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Religion and Science

IS THERE A GENE that makes us religious? Is a belief in God encoded in our DNA? Or is it the other way around: Does faith in science undermine our religious beliefs?

These questions are part of global debate about religion and science. Many people think of religion and science as competitors, even as enemies. After all, both seek answers to life's big questions, but they use very different methods and come up with different answers.

There weren't always two major sources of knowledge available in the world. Every society has religion, but only a few societies have science. Science is far more recent. When medieval religious authorities wrote that tree frogs would die if exposed to rain, they weren't reporting on the results of a scientific experiment. In fact, they didn't ever go out and look at any frogs in the rain. They relied on anecdotes, classical authors, or logical deduction. Frogs are associated with the earth; water is the opposite of earth; so obviously water kills frogs.

Around 1400, philosophers started to use what would be called the "scientific method," systematic, experimental studies that uncover the facts of the natural world. Unfortunately, the facts they uncovered often disagreed with religious doctrine. The sun doesn't revolve around Earth. The equatorial regions are not too hot to support life. Earth is much more than 6,000 years old. The Church conceded some points, but not others, and the competition between religion and science began.

Strong religious belief and strong scientific knowledge can coexist. In fact, the United States is simultaneously one of the most scientifically advanced and one of the most deeply religious countries in the world.

Even though science and religion seek to do so many of the same things and often come to different conclusions, they are not necessarily rivals in society. Strong religious belief and deep scientific knowledge can coexist. In fact, the United States is simultaneously one of the most scientifically advanced and one of the most deeply religious countries in the world.

The same individual is often involved in both religion and science. Most religious professionals have to keep up with advances in medicine, psychology, and sociology to minister to their congregations effectively, and many, if not most, scientists attend religious services regularly.

Comparing Religion and Science

Sociologists view science and religion as similar institutions. Both are *organized and coherent systems of thought that are organized into social institutions*. Both make claims to "truth." Both make claims to govern our conduct: Science governs our conduct toward the natural world, regulating how we are able to understand it, and religion orients people toward social interaction in this world as an expression of its beliefs in the next world. Both have professionals who devote many years to study and training to acquire the credentials necessary to speak as experts. This special access to the truth is established and reinforced by the universities and seminaries that they must attend and the separate subcultures they inhabit, churches on the one hand and labs on the other.

However, there are also many differences between the two institutions. **Religion** is a set of beliefs about the origins and meaning of life, usually based on the existence a supernatural power. It is primarily concerned with the big questions of existence, such as: What is the meaning of life? Where did I come from? Where am I going?

In a sense, the emphasis of science is more methodological. **Science** is the accumulated systematic knowledge of the physical or material world, which is obtained through experimentation and observation. Religion deals with big questions of existence; science deals with smaller questions of classification or processes. Scientific journals are full of articles about the cell walls of mollusks and the effect of a certain quantity of electricity on a strontium compound. Only a few branches of science consider ultimate questions of existence, and even then they don't focus on the individual. They ask, "Where did the universe come from?"

Religion acquires its ideas through **revelation:** God, spirits, prophets, or sacred books give us the answers to the questions of existence. On the other hand, science acquires its knowledge through **empirical verification:** Information is developed, demonstrated, and double-checked using an experimental method. Science bases its claims on what has been shown this way, rather than asking you to believe something on faith. Occasionally, religion may seek to offer proof of the truth of its claims—through miracles, for example—but even these may be a matter of faith. Scientific types believe it when they see it; religious types are more likely to see it when they believe it.

Religion distinguishes between the physical world (chaotic, uncertain, full of suffering), and a spiritual world (orderly, permanent, and full of joy). Although the two worlds are nearly opposite, few religions teach that there is no bridge between them: Gods and spirits pass between them, and often mortals visit the other world through visions, dreams, and spirit journeys. When we die, we can go there permanently, if

we behave according to the rules of the religion. Meanwhile, we can experience the **sacred,** that which is holy or divine, and we can see the spiritual in the midst of our **profane,** or secular, everyday lives.

Science is interested in only the physical world. It concedes that a spiritual world may exist, but it is undetectable to scientific research. No systematic experiments have demonstrated its existence, or the existence of spiritual beings like ghosts, or spiritual powers like ESP. The parapsychologists who study such matters have had mixed, unreliable results.

Religion changes over time. There are new interpretations of the revealed message, new emphases, or even new revelations: For over 100 years, Black men were forbidden from entering the priesthood in the LDS (Church of Jesus Christ of Latter-Day Saints)—a strident restriction, because every adult male in the church is a priest—but in 1978, a divine message indicated that they could. During the Civil War, the Southern Baptists split from the American Baptists over the issue of slavery: They believed that it was God's will for Africans to be slaves. But you won't find many Southern Baptists supporting slavery today.

Science also changes over time. Scientific discoveries that are accepted as empirically demonstrated one day may be replaced by new discoveries, also empirically verified. For many years, the best scientific studies found that Mars had a relatively mild climate, water, and oxygen—everything necessary for intelligent life to evolve. Then better scientific studies revealed that Mars is much too cold and dry to support life.

However, neither religion nor science changes overnight. Neither has a smooth, uncontroversial change from one set of beliefs to another. Instead, they advance by dramatic breaks with accepted wisdom. In religion, these breaks generally come when a new prophet or **charismatic leader** draws people away from established institutions, as Martin Luther led people away from the Roman Catholic Church to become Protestants, and John Wesley from the Anglican Church to become Methodists. In science, these breaks come from scientists who challenge accepted assumptions and begin to draw followers into newer empirical areas of scientific exploration.

Did *you* know?

Not only do we believe in religion *and* science, but we also embrace different elements of different religions. The vast majority of Americans belong to Western religions, which believe in neither ghosts nor reincarnation. Yet 51 percent of Americans believe in ghosts, and 27 percent believe in reincarnation. No Western religion teaches that there is any validity in astrology, and some teach that it is a tool of the devil, yet 31 percent of Americans believe in it. And young people are more likely to believe in astrology or ghosts because they often select beliefs that they find useful or meaningful, regardless of official doctrine (Harris, 2004).

Classical Theories of Religion

Religion is a **cultural universal**—that is, it exists in every single culture. No human society has yet been discovered that lacks an organized, coherent system of beliefs about a spiritual world. However, religions vary tremendously. Some have no gods, some have many, and some have only one. Some believe in a heaven or a hell, some in reincarnation, some in both, and some do not believe in an afterlife at all. Sociologists are less interested in debating the truth of religious doctrine than in the function of religion. Why do all societies have one? What does it do for the society?

Durkheim and Social Cohesion

For Emile Durkheim, religion served to *integrate* society, to create a sense of unity out of the enormously diverse collection of individuals. Religion provides a sort of social glue that holds society together, binding us into a common destiny and common values.

But how? Durkheim went back to the origins of society. He surmised that primitive cultures were so overcome by the mystery and power of nature—lightning striking a tree,

for instance—that they would come together as a group. These events were seen as sacred—holy moments that evoked that sense of unity. Cultures then try to recreate these moments in **rituals**—solemn reenactments of the sacred events. Rituals would remind individuals that they are part of a whole that is greater than its parts.

Durkheim's emphasis on what holds a society together is important to sociologists who study modern societies, where the greater complexity and diversity poses many challenges to social unity. Sociologist Robert Bellah (1967) suggested that modern, secular societies develop a **civil religion** in which secular rituals—such as reciting the Pledge of Allegiance, the singing of the national anthem at professional sports events, lighting fireworks on the Fourth of July—create the intense emotional bonds among people that used to be accomplished by religion.

Marx and Social Control

Whereas Durkheim saw the positive aspects of religion as social glue, other classical sociologists have explored its use as a form of control. As we've seen, religion attempts to answer basic questions of human existence, which are profound and terrifying, but also provides a way to organize one's life in preparation for the next world. Yet a successful transition to the next life requires obeying specific cultural norms: Do not eat pork (if you're Jewish or Muslim), do not drink alcohol (if you're Muslim or Pentecostal). In Mark Twain's *Adventures of Huckleberry Finn* (1885), Huck is racked with guilt over the "sin" of helping a runaway slave. Because he is from the pre–Civil War South, he has been taught that slavery is God's will, that slaves are the property of their masters, and that helping a runaway will send him to hell. Religion offers a spiritual justification for why you should obey the rules and not try to make any changes.

Karl Marx believed that religion kept social change from happening by preventing people from revolting against the miserable conditions of their lives. In feudal society, Marx argued, religion served as a sort of ideological "blinder" to the reality of exploitation. Because the lords of the manor owned everything, including the rights to the labor of the serfs, anyone could tell that there was brutal inequality. So how could the lords stay in power? How come the serfs didn't revolt?

Marx believed that religion provided a justification for inequality. For example, the belief in the "Great Chain of Being," in which all creatures, from insects to kings, were arranged on a single hierarchical arrangement ordained by God, obviously justified the dominion of those at the top over those at the bottom. Marx called religion "the opiate of the masses," a drug that made people numb to the painful reality of inequality. Religion is what keeps change from occurring.

Weber and Social Change

Max Weber, in contrast, argued that religion could be a catalyst to change. Weber's earliest work wondered why capitalism developed in Western Europe in the way that it did. After all, he noted, capitalist economic activity (profit-maximizing buying and selling) had certainly existed as the dominant economic form of life in other times and places—notably in ancient China, ancient India, and among the ancient Jews. But none of these societies sustained capitalist activity. Only Western Europe in the fifteenth and sixteenth centuries broke out of feudalism, its established social order, developing instead a type of capitalism that was self-sustaining. Why?

Weber reasoned that it might have had something to do with the impact of religious ideas on economic activity. In the other three cases, religious ideas interfered with economic life, restrained trade, and made it more difficult for capitalism to become a self-sustaining system. He noticed that Protestant countries (Britain,

Holland, Germany, the United States) had advanced earlier and further than Catholic countries such as Italy, Portugal, Spain, and France.

Perhaps the Protestant Reformation had freed individuals from constraints and enabled each individual to develop his or her relationship to God directly, without priests or churches as intermediaries. The Protestant Church was simply the gathering together of equal individuals, each man being "his own church." In its most extreme forms, such as Puritanism or Quakerism, there were no priests at all but simply the gathering of congregants.

The Protestant image of God was also more abstract and distant, less personal and intimately involved in the day-to-day life of believers. But while Catholicism offered certainty—believers were certain they were going to heaven if they fulfilled the sacraments—Protestantism offered only insecurity; one could never know God's plan. This insecurity led Protestants, especially Calvinists, to begin to work exceptionally hard in this life to reduce the insecurity about where they might be going when they die (because that could not be known). Thus, Weber argued, individuals began to work harder and longer, to approach economic life rationally, through careful calculation of costs and benefits, and to resist the temptation to enjoy the fruits of their labor—which led to rapid and dramatic accumulation of capital for investment. And this accumulation eventually enabled capitalism in the West to become self-sustaining.

Weber was pessimistic about the future of this economic activity. Without the original ethical and religious foundation, Weber predicted, we would become trapped in an "iron cage" of routine, senseless economic acquisition. The very activities that we believed would give meaning to our lives would turn out to eventually leave us empty.

All three of these classical theorists shared several sociological insights. First, although we may experience our religious beliefs as individuals, religion is a profoundly social phenomenon. And they all believed that **religiosity,** the extent of one's religious belief, typically measured by attendance at religious observances or maintaining religious practices, would decline in modern societies. None would have predicted that religion would be as important to Americans as it is today.

