

unmoved mover and on the way in which free agents move and are moved by God (*see* MOTION, FIRST CAUSE OF). Further, the doctrine is of supreme importance both in explaining the difference between physical action, the acts of knowledge and affectivity, and in explaining the interaction of soul and body, knower and known, in psychology.

See Also: ACTION AT A DISTANCE.

Bibliography: P. H. J. HOENEN, *Cosmologia* (5th ed. Rome 1956). T. S. MCDERMOTT, "The Subject of Predicamental Action," *Thomist*, 23 (1960) 189–210. W. D. KANE, "The Subject of Predicamental Action according to John of St. Thomas," *ibid.* 22 (1959) 366–388. J. A. MCWILLIAMS, "Action Does Not Change the Agent," *Philosophical Studies in Honor of the Very Rev. Ignatius Smith*, ed. J. K. RYAN (Westminster, Md. 1952) 208–221.

[P. R. DURBIN]

ACTION AT A DISTANCE

The action of one material body on another across empty space, i.e., without mutual contact or without the presence of a third body or medium that is in contact with both. Whether such action is possible or not is discussed by both philosophers and scientists. The more common answer is that such action is impossible on both philosophical and empirical grounds; agreement is not unanimous largely because of differences over what is meant by "action," "matter" or "material," and "empty space" (*see* ACTION AND PASSION; MATTER). The possibility of a spirit's exercising influence upon a material body is not in question because the notions of action, distance, and contact—derived as they are from material and extended being—do not apply to a spirit except in an analogical sense. Two reasons are usually adduced for the necessity of mutual contact or for the presence of an intermediate body: first, to make it possible to speak of localization and distance; and second, to make possible the action of the AGENT upon the receiving subject. The present article discusses only the second reason, the first being treated elsewhere. [*see* PLACE; LOCATION (UBI)].

Various Positions. Among the philosophical proponents of the possibility of action at a distance are usually enumerated dynamists such as I. Kant (1724–1804), with his concept of attractive forces (*Anziehungskräfte*), R. Boscovich (1711–87), and I. J. J. Carbonnelle (1829–89); and various philosophers of science or of nature, including B. Bolzano (1781–1848), R. H. LOTZE (1817–81), K. Gutberlet (1837–1928), and J. Schwertschläger (1853–1924). Chief among those who oppose the possibility are the early Greek philosophers—particularly the atomists, the pre-Socratic cosmologists, and the Hippocratic medical writers—and 17th-century

Cartesians and mechanists. Similar opposition stems from Aristotle, St. THOMAS AQUINAS, and most medieval and scholastic thinkers, all of whom reject the possibility on metaphysical grounds.

The founders of modern science were against action at a distance, generally because of the atomist and mechanist suppositions that underlay their thought. Supporters for the concept of such action first arose from the Newtonian theory of gravitation, although Newton himself opposed it. The express formulation of the concept came in the 19th century with various interpretations of the experimental work of A. M. Ampère (1775–1836) and Michael Faraday (1791–1867), and the mathematical theories of J. C. Maxwell (1831–79) and H. R. Hertz (1857–94). At the end of the century, the failure of the Michelson-Morley experiment to detect an ether gave further support to the concept. More recent thinkers variously accept the possibility because of the purely mathematical way in which they interpret field concepts, or reject it because of a realist commitment to fields as existent entities, or regard it as a pseudo-problem because of a positivist view of modern science in its entirety.

Metaphysical Impossibility. The various arguments for the metaphysical impossibility of action at a distance may be summarized as follows: (1) action requires the presence of an agent; (2) contact is necessary for the exercise of influence; (3) action, as an ACCIDENT of both agent and recipient, requires that both be present in the same place; (4) cause and effect must be together; and (5) the actual dependence of the recipient upon the agent requires local contact. Since a number of these arguments are considered elsewhere (*see* ACTION AND PASSION; CAUSALITY; MOTION, FIRST CAUSE OF), only the last is explained here. The argument may be formulated in the following terms.

The action of one subject upon another requires that the recipient be dependent upon the agent in such a way that it be able to receive the agent's action. Where material bodies are involved, however, such dependence is possible only when there is local contact between agent and recipient. Therefore, action at a distance is impossible.

The major premise is universally true of action in general, even that of a spirit upon matter. The mere existence of two subjects is not sufficient for one to act upon the other, but a certain conditioning of the one for the other is required and this conditioning is prior in nature to the action itself.

