Chapter 1

Medieval Religion and Enlightenment Science

The Institute on Biotechnology & the Human Future in Chicago offers assessments of the scientific benefits and risks of new developments in biotechnology, while at the same time analyzing their cultural and ethical significance.[1] One of the Institute's fellows is C. Ben Mitchell, an associate professor of Bioethics and Contemporary Culture at Trinity International University in Deerfield, Illinois, just north of Chicago. Mitchell is also a consultant with the Center of Bioethics and Human Dignity at Johns Hopkins University and editor of *Ethics & Medicine: An International Journal of Bioethics*. The widely published Mitchell, who holds a doctorate in philosophy with a concentration in medical ethics, has a name for the present age. He calls it "Technopian" for its daunting list of technologies that worry as much as thrill him.

WELCOME TO TECHNOPIA

In the brave new world of "Technopia" Mitchell forecasts, we can expect to enjoy:

- the ability to clone humans and predetermine the sex of children and their genetic makeup;
- drugs tailor-made to the genetic makeup of individual patients;
- genetically derived therapies for the prevention and cure of most cancers, heart disease, AIDS, and other diseases, including new strains of vaccine-resistant ones such as malaria;
- the ability to "program" out of human genes the propensities to contract various diseases and illnesses;
- repair of damaged brain cells, spinal cord, and other diseased or damaged human tissues;
- animals that grow replacement organs for the 50 percent of humans who currently die before getting a transplant organ from a human donor; and

- a "smart mouse" that points the way to eliminating aging in humans.

"Clearly," Mitchell admits, "the future may reap great benefits from biotechnologies such as genetic engineering, cloning, cybernetics, nanotechnology, and a litany of other neologisms yet to be invented." But Mitchell, a Christian bioethicist who consults on matters of public policy, is quick to add: "The future may also portend tragedy, a loss of human dignity, and a world which is increasingly hostile to concerns which transcend the world of contemporary scientific research."

For Mitchell and many others,[2] one of those concerns is "to re-establish what, exactly, it means to be human." After all, as he explains, "[I]f being human is all about the brain, then supercomputers might be able to contain all the information in the brain and then be designated as 'human'." That possibility especially horrifies religious and social conservatives. They say that the Bible establishes profoundly different criteria for humanhood and offers a moral vision that, strictly speaking, does not include many of the wonders of modern biotechnology. (Biotechnology refers to the application of biological research techniques to the development of products and processes to improve human health.)

This scriptural outlook, which is associated with but not limited to religious fundamentalism and social conservatism, provides millions of Americans with a religious framework for understanding human nature, knowing human destiny, interpreting misfortune, finding meaning, relating to others, and evaluating government. It also helps shape their opinions about social policy, particularly in bioethics. The roots of this highly influential scriptural view trace back to Christian-dominated Europe in the millennium between approximately 500 and 1500 CE, known as the Middle Ages.

THE MEDIEVAL CHURCH

Established as the state religion in 391 CE, the Roman Catholic Church became the most powerful organization of the time following the collapse of the Western Roman Empire in the fourth and fifth centuries. Embracing most Western Europeans, the Church offered to the spiritual lives of people what the feudal and manorial system offered to their political and economic lives: unity, solidarity, and security.[3] In a time of tumult and uncertainty, the medieval Church gave assurance and hope of a better life to come. Its theological orientation, summarized as follows, left no doubt as to the meaning of life and death

> [T]he stretch on earth is only a short interlude, a temporary incarceration of the soul in the prison of the body, a brief trial and test, fated to end in death, the release from pain and suffering. What really matters is the life after the death of the body. One's existence acquires meaning not by gaining what this life can offer but by saving one's immortal soul from death and eternal torture, by gaining eternal life and everlasting bliss.[4]

Surrounding this view was a constellation of biblical stories considered to have profound explanatory or symbolic significance.

Descriptively, these scriptural narratives and their interpretations accounted for human origin, nature, and destiny, as well as for the presence of evil in the world, including illness, suffering, and death. They helped people understand what and who they were, where they were going, and why they faced so much adversity along the way. Prescriptively, they told people how they should live, including how to structure such social institutions as marriage, family, and government.

Crucial to the development and expression of this biblical perspective were the views of the Church's most brilliant and influential of writers and thinkers, Saint Augustine (354–430) and Saint Thomas Aquinas (1225–1274). Although separated by 800 years, and despite many sharp differences between them, Augustine and Aquinas both treated the Bible as the ultimate source of knowledge about humankind's origin, nature, destiny, and relationship with God. Millions of people still do.