Religious Groups

Because religion is so profoundly social, there are many forms of religious organizations. Some are small scale, with immediate and very personal contact; others are larger institutions with administrative bureaucracies that rival those of complex countries. These differ not only in size and scale but also in their relationship to other social institutions, the level of training for specific roles within the religion, and the levels of administration (Table 15.1).

Cults

The simplest form of religious organization, a **cult,** forms around a specific person or idea drawn from an established religion. It is often formed by splitting off from the main branch of the religion. Cults are distinguished by the measure of loyalty they extract from members. Typically small, they are also composed of deeply fervent believers. Some cults prophesize the end of the world and are called "doomsday cults."

Did *you* know?

Most religions are pretty serious business. When you're discussing the big questions, there's not much room for jokes. But one religion, the Church of the Reformed Druid, got its start as a joke. Back in 1963, at Carleton College in Northfield, Minnesota, all students were required to attend Lutheran religious services—unless they belonged to another church. Isaac Bonewitz and his friends didn't belong to any church, so they invented one, the Church of the Reformed Druid, with the most bizarre beliefs and rituals that they could think of, and held regular, crazy meetings. It worked—the requirement to attend religious services was repealed.

Then something remarkable happened. Members didn't want to disband. They had found spiritual meaning in the invented beliefs and practices. The church still exists today (Adler, 1997).

TABLE 15.1

Types of Religious Organizations

	CULT	SECT	DENOMINATION	ECCLESIA
Size	Small	Small	Large	Universal
Wealth	Poor	Poor	Wealthy	Extensive
Beliefs	Strict	Strict	Diversity tolerated	Diversity tolerated
Practices	Variable	Informal	Formal	Formal
Clergy	Untrained	Some training	Extensive training	Extensive training
Membership	Emotional commitment	Accepting doctrine	Birth/decision to join	By belonging to a society

Members of cults leave behind their membership in older religious institutions and often live on the margins of society. Thus they typically run afoul of local and national governments. And that may mean violent repression. During the 1980s, the Branch Davidians, led by David Koresh, broke off from the Seventh Day Adventist Church. They moved to a compound outside Waco, Texas; amassed a small arsenal of weapons; and began teaching that the end of the world was approaching. In 1993, their compound was stormed by federal agents from the Bureau of Alcohol, Tobacco, and Firearms. The government claimed that the cult had broken numerous laws, that Koresh was keeping people hostage and sexually abusing his followers. To the cult's supporters, the government was interfering in religious freedom. After a week-long standoff, a gun battle, and a fire, all 82 Branch Davidians and several federal agents were killed (see Report to the Deputy Attorney General on the Events at Waco, Texas, 1993).

Cults can develop murderous messianic tendencies as well. In 1995, a cult called Aum Shinrikyo (Supreme Truth) released sarin gas on the Tokyo subway during the morning rush hour, killing 12 people and injuring thousands of others. The cult's leader had stockpiled enough poison gas to kill millions before the attack; he was captured in 2004.

Does globalization increase or decrease the number of cults? Both. Globalization and technological advances such as the Internet have had contradictory effects. On the one hand, the Internet facilitates recruitment and enables cult members to remain connected despite large distances. On the other hand, cults often require intense interpersonal interaction. Cults often use very modern techniques to express their antimodernist views, using the information superhighway to "restore" the traditional world that has been displaced.

Cults are often held together by a charismatic personality, no matter how bizarre their ideas. Marshall Applewhite, at left, was the leader of the Heaven's Gate cult. He convinced 38 followers to commit suicide so that their souls could take a ride on a spaceship that they believed was hiding behind the comet carrying Jesus. ▼

Sects

A **sect** is a small subculture within an established religious institution. Like cults, they break from traditional practices, but unlike cults they remain within the larger institution. For example, the Jehovah's Witnesses are usually classified as a Christian sect. Sects typically arise when some members of an established religious institution believe that the institution is drifting from its true mission, becoming sidetracked by extraneous, more "worldly" pursuits. Thus the sect seeks to remain true to the initial mission by demanding more of its members than does

the established institution. Sects control membership criteria and set their own behavioral standards for members. Sect members often think of themselves as the only true believers and regard the mainstream membership as apostate (falling away from the faith).

Many sects are short lived. This is generally the case either because the initial *charismatic leader*—a person whose extraordinary personal qualities touch people deeply enough to motivate them to break with tradition—leaves the group or because they encourage reforms within the established religious institution. For instance, "traditionalist" sects in the Roman Catholic Church reject attempts at modernization like services in English. On the other side of the political spectrum, a sect called the People of the Church believes that women should be allowed to enter the priesthood and that celibacy should be optional.

Some sects become "established sects" and develop their own formal institutional arrangements within a larger institutional framework (see Yinger, 1970). In Christianity, the Latter-Day Saints or the Amish are established sects. In Judaism, we can look at the Hasidic Jews, and in Islam, the Druze of Lebanon.

Did *you* know?

Many people assign the term *cult* to any religious group that is new or that has beliefs or practices that they disagree with. Between 100 and 300 CE (of the Common Era) most citizens of the Roman Empire considered Christianity a cult, and their gossip gives us an idea of what early Christian rituals were like:

- "They have sex with their own relatives!" (Christians called each other "brother" and "sister," even when married to each other.)
- "They practice cannibalism!" (Christians used the phrase "This is my body/ This is my blood" during Communion.)
- "They dig up corpses for who knows what disgusting purpose!" (Christians talked about "the resurrection of the dead.") (Fox, 1987)

Denominations

A **denomination** is a large-scale, extremely organized religious body. It has an established hierarchy, methods for credentialing administrators, and much more social respect than either a cult or a sect. Members of cults and sects are often subject to prejudice and discrimination in the mainstream society, but members of denominations are usually considered "normal." The various Pentecostal churches were considered cults or sects as long as their members were mostly poor, urban, and African American; but once they began to gain White middle-class converts, they quickly became denominations.

In the United States, the overwhelming majority of the population belongs to one of the denominations of Christianity. The largest is the Roman Catholic Church (23 percent). Nearly 70 percent of all Americans claim membership in a Protestant denomination (chiefly Methodist, Baptist, Presbyterian, or Lutheran). There are 5.9 million Jews in the United States, 3 million Muslims, 2 million Buddhists, and 1 million Hindus.

With some 2,000 cults, sects, and denominations in the United States, how do you decide which one to join? Most people adopt the religion of their parents and stay with it throughout their lives, with little conscious choice. Many denominations accept new members at birth or offer membership at such a young age that one could scarcely be said to carefully weigh alternatives. A third of the U.S. population has changed denominations, but they usually do not walk into a strange church or temple and say "I want to join you." They adopt the religion of a friend or romantic partner.

The International Society of Krishna Consciousness (or Hare Krishnas) is considered a cult in the United States. In India, however, it is an established Hindu sect. ▼

Ecclesiae

There is one more formal religious organization, the **ecclesiae,** or religion so pervasive that the boundary between state and church is nonexistent. In such societies, the clerical elite often serve as political leaders or at least formal advisors to political leaders. Everyone in the society

Try It Exploring Types of Religious Organizations

Developed by Katherine R. Rowell, *Sinclair Community College.*

OBJECTIVE: Explore the four types of religious organizations.

STEP 1: Research
Using various Internet resources and library resources, find two examples (not mentioned in your textbook) of each of the four religious organizations noted in your book, including cult, sect, denomination, and ecclesia. In your examples, include an explanation for why your example is a particular type of organization. Include a discussion of the size, wealth, beliefs, practices, training of clergy, and type of membership. Note the sources for each of your examples and write up your responses in an easy-to-read format (your instructor may ask that you develop a chart).

STEP 2: Discuss
Bring your responses to class and be prepared to share your examples. Did anything surprise you about the class discussion? Were there examples similar to yours? Did anyone have your example in a different category?

STEP 3: Review
Your instructor will conclude this activity by discussing how religious organizations change over time. You will be challenged to think of examples of religious organizations that have changed over time.

belongs to that faith by birth, not individual decision, and those who do not belong to the faith cannot become citizens. Until the French Revolution, the clergy in France was one of the two pillars on which the monarchy rested (the other was the nobility). Today, the Muslim clerics in Saudi Arabia, the Shi'ite mullahs in Iran, and the Buddhist priests in Thailand are nearly identical with political leadership.

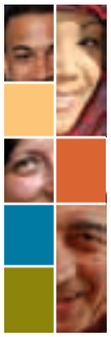
Such merging of politics and religion is not inevitable. Some societies with established state churches remain remarkably free of clerical influence in political matters. In Sweden, for instance, the Lutheran Church has official status, but it exerts virtually no influence on political decision making.

Religions of the World

Sociologists are not only fascinated by religion as a cultural universal; they are also interested in the remarkable diversity of religious belief and practice. In most places, local, traditional religions have given way to **world religions,** religions with a long history, well-established traditions, and the flexibility to adapt to many different cultures.

Western Religions

Three of the world's major religions, Judaism, Christianity, and Islam (plus a few smaller ones) are called Western religions because they originated in the Middle East. They all trace their spiritual ancestry to the same event: About 2000 BCE, a nomadic tribe living in ancient Mesopotamia recognized that their god, Yahweh, was not specific to their tribe, but was the god of all the world. They eventually founded Judaism (after Judea, where they settled), and they tried to follow God's law as revealed in the Torah, his sacred book. Christianity arose 2,000 years later out of a protest against the "corruption" of Judaism, and Islam 600 years after that as a protest to the "corruption" of both, so all three religions share many beliefs and practices.



Sociology and our World

The "Church" of Scientology

What is Scientology? Is it a cult? A religion? A hoax?

Scientology was founded in 1952 as a self-help system by a science fiction writer, L. Ron Hubbard. Hubbard believed that he had found both the vision of a pure and whole life, as well as the method of achieving it. He gradually came to believe that he had founded a new religion and declared Scientology a church.

Some critics, however, argue that Scientology is nothing more than a cult of personality surrounding Hubbard and his followers and that they seek recognition as a religion only because they seek to avoid paying taxes. A May 1980 *Reader's Digest* article quotes Hubbard as saying, "If a man really wants to make a million dollars, the best way would be to start his own religion." Because church members are paid for each recruit they bring into the organization, and each branch pays fees to the international center, most countries in Europe classify scientology as a for-profit business, although Germany considers it a dangerous cult. In the late 1990s, Great Britain denied it classification as a tax-exempt religion, and the United States granted that status.

Scientology claims more than 10 million followers, though less-partisan observers estimate the numbers to be somewhere between 100,000 and 500,000 worldwide. In the United States, there are about 55,000 practitioners.

They are exclusive: They have the one true faith; all others are invalid. They are evangelistic: They want you to choose their faith. There is only one god (although sometimes there are intermediaries, like saints and angels). There is usually a heaven and a hell, where we will experience eternal joy or torment. There is a sacred book, usually revealed by God, which followers are expected to read and obey. Believers are expected to attend regular worship services, held on the holiest day of the week (Friday for Muslims, Saturday for Jews, Sunday for Christians). And finally, a messiah is coming to save us. (For Christians, he has already come, but he's coming back, and the Shi'ite is the only Muslim denomination that believes this.)

