

Michael Specter maintains that treatment is not enough; only a vaccine can stem the pandemic, yet drug companies lack sufficient incentives to develop a vaccine. This constitutes a case of market failure requiring government intervention.

Pharmaceutical companies in affluent industrialized countries conduct most research on new drugs and vaccines. Do they have a corporate responsibility to spend money on public health problems that may not produce profits? Do their countries have a responsibility to protect the less developed world by providing direct assistance or incentives for drug research? The developed world may have a direct stake in stopping the pandemic to reduce economic and political destabilization in many poor countries.

HIV/AIDS constitutes a global health crisis, but those in greatest need of assistance live in the poorest countries or are among the poorest and most stigmatized members of more affluent societies and lack strong political support. The crisis affects more than individuals; families are disrupted, and societies destabilized: "AIDS is accomplishing a sweeping undoing of past human development advances, especially in southern Africa". The HIV/AIDS pandemic requires strategies to address problems from the individual level to the international level.

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SEE ALSO *African Perspectives: HIV/AIDS; Drugs; Emergent Infectious Diseases; Health and Disease; Medical Ethics.*

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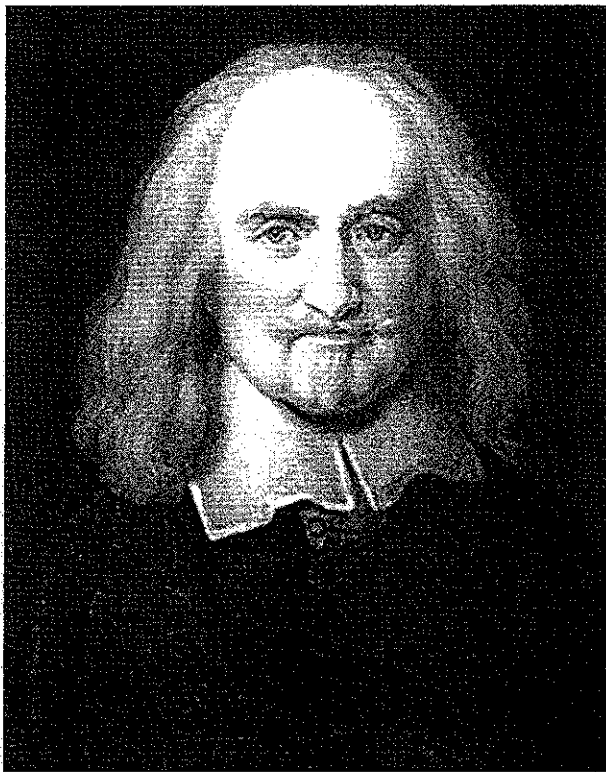
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HOBBS, THOMAS

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Thomas Hobbes (1588–1679) was born in Westport, England, on April 5, the son of a clergyman; he was a contemporary of Shakespeare. Hobbes developed a moral and political philosophy that was influenced greatly by geometry and the new sciences of the Enlightenment. After studying at Oxford University Hobbes became a tutor for the Cavendish family and escorted his charges on tours of the European continent. During those travels Hobbes became acquainted with science as it was being developed by Galileo Galilei (1564–1642), René Descartes (1596–1650), and Marin Mersenne (1548–1648), which he found more constructive than the political strife that characterized the English civil war (1639–1651).

Hobbes's political thought first was expounded at length in *The Elements of Law* (1640), which defended the monarchy, although on democratic grounds. He subsequently developed his arguments in *De cive* (1642), *De corpore* (1655), and *De homine* (1658), a trilogy on the state, physics, and anthropology in which Hobbes attempted to build a bridge between the new science and politics. His most widely read book both in his own day and up to the present has been *Leviathan* (1651). He also wrote a scientific dialogue, *Dialogus physicus* (1661), in response to the emerging experimental sciences and Robert Boyle's (1627–1691) work with air pumps. In 1666 Parliament nearly banned *Leviathan* as heretical, and Hobbes continually faced the threat of exile. He spent his later years composing a history of the English civil war and translating the *Odyssey* and *Iliad*. Hobbes died in Hardwick Hall near Chesterfield, England, on December 4.



Thomas Hobbes, 1588–1679. The English philosopher and political theorist was one of the central figures of British empiricism. His major work, *Leviathan*, expressed his principle of materialism and his concept of a social contract forming the basis of society. (Archive Photos, Inc.)

