

avers. Documents show that “most nobles and knights” were far more preoccupied with the costs of taking part in the Crusades than they were with visions of riches to be won in the Holy Land.

Historians who opted for an economic interpretation “forgot how intellectually respectable the Christian theory of holy war once was,” Riley-Smith contends. In the decades leading up to the First Crusade, “a group of brilliant intellectuals [was] anthologizing and reviving St. Augustine’s ideas” of just war, including “the idea of a war at Christ’s command mediated by the pope as his agent on earth.”

In one respect, however, crusading was an exceptional form of holy war: it was enjoined as a means of doing penance for one’s sins. This notion, which put combat on the same meritorious plane as prayer, works of mercy, and fasting, had never been entertained by Christians before the late 11th century. While it came to be diluted over the centuries with the rise of the chivalric ideal of knighthood, the idea of combat as penance nevertheless “remained at the heart of the crusading ethos.”

There is no escaping the fact that the crusades, stretching over hundreds of years, were full of horrors and atrocities (equaled on the Muslim side), Riley-Smith says. But the crusaders should be seen as they were, religious warriors “pursuing an ideal that, however alien it seemed



*Religious warriors taking part in the First Crusade wrest the city of Nicaea in Asia Minor from the Turks in 1097.*

to later generations of historians, was enthusiastically supported at the time by such heavyweights as St. Bernard of Clairvaux and St. Thomas Aquinas.”

## SCIENCE, TECHNOLOGY & ENVIRONMENT

### *The IQ Controversy*

*A Survey of Recent Articles*

That strength, beauty, and intelligence are not equally distributed among human beings is an obvious fact—but one that we Americans, with our democratic passion for equality, would rather ignore. We, or at least many of us, prefer to dwell mentally in Garrison Keillor’s Lake Wobegon,

where all the women are strong, all the men are good-looking, and all the children are above average.

Linda S. Gottfredson, who teaches in the College of Education at the University of Delaware, writes in the *American Scholar* (Winter 1996) that research that shows dif-

ferences in intelligence among individuals, and among races and social classes, is frequently condemned today as “ideologically motivated,” or worse. The temperature of the political climate surrounding these issues soared in 1994 with the publication of *The Bell Curve* by Charles Murray and the late Richard Herrnstein, who argued that such differences exist and are important. Ironically, Gottfredson observes, most researchers who study intelligence would very much like to take the Lake Wobegon side of the argument—but find, alas, that they cannot. “If the world were as I would like it to be,” psychologist Nathan Brody wrote in his 1992 textbook, *Intelligence*, “what I think I have learned about intelligence would not be true.”

Most “mainstream” researchers, Gottfredson says, have concluded that there is such a thing as general intelligence, that individuals do differ in intelligence (as do races and social classes), that the differences can be accurately measured, and that they are important in school, work, and other aspects of life. The differences in intelligence among individuals are known to be the result of both environmental and genetic factors, and the differences between racial groups are suspected to be. But, in both cases, how environments might be manipulated to cause a permanent increase in IQ remains a mystery.

There remains, however, a long-running debate about intelligence and the IQ tests that purport to measure it, Nicholas Lemann, a national correspondent for the *Atlantic Monthly* (Aug. & Sept. 1995), observes in a two-part series on the rise of the Educational Testing Service and how standardized testing has come to play so large—and, in his view, questionable—a part in American life. “The overall results of intelligence tests,” Lemann asserts, “have always produced a kind of photograph of the existing class structure, in which the better-off economic and ethnic groups are found to be more intelligent and the worse-off are found to be less so.” While Jews as a group score high on intelligence tests today, he points out, in 1923, when most American Jews were recent immigrants, Carl Brigham, a psychometrician, reported that “our figures . . . would rather tend to disprove the popular belief that the Jew is highly intelligent.”

“IQ is enormously affected by normal environmental variation, and in ways that are not well understood,” observes Ned Block, a professor of philosophy at the Massachusetts Institute of Technology, in the course of a lengthy *Boston Review* (Dec.–Jan. 1995–96) essay criticizing *The Bell Curve*’s argument. “As Herrnstein and Murray concede,” Block writes, “children from very low socio-economic status backgrounds who are adopted into high socio-economic status backgrounds have IQs dramatically higher than their parents.” (Murray and Herrnstein say it is possible, although improbable, that the persistent racial gap in average scores is entirely a result of environmental influences.) Worldwide, IQs have been rising by about three points every 10 years. “Since World War II, IQ in many countries has gone up 15 points, about the same as the gap separating blacks and whites in this country.”

Strong currents have been running against the emphasis on environment. The discipline of psychology has been transformed, notes staff writer Lawrence Wright in the *New Yorker* (Aug. 7, 1995), by “the broad movement from environmental determinism to behavioral genetics,” which is built on heritability estimates. (Heritability is the fraction of the observed variation in a population that is caused by differences in heredity.) In the last decade alone, Wright says, there has been “a tidal wave” of studies of human twins challenging some traditional, and strongly held, views of human development.

Twins present “a statistical opportunity” for researchers, Wright explains, because identical twins share all the same genes, while fraternal twins share, on average, only 50 percent of their genes. In theory, a trait that is highly heritable will approach 100 percent concordance in identical twins and 50 percent in fraternal ones. Behaviors as diverse as smoking, insomnia, choice of careers and hobbies, and suicide, he writes, “have been found to have far higher rates of concordance for identical than for fraternal twins—a finding that suggests these traits to be more influenced by genes than was previously suspected.”

Much of the angry debate over individual and group differences in intelligence, Wright says, “draws upon the fact that there

is a closer correlation between IQ-test scores of identical twins than between those of fraternal twins—the difference being an indication of how much of what we call intelligence is inherited.” Yet much is unknown. A striking finding by one researcher Wright cites is that the IQ scores of black inner-city

fraternal twins she tested, instead of ranging widely, were quite similar—as turned out to be the case for white children in a similarly deprived environment. Could it be that these youngsters have the genes for a higher intelligence than their environment permits them to express? The debate goes on.

## *The Odd Path of Early Environmentalism*

“Whatever Happened to Industrial Waste?: Reform, Compromise, and Science in Nineteenth Century Southern New England” by John T. Cumbler, in *Journal of Social History* (Fall 1995), Carnegie Mellon University, Pittsburgh, Pa. 15213.

A century before the birth of the modern environmental movement, New England reformers waged a now largely forgotten war to regulate air and water pollution. The course of their crusade, writes Cumbler, a historian at the University of Louisville, had lasting consequences for American environmentalism.

After the Civil War, environmentally minded doctors and other professionals from privileged Yankee families in Massachusetts and Connecticut persuaded state and local governments to establish boards of health to investigate pollution. The reformers embraced an environmental theory of disease which held that foul air and brown, discolored water were a threat to physical and

mental health. Polluted waters were thought to emit a “miasma” of noxious gasses. “The agency of foul and putrid air . . . in causing disease, is a very recent discovery, yet nothing is better established,” declared an 1872 Massachusetts report. An 1875 state board of health report in Connecticut warned that pollution “brutalizes and dwarfs the intellect, corrupts the morals, breeds intemperance and sensuality, and is ever recruiting the ranks of the vile and the dangerous.”

The activists won some important early victories. In 1878, the Massachusetts legislature passed “An Act Relative to the Pollution of Rivers, Streams, and Ponds” limiting the dumping of sewage and industrial waste. But Massachusetts industrialists quickly struck



*The sewer basin on Moon Island in Boston Harbor during the 1880s, a time when a general concern with foul water gave way to a focus on the control of sewage.*