



*Pope Paul III convened the Council of Trent in 1545. It lasted until 1563, eliminating some of the more egregious abuses of the Catholic Church but failing to bring about the fundamental reorganization of the church's structure needed to meet the challenge of the Protestant Reformation.*

parently slowed down defections.

Despite the outward appearance of reform, say the authors, the Council of Trent's measures "failed as a reorganization plan." "The [Vatican] bureaucracy, entrenched in its power for at least a century before the

Council of Trent, defied actual reform at the wholesale level of church organization." Nepotism, the sale of sacred offices, and other abuses continued behind the scenes. As a result, the powerful firm's monopoly was permanently lost.

## SCIENCE, TECHNOLOGY & ENVIRONMENT

### *No Compromise*

"Why Nature & Nurture Won't Go Away" by Steven Pinker, in *Daedalus* (Fall 2004), Norton's Woods, 136 Irving St., Cambridge, Mass. 02138.

The question of what shapes human behavior has become such a highly charged political issue that many people are eager to wish it away. Everyone now knows that heredity and environment play an intertwined role, they argue, so let's just agree that the answer to the nature-nurture question is "some of each."

Bad idea, says Pinker, a psychologist at Harvard University. It's not even true that

everyone acknowledges the role of heredity in human behavior. Some scientists cling to the theory of the mind as a blank slate, and postmodern thinkers in the humanities insist that virtually all human emotions and behavioral categories are "socially constructed." More important, it's not true that "some of each" is always the proper answer. Environmental influences provide 100 percent of the explana-

## Periodicals

tion for why people in different countries speak different languages, but these influences have been totally ruled out as a cause of certain psychopathologies, such as autism and schizophrenia. “Mothers don’t deserve some of the blame if their children have these disorders, as a nature-nurture compromise would imply,” Pinker notes. “They deserve none of it.”

It’s true that the expression of some genes is shaped by the environment, but that doesn’t mean, as some contend, that heredity is inconsequential. People taking this view often point to phenylketonuria (PKU), an inherited disease that causes mental retardation: Patients given a diet low in phenylalanine can avoid severe retardation. However, these advocates of the nurture perspective seldom note that “PKU children still have mean IQs in the 80s and 90s” and suffer other impairments, Pinker says. In fact, “genes specify what kinds of environmental manipulations have what kinds of effects and with what costs.”

Acknowledging and studying inborn proclivities can help us domesticate them. For

example, humans seem to have a natural sympathy for others, but it’s normally limited to their “own”: family, clan, or village. In the right environment, however, that sympathy can be expanded to “clans, tribes, races, or even species.” Understanding what those circumstances are can reveal “possible levers for humane social change.”

One of the most startling findings in behavioral genetics is the revelation through research on identical twins that family environment has “little or no effect” on individual intelligence and personality. Yet twins do nevertheless differ in important ways. So now researchers are asking new questions: What is the role of *peer* culture in the development of personality? What is the role of chance events? “These profound questions are not about nature versus nurture,” Pinker writes. “They are about nurture versus nurture: about what, precisely, are the nongenetic causes of personality and intelligence.” And they might never have been asked if researchers had thrown up their hands and ended the nature-nurture debate by agreeing to split the difference.

## To Be a Bee

“The *Edge* Annual Question—2005: What Do You Believe Is True Even Though You Cannot Prove It?” in *Edge* (Jan. 4, 2005), [www.edge.org](http://www.edge.org).

When it comes to many-legged critters, we humans are apt to squash first and ask existential questions later—if at all. But that’s a mistake, claims Alun Anderson, editor in chief of *New Scientist*, arguing that insects possess consciousness. That isn’t to say that the common cockroach is wondering how to make the next car payment or pondering the validity of string theory, but it is to say that it is capable of suffering and even dying simply from stress.

Anderson, a former biologist who conducted extensive studies of insects, proposes this theory in answer to a question the Edge Foundation put to 120 notables in the science world: “What do you believe is true even though you cannot prove it?”

In one experiment, Anderson examined how honeybees navigated his laboratory to

find hidden sugar. Bees learned the features in the room and showed confusion if objects were moved while they were absent. They were also easily distracted—by floral scents, sudden movements, and certain patterns, particularly flowerlike ones—except when gorging on sugar.

Anderson writes: “To make sense of this ever changing behavior, with its shifting focus of attention, I always found it simplest to figure out what was happening by imagining the sensory world of the bee, with its eye extraordinarily sensitive to flicker and colors we can’t see, as a ‘visual screen’ in the same way I can sit back and ‘see’ my own visual screen of everything happening around me, with sights and sounds coming in and out of prominence. The objects in the bee’s world have significances or ‘meaning’ quite differ-