the Danube. They occupied Gaul, northern Italy, and the Spanish peninsula, where they mingled with the native Iberians and became known as the Celtiberians. Other waves of invaders moved into the British Isles, where earlier Celts had established themselves two or three centuries before. Shortly before 400 B.C. an army of Celts, known to the Romans as Gauls, marched southward into Italy and destroyed the Etruscan power. Under their leader Brennus they defeated the Roman army in 390 B.C. and sacked Rome. Bought off after an occupation of seven months they withdrew from Rome, but continued to hold a great part of northern Italy. At the same time other Celts advanced down the Danube and into the Balkans. About the year 280 B.C. a large army overran Macedonia, as well as Thessaly and Phocis in Greece, before being repulsed by the Aetolians and their allies in 279 B.C. These and other Celts then conquered Thrace, crossed the Hellespont, and occupied most of Asia Minor. In 232 B.C. Attalus I of Pergamum defeated them in a series of battles and confined them to the interior area of Asia Minor known as Galatia. Other Celts had, meanwhile, moved into southern Russia.

The ancients described the Celts as a fair-haired, light-gray eyed people of great stature; and they called all the northern invaders by this name if they answered to the general description and spoke a Celtic dialect. Their culture during the La Tène period is notable artistically for a love of decoration, which included geometrical devices and a flamboyant treatment of plant and animal forms. Celtic literature shows similar richness of imagination. FRED C. HAMIL

CEMENT. *See under* ENGINEERING MATERIALS.

CENSORS, Roman magistrates. Two censors, usually ex-consuls, were elected by the Romans every five years. The first task of the censors was to assess the property of the citizens as a basis for assigning individuals to the proper tribes and classes. The censors also revised the lists of equestrians and senators. This was a most important function, because the censors could thus materially affect the composition of the senate by adding new members and dropping others from the rolls. The censors were also in charge of the public finances. They farmed out the taxes, sold or rented the public lands, and let the contracts for public works. As guardians of the public morals, censors might degrade in class a person guilty of cowardice, misuse of public funds, or cruelty in private life. TOM B. JONES

CENSORSHIP, systematic efforts, usually by a state or government, to forbid speech, publications, or other forms of expression that are deemed objectionable. The 19th article of the Universal Declaration of Human Rights specifically enjoins that "Everyone has the right to freedom of opinion and expression; this includes freedom to hold opinions without interference and to seek, receive, and impart information and ideas through any media and regardless of frontiers." Censorship of the free flow of information, ideas, opinions, and beliefs is thus a serious infringement of a basic individual right. It is today widely recognized that freedom of expression is the cornerstone of democracy and that in its absence other equally important rights, including the right to life, cannot be adequately protected.

JUSTIFICATIONS FOR CENSORSHIP

Despite an array of international treaties, charters, and declarations guaranteeing freedom of expression—including the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, the African Charter on Human and Peoples' Rights, the European Convention on Human Rights, the American Convention on Human Rights and American Declaration of the Rights and Duties of Man, and the Conference on Security and Cooperation in Europe—states continue to censor, often by brutal means, ideas, opinions, and beliefs that are unacceptable to the prevailing orthodoxy. Even in the most liberal society, freedom of expression is not absolute; it is commonly restricted both by law and by custom to protect individual rights, for purposes of national security, to uphold standards of morality, to maintain public order, and to protect the rights of others.

Protecting Individual Rights. In many countries, defamation of character is a criminal as well as a civil offense and can act as a major constraint on reporting by the media. In 1986 the European Court of Human Rights, in a landmark case, ruled that politicians must tolerate stronger comment on their activities than private individuals. With the exception of the United States and western Europe, however, this distinction is not widely recognized and the reverse is often the case; that is, monarchs, presidents, cabinet ministers, and other officials may be protected by laws that make it a criminal (and sometimes capital) offense to voice criticism.

