# Positivism

Positivism is a philosophical attitude. Its main features are trust in science, opposition to metaphysics, and unified science. The last is the thesis that all sciences use the same method. Positivists share a common set of philosophical principles. However, sometimes they adopted different views on some important topics. Hence, there have been several strains of positivism.

The father of positivism was the French thinker Auguste Comte (1798–1857), who developed social positivism. Comte's primary aim was the reform of society. He greatly contributed to the birth of sociology. John Stuart Mill, the English philosopher, was one the best-known representatives of social positivism.

Herbert Spencer, the English philosopher and sociologist, put great emphasis on evolution. His view is called evolutionary positivism.

Richard Avenarius (1843–1896) and Ernst Mach (1838–1916) were mainly interested in philosophy of science. They gave birth to critical positivism. They asserted that pure experience is the only valid source of knowledge. Critical positivism influenced the development of philosophy of science in Continental Europe.

Logical positivism was the leading school in the philosophy of science during the first half of twentieth century. It exerted a major influence on American philosophy. Logical positivists denied the soundness of traditional philosophy. They asserted that many philosophical problems are indeed meaningless.

## Social positivism: Comte and Mill

Comte assigned to positivism the task of improving society. He believed that a reform of society was necessary to prevent moral and political anarchy. The French revolution had destroyed the old social and political system. Every effort to establish a new stable system had failed. Comte ascribed these failures to the lack of understanding of the laws that govern the dynamics of society. He believed that these laws have the same status of the laws of natural sciences. They are the subject matter of a new science, which Comte called "social physics" and later "sociology". The laws studied by sociology are very important, because they can give reliable forecasts, which are essential to predict the effects of the reforms.

Comte affirmed that he had discovered an important fundamental law about the development of ideas. It was the law of the three stages. The law states that human conceptions develop through three stages or phases. Comte called the three stages the Theological, or fictitious; the Metaphysical, or abstract; and the Scientific, or positive. In the theological stage, the aim of research is to discover the first causes of events. These causes are identified with the will of deities. At its highest perfection, the theological stage keeps only one supernatural being—God—as the first cause of every events. The metaphysical stage substitutes the will of supernatural beings with the effect of abstract forces. Eventually, the metaphysical stage recognizes that only one force is needed—Nature. The scientific (positive) stage stops consciously the vain search for the first

causes. Science more fruitfully searches for the laws of connections between events. Science does not ask "why?" but "how?"

Comte built his classification of sciences on the foundations provided by the law of the three stages. Sciences reach the positive stage according to the complexity of their subject. The simpler arrives first, the more complex arrives later. The first natural science to reach the positive stage was astronomy. The other sciences that have reached the positive stage are physics, chemistry, and physiology (that is, biology). Mathematics, the indispensable instrument needed by every science, plays a special role. The only science that has not still reached the positive stage is social physics (that is, sociology). The aim of positive philosophy is to establish sociology as a positive science. Sociology, in its positive stage, can give reliable forecasts based on exact laws. Hence, sociology can help in improving society, because reliable forecasts are essential tools to reform the society.

Comte stated that all sciences employ the same methods. Hence, there is no difference in principle between mathematics, natural sciences, and human sciences. Therefore, sociology uses the same method of biology and of physics. The unity of science is the unity of method, not the unit of theories. It is impossible to explain all events by means of only one general theory. Every science utilizes the results of the simpler sciences. However, complex sciences are not reducible to simpler sciences. For example, though biology utilizes the information provided by chemistry and physics, it is not reducible to them.

Comte expressed a strong aversion to democracy. He suggested that government had to be in the hands of industrialists, businessmen and bankers. Inspired by the organization of Roman Catholic Church, Comte planned a society based on obedience and hierarchy. He even developed a religion of humanity as a substitute for traditional religion. Women were responsible for the defense of morality. This rather surprising suggestion was probably influenced by his infatuation for Clotilde de Vaux. He met the woman one year before her death.

In the hands of Mill, who published a sympathetic review of Comte's philosophy, positivism reached some interesting results. Mill pushed the unity of science to the point of considering mathematics a kind of natural science. The laws of mathematics are not a priori, but their origin is in the experience. Logic is an empirical science too. Mill introduced utilitarianism—the theory that the rightness of an action is measured by the happiness that it produces—in the realm of positivism. He opposed utilitarianism to Comte's view that an extreme altruism is necessary to produce the great happiness.

## Evolutionary positivism: Spencer

For Comte, unified science was the unity of method. For Spencer, unified science was the unity of theories. Hence, Spencer searched for a unifying principle. He believed that evolution is the general principle that can unify all fields of knowledge. Evolution shapes everything. It shapes inorganic matter and living organisms, individuals and society. Evolution is the process of aggregation of matter and dissipation of motion. The structure evolves from a simple, incoherent and homogeneous state into a complex, coherent and heterogeneous state. The reverse process—dissolution—is the acquisition of motion and the disaggregation of matter. To understand these definitions, look at the nineteenth-century theory about Solar system birth. Initially, there is a gaseous nebula. Its structure

is simple, incoherent and homogeneous. Matter moves freely in the nebula. Later, matter aggregates into the Sun and the planets. Their structure is complex, coherent and heterogeneous. The gravitational influence of the massive bodies limits the movement of matter.

