

Materialism

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Philosophical Concept

Materialism is a set of related theories which hold that all entities and processes are composed of – or are reducible to – matter, material forces or physical processes. All events and facts are explainable, actually or in principle, in terms of body, material objects or dynamic material changes or movements. In general, the metaphysical theory of materialism entails the denial of the reality of spiritual beings, consciousness and mental or psychic states or processes, as ontologically distinct from, or independent of, material changes or processes. Since it denies the existence of spiritual beings or forces, materialism typically is allied with atheism or agnosticism.

The forms of materialism extend from the ancient Greek atomistic materialism through eighteenth- and nineteenth-century scientifically based theories, to recent sophisticated defences of various types of materialism

1. Materialism

Materialism is the general theory that the ultimate constituents of reality are material or physical bodies, elements or processes. It is a form of monism in that it holds that everything in existence is reducible to what is material or physical in nature. It is opposed to dualistic theories which claim that body and mind are distinct, and directly antithetical to a philosophical idealism that denies the existence of matter. It is hostile to abstract objects, if these are viewed as more than just a manner of speaking (see Abstract objects). An implication of materialism is that the diverse qualitative experiences we have are ultimately reducible to quantitative changes in objects or in our physiological functioning. All the properties of things, including persons, are reducible to properties of matter. Although the terms referring to psychic states such as intention, belief, desire and consciousness itself have a different sense and use than terms referring to material events, a consistent materialist would deny that mentalistic terms have reference to anything other than physical events or physiological changes in our brains. The enormous advances in the sciences have contributed storehouses of empirical data that are often used to support materialism. Many philosophers have been attracted to materialism both because of its reductive simplicity and its association with scientific knowledge.

2. Ancient Greek atomism

Although Leucippus is credited with inventing the atomic theory of matter in the fifth century bc, it was Democritus (fourth century bc) who developed a systematic theory of atomistic materialism. This theory states that matter is composed of separate and minute elements that are 'uncuttable' (*atoma*), that these elements move in empty space or the 'void'. Atoms differ only in shape and volume, and all change occurs by the transfer through direct contact of movement from atoms in motion. These elementary entities are lacking in secondary qualities and are indestructible. Democritus held that things are hot or cold, sweet or bitter, or have different colours 'by convention'. In reality, 'there are atoms and the void'.

The essentials of early atomism were retained in Epicurus' physics, with the exception that Epicurus ascribed freedom to atoms in their movement through space. Epicurean materialism is lucidly expressed in the philosophic poem by Lucretius, *De rerum natura* (On the Nature of Things), in the first century bc. This popularization of Epicurean thought did much to keep alive both atomistic materialism and what is already recognizable as a naturalistic understanding of humans and world (see Epicureanism).

3. Modern materialism

During the first half of the seventeenth century the atomistic materialism of the Greco-Roman period was revived in a paradoxical way by Pierre Gassendi. He appreciated the scientific interpretation of nature and the methods of science but, at the same time, preserved the Christian idea of the immortality of the soul and conceived of God as the creator of the atoms. The English philosopher Thomas Hobbes presented a systematic theory of nature and human nature that was largely, though not completely, materialistic. Apart from attributing 'drive' or *conatus* to human action and sensation, Hobbes virtually banished the concept of 'incorporeal substance'. In theory and sentiment Hobbes was a materialist thinker, although not a consistent one. The early eighteenth century saw the publication of the first of many works that defended a materialistic and mechanistic interpretation of mankind's nature on the basis of physiological theory. In *L'Homme machine* (1748) Julien de La Mettrie, a philosophical physician, described human beings as self-moving mechanisms and sought a neurological basis for mental activity. An advance on previous attempts to develop a systematic materialism is Paul H.D. d'Holbach's 1770 *Système de la nature* (The System of Nature). Here, a consistent naturalistic materialism is expounded in that cognitive and emotive states are reduced to internal material 'modifications of the brain'. Though not calling it such, d'Holbach presents a form of physiological determinism.

With the rapid growth of the sciences, the astronomical discoveries of Copernicus, the theories of Galileo, and the systematic conception of nature in the physical theory of Isaac Newton, naturalistic interpretations of a variety of phenomena became more and more prevalent. This scientifically founded picture of reality lent greater plausibility to the principles of materialistic theory. The astronomer and mathematician Pierre Laplace (1749–1827) produced a sophisticated astronomical theory which, he thought, illustrated that a supermind, knowing all the states and

conditions of every existing entity, could predict the total state of the cosmos in the next moment. When Napoleon I was shown a copy of Laplace's work, he is supposed to have commented on the absence of any mention of God. Laplace replied, 'I have no need of that hypothesis'. Laplace's mechanistic materialism became, in the hands of many thinkers, the definitive explanatory principle of all events.