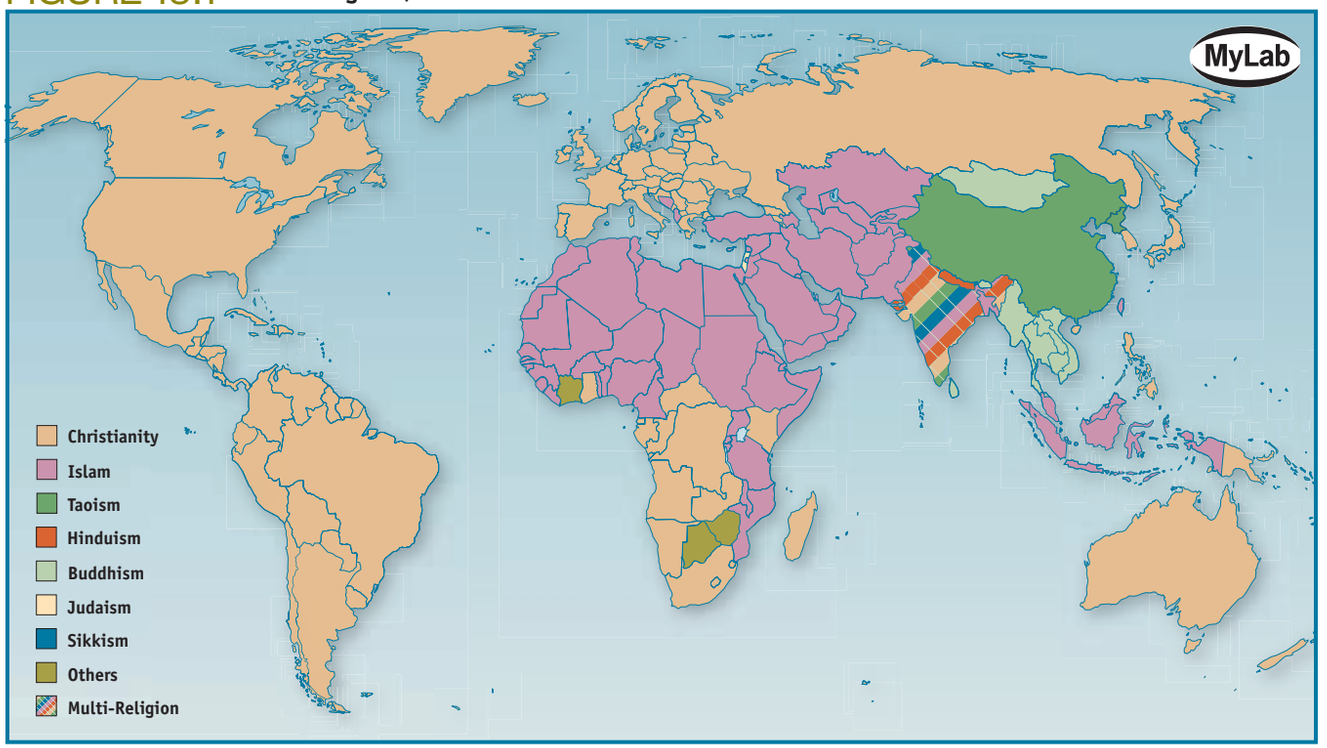
Judaism and Christianity spread west, through Europe, while Islam spread east and south, throughout the Arabian Peninsula and into India and Central Asia. Today, of course, all three religions have adherents worldwide.

Judaism believes that the covenant between God and Abraham around 2000 BCE became the foundation of Jewish law, as recorded in the Pentateuch (first five books of the Bible). Judaism flourished in the ancient world; it is estimated that 10 percent of the population of the Roman Empire was Jewish. Today there are about 15 million Jews in the world (0.2 percent of the world's population), divided into three branches: Orthodox, who follow traditional Jewish law very strictly; Reformed, who attempt to modernize dress, dietary laws, and worship practices (for instance, synagogue services are conducted in the usual language of the country, not in Hebrew); and Conservative, who rebelled against the overmodernization of the Reformed branch.

Christianity was founded 2,000 years ago by the disciples of Jesus, who declared him to be the son of God. Christians revere the Jewish Bible (which they call the Old Testament), as well as the New Testament, a collection of writings recounting the life of Jesus and the history of early Christianity. Today, Christianity is the world's largest single religion, with 2.1 billion adherents (about one-third of all the world's people), although it is divided into so many different denominations with widely varying beliefs and practices that it is often treated as a group of religions. There are three main branches, Roman Catholicism, Eastern Orthodoxy, and Protestantism, as well as many sects.

Islam was founded about 1,400 years ago when God grew displeased with the corruption of the teachings of his earlier prophets and gave his last prophet,

FIGURE 15.1 **World Religions, 2005**



Source: "World Religions" from Maps of the World website, www.mapsoftheworld.com. Reprinted with permission.

Mohammed, a new sacred text, the Koran. Islam means "Submission to God," and Muslim, "one who has submitted to God." Islam is far more communal than Christianity, especially its Protestant variety, and requires the fusion of religion and government. Only a Muslim government is seen as legitimate. There are two main branches, Shi'ite and Sunni, which differ in a number of beliefs and practices; for instance, Shi'ite Muslims revere holy men, or imams. In Iraq under Saddam Hussein, the Shi'ite majority was severely persecuted. Today about 20 percent of the world's population is Muslim. Like Christianity, the numbers have increased dramatically, from 529 million to 1.3 billion (Figure 15.1).

All three of these religions are divided into various denominations and sects, based on interpretations of their religious texts. Some interpret these texts liberally and thus enable religious belief to casually coexist with modern life. Others are more demanding. At the extreme ends of all these religions are fundamentalist groups, which claim to be the purest and truest followers of their religion. **Fundamentalism** tries to return to the basic precepts, the "true word of God," and live exactly according to His precepts.

However, even within a fundamentalist group, there is much debate about what precisely God expects of his followers, and there is little agreement between fundamentalist groups. For example, al-Qaeda's interpretation of **jihad,** or holy war, to mean acts of terrorism against non-Muslims, is viewed with horror by most fundamentalist Muslims. Some fundamentalist Christians believe that going to the movies is immoral, while others play movies during "fellowship hour." Some Orthodox Jews will not push the buttons on an elevator on the Sabbath because they believe that the restriction against working on the Sabbath extends to elevator buttons.

All fundamentalist groups are selective in the application of their chosen texts. Even if you believe that the Bible is literally true, you must decide which parts are

applicable to today's world and which are not. To the sociologist, references to scripture are important because they suggest a search for a coherent and consistent way to live ethically in a world of ambivalence and contradiction. To be selective in our use of these religious texts is human; to understand that search is sociological.

Eastern Religions

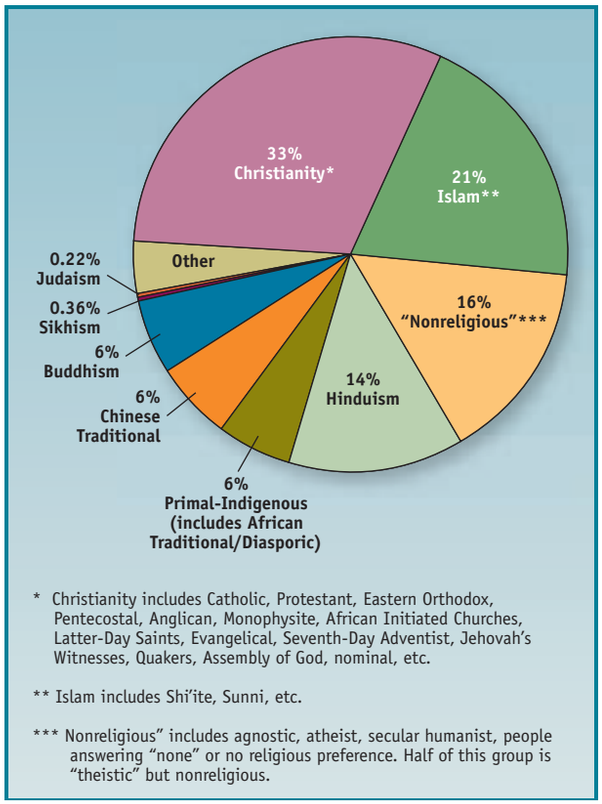
Three other major religions of the world, Hinduism, Buddhism, and Confucianism (plus some minor ones), are called "Eastern" because they arose in Asia, although, like the Western religions, they have adherents around the world. They have many beliefs and practices in common, some of which might baffle people raised in a Western religion. They are **syncretic religions:** It is perfectly acceptable to practice Buddhism, Hinduism, Confucianism, Taoism, and any other religion you want, all at the same time. There are many gods (although often religious scholars interpret them as emanations of a single god). There is no heaven or hell, just an endless series of reincarnations until you achieve enlightenment (except in Confucianism). There is no specific sacred book, although sometimes there are vast libraries of sacred texts to be revered. And there are no regular worship services. Temples are used for special rituals.

Hinduism developed from many indigenous religions in India around 1500 BCE. Unlike the Western religions, which rely on sacred texts (and therefore presume that believers can read), Hinduism is based largely on oral tradition, passed on from one generation to the next by storytellers. However, there are also many sacred texts, notably the Vedas and the Upanishads. There are many gods, but most people, most of the time, revere one of the main three, Brahman (who creates life), Vishnu (who preserves or maintains life), and Shiva (who destroys or renews life). Some of the avatars or incarnations of Vishnu are also popular, especially Krishna (portrayed as a blue-skinned youth) and Ganesha (portrayed as an elephant-headed man). Enlightenment is available only after countless incarnations, so most Hindus do not hope for it to happen in this lifetime; instead, they try to behave in a moral fashion to ensure a favorable reincarnation. Today there are nearly one billion Hindus (14 percent of all religious adherents) mostly in South Asia and in Indian communities around the world.

Just as Protestantism developed as a reaction to the "corruption" of Catholicism, **Buddhism** developed as a reaction to the "corruption" of Hinduism. It was founded by Siddhartha Gautama (560–580 BCE), later called the Buddha, or "The Enlightened One." While Hinduism taught that enlightenment could come only after countless lifetimes of reincarnation, the Buddha taught that enlightenment was possible in this lifetime, through the "Tenfold Path" of physical and spiritual discipline. Today there are two main branches of Buddhism. Hinayana ("The Small Cart"), which still follows strict discipline, is common primarily in Southeast Asia and Tibet. The need for discipline led Hinayana Buddhists to found the first monasteries, and in some countries, monks comprise up to a third of the population. Mahayana ("The Large Cart") does not emphasize strict discipline and thus has fewer monks. There are 376 million

Buddhist priests practice meditation and a strict physical and spiritual discipline to reach enlightenment. These Thai priests pray before their tea ceremony. ▼

FIGURE 15.2 World Religions by Percent of Adherents, 2005



Source: From Adherents.com. Reprinted with permission.

Buddhists (6 percent of all adherents), mostly in East Asia, although many Westerners have become interested in Buddhist teachings.

The philosopher K'ung Fu Tzu or Confucius (551–479 BCE) lived in China about the same time as the Buddha in India. The faith he founded, **Confucianism,** remained the official religion of China until the People's Republic officially became atheist in 1949 and also had a strong impact on other Asian countries, especially Japan and Korea (Figure 15.2).

Confucianism does not have much to say about gods or the afterlife. Instead, it establishes a strict social hierarchy. Confucius put forth Five Constant Relationships: ruler–subject; husband–wife; father–son; elder brother–younger brother; elder friend–junior friend. In each, one person is subordinate to the other, but the deference due the superior person cannot be taken for granted. Rather, it must be earned. Confucianism sees Heaven and Earth as linked realms that are constantly in touch with each other. People in Heaven are the ancestors of those on Earth. It is hard to determine the number of adherents because officially no religions are practiced in mainland China, but it is safe to say that every aspect of Chinese culture owes a debt to Confucianism.

Eastern religions tend to be somewhat more tolerant of other religions than Western religions. Without the privileged access to revealed truth—by which conversion of nonbelievers is a mission of love—there is not as much need for coerced conversion, or the bloody religious wars that have appeared for millennia in the West. It is the certainty of religious doctrine that might contribute, sociologically speaking, to the higher levels of religious persecution and discrimination in the West.

