Proceedings of the 2nd International Conference on Applied Ethics and Applied Philosophy in East Asia

—— Edited by Wang Qian

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FOREWORD

Jointly sponsored by Dalian University of Technology, Kobe University and Taiwan University, and organized by Dalian University of Technology, "the 2nd International Conference on Applied Ethics and Applied Philosophy in East Asia" was held on 21st and 22nd of May, 2011 in DUT. More than 40 scholars and graduate students from Mainland China, Hong Kong, Taiwan, Japan and the Republic of Korea attended this conference, which was themed in "the possible route of the practice of ethics of science and technology and applied ethics". All participants carried on thorough and productive discussions about ethics of science, ethics of technology of engineering, living, development and ethics, risk and ethics, and the cultural resources of applied ethics. They tried to explore and integrate each country' cultural resources in East Asia, and suggest a way of practical route with East Asia's own features to solve the global problems of the ethics of science and technology.

According to the common stipulation of jointly sponsored universities, on the basis of *Proceedings of 1st International Conference in Kobe: Applied Ethics and Applied Philosophy* which was published in 2010 by Kobe University in Japan, *Proceedings of the 2nd International Conference on Applied Ethics and Applied Philosophy in East Asia* is published by Dalian University of Technology Press. The Proceedings contains almost all papers submitted by scholars and graduate students who attended the conference, and they have been revised by each author and also passed the peer review.

We hope the publishing of the proceedings would be helpful to the

academic study, education and popularization of the applied ethics and applied philosophy in East Asia. We also hope it would deepen the communication and cooperation of minds between scholars and graduate students in the field of applied ethics and applied philosophy to make it an active role in adjusting the relationship among science, technology and society. Hopefully, it'll promote the harmony of human being and nature, the harmony of progress of science and technology and social living, and the harmony of culture of science and culture of humanities.

Chief Editor: Wang Qian

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Session One: Ethics of Science

The Limits of the Scientific(Materialistic)Worldview

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Abstract: Materialism is a kind of metaphysics which thrived since the very beginning of philosophy. In this paper, materialism is presented as a mechanistic mode of thinking holding that the world (including mental states) is made entirely of material objects which causally link in chain (like atoms move in void). With the development of modern science, the presence of materialism is somehow reinforced by the rapid and pervasive advance of science. However, in accompany with the advancement of science, materialism is undermined in the sense that the abstractly formulated theoretical entities such as electrons, protons and mesons have to be taken into account as its essential parts. By examining the nature of materialism from taking into account the historical, analytic and ethical approaches, we will argue at the end of this paper that far from being "well-founded", all the features attributed to the image of science as an outcome of "materialism" are deceptive by ignoring the significant nature of science. The paper finally concludes that the materialistic image of the scientific worldview is very limited as it is, rather than the ontological basis of the world, merely a metaphysical theory.

Key words: The Scientific Worldview, Materialism, Atomism, Analytic Metaphysics, Objectivism

0. Introduction

Materialism is a kind of metaphysics which thrived since the very beginning of philosophy. The Democritean and Epicurean atomism was considered a stereo-typified exemplar of materialism. In this consideration, materialism represented a mechanistic mode of thinking holding that the world (including mental states) is made entirely of material objects which causally link in chain (like atoms move in void). All immaterial parts of our conscious-

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ness such as those attributed to mind were explained away on the basis of such mode of thinking. With the development of modern science, materialism is somehow both reinforced and weakened. Its mechanistic mode of thinking is reinforced by the rapid and pervasive advance of science which further affirms that the world is made of materials presumed by science. However, on the other hand, in accompany with contemporary physical theories, matter is conceived as made of such things as electrons, protons, and mesons. As these particles, though understood as materials, are so theoretical and abstract that the mechanistic image of materialism is undermined in the sense that the mental parts have to be taken into account as its essential parts.

The shifting image of materialism puts into center the questions concerning materialism in general and science in particular. Once a metaphysical theory materialism, with the fortification of science, transforms itself into the so-called "foundation" of the human understanding of the universe. "Is this foundation well-founded?" is the question we are going to address in this paper. By examining the nature of materialism from taking into account the historical, analytic and ethical approaches, we will argue at the end of this paper that far from being "well-founded", all the dogmatic features attributed to the image of science as an outcome of "materialism" are deceptive by ignoring the significant nature of science. The argument finally concludes that the materialistic image of the scientific worldview is very limited as it is, rather than the ontological basis of the world, merely a metaphysical theory.

