of relativity as well². He thus re-introduces into his theory, “active information” that travels faster than light and an “ether” that supports such transmission of information at speeds faster than light. Thus, tragically, in the apparent pursuit of a non-positivist interpretation, Bohm is driven to the conservative rejection of some of the most radical and revolutionary developments of early 20th century physics (even if he does insist that he is not returning to simple classical physics and its contradictions).

Apart from these rather more specific issues with regard to Theckedath’s unwarranted enthusiasm for David Bohm’s work (who is of course acknowledged by many scientists today as a pioneer who was ahead of his times), our critic’s viewpoint also raises more specific philosophical issues.

(a) Is the knowability of objective reality tantamount to predictability? I think that Theckedath, following in the footsteps of physicists like David Bohm, whose theoretical viewpoint he supports, believes the answer to be yes. Even though Bohm (and following him Theckedath) assert that they are not after predictability, yet his solution to the problem of wave-particle duality is to insist that the particle part of the description gives rise to perfectly predictable paths of motion. (In later work, Bohm restored a watered down version of unpredictability, based on concepts like chaos). My own reading of the situation is that one of the great lessons of the discovery of quantum mechanics is that the knowability of objective reality is not tantamount to predictability, even in the realm of the phenomena associated with micro-particles. Of course the radical non-equivalence of predictability and knowability, is already clear from other sciences such as biology from phenomena such as evolution. We certainly know the mechanism of natural selection, the details of how it works and even its origins in the molecular structure of life, such as

the behaviour of DNA and RNA molecules and so on. But that nevertheless does not provide any predictability as to the specific nature of the new species that will evolve.

(b) Similarly Theckedath confuses necessity with determinism. Thus, Theckedath distinguishes between, in his words, “necessary laws” and “statistical regularities governed by probability laws”.

Elsewhere he speaks of how “at the level quantum phenomena the operation of probability laws reveals a new form of law which goes beyond the usually recognized causal laws.” It is clear, despite his repeated ritual invocation of the dialectics of necessity and chance, that Theckedath does not see how indeed necessity can operate or be realized through chance (evolution again furnishing a marvelous example). Nor does he realise that in making this separation, he conflates causality and necessity with predictability of the Newtonian variety (which is clearly what he means by causal or necessary laws).

(c) Theckedath’s approach lacks a systematic application of the dialectical method. This is not to argue that he should have presented it in his response of course, but even the general body of his writings does not provide such an application. To a significant extent, his own statements amount to repeatedly “demonstrating” that SIQM, or “where correct” even the CIQM (!), are consistent with the tenets of dialectical materialism. We are certainly not aware of how exactly that should be set out. But that is precisely the reason why a more serious study of dialectics is called for, rather than the repeated assertion of how the tenets of diamat are consistent with the workings of nature.

(d) Theckedath is actually on the same page as scientific realists such as Christopher Norris³ in his reactions to the work of Wheeler on the so-called delayed choice experiment, in his reaction to the so-called “many worlds hypotheses” and in his reactions to the theories of David Bohm. He concurs with them in their criticism of Wheeler and the “many worlds hypothesis” and their celebration of the viewpoint of Bohm. Actually, for that matter, Theckedath is also one with Popper in the matter of realism and quantum mechanics, as he mentions Popper quite positively on the subject in his book. How actually does this alliance between three different perspectives come about, despite their difference on many other issues? One suspects that the crux of the matter is the inability of all three, Bohm, Norris and Popper, to take uncertainty, especially the absence of predictability (at the ontological level) and its implication for the knowability of objective reality, seriously.

I believe that a critical view of Wheeler’s viewpoint or the “many worlds hypothesis”, which this author shares with Theckedath (as indeed do many contemporary physicists as Auletta makes clear in the book referred to earlier), does not necessarily take away from the knowability of objective reality, though it modifies our understanding of what such knowability means. One may also hazard the suggestion that taking the issue of knowability and uncertainty seriously would promote a better dialectical view of the development of dialectical and historical materialism itself, and promote a deeper and more profound view of the relationship between necessity and chance in the revolutionary transformation of society.

NOTES

¹ See for instance, the two books by Gennaro Auletta. The first, *Quantum Mechanics* by Gennaro Auletta, Mauro Fortunato and Giorgio Parisi, Cambridge University Press, 2009 is written in the style of a textbook but has a detailed consideration of many interpretational issues in quantum mechanics, with up-to-date experimental information that is relevant to the discussions. The other book, *Foundations and Interpretation of Quantum Mechanics: In the Light of a Critical-Historical Analysis of the Problems and of a Synthesis of the Results*, with a Foreword by Giorgio Parisi, World Scientific Publishing Co. Ltd., Singapore, 2001, has a marvelously detailed account over more than 900 pages of the current state of the subject.

² See, for instance, D. Bohm and B.J. Hiley, *The Undivided Universe, An Ontological Interpretation of Quantum Theory*, Routledge, London and New York, 1993.

³ See Christopher Norris, *Quantum Theory and the Flight from Realism*, Routledge, London and New York, 2000.