

SCIENTIFIC MATERIALISM

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OF THE SCIENCES, PURE AND APPLIED

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MARIO BUNGE

Foundations and Philosophy of Science Unit, McGill University

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To my children

ERIC RUSSELL and SILVIA ALICE

*May their generation enjoy and improve
the only world we've got
and which my generation may still destroy.*

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PREFACE

The word 'materialism' is ambiguous: it designates a moral doctrine as well as a philosophy and, indeed, an entire world view. Moral materialism is identical with hedonism, or the doctrine that humans should pursue only their own pleasure. Philosophical materialism is the view that the real world is composed exclusively of material things. The two doctrines are logically independent: hedonism is consistent with immaterialism, and materialism is compatible with high minded morals. We shall be concerned exclusively with philosophical materialism. And we shall not confuse it with realism, or the epistemological doctrine that knowledge, or at any rate scientific knowledge, attempts to represent reality.

Philosophical materialism is not a recent fad and it is not a solid block: it is as old as philosophy and it has gone through six quite different stages. The first was ancient materialism, centered around Greek and Indian atomism. The second was the revival of the first during the 17th century. The third was 18th century materialism, partly derived from one side of Descartes' ambiguous legacy. The fourth was the mid-19th century "scientific" materialism, which flourished mainly in Germany and England, and was tied to the upsurge of chemistry and biology. The fifth was dialectical and historical materialism, which accompanied the consolidation of the socialist ideology. And the sixth or current stage, evolved mainly by Australian and American philosophers, is academic and nonpartisan but otherwise very heterogeneous.

Ancient materialism was thoroughly mechanistic. Its great names were Democritus and Epicurus as well as Lucretius. Seventeenth-century materialism was mainly the work of Gassendi and

Hobbes. Eighteenth-century materialism, represented by Helvetius, d'Holbach, Diderot, La Mettrie, and Cabanis, exhibited a greater variety. Thus while La Mettrie regarded organisms as machines, Diderot held that organisms, though material, possess emergent properties. The 19th century "scientific" materialists, while philosophically naive, had the merit of linking materialism to science, though not to mathematics. Not only the scientists Vogt, Moleschott and Czolbe were among them but also Tyndall and Huxley and, secretly, Darwin as well. Dialectical materialism, formulated mainly by Engels and Lenin, was dynamicist and emergentist, and claimed to be scientific while at the same time being committed to an ideology. Finally the newer or academic materialists come in a variety of shades, from physicalists like Neurath, Quine and Smart to emergent materialists like Samuel Alexander and Roy Wood Sellars. Their relationship to contemporary science is remote.

Most philosophers from Plato onwards have dismissed philosophical materialism as crass and incapable of accounting for life, mind, and their creations. Accordingly materialism is seldom discussed in the philosophical literature and in the classroom except when allied to dialectics. As a result materialism is still in its infancy even though it is several thousand years old.

Philosophical materialism has been attacked on several counts. Firstly for conflicting with the magical and religious world views. (For this reason it is often conflated with positivism.) Secondly because the dialectical version of materialism is part of the Marxist ideology and therefore anathema (when not untouchable dogma). Thirdly for having allegedly failed to solve the major philosophical problems, or even for having dodged some of them altogether. We shall not be concerned with the first two criticisms for being ideological not philosophical.

We shall tackle instead the philosophical objection that materialism is insignificant for not facing, let alone solving, some of the key problems of philosophy. Here are some of the outstanding

problems that materialism is supposedly unwilling or even incapable of tackling:

(i) *How can materialists hold the fort in the face of the apparent dematerialization of the world accomplished by contemporary physics, with its fields and probability waves?*

(ii) *How can materialism, which is supposedly reductionistic, explain the emergence of new properties, in particular those peculiar to organisms and societies?*

(iii) *How can materialism explain mind, which is immaterial?*

(iv) *How is materialism to account for purpose and freedom, which so obviously transcend natural law?*

(v) *How do materialists make room for cultural objects, such as works of art and scientific theories, which seem to dwell in a realm of their own and obey supraphysical laws or perhaps none at all?*

(vi) *How do materialists propose to explain the causal efficacy of ideas, in particular the technological and political ones?*

(vii) *Since concepts and propositions have no physical properties, how could they possibly dwell in a purely material world?*

(viii) *Since the truth of mathematical and scientific propositions does not depend on the knowing subject or his circumstances, how can it possibly be explained in terms of matter?*

(ix) *How can materialism account for values, which are not physical entities or properties, and yet guide some of our actions?*

(x) *How can materialism explain morality without endorsing hedonism, given that the rules of moral be-*

havior, particularly those concerning duties, are alien to natural law?