Moral and Political Philosophy

The avoidance of civil strife was one of the main intentions of Hobbes's work. His solution made him unpopular with both royalists and parliamentarians. Royalists argued that the king rules on the basis of natural or divine right; parliamentarians advocated democratic rule. Hobbes argued that the king should rule not by nature or divine commandment but because the sovereign is an artificial social construction fashioned by popular human reason motivated by the shared fear of violent death. It was the high probability of that fate in the state of war (or nature) that in earlier times had made life "solitary, poor, nasty, brutish, and short" (*Leviathan*, vol. I, p. 13). For Hobbes civil society is radically conventional because humans are not naturally social. People are compelled to form civil society by the laws of nature, understood as rational instructions on how to cooperate.

Hobbes argued for a subjectivist morality based on psychological egoism (all human action is selfishly motivated), with good and evil as names that signify appetites and aversions, especially those pertaining to self-

preservation and peace. Social peace is possible because all people agree that it is good and are rational enough to cooperate. However, the plurality of tastes and definitions of good and evil means that a state of war will emerge quickly whenever the absolute authority of the sovereign is challenged.

Obedience even to arbitrary government is preferable to the state of war. The commonwealth is formed through social contracts, and the network of those contracts creates the Leviathan (from the Book of Job, meaning "King of the Proud"), or sovereign, which is an artificial "person" responsible for public welfare and social order. The sovereign could be a monarch, as Hobbes preferred, but it also could be a legislature or an assembly of all citizens. Hobbes's notion of the sovereign led to later contractarian philosophies, especially Jean-Jacques Rousseau's (1712–1778) ideal of the general will.

Fear of violent death thus brings humans to reason. In regard to the resulting self-regulating system of passions Hobbes constructed a political philosophy that foreshadowed liberal capitalism and its emphasis on individual rights and the primacy of material self-interest. However, his collectivist image of society comprising the body of the sovereign also has been interpreted as a forerunner of socialist thought. David Gauthier (1969, p. vi) sums up this duality: "Hobbes constructs a political theory which bases unlimited political authority on unlimited individualism." For Leo Strauss (1973) Hobbes marked the beginning of modern political philosophy (foreshadowed by Niccolò Machiavelli [1469–1527]) because he denounced aristocratic distinctions and virtues. He leveled all humans with his theory of natural equality and did not base morality on ideal virtues attainable, if at all, only by the few.

The Role of Science and Technology

A second basic intention in Hobbes's work was to put moral and political philosophy on a scientific basis. His civic science generally is regarded as being based on natural science in both method and material. Human thought and action are explained in mechanistic terms of matter in motion, and thus the laws governing political bodies can be derived from those governing physical bodies. Yet Hobbes held a compatibilist view that causal determination of human conduct is consistent with the freedom required for responsible moral agency.

Even though he worked briefly for the empiricist Francis Bacon (1561–1626), Hobbes was a rationalist who believed that science primarily meant geometry and the methodology of reasoning both from first

principles, or causes, to effects and from effects to causes. The purpose of proper philosophy is universal assent attained through absolute certainty, and the first step in arriving at that certainty is an agreement to settle the definitions of words and their precise uses to avoid absurdities and disorder. Science is knowledge of the consequences of words established in that manner. Scholastic and religious reasoning breed controversy because they fail to define terms precisely.

Hobbes's political and natural philosophies are inseparable in the project of establishing consent on what is and how it can be known, thus leading to social order. Human will is the primary force of geometric proofs because humans determine original definitions. Geometry is an instance in which a diverse, subjective, and arbitrary human will has fashioned universal laws and truths by which all people can abide. Just as humans "make" the definitions in geometry (for example, "circle"), so too are the principles of politics (such as authority and justice) fabricated.

Strauss (1973), however, argues that modern natural science distorts Hobbes's moral and civic philosophy. The differences between the modern science of nature and human affairs outweigh the similarities. Indeed, in many places Hobbes stated that physical and political bodies are quite different. Furthermore, he did not take up science until he was forty years old, and he portrayed human nature as mutable and speech, reason, and sociality as products of free will. Vanity (the striving for absolute power) is a peculiarly human trait. Thus, Hobbes has a dualist philosophy (humans can will themselves out of nature) that is hidden by his monist (materialist-deterministic) metaphysics. Hobbes may wish to base his political theory on science because it progresses and produces real power, but a consistent scientific naturalism would ruin his moral philosophy.

The real basis of his philosophy was Hobbes's personal experience of human life. That experience actually has much in common with premodern science in that it proposes to disclose a teleology of human nature, even if a more debased teleology than argued for by the ancients. For that reason, "it can never, in spite of all the temptations of natural science, fall completely into the danger of abstraction from moral life and neglect of moral difference" (Strauss 1973, p. 29). It retains its moral basis precisely because it is not founded on modern science but instead on firsthand experience of humanity. As evidence for his claim Strauss points to the introduction of *Leviathan*, which states that one need not be trained in the physical sciences to formulate the right theory of human nature.