1. The Historical Approach

History demonstrates the everlasting nature of materialism. Containing a relatively stable definition, materialism substantiated itself early in the beginning of philosophy through the ideas of atomism. Though minor changes never ceased, materialism remains practically a fixed idea by featuring its mechanistic function of its presumed matter. This simple nature helps people to alleviate a lot of anthropomorphic ideas which do nothing but hinder the development of science. This may sound anachronistic by linking ancient atomism with science, but looking at the comments made by the reputed author of *The History of Materialism*, F. A. Lange on the first aphorism of Democritus: "*Out of nothing arises nothing; nothing that is can be destroyed. All change is only combination and separation of atoms*"; He says,

> This proposition, which contains in principle the two great doctrines of modern physics- the theory of the indestructibility of matter, and that of the persistence

> of force (the conservation of energy) - appears essentially in Kant as the first "analogy of experience"… The doctrine claims an axiomatic validity as a necessary presupposition of any regulated experience at all, and yet it has its history![①]

Lange is correct by pointing out that the link between the ancient metaphysics of atomism and the core doctrines of modern physics is a historical contingency, rather than anything of essential necessity. That this fact has been mistakenly identified as a necessary presupposition of human experience was mainly due to the achievement of modern science which Kant tried hard to explain. The explanatory result vindicated Kant's backing of science as the exclusive form of rationality. However, it was not so identified before the rise of modern science when religious elements and their connected metaphysics examined the world and all it contained from another perspective. Ironically, another presupposition was then well-established referring to the final causes and all its subsequent creations. In fact, in accompany with the rise of science, materialism gets along not only with atomism, but also mechanism, atheism, and perhaps also determinism. All these were due to the simple nature of atomism which holds its third aphorism according to Lange: "*Nothing exists but atoms and empty space; all else is only opinion.*" We admits the atomistic advantage of being simple, whereas it also causes its disadvantage as Lange explains,

> Here we have in the same proposition at once the strong and the weak side of all atomism. The foundation of every rational explanation of nature, of every great discovery of modern times, has been the reduction of phenomena into the motion of the smallest particles… On the Atomic theory we explain today the laws of sound, of light, of heat, of chemical and physical changes in things in the widest sense, and yet atomism is as little able today as in the time of Democritus to explain even the simplest sensation of sound, light, heat, taste, and so on.[②]

Clearly, what Lange says here is a resounding indication that the materialistic explanation of nature, though powerful and simple, contains limits that it fails to explain the following 'why' questions. Why do we sense the outside world without knowing in advance laws of any sort? Why should we admit that the materialistic worldview of atomism offers the only

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① Lange F A. *The History of Materialism and Criticism of Its Present Importance*[M]. First published in German in 1865, trans. by Thomas E C. London: Rutledge, 2000:19.

② Lange F A. *The History of Materialism and Criticism of Its Present Importance*[M]. First published in German in 1865, trans. by Thomas E C. London: Rutledge, 2000: 22-23.

accurate picture of reality[①]? Why would we have to believe a materialistic picture which demonstrates no gains but its power of explanation and simplicity? All these questions are everlasting since long time ago. This indication of limits manifests also the fact that the materialistic worldview, even with the reinforcement of science, cannot gain overwhelming victory over the other worldviews among which the final cause view, though undermined drastically through the development of modern science, persists!