National Security. Maintaining national security refers to shielding a nation from both internal and external threats to its political and economic independence, territorial sovereignty, cultural heritage, and way of life. While it is true that certain information must be suppressed toward these ends, there is much evidence from around the world that governments frequently cite threats to national security in order to prevent publication of material that is liable to discredit or embarrass public officials; to justify a decision to deport or deny entry to nonnationals because of their political opinions or affiliations; and to support the enactment of draconian secrecy laws. Internal security acts often provide the legal basis for repressing critics of the government.

Upholding Standards of Morality. Concern for public morals and morality is accepted in international human rights law as proper justification for restrictions on free expression. The European Court of Human Rights, however, has ruled that these restrictions must be "necessary in a democratic society" and "provided by law." The use of the public morals argument to restrict freedom of expression is especially common in those countries that have single-party systems and where the distinction between offending public morals and questioning the political system is often vague.

The protection of youth is a major aspect of public morals legislation. Obscenity is another common justification for censorship, albeit one that is notoriously difficult to define. Supreme Court Justice Potter Stewart acknowledged this conundrum when he refrained from offering a definition of obscenity but claimed, "I know it when I see it." Obscenity statutes have long been used to suppress sexually explicit or profane printed material, theater, and art.

Maintaining Public Order. Public order in the English language means absence of disorder, but the French legal term *ordre publique* denotes the wider concept of the principles that underlie an entire social structure. In this sense, maintenance of public order may go beyond rioting and civil disturbances to encompass attempts to block peaceful demonstrations or certain manifestations of political opinion.

Related to public order is the notion of public interest and again the European Court of Human Rights has ruled that such information may only be withheld when an urgent social need for its suppression can be demonstrated. Never-

theless, information that is embarrassing to government officials is often deemed against the public interest when disclosure is threatened.

Protecting the Rights of Others. Several more recent justifications for introducing censorship include guarding against racism, sexism, religious intolerance, and other threats to individuals or groups. Some women's rights activists in the United States, for example, have campaigned for censorship of degrading sexual materials deemed harmful to women and children, and efforts have been made in many countries to limit the contents of movies, television programs, and videos on the grounds that they incite sex crimes and other acts of violence. To a large extent, the debate here rests first upon whether there is a demonstrable link between certain offensive printed and visual forms of expression and actual violence; and second upon how material likely to incite violence can be identified. Anticensorship activists have argued that speech should never be disallowed on the basis of its content alone, but that the context should always be taken into account. Foes of censorship have also pointed out that suppressing so-called "hate speech"—racial, religious, and sexual slurs—deals only with the symptoms of a deeper problem in society and not its cause.

WHO IMPOSES CENSORSHIP AND BY WHAT MEANS?

Although censorship is practiced by various political groups, community activists, and the like, it is the state that has both the authority and the means to implement widespread censorship. The mechanisms are many and varied and may include the drafting and implementation of constitutions and individual statutes that allow the state wide powers to limit freedom of expression. Such laws may restrict the right to free association and assembly, and they may apply to theatrical works, films, academic and scientific works, education, advertising, and the printing, publication, and distribution of newspapers, books, and periodicals. Once on the statute books, these laws may lie dormant for a time, only to be resuscitated when certain situations arise. For example, a 19th-century law forbidding public disruption of the highways was invoked by Hong Kong authorities to prevent demonstrations there following the Tian'anmen Square massacre in Beijing in June 1989.

Governments can successfully control the flow of information by means of prior restraint, that is, publications are reviewed by censors before distribution; and postpublication censorship, which refers to action that interferes with the dissemination or transmission of information. The latter method of censorship includes the banning, burning, classification, or confiscation of books and visual materials, and the interference by technical means with broadcasts and other transmissions.

Governments may also, through a network of patronage, be successful in coopting state institutions (e.g., banks) in order to put pressure on institutions or individuals that have been critical of public officials. This kind of indirect censorship has become increasingly common, primarily because several Western nations have made continued trade privileges with and aid to third-world countries contingent on the governments of these countries—at least in theory—allowing freedom of expression and respecting human rights. The most insidious form of clandestine censorship is the practice of "disappearing" (murdering, usually under mysterious circumstances) political and other opponents. It is estimated, for example, that between 1989 and 1991 in Sri Lanka as many as 60,000 people were "disappeared" by the government or agents of the government. In southeast Turkey in the mid-1990's, journalists working for the independent periodical, *Özgür Gündem* (*Free Agenda*) were regularly harassed, abducted, and murdered. Actions such as these, along with measures such as house arrest, arbitrary detention, and torture, have an immeasurably chilling effect on freedom of expression.