In another account Strauss (1965) argues that Hobbes posited two determinants of human willing—fear of violent death and the pursuit of domination over things—and that this underpins the distinction between the aims of politics and those of natural science. For Hobbes science is the methodical search for causes; in contrast, religion is the unmethodical search for causes. The purpose of science is the conquest of nature to make life more comfortable. It arises from human striving for power and honor, but that inexhaustible urge ensures that what is at stake is not the enjoyment of the object that is desired. Instead, the attainment of objects is only a means to more power: "the end becomes a means, the means becomes an end" (Strauss 1965, p. 89). Even if it is not properly based on science, Hobbes's politics is the foundation of modern technology.

The Politics of Knowledge: Hobbes versus Boyle

Strauss argued that the content of Hobbes's natural science obfuscates his political philosophy. Steven Shapin and Simon Schaffer (1985), however, argue that Hobbes's political theory holds true for the process of science. Both Strauss and Shapin and Schaffer see Hobbes as making constructivism and artifice superior to nature. Strauss uses this to purify Hobbes's politics of natural science; Shapin and Schaffer use it to justify Hobbes's insight that the two are inextricably connected in a single process: "Knowledge as much as the state, is the product of human actions" (Shapin and Schaffer 1985, p. 344).

Contrasting the philosophies of Hobbes and Robert Boyle, Shapin and Schaffer highlight the dynamics of the period when the modern relationship between scientific knowledge and the polity was being formed. The dispute between Hobbes and Boyle can be cast as different notions of what counts as science and legitimate knowledge. Hobbes's science was based on geometry and the deduction of irrefutable (moral and epistemic) truths from distinct first principles. Boyle proposed an experimental science that would be based on empirical observations made by a group with special training. Hobbes attacked this on epistemic grounds, claiming that the "facts" derived from sensory experience are mere "seeming or fancy" because they are too private.

However, this objection to Boyle's science is also moral. Both Boyle and Hobbes offered solutions to the problem of order in terms of ways to produce agreement and consent. Boyle attempted to remove natural philosophy from the "contentious link with civic philosophy" (Shapin and Schaffer 1985, p. 21). Hobbes attempted to erect a philosophy "that allowed no boundaries between

the natural, the human, and the social, and which allowed for no dissent within it" (Shapin and Schaffer 1985, p. 21). Boyle's knowledge is produced among a community of experts, and that creates differences in the larger body politic, destroying natural equality, universal assent, and social order. Moreover, Boyle's scientific community allows for dissent about causes within its borders, which Hobbes found to be both a threat to civic order and a sign that it was not a true philosophy. Hobbes saw in Boyle's science the same socially corrosive element that exists in traditional monarchism and religion. The laboratory is a divisive and dangerous form of elitism pretending to a nonartificial hierarchy.

Arguing that "solutions to the problem of knowledge are solutions to the problem of social order," Shapin and Schaffer use the notion of "intellectual space" to distinguish Hobbes from Boyle (Shapin and Schaffer 1985, p. 332). For Hobbes philosophy is not the exclusive domain of professionals. He considered its intellectual space public because its purpose is the establishment of peace and order. In this regard natural science and civic science are the same. In Boyle's experimental science, however, there is a special place for doing natural philosophy—the laboratory—and access to it is quasi-open. In principle anyone could witness the goings-on in that space, but in practice it "was restricted to those who gave their assent to the legitimacy of the game being played within its confines" (Shapin and Schaffer 1985, p. 336). Boyle separates the study of nature, or objects, from the study of human affairs, or subjects. The existence of a separate community producing and legitimating knowledge was anathema to Hobbes, who argued that the philosopher's task was to establish peace and that this separate group threatened civic order. Bruno Latour playfully summed up his interpretation of Hobbes's reaction to Boyle: "we are going to have to put up with this new clique of scholars who are going to start challenging everyone's authority in the name of Nature by invoking wholly fabricated laboratory events!" (Latour 1993, p. 20).

For Hobbes philosophical and political spaces need masters who determine right knowledge and right conduct for all, thus constraining opportunities for interpretation and controversy. A chain is fastened from the lips of the sovereign to the ears of the people. This alleviates the problem of "seeing double" that occurs when loyalties are divided between different professional groups or different personal interpretations of events. Shapin and Schaffer claim that "Hobbes's philosophical truth was to be generated and sustained by absolutism" (p. 339). This

was strictly opposed to Boyle's notion of intellectual space because the foundation of knowledge was considered to be free will. Truth claims are verified by free acts of witnessing. Boyle saw the experimental community neither as tyranny nor as democracy but as a group regulated by conventions of selectively restricted access. The experimental community gained such wide support because it offered solutions to practical problems and because its members presented it as a model of the ideal polity. Nonetheless, this does not deny the fact "that there is a power-structure to truth and a truth-structure to power" (Wolin 1990, p. 12).