Contemporary Religion: Secularization or Resurgence?

Early sociologists believed that as societies became more modern, religion would decline. Individuals, and society as a whole, would no longer need it, and so society would become increasingly secular. **Secularization**—the process of moving away from religious spirituality and toward the worldly—was assumed to be the future of religion around the world.

Marx believed that as capitalism developed, we would all become rational individuals, interested only in self-interest and the bottom line. Capitalism, he wrote, would "drown the heavenly ecstasies of religious fervor" in the "icy water of egotistical calculation" (Marx [1848] in Kimmel, 2006). Weber believed that religious ideas had a way of becoming applied in the everyday world and that this process made religious ideas less mysterious and special, which in turn, led to their becoming less meaningful to us. And Durkheim thought religion would decline because society itself would perform the functions of religion—ensuring group cohesion and providing meaning and social control.

The secularization thesis was so well accepted that it became a sort of truism; no one contradicted it because it seemed so "right." Over the years, sociologists have amassed a large amount of empirical data to support the theory of secularization.

However, it turns out that secularization has not occurred—at least not as sociologists had originally predicted it. For one thing, religion has not declined

worldwide, despite the dramatic modernization of societies and the technological breakthroughs of the past century. Religious adherence is prospering in a wide variety of different societies.

In fact, the majority of countries in the world, the majority of the global population, is experiencing a religious resurgence (Berger, 1999; Moghadam, 2003). Religiosity is generally increasing in the former Communist countries of Eastern Europe, Central Asia, and the Caucasus, as well as Latin American, Africa, China, Southeast Asia, and the Middle East (Moghadam, 2003; Riesebrodt, 2000).

In Eastern Europe, the number of atheists and nonreligious people has been declining steadily since 1990 (Moghadam, 2003). In Russia, belief in God has risen sharply, to roughly 60 percent of the population today (Moghadam, 2003). In Central Asia and across the Caucasus, there has been a steady decline in the nonreligious and atheist population. China is seeing a steady rise in Buddhism, the country's largest faith, but also in traditional folk religions (Gargan, 2002) and in Christianity, particularly Protestantism. Some 10 million people belong to the state-sanctioned Catholic Church and 15 million to the official Protestant church, and an estimated 2 million Chinese a year are being baptized as Protestants (Lakshmanan, 2002). While data are scarce for Africa, Islam is an increasingly strong force in several countries, and Christianity is on the rise. The number of Catholics alone in Africa has increased from an estimated 16 million in 1955 to 120 million in 2000 (Jenkins, 2003). In fact, Christianity is not only the world's largest religion today, but, in some regions, particularly in the developing world, it is the fastest-growing religion as well. Increasingly, trends such as this rapid growth of Christianity in the global South and increased Muslim immigration to Western nations are shaping both public attitudes and government policies around the world (Table 15.2).

TABLE 15.2

Global Trends in Religious Resurgence

Religiosity is declining in most OECD countries, except the United States. It is resurgent in the Middle East and Southeast Asia, Eastern Europe except Poland, and in the developing world except India.

DECLINING (SELECTED COUNTRIES)	RESURGENT (SELECTED COUNTRIES)
Australia	Russia
Britain	China
Canada	Brazil
France	Nigeria
Germany	South Africa
Netherlands	Bosnia
Norway	Yugoslavia
Poland	Kazakhstan
India	United States

Source: Assaf Maghadam, "A Global Resurgence of Religion?" Weatherhead Center for International Affairs, Harvard University, August 2003.

In the developing world, religion continues to hold enormous sway over the society. For many years, sociologists believed that a society's adherence to religious beliefs was one of the major cultural barriers to modernity. But religion offers an alternative to modern society, which people may regard as corrupt—and corrupting. For example, Buddhism or Confucianism proposes radical disengagement with the material world (transcendence), and others offer a parallel spiritual world that enables you to live in the world but not succumb to it (like, for example, orthodox Judaism). Other religions, such as some groups of fundamentalist Muslims or Christians, demand fervent engagement with the world as a way to redirect society away from such corruption.

From a European perspective, the secularization thesis is more valid than it is in the United States; religious affiliation, belief in God, and church attendance in Europe are but a fraction of what they were a century ago. Religious participation has declined steadily since the 1960s (Banchoff, 2007). Were it not for one very big exception, one might say that the more industrially and technologically developed a society is, the lower its rates of religious beliefs. In those industrial countries where the government provides the most extensive social safety net (health care, retirement benefits), rates of church attendance have decreased most dramatically. Even in Italy, the seat of the Roman Catholic Church, religious participation has declined in the past 30 years, although less sharply and consistently than elsewhere in Europe (Banchoff, 2007).

The big exception to this rule is the United States. While scientific and economic progress has continued virtually unabated, so has religious affiliation. The United States has five times fewer nonbelievers than even the state of Israel, let alone European

countries (Zuckerman, 2005). The United States always has been a strongly religious country—and we continue to be. The United States stands alone among wealthy, industrialized countries in its embrace of religion. Nearly six in ten Americans say religion plays a *very* important role in their lives (Pew Global Attitudes Project, 2002).

Religion in the United States

Around the time America was founded, Thomas Jefferson confidently predicted that people would eventually think of the Bible as a book of myths, like Greek mythology. Yet faith in the literal truth of the Bible remains strong, and the United States remains one of the world's most churchgoing societies. Why have rates of religious belief and participation declined in every other industrialized country but the United States?

One factor might be that the United States has been, since its inception, more than simply a nation of immigrants, but actually a nation of *religious* immigrants. Since the Pilgrims were kicked out of England, the United States has always been a haven for those who were constrained from practicing their religion elsewhere—European Jews, Chinese Christians, Russian Orthodox believers, and so on. As some nations become increasingly secular, those who are religious may seek a haven in the United States. As a result, increased religiosity and increased secularism coexist.

Another factor is that the United States has been swept by several waves of increased religious passion. There were two Great Awakenings, one in the 1720s and one in the 1820s, which witnessed a democratization of religion, as itinerant preachers spread the news that God was less impressed with fancy churches and ornaments than by sincere beliefs of individuals. In the early twentieth century, the Pentecostal Revival, another significant spiritual "awakening," invited poor, non-white, and otherwise disenfranchised people to leave traditional Methodist and Presbyterian churches to hold meetings in storefronts and private houses. Just as the Industrial Revolution freed individuals' enterprise, these revivals of religious experience had the effect of freeing individuals from the hold of organized churches and making religion feel "American" (Table 15.3).

Church attendance in all industrialized countries except the United States is at or near all-time lows. Even in Italy, home of the Pope, Church attendance is significantly less than it has been in several centuries. At this evening mass in St. Peter's Basilica in Rome, many of the people are actually tourists. ▼

Still a third factor has been the way that American religious institutions have grown as providers of social support and cultural interaction. In Europe, churches are often tourist attractions, but locals rarely set foot inside. During my first trip to London, I thought it might be a good idea to attend a service in Westminter Abbey. But services are held in the Abbey only on Sundays; every other day they're held in a tiny basement chapel—with about 30 people in attendance. Even the great cathedrals of Europe, like Notre Dame in Paris, or St. Peter's in Rome, or the Cathedral of Seville, have sparse attendance at mass—and then the congregation is composed largely of tourists.

American churches, by contrast, are almost always full. Churches are often the social and cultural center of the town. Every night there are groups that meet there, from Alcoholics Anonymous to Bible study to social gatherings for divorced parents. Religious institutions not only run parochial schools, but many organize preschool and day care facilities (these are provided by the government in European countries). Churches sponsor soccer leagues and wilderness retreats,

picnics and bingo nights. They have become the social—as well as the spiritual—hub of American communities, especially important as other civic supports, from Kiwanis and bowling leagues to public services, have declined (Table 15.4).

Perhaps one of the other reasons religion is so strong is, ironically, *because* of its separation from political life. The separation of church and state, the prohibitions on school prayer, and the general global trend toward secularization make religiosity something of a rebellion against the dominant culture. Portraying oneself as a minority, whose status is as a victim of state persecution, is almost always a good way to recruit new members.

Finally, it may be that the assumptions that one had to choose between a religious and a secular life were invalid. Americans hold religious beliefs in ways that can fit readily into an otherwise secular life. For Americans, it is not a question of religion *versus* business, but religion *and*. American religious beliefs are modified so that we can be both sacred and secular. Christian bookstores are open on Sundays; children come to church dressed in their soccer uniforms (Gibbs, 2004).

TABLE 15.3

Top Ten Religions in the United States

1. Christianity
2. Nonreligious/secular
3. Judaism
4. Islam
5. Buddhism
6. Agnostic
7. Atheist
8. Hinduism
9. Unitarian Universalist
10. Wiccan/Pagan/Druid

Source: American Religious Identity Survey, Kosmin and Mayor, 2001.

Many observers consider this the **Third Great Awakening** in American history, a religious revival that further democratizes spirituality, making a relationship with the sacred attainable to even greater numbers of Americans, with even less effort or religious discipline. For example, while more Americans are deeply religious, they commit to religious organizations only as long as they like them; one in three Americans has switched denomination, according to a Gallup Poll (Wolfe, 2003).

Even though many of us claim to be highly religious, our knowledge of the dominant U.S. religions is rather limited. Over half of Americans (58 percent) cannot name even five of the Ten Commandments, and just under half know that Genesis is the first book of the Bible. Even fewer can explain the meaning of the Holy Trinity (a theological concept taught by almost all Christian denominations). And 12 percent of Americans believe that Joan of Arc was Noah's wife (she was really an early-fifteenth-century war heroine and political martyr) (McKibben, 2005).

It may be that the dramatic rise of evangelical Christianity in the United States—nearly 40 percent of Americans identify themselves as "born-again" Christian or evangelical—has less to do with its doctrinal rigidity and more to do with how well it sits with other "American" values. Evangelical Christianity uses market-savvy approaches

TABLE 15.4

What Do U.S. Churches Do? Social Services among Hispanics

DOES YOUR CHURCH OR HOUSE OF WORSHIP HELP MEMBERS IN NEED WITH . . .	ALL HISPANICS	CATHOLIC	EVANGELICAL	OTHER PROTESTANT
Food or clothing	84%	83%	90%	89%
Finding a job	56	52	74	65
Financial problems	63	58	82	73
Finding housing	50	45	67	61
Taking care of children	57	52	75	72
Language or literacy training	57	57	56	53

Note: Based on Hispanics who attend religious services.
Source: Pew Forum on Religion and Public Life, 2007.

▲ **Evangelical megachurches have "supersized" religion in the United States. At Willow Creek Community Church, in South Barrington, IL (outside Chicago), about 17,000 attend weekly services.**

to expanding its congregations; employs high-level technologies in megachurches; and, most importantly, is strongly personal and therapeutic. In America, God is intimately involved in the minutest details of your everyday life. (Forget that old idea of a distant, abstract, and judgmental God; in the American version, God is close enough to be your best friend.) "While more Americans than ever consider themselves born again, the lord to whom they turn rarely gets angry and frequently strengthens self-esteem" according to sociologist Alan Wolfe (2003, p. 3).

One indication of this intimacy comes from a 2004 survey in which Americans were asked to whom they might want to place a 15-minute telephone call. George W. Bush received 11 percent, Abraham Lincoln and Albert Einstein got 5 percent, and many others, like Bill Gates, Marilyn Monroe, Elvis Presley, and Martha Stewart received a few. But 60 percent of respondents wanted to call God. Three of five respondents believed God was sort of a human being and amenable to a phone chat.