Other mechanisms of censorship include laws that allow concentration of ownership in the media, giving rise to the danger that a narrow range of opinions will be available to the public and that those opinions will reflect only proprietary interests rather than journalistic values. Additionally, governments can and do restrict freedom of association for social, artistic, literary, scientific, cultural, political, and religious purposes. Organizations are banned, as are meetings and demonstrations. Oppressive regimes also have taken deliberate steps to keep literacy levels low, though the development of new electronic forms of communication have allowed for the widespread dissemination of information even to people who cannot read.

HISTORY

Information and ideas are powerful and governments know it. Authoritarian leaders, upon assuming power, usually take immediate steps to control both the media and the flow of information, while the right to distribute information freely is a cornerstone of democratic movements. Accordingly, the history of censorship is coterminous with—among other major developments—the history of political unification and the rise of monotheistic religion, as well as periods of great learning.

Political Unification. In ancient China, Greece, and Rome, efforts to foster unity and harmony meant reducing cultural and religious diversity as well as limiting ideas that threatened the established order: knowledge was restricted as a means of disarming the opposition.

The first Chinese emperor, Shih Huang-ti (r. 221-210 B.C.), in his zeal to dismantle the old feudal order and promote unification (by, for example, building a transportation network, standardizing weights and measures, and developing a national economic system that included a common currency), ordered the burning of the Analects of Confucius and other works. Many practical guidelines, including medical and agricultural textbooks, were spared, but books dealing with art or history were destroyed and hundreds of scholars whose teachings were deemed heretical were killed. During the ensuing centuries, periods of imperial unification alternated with years of dynastic rivalry and foreign subjugation. The Sung Dynasty (A.D. 960-1260) saw an extended period of centralization and authoritarianism during which efforts were made to suppress all nonauthoritarian thought. Later, in the 18th century, thousands of volumes of encyclopedic knowledge were divided into lists of meritorious books and works that were banned due to their alleged seditious or otherwise dangerous content.

In ancient Greece, while the arts and philosophy flourished in democratic Athens, in the city-state of Sparta only utilitarian reading material—on agriculture, commerce, and the like—was allowed; all other books and treatises, as well as the works of learned scholars, were banned. The establishment of libraries in the Hellenistic kingdoms in the fourth century B.C. laid the foundations of Western culture and, contrastingly, expanded the parameters of censorship. The libraries of Alexandria and Pergamum were formed not by *collecting* scholarly volumes, classical literature, and other existing works of interest, but by *making* books. Much of value was discarded and thus lost to history. The develop-

ment of libraries also had the unintended consequence of allowing for the burning of books in large numbers. Much of the library at Alexandria was lost during Julius Caesar's siege of the city in 47 B.C. The library's collection of "pagan" literature led to its destruction by Christians in A.D. 391 and by Muslims in A.D. 642.

Surprisingly, too, the early Greek philosophers, while framing theoretical arguments that came to be used in support of freedom of expression, also provided fodder for the censors. Plato, for example, favored banishing the poets because he claimed they lied about gods, heroes, and men, and thus impeded the formation of virtue in the individual citizen and justice in the state. He also opposed rhetoric and natural science because he believed these disciplines deceived in communication and erred in inquiry. Some of the accusations leveled at Socrates—including impiety, corrupting the morals of the young, and popularizing science that might lead to skepticism or disbelief—were used centuries later against people accused of endangering the state.