THE AUTHORITY OF THE BIBLE

The Bible, which contains the sacred writings of all Christian religions, includes the Hebrew Scriptures, termed Old Testament (written between 1400 and 400 BCE), and Christian Scriptures, or New Testament, (completed and preserved between 50 and 100–150 CE). Significantly, the word testament comes from the Greek *diatheke* meaning "covenant." For believers, the Bible remains a sacred covenant, or agreement, between God and his people, in which God reveals himself, makes certain promises, and requires certain behavior in return. For both Augustine and Aquinas, as well as for people generally during the Middle Ages, the Bible was the chief, if not exclusive, source of knowledge and understanding about themselves, their world, and the fate of both.

But early Christians also recognized that the Scriptures could be obscure and difficult. The imperfect, fallible human mind could misunderstand and be led astray by them. To correct for this possibility, according to its founders, God established the Church as his representative on earth.

As the Bible's infallible interpreter, the Church existed to make revelation rational. It also functioned to spread biblical truth, which included suppressing heresy, or opinions at variance with official teaching. In this way, the early Church strove to avoid confusion and safeguard the sum of truths revealed in the Scriptures.

THE BIBLICAL ACCOUNT OF CREATION

"In the beginning God created the heavens and the earth" (Gen. 1:1). With these primordial words, the first book of the Bible asserts the existence of a single, unchanging, divine sovereign who created the universe. This monotheistic belief is regarded as Judaism's unique contribution to the ancient religions of the Mediterranean, all of which—Egyptian, Babylonian, Assyrian, Greek—subscribed to polytheism, the belief in many gods, often quarrelsome and typically indifferent to the world and its inhabitants. The God of Genesis, by contrast, is one and personal, righteous, and loving. By expressing himself in creation, this biblical God gives to the world unity and meaning, and to its inhabitants intrinsic value and significance.

Human Nature

Of the human aspect of creation, Genesis records that the first human, Adam, was made a "living being" or psycho-physical self by the "breath" or spirit of God: "The Lord god formed man of dust from the ground, and breathed into his nostrils the breath of life; and man became a living being" (Gen. 2.7; cf. Ps. 104. 29–30; Job 34.14–15). The first human, then, was both corporeal and spiritual; a unity of a material body and a spiritual, animating soul. Being *imago Dei*, made in the image of God, he shared something of the divine intellect and will. Through the intellect he could know that a single God exists, and through the will he could choose and act to love God. This uniquely human capacity to choose and act was fundamental to the covenant between God and Adam.

The Relationship and the Covenant

According to Genesis 3:2–3, God commanded Adam: "You may freely eat of every tree of the garden, but of the tree of knowledge of good and evil you shall not eat, for in the day that you eat of it you shall die." Clearly, then, the first human is depicted as naturally free to obey or disobey, to do good or evil, to choose life or death. Thus is established the relationship of God's lordship and the human's subservience.

The essence of this covenant or contract was that Adam would use his God-given faculties properly. In the classical Greek construction, proper use of uniquely human faculties basically meant rational development. Through reason, the Greek philosophers taught, one was to control destructive impulses, discover moral law in the universe, and find meaning in life. In the biblical view, by contrast, the unique human faculties of intellect and will characterized the first human as a beloved and compliant

child of God. According to the biblical covenant, Adam could expect from a righteous God love, mercy, and justice; God, in turn, could expect of him fidelity and obeisance. Man, in brief, must act responsibly, that is, to choose to do right, not as he saw it, but as God willed it. In this way, order and harmony were established in the divine-human relationship and in creation, generally.

Signifying the station of this completely good creature, the Creator then crowns the first human with "glory and honor" (Ps. 8.5) by giving him "dominion over all the earth and everything in it" (Gen 1.26). God then completes man's happiness by placing him in a divine garden, Eden, and creating Eve to be Adam's wife. (Gen 2:21–22)

Given this idyllic account of creation, the earliest theologians, and later ones, faced what is called "the problem of the existence of evil."

THE PROBLEM OF EVIL

We generally think of evil as being either "natural" or "moral." Natural evil refers to an apparent malfunctioning of the physical world, whereas moral evil is human made. Natural evil includes not only so-called disastrous acts of nature such as storms and earthquakes, but also illness, disease, pain, suffering, and ultimately death. Moral evil includes destructive behavior by humans toward others, such as lying, cheating, and killing.