It must be owned that most materialists have not proposed satisfactory answers to the above crucial questions. Either they have not faced some of them or, when they have, their answers have tended to be simplistic, such as the theses that spacetime points are just as real as chunks of matter, that there is no mind, and that mathematical objects are just marks on paper. In particular, there seem to be no full fledged materialist philosophies of mind and of mathematics, or of values and morals.

To be sure not all materialists are vulgar or crass, and a number of materialist philosophers have offered valuable insights into the above questions. Still, most materialist philosophers speak only ordinary language — and so are bound to formulate their views in an inexact fashion — and they seldom care to argue for them in a cogent way. Besides, materialists have been so busy defending themselves from ignorant or vicious attacks, and counterattacking, that they have neglected the task of building comprehensive philosophical systems and moreover systems compatible with contemporary logic, mathematics, science, and technology. As a result materialism is less a field of active research teeming with novelty than a body of belief, much of it obsolete or irrelevant. (When did you last hear of a recent breakthrough in materialist philosophy?)

While all of this is true, the interesting question is whether materialism is hopelessly dated and impotent, or can be revitalized and updated and, if so, how. This is the problem the present book addresses. This book can be regarded as an invitation to look at materialism as a field of research rather than a body of fixed beliefs. More precisely, it is a challenge to examine, clarify, expand and systematize materialism in the light of contemporary logic, mathematics and science rather than in that of the history of ideas, let alone that of political ideology. Materialism must take up

this gauntlet under penalty of remaining underdeveloped and thus uninteresting and inefficient.

The motivations for this challenge are the following. First, materialism has not advanced far beyond the 19th century, partly for having ignored modern logic and refused to learn from rival philosophies. And yet it can be argued that materialism is not just one more ontology: that it is the ontology of science and technology. In particular, materialism is the ontological driving force behind certain scientific breakthroughs such as atomic and nuclear physics, evolutionary biology, the chemical theory of heredity, the scientific study of the origin of life, the physiology of ideation, and the most recent advances in paleoanthropology and historiography.

A second motivation is the author's conviction that philosophical investigation should be conducted systematically, exactly, and scientifically rather than in the manner of literature, let alone pamphleteering. Part of this belief is the thesis that, whereas a philosophical doctrine can be destroyed by analysis or argument, it is best established by showing that it harmonizes with science and that it helps advance scientific research rather than block it. If this be scientism, let it be so.

A third motivation is the thesis that the usual relation of philosophy and ideology, where the former is ancillary to the latter, should be inverted. An ideology cannot be both true and effective unless it agrees with both philosophy and science, which are advanced only by the free search for truth. (What is sometimes called 'the ideology of science' is not an ideology proper but a collection of ontological, epistemological and moral principles concerning reality and the ways of knowing about it.) In particular, materialism should not be rejected or embraced just because it agrees or disagrees with a given ideology. Thus, whether or not we think with our brains is a problem of great ideological import, but not one to be solved by ideology.

Intellectual challenges are self-challenges in the first place. So,

this book is more than a challenge to fellow philosophers and scientists: it is also an attempt to sketch solutions to some of the outstanding problems listed a while ago. These solutions are offered tentatively as embryos that may deserve to grow through further research. Some of them have already been developed into full fledged theories to be found in the author's *Treatise on Basic Philosophy* (Bunge, 1974a, 1974b, 1977a, 1979, and forthcoming) and *The Mind-Body Problem* (Bunge, 1980). However, no philosophical system, even if exact and up to date, can be expected to be impervious to criticism and ulterior development or even replacement. Philosophizing may be perennial, philosophies not.

Finally, a warning to the reader who expects to find in this book a review of the various materialist schools, or at least an exposition of a well known materialist philosophy, such as physicalism, or dialectical materialism. He will find neither. What he will find is a sketch of a new ontology built in response to the problems listed above, which were left unsolved by the traditional materialisms. This new ontology will be called *scientific materialism* because it draws its inspiration from science and is tested as well as modified by the advancement of science.

Montréal, Qué., Canada
February 1981

MARIO BUNGE