The censorship developed in ancient Rome was of a more pragmatic nature than that devised in Greece. In preparing the first Roman population census in the fifth century B.C., censors also took note of violations of existing moral codes. Those who did not conform to certain standards of morality were deprived of citizenship. Unlike in Greece, where censorship was exercised mainly by means of judicial trial, in Rome freedom of expression was restricted by executive fiat, usually after an informer had accused someone of treason or immorality. Under the Emperor Augustus, not only was adultery banned but so too were many plays. The emperor purged the Senate in the first century B.C. as part of his censorial powers, and he made Roman citizenship conditional upon adherence to the prevailing orthodoxy.

Religious Intolerance. It was in Rome that the beginnings of religious intolerance and censorship began in earnest. The persecution of Jews and Christians in the first three centuries of the Roman Empire arose from a conflict between laws and books. The laws of Rome tolerated many gods, but Jews and Christians refused to accept the pantheon of gods or to perform civic duties that required sacrifice to idols. On the other hand, Christians and Jews and later the Muslims developed their own patterns of censorship. The Old Testament, the New Testament, and the Koran were held to be sacrosanct in matters of faith, and all other interpretations were forbidden. There developed, too, a great debate about the value of Greek philosophy and sculpture, Roman law, and other "pagan" arts and sciences. While all three monotheistic religions made use of established bodies of knowledge—Muslims, for example, relied extensively on Greek scientific lore—Christian, Jewish, and Muslim scholars drew up lists of "authentic" sacred books as well as lists of heretical statements and erroneous books. Thereafter, up to the early Middle Ages, censorship was essentially concerned with the interpretation of divine law.

Censorship of Learning. By the 13th century, universal scholarship and translation brought the three main religions into contact with one another. Christian theologians and philosophers knew more about the Jewish and Muslim positions than at any time since and communication was genuinely across cultures. For a time, the liberal arts flourished in an atmosphere of tolerance and curiosity, but acts of censorship remained common. For example, the Talmud—the codification of Jewish law—was burned on numerous occasions because the church held that it contained blasphemous remarks against Jesus and Christianity, and in the 12th century a translation of the Koran by the Abbot of Cluny was banned.

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THE FREE PRESS, pursued by the devil of censorship in an old cartoon, scatters scoundrels and villains before it.

In the secular realm, the development of universities and the more widespread dissemination of information led to new bursts of censorship. In 1210 the Council of Paris prohibited the teaching, publicly or privately, of Aristotle's works on natural philosophy. The newly founded University of Paris in 1215 allowed the teaching of Aristotle's logic but banned books on metaphysics, physics, and natural sciences. Books by people deemed heretics were also banned. In 1277 some of Thomas Aquinas's works were among those condemned in efforts by the Bishop of Paris and later the Archbishop of Canterbury to discourage booksellers from distributing "errors of thought." In 1632 the list of works banned in the academic centers of Paris, Lorraine, Douai, Oxford, and Louvain, and in Germany, Italy, Spain, Poland, and Hungary filled three very large volumes.

In the 15th century Pope Innocent VIII deemed that all books should be submitted for examination before being read by the general public. By the mid-16th century both the church and the government had established official censorship bodies, and the publication, distribution, possession, and reading of books were guided by the publication of the *Index Librorum Prohibitorum* (*Index of Forbidden Books*), a catalog of works that were prohibited due to their heretical or immoral content. The *Index* continued to have influence up to the mid-20th century.

The Rise of Modern Censorship. During the Renaissance, patterns of censorship changed with the introduction of new publication methods, encyclopedias of arts and learning, and means of communication. The invention of printing from movable type by Johann Gutenberg in the mid-15th century gave rise to new sets of rules, many of which enforced prepublication censorship.

European intellectuals struck back. In 1644 John Milton published *Aeropagitica,* his eloquent plea for freedom of the

press. "Truth needs no licensing to make her victorious," Milton wrote. "Who ever knew truth put to the worse in a free and open encounter?" Although Milton's essay had no immediate political impact, his ideas were taken up by political theorists whose speculations on the nature of freedom paved the way for the French and American bills of rights in the 18th century.