In order for such mutual conditioning to occur, as stated in the minor premise, the agent and recipient must form one system in a material sense, i.e., one corporeal system with internal local relations. But such a system

can be obtained only through local contact, and this either immediately or mediately, i.e., through a material medium that is again in immediate contact with both agent and recipient. If such contact does not exist, the bodies cannot influence one another. Moreover, while an inactive medium can register place and relative direction, it cannot determine an event that originates from one body and influences another at a particular time and with a particular intensity. Thus, when a medium is involved, it must play both an active and a passive role in the bodily interaction.

This argument is metaphysical in the sense that it presupposes the validity of such concepts as action, being, and causality, all of which are verifiable in ordinary experience without recourse to the experimental and conceptual developments of modern science. Those who reject metaphysics, of course, do not subscribe to an argumentation of this type (*see* METAPHYSICS, VALIDITY OF).

Physical Arguments. Physical proofs of the impossibility of action at a distance attempt to show that, as a matter of fact, such action does not take place in the physical universe. For this purpose, one may classify actions as either chemical, or mechanical, or those involving some type of field interaction. Regarding chemical activity, it seems generally agreed that chemical interaction occurs only if reagents are brought into contact, and thus there is no action at a distance. Again, if physical action is transmitted mechanically, either by streams of particles or by collision of macroscopic bodies, there is no action at a distance. This leaves only actions associated with field concepts—among which may be enumerated electricity, magnetism, electromagnetism, gravity, and nuclear and other forces—for detailed discussion.

One characteristic of such actions is their dependence upon the distance between agent and recipient, as, for example, the magnitude of the gravitational force between bodies being inversely proportional to the square of their distance. Again, in the case of the electric and magnetic phenomena, intermediary bodies can exercise influence, as in shielding effects. Moreover, such actions are propagated with a finite velocity, and the implied dependence on space and time is incompatible with action at a distance. Yet again, the existence of standing waves and of radiation quanta cannot be explained solely in terms of empty space. Finally, a field theory itself is opposed to the concept of action at a distance. Fields have properties that differ from point to point and that are describable in terms of potentials; they also contain a definite amount of energy. Thus they function as operational media and have a degree of reality corresponding to the action they transmit. Whatever phenomena urge scientists to admit the action of a field also urge the acceptance of a medium that supports such activity.

Such arguments, while not absolutely conclusive, argue strongly against the hypothesis of action at a distance.

Bibliography: P. H. VAN LAER, *Actio in distans en aether* (Utrecht 1947); *Philosophico-scientific Problems*, tr. H. J. KOREN (Pittsburgh 1953). M. B. HESSE, "Action at a Distance," *The Concept of Matter*, ed. E. MCMULLIN (Notre Dame, Ind. 1963) 372–90; *Forces and Fields: The Concepts of Action at a Distance in the History of Physics* (New York 1962).

[W. A. WALLACE]

ACTION FRANÇAISE

Action Française (A.F.) is the name of a political league and its journal that attempted, during the first four decades of the 20th century, to reestablish the monarchy in France.

Program and Influence. A first committee of A.F. was born in 1898 during the Dreyfus affair. It was transformed in 1905 into a league of A.F., which proposed to combat every republican regime and to re-establish the monarchy. It edited a biweekly periodical, called *L'Action française*. (1899–), and in 1908 launched a daily newspaper, with the same name. An institute of A.F. took charge of doctrinal propaganda. Charles MAURRAS was the unquestioned head and the theorist of the movement, which counted several other very talented leaders, such as Léon DAUDET, Henri VAUGEOIS, and Jacques BAINVILLE.

A.F. was never a mass movement, and played only a minor legislative role, although Daudet was for a time elected a deputy, but its intellectual influence was considerable, especially among Catholics. Although its principal directors were atheists, they believed that if French society was to prosper as it had in the past, it must return to both the political form and the religious practice of earlier times. The Church quickly became disturbed by the organization's influence over a section of the French clergy and faithful. Its journal taught that political laws proceed from experience, and that the national interest has an absolute primacy in moral matters. Its young partisans grouped under the name "camelots," and swore to promote royalist restoration by any means whatsoever. In brief, it was a political school whose concepts derived from a naturalist view of man, society, and religion; and this intellectual outlook obliterated the moral sense of its members in their concepts of foreign and domestic politics.

Attitude of the Church. Because of the complaints of French bishops, the Holy Office prepared a prohibition of seven books by Maurras, and the periodical, but not the newspaper, of the movement (Jan. 26, 1914). Howev-