2. The Analytic Approach

The analytic approach targets the materialistic idea which makes use of science as its agent with the self-claimed *raison d'être*. This idea is nowadays trendy among analytic philosophers that W. V. Quine's naturalism is the most remarkable one. When talking about naturalism in his *From Stimulus to Science*[②], Quine bluntly equates physicalism and materialism (15). Quine thinks that, by pointing the finger at R. Carnap who, in his "rational reconstruction" of science[③], failed to follow the physicalistic approach of science and instead later in his career adopted a "quasi-mentalistic" (or phenomenalistic) approach. He agrees with O. Neurath, another representative of the Vienna Circle, holding that that Carnap should take on "a physically based constitution system for science (15)"[④]. He proposes consequently two directions of pursuing the physicalistic alternative,

> One, aimed solely at conceptual economy and clarity in the spirit of *Principia Mathematica*[⑤], is pretty much what physicists at the theoretical pole have long been up to··· The other direction, more analogous to Carnap's *aufbau* is what I think of as *naturalism*. It is rational reconstruction of the individual's and/or the

① This is a key point of debate between skeptics of Pyrrhonism and the atomists which "held that it was only on the assumption that the world was fundamentally composed of atoms and the void that evident *facts* of experience (such as the existence of motion) could be explained. But the skeptics simply respond that there is no reason to think that there are any such valid inferences." After all, most physical theorists throughout history rejected the atomist inference from motion to the void. HANKINSON, R. J., "Pyrrhonism". In E. Craig (Ed.), *Routledge Encyclopedia of Philosophy*, (London: Routledge, 1998), retrieved from http://www.rep.routledge.com/article/A102SECT5.

② Quine W V. *From Stimulus to Science*[M]. Cambridge: Harvard University Press, 1995.

③ This refers obviously R. Carnap's *Aufbau* (its English translation: Carnap R. *The Logical Structure of the World*[M]. trans. by George R A. Berkeley: University of California Press, 1967.)

④ For a more detailed exposition concerning Neurath's position towards Carnap, please refer to my "A Naturalistic Approach of Scientific Methodology: A Comparative Study of O. Neurath and P. Feyerabend" in *Naturalized Epistemology and Philosophy of Science* (*Rodopi Philosophical Studies* Volume 7), Chienkuo Mi and Ruey-lin Chen (eds.) (Amsterdam/New York: Rodopi, 2007), pp. 171-196 (June 2007).

⑤ Russell B, Whitehead A N. *Principles of Mathematics*[M]. Cambridge: Cambridge University Press, 1910. This work is in three volumes published respectively in 1910, 1912 and 1913.

> race's actual acquisition of a responsible theory of the external world. It would address the question how we, physical denizens of the physical world, can have projected our scientific theory of that whole world … from the mere impacts of rays and particles on our surface and a few odds and ends such as the strain of walking uphill (16).

Quine says overtly, "Such is my option."(16) This option, though complicated by mingling a few attributes, reiterates only one thing: the identification between materialism with science; "it is part and parcel of empirical science itself", says Quine (16). With this identification at hand, we however need to ask what exactly does he mean by this "option"? Is it a statement saying "matter is all there is introduced by empirical science"? If it is indeed the case, then we need to answer in advance "what is empirical science"? As science is a practice of constant progress, the answer of these questions cannot be something like a series of statements or propositional definitions. It has to be, like science itself, a practice of constant and dynamic change rather than merely words. This answer, though well correspondent with the actual state of science, is despised by many metaphysicians who claim though that materialism is more than a mere statement; it is about "matter is all there is".①

If we ask, concerning the nature of science, between the scientists and materialists, who are on the right side? The answer is more than obvious as scientists who are involved with the practices of science, whereas materialists merely make factual claims concerning the nature of science. Quine's description of materialism (including physicalism and naturalism) referring to the combination of the two directions appear to us just like two factual claims. One depicts the logico-mathematical nature of science and the other, the reduction of mental states to the rational reconstruction of the way through which we acquire scientific theories. Despite the fact that Quine would not say that everything has to be trimmed on the basis of these two claims, the intention is clear and the consequence is obvious.

The consequence is pointed out by B. van Fraassen who says that the materialistic claim is

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① Place U T. Materialism as a Scientific Hypothesis[J]. *The Philosophical Review*. 1960,69(1):101-104. It can be considered one among many examples. In this article, Place makes plain his materialistic position as "establishing the identity of a physiological process with the sensation process"(104). Another example is in Owen Flanagan, *The Really Hard Problem*(Cambridge: the MIT Press, 2007). Flanagan is an old-fashioned materialist of the atomistic kind as he identifies his position with atomism. He says "Science itself recognizes numerical, spatial and temporal relations that are not causal. "Atom a" is *next to/close to* "Atom b". There are *eight* distinct atoms left in the chamber. "Atom a" moved *after* "Atom b" hit it"(13). They all link science with materialism or *verse versa*.