While perceptions of evil may vary, evil always threatens our ability to act in the world and to understand it. Church historian Walter Sundberg puts it this way: Evil "raises the fundamental human question of intelligibility. If we cannot order evil, then both practical and theoretical reason are threatened."[5] In her book on the subject, philosopher Susan Neiman even goes so far as to call this fundamental question of intelligibility raised by evil the guiding force of modern thought.[6] In any event, for theologians the "intelligibility" that the presence of evil threatens is the belief in an all-good, all-powerful God. Expressed as a question, then, the problem of evil is this: *If God is all good, why is there evil; and if God is all powerful, why does he permit it? Must it be concluded that God is not all good or not all powerful?* An attempt to answer this question is sometimes called a theodicy (from the Greek *theo* meaning "god" + *dike* meaning "justice or order").

Theodicy is the traditional theological term for a reasoned attempt to vindicate God's goodness and power in the face of evil. Theologically, a theodicy tries to establish the compatibility of evil and divine justice so that the existence of evil cannot shatter our trust in the world, forcing us, unaided, to make sense of the seemingly senseless. Although Augustine didn't invent the term—the German philosopher Gottfried Leibniz (1646–1716) did in his book *Theodicy* (1710)—Augustine did attempt to reconcile the existence of evil with the existence of an omniscient, omnipotent God. His explanation is an important aspect of the medieval religious view that still has wide appeal, especially in many people's feelings and attitudes toward illness, suffering, and death.

The Augustinian Theodicy

Consistent with the Bible, Augustine's theodicy involved man's fall from grace, or state of divine influence and sanctification. The biblical basis of the fall is two passages from Genesis. The first—"God saw all that he had made and saw that it was very good" (Gen. 1:31)—establishes a divine creation free of evil. The second describes the human's first recorded act, an act of free choice proposed by the serpent, who, addressing Eve, contradicts God's admonition to man: "You shall not die. For God knows that when you eat of it your eyes will be opened and you will be like God, knowing good and evil" (Gen. 3.4–5). Succumbing to pride, Adam is persuaded by Eve to betray his creaturely position and, figuratively, make of himself God, thereby breaking the sacred relationship and covenant.

Because of this misuse of freedom, according to Augustine, the first human organism was cut off from the source if its life: God's breath or spirit. Where there was harmony, there was now discord. Where God ruled man through his human spirit, he now governed in a more external way: by subjecting man to the laws of nature. Evil followed,

natural and moral, both the consequences of Adam's original sin of prideful disobedience. With this explanation, Augustine, in effect, rescued human inquiry from the futile task of attempting to make sense of the senselessness of evil. As Nieman puts it:

> Why do bad things happen? Because bad things were done. Better to have some causal explanation than to remain in the dark. To connect sin and suffering is to separate the world into moral and natural evils, and to create thereby a framework for understanding human misery.[7]

To connect sin and suffering is also to create a framework for ultimately blaming humans for evil, another important element in the medieval worldview.

THE DOCTRINES OF THE FALL AND DEPRAVITY

Corrupted by pride and ambition, the first man and woman suffered the wrath of God, physically and spiritually. Their bodies would not only die, their souls would be dead to all things good. Even worse, this condition of physical and spiritual death would pass on to all future generations, who, according to Augustine, were "seminally present in the loins of Adam" (cf. Heb. 7:9–10). The upshot would be a new kind of human, a new species, never made by God but sinned into existence. The original sin of Adam and Eve, in short, became in Augustine's theology the condition of sin that marked all humans. It effected what theologian C.S. Lewis (1896–1963) once called "a radical alteration of [the human's] constitution, a disturbance of the relation between his component parts, and an internal perversion of one of them."[8]

Elaborating further on the doctrine of the fall, Lewis, one of the last century's most influential Christian writers, described its catastrophic impact on the human mind as follows:

> … the organs, no longer governed by man's will, fell under the control of ordinary biochemical laws and suffered whatever the inter-workings of those laws might bring about in the way of pain, senility and death. And desires began to come up into the mind of man, not as his reason chose, but just as the biochemical and environmental facts happened to cause them. And the mind itself under the psychological laws of association and the like which god has made to rule the psychology of the higher anthropoids. And the will, caught in the tidal wave of mere nature, had no resource but to force back some of the new thoughts and desires by main strength, and there uneasy rebels became the subconscious as now know it. The process was not, I conceive, comparable to mere deterioration as it may now occur in a human individual; it was a loss of status as a species.[9]

What the human lost by the fall from grace, then, was its "original specific nature." As a result, it was returned to dust, its position of origin. "Thus," Lewis concluded, "human spirit from being master of human nature became a mere lodger in its own house, or even a prisoner; rational consciousness became what it now is—a fitful spotlight resting on a small part of the cerebral motions."[10]

The fall, therefore, was not only the first humans'; it is all of humanity's. In the words of Psalm 51: "Behold, I was shapen in iniquity; and in sin did my mother conceive me" (see also Gen 25:22–23). By a single human trespass, human nature was essentially corrupted; and for both—our corrupt actions and our corrupt nature—each of us is to be considered blameworthy.

