

build churches nowadays; their walls and pillars of glowing marble, their ceilings glittering with gold, their altars studded with jewels. . . . Let us, therefore, think of His cross and we will count riches to be but dirt." Jerome was also irritated by the rich Christians' ostentatiously public charity. But Curran thinks he was too harsh. "Their outlay could be extensive and costly," he notes, and "their physical and personal patronage of sites such as that of St. Peter's basilica" helped to secure the churches as anchors of the faith.

The irascible scholar's sharp-tongued criticisms eventually led to his exile. After Pope Damasus, his patron and protector, died in December 384, an accusation of impropriety, probably in connection with his relationship with Paula, was brought against Jerome. "Although acquitted on the most serious charge, Jerome was humiliatingly invited to leave [the city]," Curran writes. He departed in bitterness and, with Paula and other disciples, made his way to the Holy Land and to Bethlehem, far from the Babylon on the Tiber.

The Significant Other

In *Index on Censorship* (May–June 1997), Umberto Eco, author of *The Name of the Rose* (1983), describes his vision of the birth of a natural code of ethics.

I am of the firm belief that even those who do not have faith in a personal and providential divinity can still experience forms of religious feeling and hence a sense of the sacred, of limits, questioning and expectation; of a communion with something that surpasses us. What you ask is what there is that is binding, compelling and irrevocable in this form of ethics. . . .

The ethical dimension begins when the other comes on the scene. Every law, whether moral or statutory, regulates interpersonal relationships, including those with that other who imposes it. . . .

How then can there be or have been cultures that approve massacre, cannibalism, the physical humiliation of others? Simply because they restrict the concept of "other humans" to the tribal community (or ethnic group) and consider the "barbarians" non-human; not even the Crusaders felt the infidel was a neighbor to be excessively loved. The fact is, the recognition of the role of others, and the need to respect in them the needs we consider essential for ourselves, has developed slowly over thousands of years. The Christian commandment of love was enunciated with great effort, and only accepted when the time was ripe.

But, you ask me, can this idea of the importance of the other furnish an absolute base, an immutable foundation for ethical behavior? It would be enough for me to reply that even the foundations that you define as absolute do not prevent believers from sinning in the knowledge that they sin, and the story would end there; the temptation to evil is present even in those who have a solid and revealed notion of Good.

SCIENCE, TECHNOLOGY & ENVIRONMENT

The Cloning Controversy

A Survey of Recent Articles

When the now-famous Scottish sheep named Dolly was introduced to the world earlier this year, the world responded with a giddy mixture of levity and alarm. "An udder way of making lambs" said a headline in the same issue of *Nature* (Feb. 27, 1997)

that carried the astonishing news that Ian Wilmut and his colleagues at the Roslin Institute, near Edinburgh, had cloned Dolly from the udder of a six-year-old ewe.

"We should be clear why the science of Dolly is so important," John Maddox, a for-

mer *Nature* editor, writes in *Prospect* (Apr. 1997). The cells in an animal's body undergo a gradual process of specialization as the embryo develops into a newborn animal, so that while each cell in the animal's body has a full complement of DNA, each uses only those genes needed for its specialized function. Scientists thought that the unused genes were somehow permanently switched off. Dolly refutes that. She shows that an animal replica can be grown from the DNA in just about any cell in the body.

What Wilmut and his colleagues did, explains *Science News* (Apr. 5, 1997) writer John Travis, was to take mammary cells from a ewe and deprive them of nutrients, so that the cells entered a "quiescent" stage. The researchers then fused these cells, containing all their DNA, with egg cells whose nuclei had been removed. The developing embryos were then implanted in a surrogate mother. Out of 277 attempts to produce a clone in this way, Wilmut and his associates succeeded only once. (Helping to ease doubts that Dolly might be a fluke, researchers at a Wisconsin firm disclosed to *New York Times* [Aug. 8, 1997] science writer Gina Kolata that they have cloned genetic replicas of more than 10 adult Holstein cows. Though none of the clones had yet been born, some of the cows were expected to deliver "very soon," and the researchers were confident of success.)

"In one sense," observes Travis, "Dolly isn't even a true clone—she does not share all of her genes with her donor." While the nucleus was removed from the egg cell that became Dolly, the energy-producing mitochondria, home to a few dozen genes, were not. Is this mixing of genes important? Scientists do not know. "Nor do they know whether Dolly will be fertile or have a normal life span." The nucleus from which she was created was from a six-year-old ewe; was the age of the transplanted nucleus "reset"? If not, Travis says, "Dolly's life might be historic but brief."

Despite the uncertainties, the cloning of animals may benefit humans. The Roslin research, for example, has been underwritten by a Scottish biotech firm seeking to genetically alter female animals so that they secrete valuable drugs—such as human hormones or other biological products to treat disease—in their milk. In July, the scientists announced that they had produced a lamb called Polly with a single human gene in

every cell of its body—a lamb cloned from a fetal cell that had that human gene implanted in it, reports Gina Kolata in the *New York Times* (July 25, 1997).

