

STATE OF THE ART

A SURVEY OF TECHNOLOGY AND SOCIETY, BY THE EDITORS

I've Got You Under My Skin <i>Tracking Technology Gets Personal</i>	133
Black Box Ballyhoo <i>Voting Technology in the 2004 Election</i>	136
Gray Matter in the Courtroom <i>Neuroscience as Legal Evidence</i>	138
Debunking the Digital Classroom <i>Rethinking "Tech Literacy"</i>	141
The Cloning Logjam <i>Treaty Talks Break Down at the United Nations</i>	143
The Encyclopedia in Cyberspace <i>Wikipedia Makes Every Man an Editor</i>	146
'A Second Kind of Frontier' <i>Comments on the X Prize Triumph</i>	148

I've Got You Under My Skin

Tracking Technology Gets Personal

In October, the Food and Drug Administration approved the use of the VeriChip in humans. VeriChip is a microchip, the size of a grain of rice, which can be implanted under the skin with a simple injection. Like the bar codes on consumer products, it stores coded information that can be read with a scanner. It literally allows us to be "checked out," like an interactive Social Security Number engrafted in the body.

The chip's creator, Applied Digital Solutions, initially emphasized the device's potential medical applications. For \$150 to \$200, it said, you could have your entire medical history—allergies, medications, previous ailments, and the like—encoded and implanted on your person, so that a doctor or other medical professional

could, with a quick scan, have access to this information before treatment. The information could either be stored on the chip itself or in a separate secure database unlocked by scanning.

VeriChip is among the latest versions of an existing technology: radio frequency identification chips (RFIDs) that are small enough to be implanted in human beings, but used mostly by businesses to track their inventories and shipping companies to log cargo. RFIDs are also popular among wildlife managers, farmers, and pet owners: one million chips have been implanted in pets and livestock. Currently, only a small number of people (estimated in summer 2004 at around a thousand) have opted to implant the VeriChip, most of them in countries other than the United States. In Mexico, for

example, high-profile law enforcement officials have received VeriChips to allow police to track them in case they are kidnapped. And in Barcelona, according to the Associated Press, club crawlers “use the microchip to enter a VIP area and, through links to a different database, speed payment much like a smartcard.”

The healthcare system would certainly benefit from a more efficient and reliable system for retrieving patients’ medical records. The Bush administration has pledged more than \$100 million in an effort to convert these records from paper to electronic form. Patients are increasingly “medically mobile,” moving among many health providers, and the difficulty of securing paper copies of their medical history can hamper treatment.

But the VeriChip raises some serious questions, the most obvious being the potential erosion of privacy. In October 2004, Democratic Senator Patrick Leahy of Vermont released a statement raising “concerns” about the FDA’s approval of the VeriChip, noting that it (and the Department of Health and Human Services) “have been silent on the extent to which these important security, privacy and civil-liberties implications have been considered during the process of approving this new technology.” Other privacy advocates have raised concerns about the potential for tracking prisoners, parolees, or illegal immigrants. The company that created VeriChip currently offers a service called Digital Angel, which allows customers to track animals,

aircraft, and even people using Global Positioning System-enabled wrist-watches and pagers. An implantable, GPS-enabled chip is now becoming available. As the *Christian Science Monitor* reported this summer, “VeriChip says it is developing technology that will allow the chip to work with a satellite system to better find missing people.”

Many people would likely welcome these tracking devices—such as those caring for people with Alzheimer’s disease or other forms of dementia, or parents worried about how well their day care center is watching their kids. But as Barry Steinhardt of the American Civil Liberties Union told National Public Radio, this technology “really can become the key to a universal system of tracking.” The government, he noted, “is proposing to put them into the passports that are carried by roughly 20 million Americans,” and among the many proposals to emerge from the 9-11 Commission was to put data chips in driver’s licenses. The trade-off between privacy and security will sharpen even further, as the necessity of finding or tracking threatening individuals leads to a society where everyone is discoverable, always and everywhere.

The Health Privacy Project advises consumers to be cautious about what kind of information they include on a VeriChip. Vital statistics about allergies and blood type are fine, but “do you really want the person treating you to know that you were treated for,

say, mental illness at 15 or had an abortion at 17?”

The manufacturers of the VeriChip are confident that they can overcome both the privacy fears and the “creepy factor” conjured by implantable chips. Scott Silverman, the CEO of Applied Digital Solutions, told the *New York Times* in October that the FDA’s approval was a large step in that direction. The company has also launched an aggressive marketing campaign, called “Get Chipped,” to promote the devices. As *Wired News* reported in 2002, Applied Digital Solutions is offering a discount to the first 100,000 people who get the implant. They are also beginning to market the VeriChip as a security technology as well as a medical one, emphasizing its applicability for “controlling access to physical structures” such as nuclear power plants and “reducing financial fraud” at ATMs and other financial institutions.

Civil libertarians and privacy advocates will no doubt continue to call for caution in consumers’ use of the VeriChip. But there is another group concerned about implanting chips in the human body: fundamentalist Christians. As believers who understand the prophecies of the book of Revelation literally, they are wary of technologies that resemble the universal “mark of the Beast,” one of the tools of the anti-Christ, described in Revelation 13: “And he causeth all, both small and great, rich and poor, free and bond, to receive a mark in their right hand, or in their foreheads: And that no man might buy or sell,

save he that had the mark.” Concern about the VeriChip recently prompted the Christian Broadcasting Network to ask Bible scholar and Regent University professor Joseph Kickasola if he thought VeriChips and other RFIDs resembled the mark of the Beast. Taking the question seriously, he tried to calm the audience: “My judgment is, no they do not.... I think the Bible clearly says the mark of the Beast is for buying and selling and that it is also coerced, it’s government enforced. On the face of it, these microchips are for good purposes, like for medical records, like for lost children. They’re not for buying or selling, as is described in the book of Revelation.”

But putting worries about the anti-Christ aside, there is something odd about making the body interactive with machines without the need—or the possibility—of active direction. When we play a video game or use an ATM machine, we control the interaction each time we interact. With VeriChips in our bodies, we are passively scannable—we are there “to be read,” whether we want to be or not. No doubt, this ready supply of information is part of the appeal, and will surely prove a blessing in treating unconscious victims of emergencies or tracking dangerous individuals. But with such gains in security and efficiency there is also a loss of control—a giving over of the self to God knows whom. And there is a novel violation of the biological person—perhaps even a tiny step toward a cyborg future.