In the end Shapin and Schaffer conclude that "Hobbes was right" (p. 344) in the sense that Hobbes's instrumentalism or social constructivism better explains science, society, and their relationship than does Boyle's realism. Knowledge, like society, is conventional and artifactual, and scientists do not produce objective truth claims. Shapin and Schaffer probably exaggerated their instrumentalism to call attention to the increasingly problematic aspects of the "boundary-conventions" that distinguish science from politics. Their main point is that the solution to problems of knowledge is always political in that it requires the establishment of conventions of interaction and rules for determining legitimacy and because the knowledge this community produces becomes an integral part of political action.

Boyle and the experimentalism of the Royal Society "won" not because they reflected nature objectively but because their use of rhetoric garnered the most political power. Even though Hobbes was the first modern mediator between science and society, historians have purified Hobbes of science and Boyle of politics, reinforcing the idea that the two realms are naturally distinct. Shapin and Schaffer work to expose the intellectual and historical roots of that distinction, which increasingly is being questioned on the basis of expanding democracy rather than, as with Strauss, on the basis of a reaffirmation of nature.

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SEE ALSO *Human Nature; Science, Technology, and Society Studies; Scientific Revolution.*

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HOLOCAUST

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The word *holocaust* is derived from the biblical Greek term *holocauston*, meaning a "burnt offering" made in sacrifice to God. The term came to be widely used in the early 1970s to refer to the mass extermination of the Jews in the gas chambers of an organized system of death camps initiated by German dictator Adolf Hitler (1889–1945) and the Nazi Party during World War II. In the 1980s, some scholars argued that the word *holocaust* imputed more meaning to the event than it deserved and began calling it the *Shoah*, a Hebrew term referring to a time of desolation. The connotations of the latter have come to color even the meaning of the former.

In World War II nearly 30 million people died in combat or as random civilian victims of war. History is filled with wars and massacres, but genocide is something else. While the Turkish attempt to eliminate the Armenians (c. 1915) may be an earlier example of genocide, the Holocaust has come to be described as the archetypal example. Genocide is a systematic, state-sponsored, bureaucratically organized attempt to eliminate an entire people (usually identified in "racial," ethnic, or religious terms) from the face of the earth, not for any strategic military or political advantage but simply because they exist. The Nazi attack on the Jews was

not an attempt to eliminate a foreign enemy but its own Jewish citizens first and then all the Jews in Europe. While others were also made victims in the death camps (such as the mentally retarded, homosexuals, and communists), the Jews and Gypsies were the only two peoples targeted for total annihilation. Thousands of Gypsies and 6 million Jews were murdered. A third of the world's Jews and two-thirds of Europe's Jews died in the Holocaust.

In the Nazi genocidal project, science was used to provide a biological theory of race that offered ideological justification for genocidal public policies of racial purity, and technology was used to provide the most efficient means to carry out these policies.

Science

The Nazis used English naturalist Charles Darwin's (1809–1882) biological theory of evolution to justify their program of genocide. Darwin posited the evolutionary differentiation of species as the product of "natural selection" in which only those organisms most successful in adapting themselves to a particular ecological niche survive to reproduce themselves and so shape the gene pool. This law of competition came to be known as the "survival of the fittest," meaning the survival of those most successful at adaptation.

In the nineteenth century this scientific theory was transformed into a political ideology known as "social Darwinism" by metaphorically extending Darwin's biological theory into the realm of society. In this way social phenomena such as class conflict or the conflict between nations were imagined to operate by the same laws of "natural selection." It seemed only "natural" to the Nazis to conclude that the ascendancy of the Nazi German nation-state was the outcome of a biological process in which the fittest race had survived to dominate all others, proving the superiority of the Aryan race. The greatest threat to this evolutionary outcome was, in their view, racial pollution—the biological mixing with "inferior races" that would weaken the purity of Aryan blood.

As Robert Jay Lifton (1986) noted, the death camps were viewed as public health projects in which the Jews were considered a cancerous growth on the body of the Aryan race, threatening its organic health (i.e., racial purity), and so had to be cut out in order to restore the body to health. It was no accident that physicians were required to fill the role of those who selected some victims for the work camps while sending others directly to the gas chambers. The doctor, as an elite scientifically trained professional, gave an aura of "scientific" legitimacy to the