MORAL FAILURE AND ILLNESS

In his book *Blind Faith* (2006), about the relationship of religion and medicine, Richard Sloan reminds us that, besides monotheism, a key feature that distinguished Judaism from ancient Egypt and the Near Eastern cultures was the relationship between moral

failure and illness. "In Judaism," writes the Columbia University behavioral scientist, "this was a central feature. In ancient Egypt, it was not," adding:

> In the Old Testament, Adam's sin allowed evil, including illness, into a previously perfect world. Faithfulness to God was associated with health and prosperity. Lack of faith led to illness. Thus, ancient Judaism heralded a concern that still confronts us today: the moral responsibility for illness.[11]

The medieval theologians largely adopted this Old Testament view of human affliction as a religious problem that sin brought on. Thus, as Christianity took on the practical mission of tending to the sick and suffering, it also became acutely mindful of its own theology. Especially relevant was its conception of sin, which was central to its creation theory; its theodicy; and its eschatology (from the Greek *eschatos* meaning "last"), or beliefs about death and human destiny.

Bi-level Conception of Sin

Embedded in the doctrine of the fall from grace is actually a bi-level conception of sin. First, there is the particular level of someone breaking God's commandments, as with Adam's prideful disobedience. But on a deeper, universal level that Lewis wrote about, there is the sin of humanity's fallen nature inherited from Adam's rebellion against God (Gen 3:14–19; 4:1–15; Rom 8:20–22). For his sin, Adam suffered—he lost Paradise. But humanity suffers also from this original sin. From Adam's choice not to love follow all the world's evils, notably in this context: illness, disease, pain, suffering, and death, the greatest penalty for the inherited sin of the willful Adam. A "debt contracted through sin" is what Augustine called death. As he wrote in the *Enchiridion*, his handbook on faith, hope, and love:

> ... there is one form of punishment peculiar to man—the death of the body. God had threatened him with this punishment of death if he should sin, leaving him indeed to the freedom of his own will, but yet commanding his obedience under pain of death; and He placed him amid the happiness of Eden.... Thence, after his sin, he was driven into exile, and by his sin the whole race of which he was the root was corrupted in him, and thereby subjected to the penalty of death....[12]

For this Church Father, then, death and its prefigurement, decrepitude, were the wages of sin. This had the inevitable, though not unique, effect of linking medicine with the supernatural.

MEDICINE AND THE SUPERNATURAL

Sloan notes:

> Medicine and religion have been intimately connected throughout history, and in most eras they have been connected to magic, too. Throughout, they all have attempted to answer the same basic questions. One of these is "What causes illness?" A related question is "Why did I get sick?"[13]

To both questions the medievalist answered: "*Sin*—illness and disease, pain and suffering, inevitable death and certain knowledge of it, all are the consequences of *sin*."

Accordingly, the sick in the Middle Ages were largely offered the cure of prayerful contrition dispensed by the cleric, who was more philosopher than scientist. This physician/priest was expected to be steeped in Greek sources—Hippocrates (460–377 BCE), Plato (427–348 BCE), Aristotle (384–322 BCE)—adapted, always, to Christian teaching. "Particularly striking," writes one historian of medicine, was "the recourse to authority, that is, to the written sayings of the ancients, which were more important in establishing a diagnosis, prognosis and therapeutic advice than the actual

experience of the practitioner."[14] Apparently as interested in supernatural meaning as with scientific description, the ancient Greek physician Galen (129–200 CE), who was the dominant medical authority of the day, epitomized this admixture of medicine, philosophy, and religion.[15]

Illness as Salvific

Theologically, the most important part of the supernaturalization of health and medicine in the Middle Ages was the potentially salvific value of illness. However well deserved the destiny of all, death and its familiar foreshadowings didn't mean ultimate annihilation or nothingness. For, judging it "better to bring good out of evil, than to permit any evil to exist," Augustine's words, "God ... determined that in the case of men [unlike] in the case of fallen angels, there should be ... restoration to happiness."[16] This meant not only individual survival of death as a personality, but also a blissful afterlife for those who kept the covenant by using this life for spiritual renewal.