Until the 17th century, expression and action were held to be inseparable where religious heresy and political crimes were concerned. Therefore to question religious orthodoxy was tantamount to putting a torch to the church; and advocacy of political change was seen as undermining the state and thus equivalent to treason. Milton and those who brought his views to public notice held that expression did not constitute action. Milton's coreligionists, the Puritans, were instrumental in introducing a synthesis of English constitutional law and French enlightenment ideas to the North American continent. The enshrinement of these ideas in the Bill of Rights—especially the First Amendment, which stipulates that "Congress shall make no law . . . abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances"—made the United States a center for the defense of free speech equaling, and in some respects outstripping, European countries.

By the 19th century, most forms of freedom of expression were protected by law in the United States and the democracies of western Europe. Efforts to counter this trend were turned aside by many of the well-known writers of the time, perhaps most famously by John Stuart Mill, who wrote in his essay *On Liberty* (1859): "If all mankind minus one were of one opinion, and only one person were of the contrary opinion, mankind would be no more justified in silencing that one person than he, if he had the power, would be justified in silencing mankind."

CENSORSHIP TODAY

The basic mechanisms of censorship are being modified by changes in communication, knowledge, and the law. As in the past, censorship reflects ideas and their opposition, the growth and suppression of culture and cultural perspectives, and the efforts by those in power to control information in order to maintain supremacy. While freedom of expression is a widely recognized basic right, censorship in one form or another, to one degree or another, is practiced by most governments. Indeed, not only are some individuals cruelly persecuted for holding unorthodox views, laws that protect freedom of expression are constantly threatened by the introduction of new restrictions and practices. These have included the use of the media as instruments of propaganda during times of war; the concentration of media ownership; and outlawing new technology that would increase access to information, as in Saudi Arabia, where the possession of satellite dishes was banned. Also of concern in the late 20th century has been a rise in religious fundamentalism, which has brought with it both formal and informal limitations on basic freedoms.

Censorship and War. Freedom of expression and opinion have long been among the first rights to be scaled back in times of war. While international law recognizes that certain states of emergency may justify a country's imposition of censorship, there is serious concern that a state of emergency may be declared in order to discourage independent reporting and thus control the flow of information. For example, during the Persian Gulf War most reporters were restricted to designated areas and forced to rely on military briefings for their dispatches. The limited number of print and broadcast journalists who reported from the front lines presented a much fuller and more vivid picture of the civilian casualties, dislocations, and chaos wrought by the conflict. Indeed, the decision by the U.S. government to establish safe havens for Kurdish refugees from the Iraqi military was, at least in part, a result of reports from journalists who managed to circumvent official channels.

Furthermore, there is considerable evidence that governments continue to restrict basic freedoms long after an emergency situation has abated. In Egypt in the 1990's, for example, the president still wielded emergency powers that were authoried in 1981 following the assassination of President Anwar Sadat.

Because it is virtually impossible for governments to wage war in the absence of popular support, the temptation exists to use the media for the purposes of propaganda—or even to advance military aims, as was the case in Zaire in the 1990's when broadcasts over the government-controlled station were designed to exacerbate tribal hostilities and incite violence against rebel forces.

Concentration of Media Ownership. When media tycoon Silvio Berlusconi, who owned three of Italy's commercial television networks, became the country's premier in July 1994, it raised the question of whether large-scale control of the press by private citizens constituted a new form of censorship. Concentration of ownership has been seen as a positive force that—especially in third-world countries—allows for the reliable printing and distribution of newspapers. On the other hand, it has been argued that virtual monopolies on media ownership limit the diversity of opinions and views available to the public and offer an unfair advantage to media moguls who choose to enter the political arena. Human rights monitors have expressed concern about the future of the eastern European media market, which has been besieged by communications conglomerates since the collapse of communism there in 1989.