When some religious figures have declared the Harry Potter series or even Halloween to be sacrilegious because they involve magic and witchcraft, writers soon turn out a Christian alternative like "Shadowmancer" who solves problems by prayer (see Smith, 2004). Rather than fight against media's "corrupting" influence, religious themes have been incorporated into media, like TV shows. Religious organizations develop and market their own products, from best-selling novels, like Tim LaHaye and Jerry B. Jenkins's *Left Behind* series, and Christian rock CDs by groups like Audio Adrenaline.

Like our consumer economy, some evangelical religious organizations have "supersized," so that today, many Americans worship in megachurches such as Chicago's Willow Creek Community Church (17,000 weekly attendance) or Bellevue Baptist Church outside Memphis (10,000 attendees and another 8,000 in Bible study groups each week). If these mainstream pop-culture renditions of Protestantism seem either too remote or too commercial, other smaller churches offer a relaxed experience in "house churches" where ministers are likely to wear blue jeans and speak to congregants informally (see Leland, 2004). All are relatively "seeker friendly," offering spiritual redemption and psychological therapy in the same package. With congregations numbering in the tens of thousands on any given Sunday, American megachurches are less somber religious affairs and more like a mixture of arena rock concerts and old-time tent preaching.

However, it is important to remember that Christians—even American born-again Christians—do not all agree on major issues. In a recent survey, sociologists Andrew Greeley and Michael Hout found that conservative Christians are not all likely to vote Republican (class matters here, and poorer Protestants are less likely to vote Republican than wealthier ones); do not universally oppose abortion (only 14 percent oppose it in all circumstances and 22 percent are prochoice); and a large majority support sex education in school (Greeley and Hout, 2006).

Did *you* know?

The world's first Islamic superheroes battle evil in the comic book, *The 99*. Named for the 99 attributes Muslims believe are embodied in God, the comics aim to reach the growing Muslim markets in many countries worldwide. Its creator says existing superheroes are either Judeo-Christian archetypes—individuals with great power who are disguised (Batman, Superman, Spiderman), or Eastern archetypes of small characters who depend on one another to become powerful (like Yu-Gi-Oh or Pokemon). *The 99* offers an Islamic model: By combining the virtues that each superhero will represent, the team builds collective power that expresses the divine.

Religious Experience and Religious Identity

Religions don't vary only by denomination; we vary in our level of religious affiliation and in the intensity of our beliefs. Rates vary from country to country; and, within the United States, different groups express different levels of religiosity. For example, age matters: The older are more religious than the young. And where you live matters: The rural are more religious than the suburban, and the suburban are more religious than the urban (the major exception to this is urban Blacks, who have high rates of religiosity, as we will discuss below). And sex matters: Although they have long been excluded from leadership positions in several major religions, women remain more religious than men. Women attend religious services more frequently and report higher levels of religiosity (intense religious feelings) than do men. But why would women be more likely to adhere to a spiritual discipline that portrays them as second-class citizens?

"I don't belong to an organized religion. My religious beliefs are way too disorganized."

Many researchers point to more psychological explanations: Women are socialized to be kinder and gentler, qualities often associated with religion; or the fact that women are primarily involved in childrearing, which also extracts those values from women. But sociological research suggests that women's structural location, specifically their absence from the labor force, better explains higher levels of religiosity. Men who are not in the labor force exhibit equally high levels of religiosity, and women's levels decline significantly when they enter the paid labor force (deVaus and McAllister, 1987).

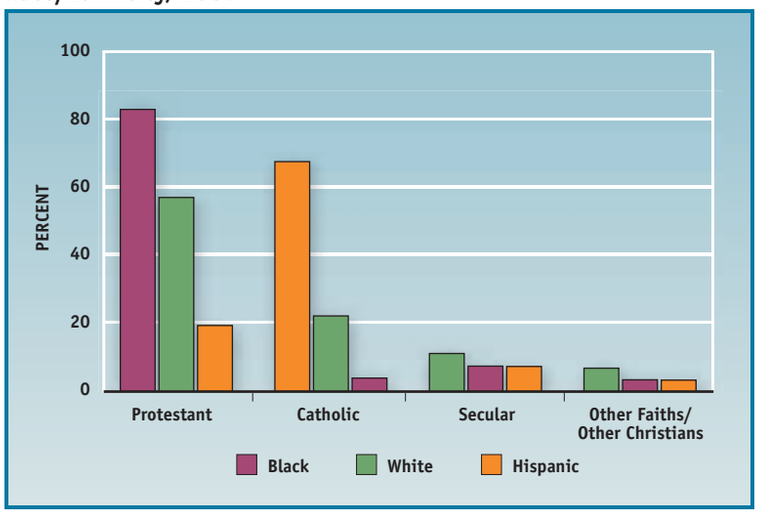
Most Western religions not only prohibit women from leadership but also condemn homosexuality as contrary to divine law. Though actual references to homosexuality in the Bible are few, those who condemn homosexuality point to a passage in Leviticus (18:22) that reads, "And with a man you shall not lie with as a man lies with a woman; it is an abomination." Despite this, several religious denominations have begun to include gay men and lesbians, including some Protestant denominations, conservative and reform Judaism, and most non-Western religions. The consecration of an openly gay priest as an Episcopal bishop in 2005 has split the American Episcopal Church from other national synods and threatens to tear the church in two.

Both denominational affiliation and rates of religiosity also vary by race and ethnicity as well (Figure 15.3). In the United States, more than 92 percent of Blacks and Hispanics practice some religious denomination, while only about 88 percent of Whites do. Of those, more than 67 percent of Hispanics are Catholic, while only 22.4 percent of Whites and a mere 4.25 percent of Blacks are. Almost 83 percent of Blacks are Protestant, as compared with 57 percent of Whites and 19.6 percent of Hispanics (Pew Forum on Religion and Public Life, 2007).

Did *you* know?

The historical association of religiosity and femininity has troubled theologians at various times as they sought ways to bring men back into religious institutions. At the turn of the twentieth century, an entire evangelical movement, called Muscular Christianity, proclaimed Jesus as a he-man, a sort of religious Rambo, not the kind, sweet, angelic image of many mainstream churches. Jesus was no "dough-faced lick-spittle proposition," quipped Billy Sunday, a professional baseball player turned evangelist preacher and leader of the Muscular Christians, "but the greatest scrapper that ever lived" (cited in Kimmel, 1996, p. 171). Today, PromiseKeepers use similar images of Jesus as a real man in their efforts to bring men back into the fold.

FIGURE 15.3 Denominational Distribution by Race/Ethnicity, 2007



Source: "Changing Faiths: Latinos and the Transformation of American Religion," Pew Forum on Religion & Public Life and Pew Hispanic Center, 2007. Reprinted by permission.

When it comes to religious observance, 84 percent of U.S. Blacks say religion is very important in everyday life, while only 68 percent of Hispanics and 39 percent of Whites feel the same way. Sixty-two percent of Blacks and 50 percent of Hispanics believe the Bible is the literal word of God, while only 31 percent of Whites do. Eighty percent of Whites believe that miracles still occur today as they did in ancient times; fewer Hispanics (75 percent) hold the same belief. Religiosity also varies by other sociological factors, including education and income; across all racial and ethnic groups, greater education and higher household incomes both correlate with more secular beliefs (Pew Forum on Religion and Public Life, 2007) (Table 15.5).

Most churches in the United States are populated by Whites *or* Blacks; rarely do they worship together. As Dr. Martin Luther King Jr. once put it, "The most segregated hour of Christian America is 11 o'clock on Sunday morning." Just as the White church has been, for centuries, an important social institution, so too has the Black church evolved as one of the central institutions of the African American community.

Actually, to speak of a singular "Black church" in America is a bit misleading; the "Black church" is really the vast array of Black churches, usually Protestant, that have developed over the course of U.S. history. The massive importation of African slaves in the seventeenth and eighteenth centuries was coupled with efforts to crush their traditional African-based religions (which were seen as a threat to their enslaved status) and to convert them to Christianity. Often slaves were required to attend church with their White masters but relegated to the balconies of the church.

Gradually, however, slaves began to appropriate parts of the service, especially identifying with the Biblical stories of the Jews, who were slaves in Egypt, and their eventual liberation in the book of Exodus. After the Civil War, they established their

TABLE 15.5

Religious Tradition among Hispanics by Education and Household Income†

	AMONG HISPANICS . . .					
	ALL HISPANICS	CATHOLIC	EVANGELICAL	MAINLINE PROTESTANT	OTHER CHRISTIAN	SECULAR
Education						
Less than high school degree	39%	42%	34%	30%	37%	33%
High school degree	47	44	54	56	52	49
Four-year college degree	10	9	10	12	9	17
Household Income						
Less than $30,000	43	46	39	29	45	41
$30,000–$49,999	19	18	24	21	26	21
$50,000 or more	17	14	21	24	11	25

†21% of respondents did not provide information on their household income.
Source: Pew Forum on Religion and Public Life, 2007.

own churches, which quickly became the cultural and social centers of the newly arrived free Blacks to the northern cities and in the small southern towns where the descendents of former slaves settled.

Sociologist E. Franklin Frazier (1974) studied the Black church in America and especially noted how it answered secular as well as sacred needs for its community. The Black church was far more expressive than the more staid White churches and often integrated elements of traditional and long-suppressed African religion into its services, including singing, dancing, and especially call-and-response styles of preaching and praying. But he was especially impressed with the way that these churches became a training ground for activist ministers who began the Civil Rights movement—Jesse Jackson, Al Sharpton, Martin Luther King Jr. himself—and were consistently inspired by Biblical stories of nonviolent resistance.

▲ **The Black church often integrated elements of traditional and long-suppressed African religion into its services, including singing and dancing, and especially call-and-response-styles of preaching and praying. These women are members of the Temple of Deliverance Church of God and Christ in Memphis.**

Today the Black church remains influential, both as a source of religious inspiration and for political mobilization (Battle, 2006; Billingsley, 1999) Ministers like Jesse Jackson mounted serious campaigns for the presidency; ministers are often powerful orators who inspire and mobilize. The Black church's contribution to American society has been enormous, including being the origins of soul and gospel music (Sam Cooke and Aretha Franklin got their start in gospel groups).

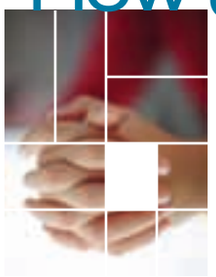
Religion on Campus

It is on college campuses that science and religion most often clashed. Many of the nation's first colleges and universities, such as Harvard and Yale, were originally designed for the training of ministers, but they soon expanded into other fields, and even at church-related colleges today, only a small percentage of students major in religion. Public universities are often so careful to maintain the separation of church and state that they usually have no departments of religious studies and often no courses devoted to any religion.

The higher your level of educational attainment, the less devout you will be in practicing your religion. That means that the professors, who usually have PhDs, tend to number among the nation's unfaithful. But their students are often quite religious. They may come from strict religious backgrounds; most likely they never hear of conflicting scientific data like evolution and the age of Earth until they enroll in Biology 101, and they certainly have never been asked to read and discuss the works of atheists like Karl Marx. Yet religious belief and practice have never been stronger on college campuses. After a decline during the 1980s, religion has been regaining ground. More students are enrolling in religion courses and majoring in religion; more are living in dormitories or houses where spirituality and faith are parts of daily life; and groups are springing up where students can discuss religious ideas as a means of understanding the world in addition to (or instead of) science (Finder, 2007).