The formulation of the biological theory of evolution by means of natural selection by Charles Darwin virtually eliminated teleological explanations of biological phenomena and thereby buttressed material and physical interpretations of organic development. With the advances in chemistry achieved by Lavoisier (1743–94) in France and John Dalton (1766–1844) in England, the reductive analysis of natural phenomena to chemical substances, elements and processes bolstered the empirical, naturalistic and materialistic interpretations of phenomena. During the nineteenth century many philosophical thinkers sought to build theories on the foundation of scientific facts, principles or laws. The historical materialism developed by Marx and Engels sought to formulate laws of social, economic and historical development, but did not defend metaphysical materialism (see Dialectical materialism). The general appeal of materialism in the nineteenth century is shown by the popularity of the 1855 work by Ludwig Büchner, *Kraft und Stoff* (Force and Matter), which passed through sixteen editions. Although philosophically crude, it is an accessible compendium of popular materialism. In 1852, Jacob Moleschott had defended the reduction of force to matter, the doctrine of the conservation of matter, and a species of objective relativism in *Der Kreislauf des Lebens* (The Cycle of Life). Following the ill-chosen analogy between the brain and thought and the digestive system in Jean Cabanis' *Rapports du physique et du moral de l'homme* (Relations of the Physical and the Mental in Man) (1802), Karl Vogt proclaimed that the brain 'secretes' thought the way the liver secretes bile. Despite such excursions into 'vulgar materialism', the nineteenth century became a period of intense debate for scientists and philosophers alike in regard to the limits of scientific knowledge and the epistemological problems of metaphysical materialism. This was fuelled by a Neo-Kantian movement which, particularly in *Geschichte des Materialismus* (History of Materialism) (1865) by F.A. Lange, held that materialism is a useful methodological principle in science, but questionable as a reductionist metaphysics. The concepts and postulates of science are theoretical entities or conventional notions formed by the mind. Their usefulness does not, according to Lange, warrant their role as bases for materialism.

4. Recent materialism

In the twentieth century, physicalism has emerged out of positivism. Physicalism restricts meaningful statements to physical bodies or processes that are verifiable or in principle verifiable. It is an empirical hypothesis that is subject to revision and, hence, lacks the dogmatic stance of classical materialism. Herbert Feigl defended physicalism in the USA and consistently held that mental states are brain states and that mental terms have the same referent as physical terms (Feigl 1958). The twentieth century has witnessed many materialist theories of the mental,

and much debate surrounding them (see Behaviourism, analytic; Functionalism; Mind, identity theory of; Materialism in the philosophy of mind).

In the field of artificial intelligence, the mind is held to be analogous to computers in so far as it functions as an information-processing entity. Daniel Dennett has, in a qualified way, argued that information-processing machines are valid models of the mind. In addition to the scientifically informed arguments for various forms of materialism, including nonreductive materialism, the twentieth-century conception of matter as composed of electrons, protons and other subatomic particles has spawned a rich speculative literature that effectively undermines previous forms of materialism. What the late US philosopher of science, Norwood Hanson, called the 'dematerialization' of matter, raises questions concerning what 'materialism' means in terms of the theories of microphysics. Many of the arguments that sustained earlier forms of materialism (including the assumption of causality as universal in nature) have been put in question. The confluence of contemporary theories about the structure and function of the mind and the nature of matter have introduced a complexity of detail and an array of paradoxical claims that make contemporary materialism a welter of intriguing, but conflicting and perplexing, theoretical elements.

References and further reading

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Büchner, L. (1855) *Kraft und Stoff*, Frankfurt: Meidinger; trans. J.F. Collingwood as *Force and Matter*, London: Trübner, 1864.

(Popular compendium of the bases of materialism; philosophically unsophisticated, but interesting.)

Cabinis, J. (1802) *Rapports du physique et du morale de l'homme* (The relationship between the physical and moral aspects of man), Paris.

(Cabinis is considered one of the earliest contributors to the science of psychophysics.)

Dennett, D.C. (1978) *Brainstorms: Philosophical Essays in Mind and Psychology*, London: Bradford Books.

(Solid treatment of mind conceived of as an information-processing system.)

Feigl, H. (1958) 'The "Mental" and the "Physical"', in *Minnesota Studies in the Philosophy of Science*, vol. 2, Minneapolis, MN: University of Minnesota Press.

(Classic statement of physicalism.)

Gassendi, P. (1658) *Syntagma Philosophicum Epicurus*, The Hague.

(Exposition and defence of Epicurus' philosophy, criticizing points that conflict with Catholic teachings.)

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(Includes Hobbes' views on materialism.)

Holbach, P.H.D. de (1770) *Système de la nature*, Amsterdam; trans. H.D. Robinson as *The System of Nature*, Boston, MA, 1868.

(Excellent presentation of naturalistic materialism which includes interesting criticisms of freedom of the will.)

La Mettrie, J.O. de (1748) *L'Homme Machine*, Leyden: Elie Luzac Fils; trans as *Man a Machine*, La Salle, IL: Open Court, 1912.

(A physician, La Mettrie presented one of the earliest theories of the physiological bases of a variety of psychic states or a strong version of physiological determinism.)

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(Thorough, detailed and insightful tracing of the development of materialism up to the 1870s, vitalized by Lange's penetrating insights and valuable commentary.)

Lucretius (1st century) *De rerum natura*; trans. W.H.D. Rouse, Cambridge, MA: Harvard University Press 1975.

(Powerful philosophic poem which presents the philosophy of Epicurus in a generally accurate and appealing way.)

Moleschott, J. (1852) *Der Kreislauf des Lebens* (*The Cycle of Life*), Mainz.

(Study of the circular processes of life in nature with interesting observations on the relativity of perception among nonhuman beings and its application to human knowledge.)

Paulsen, F. (1892) *Einleitung in die Philosophie*, Berlin; trans. F. Thilly as *Introduction to Philosophy*, New York: Henry Holt & Co., 1895.

(Lucid presentation of materialism as of the late nineteenth century, with Kantian-like critiques of its central claims.)

Smart, J.J.C. (1963) *Philosophy and Scientific Realism*, London: Routledge.

(Clear, well-argued defence of a realist interpretation of the scientific world-picture primarily based on physics.)