used as a "dialectical tactic".[①] The tactic goes like this. While materialism claims to be identified with science, this "unfounded" claim strategically forges a line of attack against other claims not founded on science. If other claims are based on science, then they hold the right of interpretation, examining if they are "truly" based on empirical science. If not, then they will be easily dismissed for being "non-materialistic". If they are, then the debates end. The pre-establishment of taking science as the only criterion may sound disturbing, but it unfortunately conducts a trend in which the triumph of materialism is a prime result. For this reason, Van Fraassen calls materialism of this sort "a stance misunderstood", or "a false consciousness in philosophy" (49-50). All these indicate that materialism has become a form of metaphysics which cements itself by substantiating the combination of "provisional realism" and "presumptive materialism" (49). Provisional realism says a persuasive statement on science that "there are unobservable causes for all observable phenomena" and presumptive materialism refers to another statement, that "matter is all there is". Combining these two positions, we get that "those causes are all material mechanisms of some sort". This combined position is purely verbal, yet it "affects science as well as practical and intellectual life generally" (50).

According to van Fraassen, materialism affects all aspects of human life, both practical and intellectual simply because it claims to be identified with science. However, taking what we have analyzed so far, we see clearly that there are no necessary reasons to identify science with this metaphysical theory, namely materialism. Materialism actually has nothing whatsoever to do with science. Thinking so would be a "false consciousness" (57). Despite the fact that the false consciousness does exert its power on the projection of the external world, this metaphysical sort of materialism, under van Fraassen's analytic scrutiny, is untrue. Van Fraassen divides his scrutiny into two directions.

The scrutiny consists of two parts: a reductive part and a scientific part. The reductive part refers to the idea that what traditionally attributed to mental states such as events and processes can be reduced to (or identified with) events and processes in the brain. The scientific part refers to the idea that the thesis of materialism identifies itself with that of science. According to van Fraassen, both parts are untenable as they have little empirical evidence, yet they stipulate that all empirical evidence is on their side. We will look further deep into van Fraassen's analysis in what follows.

① van Fraassen B. *The Empirical Stance*[M]. New Haven: Yale University Press, 2002: 12.

Reducing mind to the physiological structure of brain is a scientific hypothesis which does not sustain itself unless it is empirically confirmed. At the same token, if there is a possibility of discovering more empirical evidences which go beyond the physiological structure of brain and the discovery demonstrates immediately the limit of the reductive thesis. Van Fraassen talks hence his exposition of human experiences which do go beyond the realm of physiological explanation.

> That a person has a purpose, for example, does not consist in any specific type of occurrent event or process; nor that her sins are forgiven, that she is in a state of grace, or that she is precious beyond rubies··· I do not want to be fanciful, but merely establishing that sensations are brains seems hardly more than a drop in the bucket for the materialist. The virtue of such a ringing thesis as "matter is all" was to settle the hash of all such stuff once and for all (54).

Clearly, sensations, as we have seen in the previous section, cannot be reduced to the realm of materialistic explanation. They are empirically different and they set the limits to the empirical claims of materialism. Maybe to the materialists, these limits do not matter as they can easily claim that those experiences go beyond not only the realm of physiological explanation, but also the very extent of physics. As materialism raises the banner of "a completeness claim to science", it cares nothing but whatever is postulated by science in general and physics in particular. This claim habitually is sound if we know what it means or take it to be the basis of the world. This is also the backbone of materialism which sticks to the "matter". Unfortunately, according to van Fraassen, this is impossible as we learn from the history of science that the succession of scientific theories frequently comes with the revolution in the Kuhnian sense that some entities existed vividly in the previous theory relinquished with the emergent of a new theory which withholds its own entities. Can we then say that the completeness claim refers to an entity of the current science which can become non-existent in the next theory? Or, can we admit that something which is the basis of materialism can go disappear with the rise of another theory? Can we say that materialism is founded upon something which may disappear? What kind of materialism is this which might lose its "matter"? If that does happen, can we say materialism disappears too?