While church attendance among college students is lower than that of the nation as a whole (in part because services are held on Sunday morning, not an attractive time slot after a Saturday night of partying), the first national survey on the spiritual lives of college students (2004) found that more than two-thirds of college freshman pray, and almost 80 percent believe in God. Nearly 50 percent of freshman say they are seeking opportunities to grow spiritually (Higher Education Research Institute, 2004). Perhaps that's why the popularity of nondenominational Christian organizations has surged on campus in recent years. Membership in the long-established Campus

How do we know what we know?



Measuring Religiosity

How religious are we? While many casual observers and social scientists agree that the United States is a "very religious" country, it is difficult to get accurate measures of religiosity, or how religious we actually are. (Perhaps that's *because* we're such a religious country; people are more likely to call themselves religious if they think everyone else is doing so.)

The easiest way to measure religiosity is to ask people the question:

How important is religion in your life?

- Very important
- Somewhat important
- Not very important
- Not important at all

That's what the Pew Research Center did in 2002 (Pew Global Attitudes Project, 2002). When asked that question, just about three of every five Americans (59 percent) said that religion was "very important," which was well above the numbers for other industrial nations like Britain (33 percent), Canada (30 percent), Italy (27 percent), South Korea (25 percent), Germany (21 percent), Japan (12 percent), and France (11 percent). The American percentage was exceeded only by a few dozen nonindustrialized countries (Senegal was highest at 97 percent).

The General Social Survey asks what religion people belong to, but it is difficult to correlate membership with religiosity: People can belong to a group without being very religious, or they can be very religious but not belong to any particular group. There has been a steady increase of the percentage of respondents who claimed "no religion," but this may not signal a decline in religiosity at all. An influential article in the *American Sociological Review* by sociologists Mike Hout and Claude Fisher suggests that this increase is really caused by political moderates who are religious but don't want to identify with a specific group because they don't want to be associated with the conservative politics of the religious right.

Survey questions that just ask how strongly you believe are unreliable. They tell us more about what people believe they are supposed to say than about the way they actually *are* religious. As an alternative, they have developed questions that measure the level of religiosity by what people do, rather than what they say:

- How often do share your faith?
- How often do you pray?
- How often do you read religious books and magazines?
- How often do you attend church?

And, although the numbers are somewhat lower than those attitude surveys that ask how important religion is, these questions provide a more accurate measure of religiosity (at least among religions where you are supposed to go to church, pray, share your faith, and so on) (Luchau, 2007; Norris and Inglehart, 2004).

Crusade for Christ has increased 95 percent since 1995, rising from 20,000 to 39,000 (Mahoney, Schmalzbauer, and Youniss, 2001).

Church-affiliated colleges have seen faster enrollment increases than secular colleges, with evangelical Christian schools showing gains of 24 percent between 1980 and 1998 (as compared to less than 5 percent growth elsewhere) (Reisberg, 1999).

In the past 15 years, over 150 centers and institutes dedicated to religion have been started, putting into play an increasing interest among both students and faculty in incorporating religious perspectives in learning (Mahoney et al., 2001).

Why the rise? Traditionally, college has been a place for questioning, for exploration, for coming to an understanding of identity. Religion may offer something to students who feel suddenly adrift or uncertain about their place in the world (Ellin, 1997).

But many American adolescents also arrive at college already strong believers. Nearly two-thirds of American teenagers pray daily or weekly (Smith, 2003). Of twelfth graders surveyed in 1996, a majority (59 percent) said religion is either very important or pretty important in their lives, and 70 percent said they would like to see religion exert the same, more, or much more influence in society (Smith, 2003).

Religiosity also varies by race and gender. A 2005 survey of more than 112,000 college students at 236 colleges and universities found that African Americans are far more engaged with religion and spirituality than other groups, while women were slightly more religious than men; however, these differences were not as great as in the general population. Latino and Asian American college students were the least religious, and Asian Americans scored highest on measures of religious skepticism. Among the other findings were:

- Ninety-five percent of African Americans believe in God, compared to 84 percent of Latinos, 78 percent of Whites, and 65 percent of Asian Americans.
- Ninety-one percent of African Americans pray, compared to 75 percent of Latinos and 67 percent of Whites.
- Fifty-three percent of African Americans attend religious services frequently, compared to 42 percent of Whites, 39 percent of Latinos, and 35 percent of Asian Americans.
- Thirty-two percent of African Americans have high levels of religious engagement, compared to 16 percent of Latinos and 19 percent of Whites.

Researchers explained these differences in part by the levels of religiosity that these different groups arrive with rather than any increases in religious fervor once they get to college. In a sense, these different rates suggest that African American students are less likely to become disenchanted with religion than other groups, which may have as much to do with social cohesion as a minority as it does with spirituality itself (Astin, Astin, and Lindholm, 2005).

The resurgence of religion on campus is raising issues for some universities, especially those where fundamentalists have become better established and more influential. Religious organizations' right to practice their beliefs have come into conflict with universities' rights and obligations to enforce guidelines around such campus basics as coed dormitories, health care information, and free speech and assembly (Ellin, 1997).

Yet for the most part, religion on campus is likely to support diversity and respect for all religious beliefs; this religious pluralism coincides with religious vitality. Many on campus are religious, but comparatively few try to impose their views on others (Cherry, DeBerg, and Porterfield, 2003).

New Age Religions

In addition to organized Western and Eastern religions, Americans enjoy a variety of New Age beliefs and practices. **New Age** is an umbrella term for many different groups and individual practices, so is very often called simply "spirituality." Some New Agers draw from traditional religions: Kabala derives from Jewish mysticism, for example, and Sufism from Muslim mysticism. Others, such as religious science, attempt to combine science and religion, using empirical data to harness the power of the mind or spirit.

New Age believers are often very open minded and pluralistic. Few groups demand strict obedience to a set of rules. Some people use New Age practices as a sort of individualized flavoring on traditional religious beliefs; still others meld several strands into a truly individualized spirituality. It would not be unusual to find a New Ager practicing Buddhist meditation, reading his or her horoscope, channeling a spirit guardian, doing yoga, and having a Shiatsu massage, all on the same day.

Members of alternative religions may explore ghosts, past lives, astrology, meditation, herbs, crystals, pyramids, UFOs, auras, and outer space. They may study Tibetan Buddhism, Native American or Afro-Caribbean tradition, or Western witchcraft—or all of them.

New Age beliefs have certainly benefited from increased globalization because followers can now travel the world in search of meaningful rituals. Indeed, travel companies have developed that cater especially to the spiritual nomads, who travel the world seeking meaning (Gooch, 2002). The rapid development and number of these groups also suggests that we are, in essence, a spiritual nation—with a spirituality that covers vast areas of our mental landscape and welcomes multiple beliefs but does not go very deep. The trend in industrialized countries is that the decline in "traditional" religion is accompanied by a rise in New Age spirituality (Moghadam, 2003). The United States is seeing a rise in both.

Religion as Politics

Religion has always been "political"—indeed, manifesting the vision of one's religious beliefs in the political arena is often an essential part of the religion. The great religious leaders, like Moses, Jesus, and Muhammad, found out firsthand that existing authorities find new religious beliefs threatening to their political control.

In the twentieth century, religion has been embroiled in political debates on all sides of the political spectrum. In the former Soviet Union or in China today, just *professing* religion could be threatening to social control by the Communist party, providing an alternative authority structure. In twentieth-century Latin America, **liberation theology** within the Catholic Church was a source of popular mobilization against ruthless political dictators. Liberation theology focuses on Jesus not only as savior but specifically as the savior of the poor and oppressed and emphasizes the Christian mission of bringing justice to the poor.

Most commonly, religious mobilization has aimed to move society to the political right, to restore a conservative agenda of a "Christian America" or an "Islamic Republic." In contemporary America, the mobilization of the Christian right has had an enormous effect on everyday life, from the sorts of books one can read in

What do you think?

15.1

MyLab

What Is the Bible?

The Bible is the main religious text for Christians (as is the Old Testament for the Jews). Often, scientific theories, such as those about evolution and the origin of Earth, seem to contradict what is said in the Bible. How one views the Bible has an effect on how one uses it in evaluating and theorizing about the surrounding world. So, what do you think?

Which of these statements comes closest to describing your feelings about the Bible?

- ❍ The Bible is the actual word of God and is to be taken literally, word for word.
- ❍ The Bible is the inspired word of God but not everything in it should be taken literally, word for word.
- ❍ The Bible is an ancient book of fables, legends, history, and moral precepts recorded by humans.

See the back of the chapter to compare your answers to national survey data.

What do you think?

15.2

MyLab

Prayer in Schools

For the most part, church and state are separate in the United States, meaning that the government cannot impose a particular religion on the people. Some believe that the separation of church and state goes too far and that God and the worship of God are being pushed out of our culture altogether. Others believe that the separation of church and state does not go far enough, and that governmental leaders push their religion on citizens. One area of constant debate is prayer in schools. So, what do you think?

The U.S. Supreme Court has ruled that no state or local government may require the reading of the Lord's Prayer or Bible verses in public schools. What are your views on this—do you approve or disapprove of the Court ruling?

- ❍ Approve
- ❍ Disapprove

See the back of the chapter to compare your answers to national survey data.

classrooms and libraries, to whom one can fall in love with. A few Muslim countries have instituted shari'a, or the Islamic law outlined in the Koran, which, when strictly interpreted, includes such penalties as cutting off the hand for robbery and death by stoning for adultery. Yet there is evidence that in industrial societies higher rates of religiosity also correlate with higher rates of homicide, juvenile mortality, infections with sexually transmitted diseases, teen pregnancies, and abortion. While religion is surely not the cause of these social problems, perhaps people in the United States feel the protection of the sacred realm more acutely than those in more secular Britain, and so they are more likely to take risks. Or, perhaps, high levels of religiosity lead to social policies that constrain people from more secular protections (Paul, 2005).

The secular side also exerts an influence. While we often hear about religious institutions being intolerant of political diversity, it is also common for secular politics to be intolerant of religious diversity. In the United States, Jehovah's Witnesses have been fined or jailed for refusing to salute the flag. In 2003, French President Jacques Chirac proposed banning the wearing of any religious symbols in French public schools—including Catholic crucifixes, Jewish yarmulkes, Muslim chadors, and Sikh turbans (Sciolino, 2004).

Although the constitutional principle of the separation of church and state was meant to protect liberty and ensure democracy in the United States, it also enabled religion and science to develop and expand separately. In recent years, however, the boundaries between the two have become increasingly blurry, and several political debates currently strain their happy coexistence:

1. *Evolution and creationism.* The majority of U.S. students, and their parents, do not accept the theory of evolution. They propose scientific creationism as an alternative theory that suggests that all current animal and plant species appeared on

Earth at the same time. The vast majority of scientists believe that scientific creationism is not a valid theory because it comes to the conclusion first and then tries to find data that fit. Should creationism be taught alongside evolution in public schools?

2. *School prayer.* Many public schools begin the day with a prayer. However, some religions do not include prayers, and some people are not religious. Political debates ask if everyone should be required to pray or if this infringes on the separation of church and state.

3. *Embryonic stem cell research.* Scientists have begun to use embryonic stem cells—those that can develop into virtually any kind of cell in the human body—to develop new treatments for some of our most deadly diseases. Some religions teach that stem cells are the domain of the sacred, the origin of human life, and should therefore not be developed in laboratories for experiments.

Science as an Institution

While we usually think of religious teachings as eternal, timeless truths, at least to the believer, we think of science as a gradual, progressive accumulation of information. We think that scientists all follow the same rigorous scientific method and perform their research objectively, without worrying about any political or moral implications. We think that scientific breakthroughs are the result of individual genius, a greater-than-the rest scientist who applies existing research and generates a revolutionary application or theoretical revelation.