Religious Fundamentalism. The 20th century has witnessed an alarming growth of religious fervor whereby fundamentalists have attempted to impose their views upon others. In Pakistan and several other Islamic countries, the content of teaching materials must conform to political and religious dogma endorsed by the government. In 1989 Iran's Ayatollah Ruhollah Khomeini called for the assassination of Salman Rushdie, a writer whose novel *The Satanic Verses* had been denounced as blasphemous by many Muslims. In Bangladesh in 1994, the government charged writer Taslima Nasrin—who claimed that traditional interpretations of the Koran have been used to inhibit emancipation of women—with defaming the Muslim faith. In other parts of the world fundamentalist Christians who oppose, for example, abortion have called for legislation to deny women access to information on abortion, thus impeding the free flow of information. Other religious groups have tried to cut funding for art exhibits and block the release of films that they consider blasphemous. Martin Scorsese's *The Last Temptation of Christ* (1988), which presented a Jesus tempted by human pleasures (including sex), provoked demonstrations, bomb threats, and violence at theaters where the film was shown.

COMBATING CENSORSHIP

Despite continuing limits on freedom of expression, the role of communication in effecting political and social change and protecting basic human rights should not be underestimated. The end of censorship in much of eastern Europe, for example, offers at least the hope of universal human values

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CENSUSES WERE CONDUCTED BY THE ROMANS as early as 443 B.C., when the censorate was established to count citizens at regular intervals.

that transcend national boundaries and the interests of social class. However, it is only when the culture of secrecy, still so evident in most countries of the world, begins to fade that people will develop the necessary confidence to confront any infringement on free expression, however peripheral, and have some real expectations that they will be successful. The ingredients must include a constitutionally enshrined right to freedom of expression, legal redress in the event of any infringement, technical resources to transfer information freely and, above all, the building of confidence that comes from successful challenges to existing or potential restrictions.

FRANCES D'SOUZA

CENSUS, a complete count, or enumeration, of clearly defined units, such as persons alive at a certain moment or loaded freight cars within a specified area and at a given time. It differs from a sample count, which considers only a fraction of the total units being counted in order to characterize all the units. A national census usually includes an enumeration of some units and a sampling of others.

A great variety of censuses are conducted by modern nations, including censuses of manufactures, crop production and acreage under cultivation, livestock, transportation, and housing, as well as population. This article is devoted to the enumeration of population.

In most countries legal authority is obtained for conducting a census of population, and funds are provided by law. A set of questions is chosen, and sometimes a portion of the population is asked a series of sample questions as well. The area encompassed by national boundaries is divided and subdivided into smaller sections for purposes of enumeration. Usually censuses are conducted by enumerators hired to interview and count all persons in a given area; in some instances forms are distributed to respondents, who return the completed forms in person or by mail. These forms are examined by census officials, often aided by computers and other sophisticated devices. The results are then combined into statistical totals, usually for publication. Most countries take censuses at regular intervals and compare results from one census to the next.

EARLY CENSUSES

The census is one of the most ancient forms of community counting. The discovery of clay tablets by archaeologists has shown that the Babylonians prepared lists of their people. The great pyramid construction in Egypt, requiring very great mathematical and organizational ability to complete such vast projects, indicates that the Egyptians had both the need and the ability to conduct enumerations of their population. The Chinese also possessed the ability to handle numbers with ease, an important prerequisite for counting large populations. In all these cases enumerations were conducted for the purpose of estimating and levying taxes and for estimating the number of males who could bear arms. Of course, like any other governmental act associated with taxation or conscription, a census has usually been feared and resented by the common people.

An interesting example of an early enumeration carried out for the purpose of estimating military strength is described in the Hebrew Bible in the second book of Samuel (24) and in the first book of Chronicles (21, 23, 27). According to the account, King David ordered Joab, the commander of his armies, to determine the total population of Israel. After making the count, Joab reported only the number of men who could bear arms. Some time after the census was taken, the Lord in great wrath brought down a plague upon Israel. Biblical scholars differ over the reason for the Lord's anger, but in the Judeo-Christian world the enumeration of people came to be regarded as sinful.

In ancient times as well as modern, large numbers of every population have managed to evade the enumerators, not surprising since censuses were taken for purposes of taxation or military service. Other obstacles that prevented an accurate estimate of ancient populations included frequent warfare, which often changed the boundaries and populations of states, and sudden plagues and famines, which wiped out entire communities.

Despite the rich heritage that the Greeks left in the arts and sciences, they left little census data, even though they