Edgell, Joseph Gerteis, and Douglas Hartmann, all sociologists at the University of Minnesota. Just under half of those polled said that they would disapprove if one of their children wanted to marry an atheist. A third said they would disapprove of a Muslim spouse.

Churchgoers, conservative Protestants, and people who say that religion is highly salient to their lives are less likely to approve of intermarriage with nonbelievers and more likely to say that atheists do not share their vision of American society. White Americans, males, and college graduates are somewhat more accepting of atheists than are nonwhites, females,

and people without college degrees. Not surprisingly, the lowest rate of rejection of atheists is among those who do not go to church or claim a religious identity, and who report that religion is "not at all" salient to them. Yet even 17 percent of these survey respondents say that atheists do not at all share their vision of America, and one-tenth indicate that they would disapprove of their child marrying an atheist.

It may come as a surprise that nonbelievers are actually hard to find. Only about one percent of Americans self-identify as atheists, though the real number may be up to three percent. And the members of this small band would be hard to

identify, since there are no visible signs of nonbelief.

The attitude toward these godless few is telling, write the authors. "If we are correct, then the boundary between the religious and the nonreligious is not about religious affiliation per se. It is about the historic place of religion in American civic culture and the understanding that religion provides the 'habits of the heart' that form the basis of the good society. It is about an understanding that Americans share something more than rules and procedures, but rather that our understandings of right and wrong and good citizenship are also shared."

SCIENCE & TECHNOLOGY

How to Save the Internet

FOR ALMOST AS LONG AS THERE has been an Internet, enthusiasts have worried that it would be ruined by the intrusion of commerce. Now, that nightmare is closer than ever to being realized. It's not corporate ogres or bloodsucking regulators that pose the chief danger, according to Jonathan L. Zittrain, a professor of Internet governance and regulation at Oxford University. It's us.

Today's rapidly proliferating threats to Internet security have the potential to provoke a backlash among computer users, creating consumer demand for protective

measures that would fundamentally change the nature of the Internet. Some corporations and regulators would be glad to satisfy this demand.

The key to the Internet's enormous "generativity" has been unimpeded access of one end user to another, writes Zittrain, allowing "upstart innovators to demonstrate and deploy their genius to large audiences." Virtually every innovation, from Amazon.com to Wikipedia, MySpace, and Skype, has depended on the creators' ability to send executable code as well as data to the user's personal computer. But that accessibility also opens the door to danger, as the experience of

CERT, an independent Internet security organization based at Carnegie Mellon University, graphically illustrates. In 1988, it began documenting the number of virus and worm attacks on Internet systems, and it was easy work until the late 1990s. In 2004, however, CERT announced that it was giving up: Attacks had quadrupled in just a few years.

Zittrain sees several possible routes to a more secure but less "generative" Internet that might tempt consumers. For instance, the personal computer could morph into an "information appliance," running only programs loaded by its manufacturer. That's not far-fetched. TiVo video recorders, Xbox game consoles, and Web-enabled smartphones are among the devices that already fit this description.

The recent spread of automatic software updating via the Internet

could allow, say, the providers of operating systems such as Windows to block users' access to material on the Internet that somebody deems inappropriate. That somebody could be the software maker itself, seeking to "protect" consumers; it could be a government regulator; or it could be a company filing suit to require the software maker to block consumers' access to such things as online music files or to disable software already on an individual's machine that enables that person, for example, to copy DVDs.

A third possibility is that computer users could embrace "the digital equivalent of gated communities"—closed systems that drastically restrict communication with outside computers, somewhat like the old CompuServe system.

Ironically, Zittrain sees this last scenario as the likeliest outcome if the most zealous defenders of the old Internet-as-free-for-all approach have their way and virtually no action is taken to respond to the rising threats to online security. Those who truly want to preserve the Internet's creative life must accept some compromise, he argues. Among Zittrain's suggestions: a new nonprofit institution that would identify and label all the pieces of code zooming around the Internet and automatically supply that information online to users every time they encountered new code on the Internet. What has to be avoided above all is the creation of "centralized gatekeepers" and the "lockdown" of personal computers. Otherwise, we face the prospect of an Internet "sadly hobbled, bearing little resemblance to the one that most of the world enjoys today."

Anything Goes

THE SOURCE: "Federal Neglect: Regulation of Genetic Testing" by Gail H. Javitt and Kathy Hudson, in *Issues in Science and Technology*, Spring 2006.

SUPPOSE YOU'RE A PREGNANT woman, and you read an advertisement touting a genetic test that can predict whether your unborn child might develop cystic fibrosis. Even though you know there are all kinds of potential threats to your child, you keep picturing that smiling woman holding her baby: *Wouldn't it be better to be certain?*

As Gail H. Javitt and Kathy Hudson point out, such a test may not guarantee any clear answers. Javitt, a

> Even if a genetic test is accurate, there are questions about how to interpret the results.

policy analyst at Johns Hopkins University's Genetics and Public Policy Center and a researcher at the university's Berman Bioethics Institute, and Hudson, who directs the center and is a professor at the institute, report that the federal government "exercises only limited oversight of the analytic validity of genetic tests." That oversight only covers a small portion of the tests currently available to patients that screen for more than 900 genetic diseases. For most of the tests—which can influence such critical decisions as whether to undergo prophylactic mastectomy or terminate a pregnancy—the only vouchsafe of accuracy comes from the laboratories that perform them. The laborato-

ries are held to overall federal standards of proficiency, but the government has created no specific standards for genetic tests.

Genetic tests fall into two broad categories, "test kits" and "home brews." Test kits contain all the necessary elements—such as reagents, as well as instructions for conducting and interpreting the test so that a laboratory can perform a particular genetic test. The Food and Drug Administration (FDA) regulates test kits as medical devices, but so far only four have been approved. Most genetic tests fall into the largely unregulated "home brew" category, so called because laboratories concoct their own chemical combinations and procedures. (The FDA *does* regulate the reagents used in such tests.) No pre- or postmarket assessment is done by either the FDA or the U.S. Centers for Medicare and Medicaid Services of the effectiveness of home brew tests.

Even if a test is accurate, there are questions about how to interpret the results. Does the presence of a particular gene, for example, really mean the individual is prone to a certain disease? What is the risk? There is "virtually no oversight" of such questions of "clinical validity." That is a special source of concern in the case of genetic tests marketed directly to consumers, often over the Internet. Only a handful of such tests are currently available—for susceptibility to depression or osteoporosis, for example—but the number is certain to grow.

Consumers are easy prey for misleading advertisements, and they "lack the requisite knowledge to make appropriate decisions about