Both evolution and dissolution remain active in every stage of the life of every structure. There is a permanent competition between evolution and dissolution. During the juvenile phase of its life, an organism experiences the predominance of evolution. The life ends when dissolution prevails. The alternating predominance of evolution and dissolution is the norm in the intermediate phase of maturity. Equilibrium is impossible—its probability is too low. Even human society evolves according to the law of evolution and dissolution. The division and specialization of labor is the consequence of the evolution from a simple to a complex state. Evolution explains why society cannot be stable. There is no equilibrium in the struggle between evolution and dissolution. Hence, society is always subject to more or less radical changes. Every society is destined to ruin due to the final prevalence of dissolution. The law of evolution and dissolution thus governs society and living organisms, in the same way. However, society lacks the kind of consciousness typical of living organisms. Society is not conscious, while its parts—the individuals—are conscious. On the contrary, living organisms are conscious, while their parts are not conscious. On this difference, Spencer based his extreme individualism. Society exists only to benefit the individuals.

Spencer, following Lamarck's theory, believed that the traits acquired during the life of individuals are inheritable. Parents can transmit to the offspring the characteristics and the habits that they acquired as an adaptation to the environment. The organisms best adapted to the environment have greater probability that their offspring is best adapted too. This is the law of the "survival of the fittest". Society cannot intervene to mitigate the life of the "unfittest", because such an action is against the survival of the fittest. The men who care about the suffering of the poor interfere with the evolution. They make the struggle for existence harder for the worthy. Who are the unworthy, the unfittest? They are the unsuccessful and the reckless. They are the poor—this was Spencer's belief.

## Critical positivism: Avenarius and Mach

Critical positivism, also known as empiriocriticism, is the kind of positivism developed by Avenarius and Mach. The German philosopher Avenarius asserted that the distinction between things and concepts (that is, mental images of things) is ill founded. He argued that in pure experience the things are not distinguishable from their mental image. Our internal activity creates the two separate entities—the thing and its image—from pure experience. Avenarius called this internal activity "introjection". We can solve many philosophical problems recognizing that the distinction between things and concepts is not given, but is the result of introjection. For example, the mind-body dualism is a meaningless problem. Introjection creates the distinction between the body and the mind, thus generating a false problem.

Mach was an Austrian physicist and philosopher. "Mach number" is the name of a unit of measure of speed. The name celebrates his pioneering studies on supersonic motion. Mach asserted that the inertia of a body depends on the mass of the others bodies. Einstein named this principle "Mach principle". He acknowledged the positive influence

that Mach's principle exerted on the birth of relativity theory.

Mach is well known for his theory of the economy of thought. The purpose of science is to provide us with an economic description of nature. Scientific theories are not literally true or false. We judge scientific theories according to their usefulness. The measure of the usefulness of a theory is its ability to give reliable predictions and procedures for acting on the world. Mach believed that science is an adaptive response of human beings to the environment. Science helps humanity in the struggle for survival.

Various themes of positivism converge in critical positivism. One of them is Comte's view that positive science gives predictions that help in planning actions. Another is Mill's utilitarianism, applied to the scientific enterprise. Unity of science is interpreted as the unity of physical and psychical. Evolution explains science as an adaption to the environment.

Critical positivism inspired the Russian physician and revolutionary Alexander Bogdanov. He held important positions in the USSR, in spite of his conflicting relation with Lenin. Bogdanov attempted a synthesis of critical positivism and Marxism. Lenin severely criticized Bogdanov's work. Lenin accused critical positivism to be a disguised form of idealism derived from Berkeley's philosophy.

## Logical positivism

Logical positivism was the leading school in philosophy of science until 1950s. It arose in Austria and Germany in 1920s. Its members were the most distinguished philosophers of science of the first half of twentieth century. The complete list is so long to be useless in this context. One can remember only Moritz Schlick, Otto Neurath, Hans Reichenbach, Rudolf Carnap, and Carl Gustav Hempel. Their ideas were progressive, liberal, and sometimes socialist. Due to Nazism hostility, many logical positivists leaved Austria and Germany. They moved to the United States, where influenced American philosophy. Nowadays, the influence of logical positivism persists especially in the way philosophy is practiced and taught. This influence is evident in at least two points. One is the attention that philosophers pay to the analysis of language. The other is the central role played by formal logic and probability theory.

According to logical positivism, the only valid sources of knowledge are logical reasoning and empirical experience. Contrary to Mill's opinion, mathematics is a priori and reducible to logic. Natural and human sciences are grounded on experience. Their method is the same. There is a bi-dimensional unity of science. First, there is the unity of method. This unity is indeed partial, because mathematics has its distinctive method. Second, there is the unity of theories, because every science is reducible to physics. Hence, contrary to Comte's opinion, social sciences are reducible to biology, which is reducible to physics.

There is no room for metaphysics in the philosophy of logical positivism. Metaphysics is the result of logical mistakes. One source of logical mistakes is the ambiguity of natural language. Another source is Kantian philosophy, which affirms that one can acquire knowledge without the help of experience, relying only on reason. The persistence of metaphysics in philosophy is a consequence of social and economical struggles. There is an alliance between metaphysics and theology in defending traditional social organizations. The competition between metaphysics and positive philosophy is

thus a struggle between different political, social and economical viewpoints. A purpose of logical positivism was the reform of education, university, philosophy, and art. The final goal was the construction of a "constitutive system" in which every statement is reduced to the concepts of lower level. At the lowest level, every statement refers directly to the experience. From this aim follows the search for clarity, neatness, and intersubjectivity. They are reachable using a neutral symbolic language. This kind of language eliminates the problems arising from the ambiguity of natural language.

Logical positivists were very active in advertising their ideas. They organized several congresses on epistemology and philosophy of science between 1929 and 1937. They planned a never completed *International Encyclopedia of Unified Science*. Only the first section, *Foundations of the Unity of Sciences*, was published between 1938 and 1969. It contains two volumes with twenty monographs.

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**See also** Empiricism; Mill, John Stuart; Spencer, Herbert

## Further Readings

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