Sociologists, however, see science quite differently. Sociologists see communities of scientists working within a particular field, accumulating tidbits of knowledge within a specific theoretical framework, and often censuring those who discover different results. Scientists create rules that govern who gets to do research and who does not. Scientific breakthroughs are the result of the collapse of the old framework under the accumulated weight of new evidence, and the old guard releases its control over the field.

Sociologists observe the interactions among scientists, ranging from the way they interact within a scientific laboratory to the ways they form and sustain scientific communities, groups of scientists working on similar or related problems in a number of different settings. Other sociologists take a more institutional approach, focusing on the role of the scientist and scientific institutions within a society.

Types of Science

Just as there are many different religions, there are many different types of science in the world. Scientists usually practice only one and know little about the others:

1. Biological sciences study living organisms, including microorganisms (microbiology), animals (zoology), plants (botany), physiology, and biochemistry. Medicine and agriculture are applied branches of biological science.

2. The physical sciences study nonliving processes, including the basic physical laws of existence (physics), organic and inorganic matter (chemistry), Earth sciences (geology, meteorology, and oceanography), and the stars and planets (astronomy). The various types of engineering are applied branches of physical science.

3. Mathematics provides the quantitative foundation of all other sciences. Most research is purely theoretical, but there is an applied branch, computer science.
4. Social sciences concern human beings, their mental processes (psychology), culture (anthropology), social structures (sociology), history, economics, and political science. There are several applied branches, including social work and criminal justice.

The Norms of Science

Like all social institutions, science has norms that govern interactions among scientists and relationships between scientists and the rest of society and between scientific institutions and other social institutions. These norms are understood to govern these relationships and set the standards for scientific research. However, as with many other institutional norms, they are honored and ignored in about equal measure.

Objectivity. The most important norm of science is **objectivity,** in which judgments are based on empirical verification, not on personal feelings or opinions. Scientific knowledge must be based on objective criteria, not on political or personal preferences. Scientists must check their personal lives at the laboratory door, and differences in class, race, and nationality should make no difference in procedure or results. Anyone using the scientific method should be able to arrive at the same conclusions—regardless of his or her personal characteristics.

But how often have you heard the results of research dismissed because of exactly those characteristics? Can we trust social scientific research done by people who do not have the experience they are studying? Would a White person simply be too biased to arrive at any reliable conclusions about Black people? Or would a Black or White person be too biased to reliably research his or her own group?

While a scientific universalism provides one pole, the social response to "advocacy research" provides the other. **Advocacy research** is undertaken to provide the research necessary to support or promote a particular position. One "knows" what one wants to find before undertaking the research, and one intends to use findings to further a cause or group. At the turn of the last century, for example, a research field called phrenology examined the size and shape of people's heads and purported to find factual evidence that women and non-White racial groups were intellectually inferior to White men; therefore, they concluded, gender and racial inequality were "natural." (See Chapter 8.) In the twentieth century, the field of eugenics sought to scientifically breed out "inferior" qualities of Jews and other immigrant groups to create a more "pure" breeding stock of Americans. While for empirically based objective science, seeing is believing, for advocacy research, it's exactly the opposite: Believing is seeing.

Private corporations inject enormous amounts of money into research for new drugs, but they are guided by the marketplace—not human needs or the interests of the scientific community—and seek to control access to their discoveries in order to increase profits. ▼

Common Ownership. A second norm of science is that scientific knowledge should be open to everyone. Research results should be public knowledge; data should always be shared with colleagues. Technological advances in applied science can be patented, but the pure research, the science behind the technology, is available to all. Einstein never tried to patent his theory of relativity, nor could he have.

The most common method of providing this access is through publication in scholarly journals. Although there is no

How do we know what we know?

The Gay Brain

Advocacy research and the questions it raises have become well refined. Take the case of Simon LeVay, a neuroscientist and brain researcher. In the early 1990s, LeVay performed some experiments to determine if sexual orientation had a biological basis (LeVay, 1991, 1994). He examined the brain tissues of 19 gay and bisexual men (all had died of AIDS), and 16 men and 6 women whom he presumed were heterosexual (six of the men and one of the women had died of AIDS). There were no significant differences except in the anterior hypothalamus, a part of the brain about the size of a grain of sand that regulates body temperature, growth, and metabolism. LeVay found that the anterior hypothalamus of the presumably heterosexual men was approximately twice the size of that of the women and presumably gay men. Was this evidence that, at least in men, sexual orientation was a matter of brain chemistry?

But several questions about the methodology were raised. It turned out that the differences were not uniform, and the sources of his data varied. All the gay men in his sample died of AIDS, a disease known to affect the brain. And all the brains of gay men were preserved in a formaldehyde solution that was of a different strength than the solution in which the brains of heterosexual men were preserved, because of the fears of HIV transmission. Formaldehyde has a definite impact on tissue structure. Maybe what LeVay was measuring was the combined effect of HIV infection and formaldehyde density, not gay and straight brains. An effort to replicate LeVay's findings failed (Yahr, 1993).

Perhaps the most important question for us, however, is: Does it matter what Simon LeVay's sexual orientation is? Does it change your view of the research to know that LeVay is gay? If so, does it change your view of the research to know that virtually all the prior research undertaken to demonstrate that difference was done by heterosexual researchers? Who is more biased?

Scientists work hard to ensure that their biases are kept in check and that the individual characteristics of the scientist do not "interfere" with their research. But sociologists also understand that the questions one decides are worth asking, and the conclusions one finds (or at least hopes to find) are conditioned by the social lives that scientists—like all the rest of us—actually live.

law that requires publication, scientists feel obliged by the norm of common ownership to publish their studies and to make their data available to anyone who wishes to replicate their studies. For example, the data sets of the General Social Survey are available at cost from NORC (the National Opinion Research Center), so that all social scientists can benefit from their use.

However, this norm of common ownership is constantly being threatened or undermined. As public money for basic research has shrunk in recent years, two "interested" parties have filled the funding gap: the military and private industry. Much scientific research about nuclear fission or on chemical or biological weapons is not published in scholarly journals at all, to avoid giving terrorists and other enemies access to it.

Technological innovations are always privately owned, but it is becoming increasingly difficult to distinguish between pure science and technology. Private corporations, like the pharmaceutical industry, have begun to spend increasing amounts of money on research and development (R&D) of new products. The need is great, and the potential for extraordinary profits is enormous. But the interests of the private company and the scientific community often conflict: The company wants to keep the results of its research private, lest competitors gain access to the information, and scientists want to disseminate those findings widely because of their potential benefit to the public and to future scientific research.

These two interests came to a boil in 2001, as two teams raced to complete the mapping of the human genome. One team was funded by

Did *you* know?

Nearly 20 percent of all human genes in the human genome are protected by patents, which effectively grant ownership rights for a period of time. Although U.S. and European laws prohibit anyone from patenting a gene as it exists in the human body, institutions have claimed that their unique way of isolating a gene or of developing a specific therapeutic use for it entitles them to patent protection. Of the more than 4,300 genes covered by patents, 63 percent are owned by corporations. (The rest belong to universities.) Most of the patented genes are associated with cancer (Jensen and Murray, 2005; Westphal, 2005).

a private company, and the other was part of a government laboratory. Many believed that if the private company "won" the race, they would "own" the map of the human genome and could establish patents on human genetic sequences. (Eventually the two groups compromised and shared the publication of the map of the human genome.)

As scientific projects become increasingly complex, government, universities, and private companies will increasingly share the funding costs and the results. The norm of common ownership will be increasingly difficult to follow.

▲ **Social dynamics, such as the power of scientific networks, different access to prestigious journals, collegial connections, and in-group recommendations for large research grants—and not overt prejudice—are more likely to explain the relative absence of women and some minorities (like African Americans) in science.**

Disinterestedness. Another important norm of science is **disinterestedness.** Scientific research should not be conducted for personal goals, such as fame or glory, and certainly not for money, but for the pursuit of scientific truth.

Unfortunately, this norm is constantly undermined. As we have seen, the new partnerships between universities and private corporations push scientists away from performing basic research and more toward applied research. Second, the enormous amount of money that is possible if one has a financial interest in discoveries that can be big business—drugs, energy, weapons, for example—also lures science away from the disinterested pursuit of truth.

Scientific Networks

Popular images of scientific work often depict the mad scientist, his hair wild and unkempt, his eyes glazed over in demented genius, working all day and all night alone in his laboratory. All of a sudden, he has his revelation, his "Eureka!" moment, and he makes a new discovery. Such a view is unrealistic. Science is work, and like most forms of work, it is a collaborative effort, requiring the interaction of many different people with different roles, tasks, and social locations.

Sociologists around the world are interested in "the network of communication and social relationships between scientists working in given fields or in all fields" (Ben-David, 1984, p. 3). These scientists develop rules of conduct, and those who do not accept these rules are excluded from scientific networks. Established scientists control research by acting as gatekeepers: They edit and review articles for scientific journals and decide who receives research grants. If you don't do science by their rules, you don't get to do science.

In that sense, science is no different from any other workplace. Those at the top of the scientific hierarchy are the gatekeepers, making sure that scientific research conforms to what *they* think is worthy. In other words, scientific communities are like religious elites: They decide what the doctrine says, how you are to think about it, and what you can and cannot know.

These sociological dynamics better explain the continued lack of women, for example, at the highest reaches of science and engineering professorships, as well as the abundance of Asian men, but not Latino or African American men, in those positions. And those groups are consistently paid less than White males. In one study, even after accounting for seniority, experience, and age, female scientists earned 23 percent less than their male counterparts ("Mind the Gap," 2006). This is not the result of individual malevolence; indeed, many university departments claim to be eager to hire women and minorities. But the work they believe qualifies as breakthrough science and the unexamined prejudices they may harbor often conspire to form

TABLE 15.6

Working Scientists: Employment in Science and Engineering by Gender and Race

	FEMALE (%)	MALE (%)	WHITE (%)	ASIAN (%)	BLACK (%)	HISPANIC (%)
All science and engineering	27	73	75	14	4.3	4.3
Biological/life scientist	43.3	56.5	76	14	3.7	4.2
Computer and information scientist	27.6	72.4	71	18.2	5	3.9
Mathematical scientist	60	40	76.5	11.6	7.4	3
Physical sciences	28.5	71.5	79	12.2	2.7	4
Engineers	11	89	77	12.5	3.3	5

Source: Adapted from National Science Foundation, 2006.

barriers that are difficult to overcome. Changing the gender and racial composition of the scientific community will take more than simply adding a few women or minorities; it will require changing the structure of the enterprise itself.

Scientific Breakthroughs

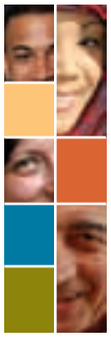
Scientific breakthroughs happen much the same ways that religions change. In religion, everyone is taught to believe the same thing and interpret the sacred teachings the same way, but occasionally someone comes along who begins to interpret them a little differently and manages to convince others through sheer strength of character (what Weber called "charisma"). "You have heard . . . ," said Jesus, "but I say unto you . . . ," and his followers took his word over other teachings.

Often the charismatic leaders who seek to change religious teachings are branded as heretics and condemned by religious authorities. Sometimes they are exiled or even executed.

In a pathbreaking study of the history of science, Thomas Kuhn (1962), a theoretical physicist, proposed that science changes in a similar way. Instead of scientific progress being gradual and linear, it is erratic and often unpredictable. Long periods of dull routine science are punctuated by dramatic breakthroughs, just as long periods of religious stability are broken by revivals, reformations, and Great Awakenings.