Cloning technology may also allow scientists to give sheep and other animals human diseases, for study and testing. Researchers might also be able to produce pigs tailored to generate organs suitable for transplant into people. It is even possible, when the process for reversing the specialization of tissue cells is better understood, that whole organs such as human livers could be regenerated.

What about cloning humans? The nightmarish possibilities are readily apparent, observes Tabitha M. Powledge, a science journalist writing in *Technology Review* (May–June 1997). "Consider, for example, a world without sex because cloning does away with fathers. Or endless duplicates of individuals—Nobel laureates, movie stars, criminal masterminds, fascist dictators, whoever—created with or without their knowledge. Or how about raising the dead, literally, from the cells of corpses?"

Some are optimistic about the future of cloning. Biologist Francis Crick, codeveloper of the double-helix model of DNA structure, and 30 humanistic scientists, philosophers, and others signed a declaration in *Free Inquiry* (Summer 1997) expressing confidence that human reason will be able to resolve any "moral predicaments" that cloning humans may bring.

But Leon R. Kass, a physician-philosopher at the University of Chicago, writing in the *New Republic* (June 2, 1997), contends that cloning humans would be unethical and dangerous. "Asexual reproduction, which produces 'single-parent' offspring, is a radical departure from the natural human way, confounding all normal understandings of father, mother, sibling, grandparent, etc., and all moral relations tied thereto. It becomes even more of a radical departure when the resulting offspring is a clone derived not from an embryo, but from a mature adult to whom the clone would be an identical twin; and when the process occurs not by natural accident (as in natural twinning), but by deliberate human design and manipulation; and when the child's (or children's) genetic constitution is pre-selected by the parent(s) (or scientists)." At issue, Kass believes, is nothing less than "the future of

our humanity.” He favors a legal ban on the cloning of humans.

President Bill Clinton agrees. Human cloning, he said in June, “has the potential to threaten the sacred family bonds at the very core of our ideals and our society.” He is backing his National Bioethics Advisory Committee’s recommendation for legislation “to prohibit anyone from attempting, whether in a research or clinical setting, to create a child through somatic cell nuclear transfer cloning.”

These alarms may turn out in the end to be false. Cloning humans by the method used to produce Dolly may be impossible, the *Economist* (Mar. 1, 1997) notes. The transplanted DNA may need to be “reprogrammed” before it can work. In a sheep’s embryo, the DNA does not start controlling

the new organism’s development “until the egg has divided three or four times.” In humans, the DNA must take control much sooner—after the second cell division. This may not allow enough time for the transplanted DNA to be reprogrammed.

If human cloning should be at all possible, however, it “cannot be prevented” from being done somewhere in the world, argues James Q. Wilson, author of *Moral Judgment* (1997). Cloning’s major threat, he writes in the *Weekly Standard* (May 26, 1997), would be to the already besieged two-parent family. If cloning were allowed only for two married partners, and the mother, in normal circumstances, carried the fertile tissue to birth, then, he thinks, the gains (“a remedy for infertility and substitute for adoption”) would outweigh the risks. But that, of course, is a big if.

The Left’s Creationists

“The New Creationism” by Barbara Ehrenreich and Janet McIntosh, in *The Nation* (June 9, 1997), 72 Fifth Ave., New York, N.Y. 10011.

In anthropology and certain other academic redoubts these days, it is fashionable to dismiss the idea that human beings share a common, biologically based nature. The very notion is declared unpardonably “reductionist” and treated with irate contempt in seminars and lectures, and wherever feminist and left-wing scholars gather to denounce the patriarchy and the outrages of late capitalism. Ehrenreich, a leading feminist writer, and McIntosh, a graduate student in ethnology at the University of Michigan, protest the current trend in the name of biology and of common sense.

“To set humans apart from even our closest animal relatives as the one species that is exempt from the influences of biology,” they write, “is to suggest that we do indeed possess a defining ‘essence,’ and that it is defined by our unique and miraculous freedom from biology.” This outlook, they observe, is “eerily similar” to that of the fundamentalist creationists now waging war on the theory of evolution.

The “new creationists,” as Ehrenreich and McIntosh call their misguided friends on the left, profoundly misunderstand biology and science in general. “Biology is rhetorically yoked to ‘determinism,’ a concept that threatens to clip our wings and lay waste to our utopian visions, while culture is viewed as a

domain where power relations with other humans are the only obstacle to freedom.” But in fact, they note, biology is not so deterministic—“genes work probabilistically, and their expression depends on interaction with their environment.” And human cultures are not as easily remolded “to suit our utopian visions” as many new creationists assume.

Ironically, the authors point out, in rejecting “any biologically based human commonality, secular creationists undermine the very bedrock of the politics they claim to uphold,” because if human beings are just “pure products of cultural context,” then understanding or communication between cultures becomes impossible. If there is no human nature that is not socially “constructed,” observes Barbara Epstein, of the History of Consciousness Program at the University of California, Santa Cruz, “then there is no basis for social criticism and no reason for protest or rebellion.”

As things stand in the academy today, however, Ehrenreich and McIntosh conclude, “it takes more than a nuanced mind to deal with the interface of culture and biology. It takes courage. The climate of intolerance, often imposed by scholars associated with the left, ill suits an academic tradition rhetorically committed to human freedom.”