The promise of personal immortality effectively completed the West's evolutionary creation narrative whereby life had a beginning and not an end, but a goal: death. Henceforth, death in the West would be the gateway to a new personal existence. Theologically, it would be the portal to eternity, the final test, and the ultimate dread and suffering before divine judgment of one's earthly life. Fundamental to the medieval mind, then, was the view of the present life as the determinant of eternal destiny. Life's travails, notably sickness and suffering, were thereby transformed from evils to be avoided to potential instruments of spiritual renewal for winning heaven and avoiding hell. Enduring hardship in devout faith was a biblically grounded form of spiritual renewal, a way to show the depth of one's belief and trust in God, and thereby to gain personal salvation (Ps 116:10). For medieval Christians, in short, pain and suffering offered opportunities of faith and reconciliation with God.

ROLE OF GOVERNMENT AND LAW

One final point about the medieval religious outlook. Although it did not dictate a particular form of government, the medieval religious theory of human nature and destiny provided a basis for government and law, as well as a template for evaluating political systems. Thus, the general thinking of Aquinas was that, as children of a God of law and order, human beings (1) needed and sought the discipline of governmental structures; and (2) they could bring the divine traits of intellect and will to the task of self-government. Earlier, Augustine gave emphasis to the human's fallen nature and the consequent need to have its potential for evil and sinfulness regulated through civil government and law. For both Augustine and Aquinas, then, government was a divinely ordained, necessary instrument of external control. Its basic function was to prevent chaos and anarchy, and establish order and harmony on earth.[17] So conceived, government was granted broad powers, including war making when in the righteous cause of defeating evil. Another important implication was that, as a divine and necessary instrument of regulation, government, in general, was owed obedience, and could punish and levy taxes (Rom 13:1-6). At the same time, reflective of the overarching covenant between God and humanity, government was expected to treat its charges as creatures of God. It was to do this by ensuring that the laws it enacted reflected God's plan for creation.

ENLIGHTENMENT SCIENCE

Although medieval religious thought would dominate Europe until about the sixteenth century, a shift in thinking and attitude began centuries earlier that ultimately would transform how people viewed themselves, their world, and even God. Far too many to mention here were the events and forces behind this drift away from medieval supernaturalism to a more human-oriented, secular view of life. Certainly among the factors were the Crusades,

would transform how human beings thought about themselves and their world; their relationship to God; the nature of medicine; and the problem of evil including illness, disease, suffering, and death.

SCIENTIFIC METHOD

"[S]cience," writes Harvard psychologist Steven Pinker, "is just the attempt to understand the world with a special effort to ensuring that the things you say about it are true."[18] Central to that endeavor is scientific method, a process of collecting data, making interpretations, and doing experiments in order to construct a reliable, consistent, and nonarbitrary picture of the world. Often associated with the English philosopher Francis Bacon (1561–1626), scientific method rests firmly upon the tripod of observations, hypotheses, and experimental testing.[19]

Commonplace throughout the physical and social sciences, and archly defended today by thinkers like evolutionary biologist Richard Dawkins (*The God Delusion*, 2006), four centuries ago scientific method represented nothing less than a new faith, professing that empirical human inquiry could yield an understanding of the universe. For scientists, this new method of thought meant freedom to find answers by using evidence and reason, rather than relying solely on tradition. In severing thought from religious faith, scientific method enthroned the autonomy of the mind as the chief means of acquiring knowledge about the world. And it did something else: Scientific method separated secular matters from any ultimate, transcendent goal and purpose. In short, it provided a way for sorting out the sacred and the secular.

Rene Descartes

The new "faith" of science found its preeminent theoretician in "as devout a Catholic as anyone of his time"[20]: Rene Descartes (1596–1650), considered the founder of modern philosophy. Descartes, a modern commentator writes:

> experimented and observed and made real progress in optics, physiology and mathematics, all the time hoping to synthesize what he found into a unified system, a crystalline structure of "clear and distinct ideas." He wanted to know not just how events do fall out, but why they have to fall out as they do, why it stands to reason that the laws of nature have to be as they are. And he thought that by finding that out we would, quite literally, be reading the mind of God.[21]

Descartes' bold ambition took root in an original, mathematically inspired, analytic method of thought based on a handful of logical precepts, commencing with the historic principle of universal doubt. As he wrote in his *Discourse on Method* (1637),

> The first of these [precepts] was to accept nothing as true which I did not clearly recognize to be so: that is to say, carefully to avoid haste and prejudice in judgments, and to accept in them nothing more than what was presented to my mind so clearly and distinctly that I could have no occasion to doubt it.[22]

This foundational precept of universal doubt led Descartes to the one truth he could not doubt: the truth of his own existence as a thinking being.

While he could doubt everything else, even to supposing life a demon-controlled dream, he could not doubt the truth of *Cogito, ergo sum*, Latin for "I think, therefore I am." And so, with the *cogito* as his foundational clear and distinct idea, Descartes came to conclude that a human being is essentially a "thing which thinks." What the ancients and medievalists had called "soul" meant for Descartes a "thinking being," that is, "[a] thing that doubts, understands, affirms, denies, is willing, is unwilling, and also imagines and has sensory perceptions."[23] This most clearly and distinctly apprehended truth—thought itself—was the evidence that proved to Descartes the hypothesis of his own existence.

