

RELIGION & PHILOSOPHY

converting to Buddhism.

The Hindu caste system, developed over 30 centuries, assigns society's "unclean" tasks (e.g., disposing of animal carcasses, tending funeral pyres, collecting garbage) to the untouchables. Born as Harijan, forced to live on the outskirts of town, and entirely dependent upon state largesse and contributions of grain from higher-caste townsmen, these wretched beggars lived with only the hope that "obedience and sublime faith" might raise their caste in the next life.

Then, in 1956, Dr. B. R. Ambedkar—the first Harijan allowed to go through the Indian educational system—led a half-million joyful untouchables from Maharashtra, his native state, in a mass conversion to Buddhism. It was, he said, like "walking away from hell."

Many more have followed since; in Maharashtra alone, there are five million converted Buddhists. Yet conversion has proved no panacea.

Loyal Hindus viewed the Buddhist converts as traitors and troublemakers. Community relations went from bad to worse as tasks suddenly spurned by former untouchables fell to other low-caste Hindus, the Mangs and Chambhars. And when the new Buddhists sought to keep the few privileges accorded untouchables, such as a quota of places in schools, they were reviled, says Gokhale, for trying to "have their cake and eat it too."

In recent years, the converts have been victims of arson, rape, and public beatings. In one village, Hindus with nightsticks attacked a group of Buddhists for trying to draw water from a communal well after the untouchables' well ran dry; in a suburb of supposedly cosmopolitan Bombay, a Hindu mob ravaged a Buddhist neighborhood. During 1986, caste riots broke out in two states. Anti-Buddhist violence does not seem of great concern to India's rural police and civil servants, whose ranks, Gokhale notes, are "overwhelmingly" composed of caste Hindus.

The ex-untouchables—who call themselves *dalits*, the "downtrodden"—have carved out a political and religious identity outside mainstream Indian society, rather as U.S. black Muslims did during the 1960s. *Dalit* writings, often angry and obscene, deride Hindu gods and superstitions—or, more positively, celebrate a certain pride. "I am a Buddhist now," wrote one recent convert. "I have become a human being."

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Squaring the Age Curve

"Biochemical Studies of Aging" by Morton Rothstein, in *Chemical and Engineering News* (Aug. 1986), 1155 16th St. N.W., Washington, D.C. 20036.

At the beginning of the century, the U.S. population's median age was 24 years, and average life expectancy was 47. Today, the median age is 31.5 (it will be 39 by 2010) and life expectancy is over 70. While senior citizens become ever more numerous, what Rothstein, a biochemist at the State University of New York in Buffalo, calls the medical "ideal" remains elusive—"to reach a very old age in excellent health and then die quickly."

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Until recently, notes Rothstein, that ideal—gerontologists call it “squaring off the age curve”—received little taxpayer support. In 1973, for instance, federal contributions to cancer research amounted to about \$2 for every U.S. citizen, versus only three cents for studies on aging. But since then, federal support for such studies has grown more than sixfold, to some \$150 million per year. The hope is that researchers can learn enough about the causes and treatments of age-related disease in time to reduce the next geriatric generation’s incidence of traumatic terminal illness or debilitating diseases such as Alzheimer’s.

So far, scientists have yet to unlock the cellular and molecular keys to healthy longevity. Study of the aging process continues on many paths, such as the theory that the wanderings of “free radicals”—tiny bits of jetsam left in cells as by-products of cell metabolism—wreak cumulative damage on the heart and nervous system. While this and other natural phenomena probably contribute to aging, says Rothstein, “a more central cause” remains to be found.

It appears likely that diet can dramatically affect longevity, though at present there is no consensus on how it actually works. University of Texas researchers found that rats live 50 percent longer when their caloric intake is reduced by 60 percent (which would seem to correlate with the fact that certain mountain folk, such as the Hunza on the Sino-Pakistani border, live much longer than the average American on 1,000 fewer calories per day). Then again, studies at Baltimore’s Gerontology Research Center have determined that, for middle-aged and older people, somewhat higher weights than those in the standard “ideal weight” tables would help foster a long and healthy life.

At present, Rothstein observes, “the odds of a major breakthrough” in squaring the aging curve are those of “a million-dollar lottery.” All the more reason, he argues, to buy “lots of tickets”—i.e. continue supporting a wide range of investigations.

How Music Made Time

“The Origin of Time” by Geza Szamosi, in *The Sciences* (Sept./Oct. 1986), New York Academy of Sciences, 2 East 63rd St., New York, N.Y. 10021.

Historian C. P. Snow, who bemoaned the contemporary split between the humanities and the sciences in *The Two Cultures* (1959), might have buttressed his argument with an account of how science and music merged in medieval days to create the modern concept of time.

As Szamosi, a professor of physics at the University of Windsor, Ontario, points out, the ancients, who did not need to measure time exactly, had very vague notions of it. Plato held that time was a product of motion, governed by the sun and the planets; Aristotle conceived of time as variable, like the seasons and the human heartbeat. Such views held sway right through the Middle Ages. When clocks first appeared in the West during the 14th century, prominent dials represented the movements of the seven known planets; a small one told the time, with little precision.