Kuhn observed that, most of the time, scientists accept prevailing theories as true and organize their experiments *within* the existing framework. At any one time, there is a prevailing paradigm, or model, and scientists work within the paradigm. This is what Kuhn calls "normal" science. Normal science follows social customs: Older, more established scientists train younger ones to work within the existing fields of knowledge. These younger scientists extend the reach of the paradigm, but they seldom dare to challenge the paradigm itself. If they do, they often find they don't get published, receive research grants, or get tenure.

Yet sometimes, scientists doing normal science find results they cannot explain by existing theories. Initially, the scientific establishment discredits these "anomalies" (findings that differ from the norm) and gives the cold shoulder to the scientists. But eventually, these anomalies are too numerous and too significant to ignore. And then, the old paradigm is replaced by a new one, one that can explain the older research



Sociology and our World

Is Pluto a Planet?

In August 2006, astronomers "demoted" Pluto from its status as the ninth planet to a new status as "dwarf planet." It is too small (one-fifth the size of Earth's moon), and its orbit is influenced by Neptune's. While some may mourn Pluto being kicked out of the solar system, the decision also reveals how science works. Scientists are constantly testing their theories against empirical findings, refining and even rejecting theories as the evidence no longer supports earlier reasoning. In science, if new information does not support prevailing theory, the theory is revisited—and revised or refined. Religious knowledge, by contrast, must always refer to the received wisdom of a canonical text like the Bible and therefore is more likely to interpret the evidence to fit the theory.

and the new findings as well. In this way, long periods of normal science are punctuated by these scientific breakthroughs.

The Role of the Scientist and Society

Until the sixteenth century, individual members of the Church or nobility financed scientific research. This form of private support for science (as well as the arts) is called patronage, and it enabled many influential scientists to conduct their research in the absence of government or university jobs. Gradually, in the seventeenth and eighteenth century, European scientists were increasingly supported by the government, through subsidies and grants. Groups of scientists joined together into colleges and universities, under government sponsorship, to pursue their increasingly complex and expensive research. By the twentieth century, most scientific breakthroughs were made by professors, working in state-funded laboratories on university campuses.

Take, for example, the history of the Nobel Prize. During the nineteenth century, European scientists were heavily supported by the government. But two world wars, with a depression between, all but eliminated the money for government support in Europe. At the same time, the development of graduate training in the sciences and the space race with the Soviet Union after World War II propelled the United States into scientific leadership in the world. As a result, the number of European scientists who have won a Nobel Prize in the sciences has fallen, while the number of Americans has grown dramatically (www.Nobelprize.org). (We should point out, however, that many of the American Nobel laureates have been immigrants, who received their training in Europe and came to the United States to escape Nazi or Communist regimes.)

Today, scientific research around the world is supported both by governments, through grants for research, and by private companies, which employ scientists to develop new products—everything from new types of paint to robots that can land on the moon, from flavoring for soda to genetically modified crops that grow faster, stronger, or more plentifully even in adverse climates.

Typically, private enterprise and government fund different aspects of research. The government funds basic science—that is, scientific research that has no immediate application other than the furtherance of knowledge. Private companies are interested in developing new products, and they fund research that has possibilities for commercial application. In addition, large-scale scientific research requires so much money in start-up costs that global scientific cooperation has become the norm, as different groups, operating in different countries, often specialize in some smaller piece of the larger puzzle.

Of course these government and private foundations often overlap. For example, the search for a cure for HIV or cancer will both be a breakthrough of basic research and also will have immediate application in the treatment of illness.

Recently, however, foundations, states, and university consortiums have stepped in to many high-profile areas where neither government nor private companies have been willing to go. For example, in 2005, the Bill and Melinda Gates Foundation gave $750 million toward basic vaccine science and development, pursuing the prevention and treatment for diseases afflicting poor countries of low priority to for-profit drug companies. Within the United States, the state of California has floated a $3 billion bond issue to fund stem cell research in the wake of the Bush administration's cutoff in 2001 of federal funding for such cutting-edge research on religious grounds. The state of New Jersey has already begun to allocate millions to stem cell research. Several universities have set up privately funded stem cell research programs, including University of California, San Francisco (which raised $11 million), Stanford ($12 million), and Harvard (which hopes to raise $100 million).

Science and Religion in the 21st Century

As a society, we are becoming increasingly scientific. Human beings are curious about the world and always want to understand it better; science gives them that opportunity. On an almost daily basis, scientists change how we understand the world—from the furthest reaches of the universe to the tiniest subatomic particles.

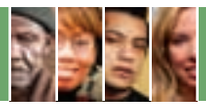
We are also becoming increasingly religious. Human beings are also spiritual beings, and religion helps us navigate our way through the spiritual world. Some religious institutions may decline in membership, but others are growing dramatically, and new ones are constantly arising.

And then there is the "science of religion" and the "religion of science." Some scientists are attempting to explain religion scientifically, proposing that there is a "God gene," or that human beings, unlike other species, are either biologically programmed or evolutionarily adapted to believe in the supernatural (see, for example, Dennett, 2006; Harris, 2004). Evolutionary biologist Richard Dawkins (2007) argues that morality results largely from genetic instincts evolved because humans benefit from cooperation and that religion itself is a by-product of mental abilities evolved for other reasons. Children, he argues, are "wired" to believe what their parents tell them because so much of what parents impart is useful or essential information. But this programming is vulnerable to error, becoming an avenue for useless information that gets passed along for no other reason than tradition.

At the same time, some evangelical ministers use scientific skepticism (one can never be absolutely certain that scientific discoveries are the truth) to question biological facts like evolution or geological facts like the age of Earth. A 2006 *Time* magazine poll found that nearly two-thirds (64 percent) of Americans say they would continue to believe what their religion teaches—even if scientists proved it to be wrong (Masci, 2007).

Some scholars predict a long period of tension between religion and science, followed by the triumph of one over the other. However, it seems just as likely that religion and science will coexist, as the growth of both religious ideas and scientific progress in the United States seems to suggest. Politically, there is always a danger that either religious fanatics or antireligious totalitarians will seize control of a

country, as in Iran or Afghanistan as well as the former Soviet Union and China. But even there, it seems impossible to eradicate religion or science. In Iran today, science is undergoing a dramatic increase, just as under Soviet rule, many continued to practice their religions. Science and religion may even "need" each other: As Albert Einstein once commented, "Science without religion is lame, and religion without science is blind" (cited in Lazare, 2007, p. 26). It seems that the human quest to know and understand one's world, and one's place in it, is as basic and unquenchable as human life itself.



Chapter Review

1. *How do religion and science compare?* Religion and science have been in an ongoing global debate about life's big questions and the different methods of discovering answers. Historically, religion has provided the dominant view; the dominance of science is relatively new. Scientific findings and facts are often not in sync with religious facts, yet science and religion continue to coexist. Science and religion have similarities; they are both organized and coherent systems of thought leading to truth. Religion focuses on larger questions, while science focuses on the smaller ones. Both change over time.

2. *What does religion do?* While religion is a cultural universal, it varies between cultures. Durkheim focused on how religion serves as social cohesion by integrating individuals into society and holding society together. Rituals help remind people they are part of something bigger. Conflict theorists such as Marx saw religion as a tool of social control. It gave people a reason to adhere to norms and prevented revolt. Weber studied the relationship between the Protestant ethic and capitalism and the impact of religious ideas on economic activity; he said religion was a catalyst for social change.

3. *What forms do religious groups take?* The simplest form of religious organization is a cult. Cults usually form around a specific charismatic leader, engender significant loyalty, are small, and often live on the margins of society. A sect also breaks from established religious institutions but is a subculture, not a counterculture. Denominations are large-scale, extremely organized structures with an established hierarchy that garner social respect. The United States is overwhelmingly of the Christian denomination. Ecclesiae are state religions, where the boundary between the state and the church is nonexistent.

4. *What are the religions of the world, and how does religion manifest in modern society?* Judaism, Christianity, and Islam originated in the Middle East and are referred to as Western religions. The three share many beliefs and practices; they are exclusive, evangelistic, and monotheistic. All three are divided into denominations and sects, and all have extreme groups and members who are fundamentalists. Hinduism, Confucianism, and Buddhism arose in Asia. They also have much in common, such as having more than one god and believing in reincarnation. Early sociologists thought religion would be replaced by secularization, but that has not occurred. Religious expression varies dramatically between societies. It has a stronger hold in developing countries. Europe is more secularized, and the United States is more religious.

5. *What does religion look like in the United States?* The United States is one of the world's most church-going societies. As a nation of religious immigrants, the United States has gone through waves of increased religious passion. Americans have democratized religion, and religious institutions provide social support and cultural interaction. American beliefs are modified to be sacred and secular at the same time. The United States is going through another religious revival with the evangelical movement, which fits American values. Americans claim high religiosity but have low knowledge levels of religion. There are differences in religiosity; women are more religious than men, and rural dwellers are more religious than urban. Religion also varies by race; Hispanics are overwhelmingly Catholic, and Blacks are overwhelmingly Protestant. Blacks and Whites maintain separate churches; Black churches have historically also been used for political mobilization.

6. *How does science function as an institution?* There are many types of science, but all are governed by scientific norms such as objectivity, common ownership, and a lack of personal interest in the outcome of research. Sociologists look at scientists the way they look at any workplace. There are gatekeepers, which results in gender and racial inequality within the disciplines. Sociologists also look at the role of scientists in society, including their sources of financial support from private foundations or government.

Key Terms

Advocacy research (p. 511)
BCE and CE (p. 494)
Buddhism (p. 497)
Charismatic leader (p. 489)
Christianity (p. 495)
Civil religion (p. 490)
Confucianism (p. 498)
Cult (p. 491)
Cultural universal (p. 489)
Denomination (p. 493)
Disinterestedness (p. 513)
Ecclesiae (p. 493)
Empirical verification (p. 488)
Fundamentalsim (p. 496)
Hinduism (p. 497)
Islam (p. 495)
Jihad (p. 496)
Judaism (p. 495)
Liberation theology (p. 508)
New Age (p. 507)
Objectivity (p. 511)
Profane (p. 489)
Religion (p. 488)
Religiosity (p. 491)
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Sacred (p. 489)
Science (p. 488)
Sect (p. 492)
Secularization (p. 498)
Syncretic religions (p. 497)
Third Great Awakening (p. 501)
World religions (p. 494)

What does America think?

15.1 What Is the Bible?

These are actual survey data from the General Social Survey, 1998.

Which of these statements comes closest to describing your feelings about the Bible? Thirty percent of respondents felt that the Bible was the literal word of God. Almost half believed it was God inspired, and 17 percent thought it was a book of fables. Social class differences were significant; the higher one's social status the less likely one was to believe the Bible was the word of God.

CRITICAL THINKING | DISCUSSION QUESTION

1. Why do you think social class differences were so striking? What might lead someone from the lower class, for example, to have stronger views on the Bible being literal than someone from the upper class?

15.2 Prayer in Schools

These are actual survey data from the General Social Survey, 2004.

The U.S. Supreme Court has ruled that no state or local government may require the reading of the Lord's Prayer or Bible verses in public schools. What are your views on this—do you approve or disapprove of the Court ruling? Overall, almost 37 percent of respondents approved of the ruling, while 63 percent disapproved of the ruling. Men were more likely than women to approve of the ruling.

CRITICAL THINKING | DISCUSSION QUESTION

1. Why do you think men were more likely than women to approve of the ruling?

▶ Go to this website to look further at the data. You can run your own statistics and crosstabs here: **http://sda.berkeley.edu/cgi-bin/hsda?harcsda+gss04**

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