With regard to these questions, history of science reveals through its course too many facts that theories did change to such an enormous extent that sometimes their entities became unrecognizable within the realm of succeeding theories. So, should we then adopt affirma-

tive answer to all the above-mentioned questions? If that happens indeed to be the case, then it would certainly be very difficult for the position of the materialists who hold firm their concept of matter as the foundation of everything. The problem lies in the fact that materialism cannot be identified with anything, let alone science whose nature is in the state of constant changing. Nor can the materialists claim that their "matter" goes together with the dynamic change of science because there was, is and will be never such a "fixed matter" in science. Hence van Fraassen proposes what he means by materialism,

> Materialism is not identifiable with a theory about what there is but only with an *attitude* or *cluster of attitudes*. These attitudes include strong deference to the current content of science in matters of *opinion* about what there is. They include also an inclination (or perhaps a commitment, at least an intention) to accept completeness claims for science as actually constituted at any given time. Let us call these the first and second characteristics of materialism (59).

Materialism is in van Fraassen's eyes first of all an attitude which defers science in matters of "opinion" about what there is. There is neither need nor imperative to fix matter with a specific entity. Nor would it be possible to do so as identifying with science is an "empty" claim. All these tell us only one thing that materialism is understood in false consciousness and it is actually very limited.

3. The Ethical Approach

The materialistic worldview is ethically significant as it gains its value through the advancement of science. Though materialism is limited by the above mentioned false consciousness, it does exert its power by repudiating all other forms of experiences than that of modern science. Whether this repudiation is justified or not is not our concern in this section. It is an unfortunate fact though. Frequently, it is an idea promoted by some of the best scientists of the last century such as the 1965 Nobel Laureate of Medicine, Jacques Monod (1910-1976). In 1970, Monod published his book, *Chance and Necessity: An Essay on the Natural Philosophy of Modern Biology.* ① The title reminds us what Democritus proudly said long time ago: "Everything existing in the universe is the fruit of chance and necessity." ② In the "Introduction", Monod mentions precise this sentence of Democritus by reit-

① Monod J. *Chance and Necessity: An Essay on the Natural Philosophy of Modern Biology* [M]. New York: Vantage Books, 1971.

② http://www.brainyquote.com/quotes/authors/d/democritus.html

erating that the world is indeed like so, namely a result of chance and necessity. Moreover, Monod takes this as a bold position of "scientism" which reflects the spirit of Enlightenment. Monod says:

> Proposing no explanation but imposing an ascetic renunciation of all other spiritual fare was not of a kind to allay anxiety but aggravated it instead. By a single stroke it claimed to sweep away the tradition of a hundred thousand years, which had become one with human nature itself. It wrote an end to the ancient animist covenant between man and nature, leaving nothing in place of that precious bond but an anxious quest in a frozen universe of solitude. With nothing to recommend it but a certain puritan arrogance, how could such an idea win acceptance? It did not; it still has not. It has however commanded recognition; but that is because, solely because of its prodigious power of performance. (32)

This book has been famous for its idea of "a purposeless, meaningless universe" which reveals itself through the progress and success of science. For Monod, purpose and meaning in nature were outlaw concepts. A scientist who believes in them even in the face of so many evidences accumulated throughout the centuries, is unwise and therefore a moral failing. The blames added on the scientist accuse both in terms of intelligibility as well as of morality. This is mainly due to Monod's confident proclaim that, "The cornerstone of scientific method is the systematic denial that 'true' knowledge can be got at by interpreting phenomena in terms of final causes—that is to say, of 'purpose'". (36)

What Monod proposes here is hardly different from a purely naturalistic (hence materialistic) line of thinking characterizing natural laws. Nowadays, we have to admit that this proposal presents a powerful case that takes into account the ethical, political and philosophical elements as a whole. With this comprehensive picture of the universe guided by "the prodigious power of performance" of science, people started gradually to accept a new system of values which nowadays becomes the backbone of the so-called modern society. Above all, Monod implies clearly that scientists are required committing themselves to the criteria of objectivity by putting aside "unfounded" moral ideas and propositions.

Feyerabend in his newly published book *The Tyranny of Science* (Cambridge: Polity, 2011) refutes Monod's praise of science's objectivism. He elaborates Monod's idea by saying,

> Materialism—that's what the world view described by Monod amounts to-com-