From this one indubitable truth, Descartes then moved into complex systems of belief by which he realized the existence of God as the source of truth and knowledge about the world. Not to be read as a mere recapitulation of the biblical narrative, the Jesuit-trained philosopher-scientist was saying: We can have reliable, accurate knowledge of the world because the existence of a perfect God—that is, one

not given over to trickery or deceit—guarantees it. In this manner, Descartes attempted to accommodate the central concept of the old medieval theology—the existence of an all-good, all-loving, all-powerful God—within the new development of scientific method. He was, in effect, asserting: Observation, description, prediction, and experimentation—the new faith's antidote to relying on ecclesiastical authority and ancient tradition—are trustworthy, because God is.

At the same time, by giving rational justification to the empirical discoveries of the day's science, the "Cartesian Revolution" made reason and sense experience, not authority and tradition, primary sources of knowledge. It announced, in brief, that humans, unaided by received wisdom, could attain reliable knowledge. This is what makes *Discourse on Method* one of the most influential works in the history of science, medicine included.

The Emergent Scientific Medicine

Seeking what he termed "a clear and assured knowledge useful for life," Descartes was confident that his method of thought would eventually yield "an infinity of devices that would enable us to enjoy without pain the fruits of the earth and all the goods one finds in it, but also principally the maintenance of health" (*Discourse*, part 6, par. 2). This made Descartes, in the words of another commentator, one of those Enlightenment thinkers who was confident that "reason would function alongside faith to increase human happiness and life span, end disease, reduce suffering of all kinds and give people greater power over nature and greater freedom in their lives."[24] In this Descartes agreed with Bacon, who famously advocated a science devoted to "the glory of the Creator and the relief of man's estate" (*The Advancement of Learning*, 1605).

For Enlightenment medicine, "the relief of man's estate" required forsaking traditional teaching and theories of supernatural intervention, and retrieving the rational spirit of early Greek medicine. By associating medicine with science, the ancient Greek physician Hippocrates had disconnected it from magic and superstition, training medicine on rational, and away from supernatural, explanations for illness and disease. Medieval Christianity had preserved the moral, humane spirit of Hippocratic thought but not its scientific thrust. Now, Enlightenment medicine proposed to recapture the Hippocratic separation of medicine from religion in several important ways, such as by discrediting supernatural explanations, testing religious belief, and challenging tradition.[25] Always the goal was to gain an understanding of how things worked as they did, not why. This was exactly what Descartes had in mind in seeking clear and assured knowledge useful for health and life, free of supernatural embellishment. In the years ahead, this commitment to natural explanation would lead to a full-fledged medical, as opposed to theological, understanding of illness and death, culminating in 1892 with the publication of *The Principles and Practice of Medicine*, authored by the Canadian physician William Osler (1849–1919), considered the founder of modern medicine.

MECHANISM

Descartes' contribution to the scientific revolution did not stop with his elaboration of scientific method. He was also committed to providing a thoroughly mechanical account of nature.

The Christian tradition, as had the Greek before it, embraced *vitalism*, the belief that there is in living organisms a life principle that provides purpose or direction. In *L'homme* (*Treatise on Man*), published posthumously in 1664, Descartes strived to discredit this medieval, spiritual teleology, inherited from Aristotle, that posited a goal or purpose working in biology. ("Teleology" is from the Greek *telos* meaning "end or purpose.") In opposition, Descartes posed *mechanism*, the view that everything can be explained in terms of laws that govern matter and motion. Like a machine, natural objects could be taken apart, analyzed, and ultimately understood in terms of physical causes. In this fashion, Descartes demystified nature, leaving it no longer the object of contemplation and significant of mystery and moral purpose it had been for the ancients and was for the medievalists.

conceived of by Aristotle and adopted by Aquinas. For Descartes the human "soul" was simply mind, whose purpose it was to manipulate the mechanism of nature, using self-directed willpower.

Later philosophers generally rejected Descartes' radical dualism, just as they and scientists discredited "the world as machine" model. But both Cartesian-inspired views have had lasting influence on Western thought and institutions. The autonomous, rational self, for example, became the foundation for Enlightenment humanism, a philosophy that stressed human values, including: individual liberty and responsibility, freedom of thought, tolerance of ideas, personal achievement, the liberal political state, and free market economy. Above all, Enlightenment humanism emphasized the sensible and reasonable as bases for belief and action. For its part, the "modern world machine" has served as a metaphorical model for subsequent generations of reductive models.[26] A reductive model is any hypothetical description of the world that reduces it to its fundamental or material basis, such as the nineteenth century's view of the universe as a network of invisible electromagnetic force fields or the twentieth century's conception of the universe as a digital computer.[27] It was during the Enlightenment that reductionism became the predominant model of Western medicine.

Reductionism is the view that a system can be fully understood in terms of its isolated parts. For example, seeing their role as searching out disease, diagnosing, and treating, physicians quickly began to focus on a "single problem with a single part of the body without looking at the whole person."[28] As a result, their lens for viewing patients and their medical problems became decidedly positivistic, meaning narrowed to scientific investigation and methods, and to an understanding of health largely in terms of the proper mechanical functioning of the body.[29,30]

IMPLICATIONS FOR RELIGION

Although scientific method and mechanism by no means displaced the medieval religious tradition, it did represent a new way of thinking about things that was destined to put and keep religion on the defensive. The scientific revolution introduced modern understandings of reality; of human nature and destiny; and of knowledge, truth, and meaning that directly challenged fundamental religious beliefs and teachings. Henceforth, religious truth would have to be interpreted within evidence and reason or risk being increasingly marginalized. Specifically, religion had to adapt to the following implications of the scientific revolution.

Deism

Descartes' mechanistic view didn't extend only to the world and its inhabitants. It could also be taken to imply that behind everything was something akin to a grand engineer or divine clock maker with no personal, ongoing relationship with his creation. In other words, a deistic god.

Deism is associated with two core beliefs. First, reason or logic, rather than tradition and revelation, should be the basis of belief in God. In this, deism opposes fideism, which relies on faith, not reason, to realize religious truth. Second, deism is also associated with the classical view that, having created it, "nature's god"—an impersonal, all-powerful force or energy—variously termed "providence," "creator," or "mind"—abandoned the world to humankind.

During the Enlightenment neither of these core beliefs was taken as suggesting that the world wasn't intelligently disposed or that it operated according to blind chance or pure luck. But they did imply that, although the universe might operate according to intelligent design, humans could say nothing intelligent about the designer, who was impervious to what happened in the universe. Questions about the essence of God, including his relationship to humans and role in their affairs, were simply beyond experience and, therefore, rationally unaddressable. The best humans could do was glimpse the mind of God reflected in the known laws of physics. This was possible by closely and methodically examining nature in the manner suggested by scientific method, and not through religion and revelation. Even some theologians of the day adopted this position, notably Anthony Collins

> humanity touches every issue at hand: abortion, reproductive technologies, human stem cell research, cloning, assisted suicide, euthanasia, genomics [i.e., the study of genes and their functions], and resource allocation.[36]

The Problem of Evil

The Enlightenment's scientific revolution also unsettled the medieval understanding of evil in the world. Illustrative are the reactions to an enormous earthquake that rocked the city of Lisbon on the morning of All Saints' Day, November 1, 1755. Firestorms and floods followed the ten-minute earthquake, destroying most of the city, including all of its important churches and perhaps as many as one-third of its population, upwards of 90,000 souls.[37]

True to its theodicy, the religious response interpreted the earthquake as a divine message.[38] Catholics, for example, saw it as God's punishment for a wicked and decadent city akin to the biblical Sodom and Gomorrah. Protestants, on the other hand, viewed the Lisbon earthquake in strictly sectarian terms: as God punishing Catholic Lisbon for Portugal's part in the Inquisition, the Roman Catholic tribunal for investigating and punishing heresy that had been established in Portugal in the sixteenth century. So, while they differed about specifics, Christians generally agreed that the earthquake was a reflection of God's design; and, therefore, it served a religious purpose, such as getting people to abandon sin, pray, and repent.

In contrast, the deistic response consisted of trying to account for the disaster rationally, not morally or supernaturally. Although the explanations were scientifically crude—such as "overexcited electrical currents" or, in the case of Immanuel Kant (1724–1804), subterranean explosions of gases—they shared the deistic view that the presence of a natural evil, such as a killing earthquake, was immaterial to the natural order of things because that was established before God abandoned the world and its inhabitants. In short, the rules governing nature were rigid and discernible, and the best way to explain any event was through reason and evidence, not faith, authority, and tradition. Typical of the new, enlightened thinking was the view of French philosopher Jean-Jacques Rousseau (1712-1778), who attributed the Lisbon deaths to reckless urban planning.[39-41]

From the general view that we own our misfortune, it was a short leap to demystifying illness and disease. To the emerging scientific mind, illness and disease were no more divinely ordained punishment for sin than was the Great Lisbon Earthquake. Rather, they were natural phenomena amenable to medical explanation. Thus, by the end of the nineteenth century, according to Bonnie Miller-McLemore, the medieval culpability before illness and death would be largely managed within the modern medical model. The Vanderbilt professor of religion sums up the change this way:

> The medical establishment at that time exhaustively explained illness and death in rational, scientific, "morally neutral" terms. Doctors certified that the causes of disease resided in micro-organisms, not in personal, moral or religious factors. This assertion eliminated religious questions of meaning, mystery or moral imperative. People no longer used the concept of divine providence to explain death; they considered religious, spiritual and moral meanings superfluous. They felt blameless and by attributing illness to natural causes, the physician supported that view.[42]

CONCLUSIONS

If scientific medicine challenged the supernatural basis of illness, it also called into question the biblical account of a world created by God in its present state. More sensible and reasonable to the

CASES AND CONTROVERSIES

The Life and Death of Jane Tomlinson

In 1991, at the age of 26, Jane Tomlinson (1964–2007) was treated for breast cancer, with a poor prognosis. In 2000, doctors found that the disease had spread throughout her body. Thereafter, Tomlinson became famous throughout the United Kingdom for raising millions of dollars for charity by completing athletic challenges including marathons, triathlons, and long distance cycling across Europe, the United States, and Africa. Following her death in 2007 at the age of 43, Jane's husband, Mike, paid tribute to her courageous seven years of sporting achievements and charity fund-raising by saying that his wife's example could "redefine what it means to be a cancer patient."

But not everyone agrees that Jane Tomlinson provides an appropriate role model for cancer patients. Dr. Mike Fitzpatrick, for one, says that Tomlinson's model revives the nineteenth-century concept that disease can be challenged by will. "This notion is always closely linked to the idea that disease is itself an expression of character," he says. As a result of this interpretation, cancer, or any disease for that matter, is given a punitive meaning. "Jane Tomlinson is offered as the model of the active patient who refuses to take a passive role in their treatment" Fitzpatrick says. "But where does this leave somebody with cancer who does not want—or is not able—to fight or struggle, does not want to spend their remaining months or years running or cycling or becoming a high profile campaigner?"[49]

Questions for Analysis

1. Do you think that Jane Tomlinson offers an enlightened approach toward cancer; or do you think that that any attempt to confer meaning on cancer inevitably is moralistic and punitive?
2. Does Dr. Fitzpatrick's criticism get to the point that McLemoore made in this chapter?
3. The writer Susan Sontag (1933–2004), who died of cancer, was one of the first to point out "the accusatory side of the metaphors of empowerment that seek to enlist the patient's will to resist disease."[50] Discuss Sontag's insight in the context of Enlightenment thought and the acclaim for Jane Tomlinson.
4. Do you know people who felt guilty about their illness or attributed it to their own moral failure?

REFERENCES

1. C. Ben Mitchell, "Bioethics in the New Millennium: Ethical Challenges Ahead," *Dignity*, Bannockburn, IL: The Center for Bioethics and Human Dignity, Spring, 2001. Retrieved April 30, 2007, from http://www.cbhd.org/resources/bioethics/mitchell_2001-spring_print.htm.
2. Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution*, New York: Farrar Straus & Giroux, 2002.
3. Neal Cross, Leslie Dae Lindou, and Robert C. Lamm. *The Search for Personal Freedom*, 3rd ed., vol. 1, Dubuque: Wm. C. Brown Company Publishers, 1968, Ch. 14.
4. Karl Baier, "The Meaning of Life," in E. D. Klemke. *The Meaning of Life*, New York: Oxford University Press, 2000, p. 102.
5. Walter Sundberg, "The Conundrum of Evil," *First Things*, January 2003, pp. 53–58. Retrieved April 30, 2007, from http://www.leaderu.com/philosophy/evil_modernthought.html.
6. Susan Neiman, *Evil In Modern Thought*, Princeton, N.J.: Princeton University Press, 2002.
7. Ibid., p. 23.
8. C.S. Lewis, *The Problem of Evil*, San Francisco: Harper San Francisco, 2001, p. 79.
9. Ibid., p. 77.
10. Ibid., p. 78.
11. Richard Sloan, *Blind Faith: The Unholy Alliance of Religion and Medicine*, New York: St. Martin's Press, 2006, p. 17.
12. Saint Augustine, *Enchiridion on Faith, Hope, and Love*, J.B. Shaw, trans., Washington: Regnery Publishing, Inc., Gateway Edition, 1996, pp. 31–34.
13. Sloan, p. 15.