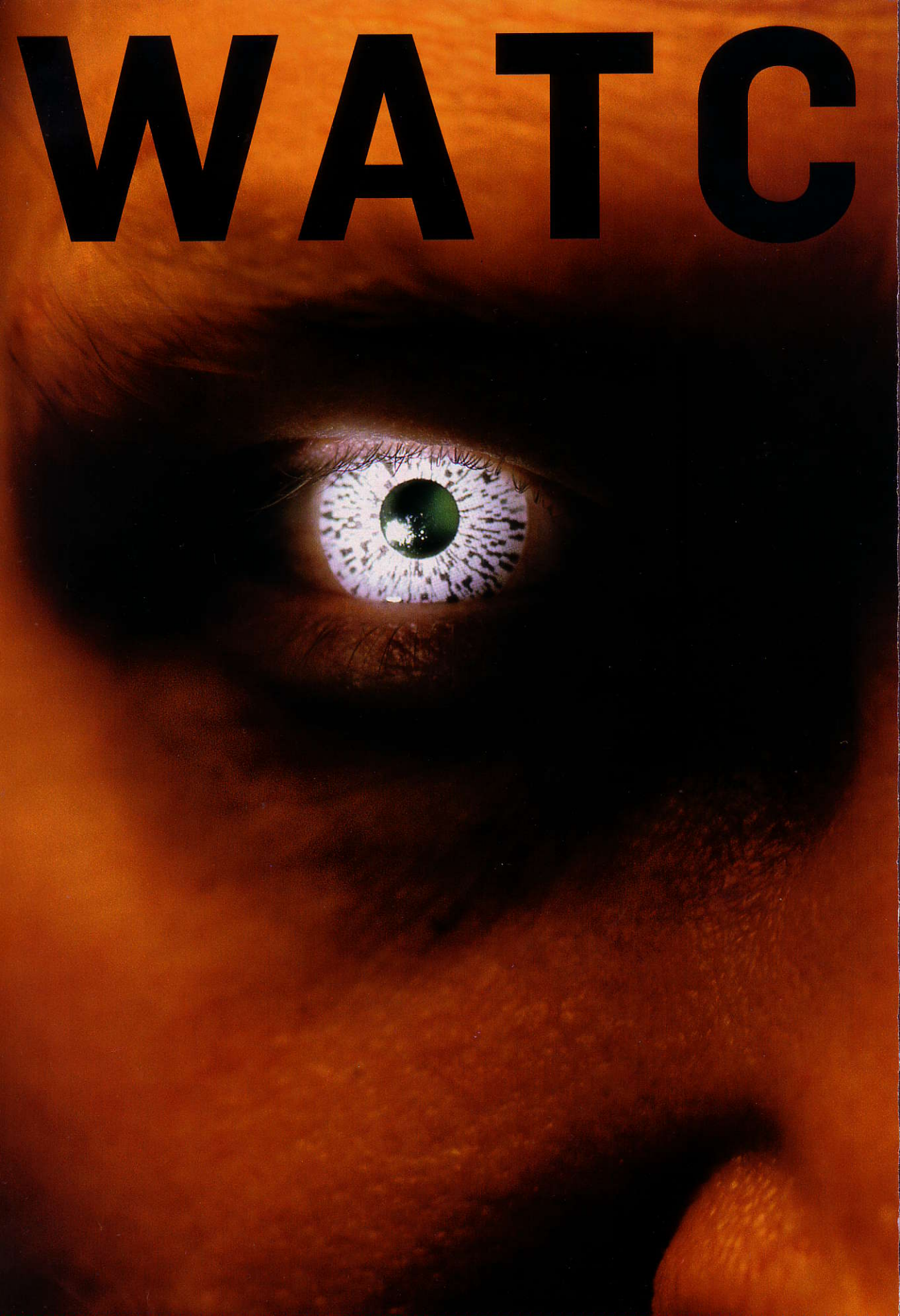


WATC



H I N G

THE WORLD OF HIGH-TECH SURVEILLANCE

YOU



THE FUTURE IS HERE,
where cameras can film you wherever you go,
where your cell phone can signal
exactly where you are, where one glance can
reveal exactly who you are. Sometime soon—
in an airport, in the lobby of your office,
in your bank—a scanner might get a glimpse
of your eyes and a computer reveal
your identity. For iris-recognition technology
you can thank the owner of this face,
computer scientist John Daugman
(he's wearing specially made contact lenses
imprinted with digital maps of his own irises).
His creation is just one of the technologies
revolutionizing public surveillance.

BY DAVID SHENK
PHOTOGRAPHS BY GEORGE STEINMETZ

Paul Moskowitz would just love it if the frenetic, ever tinkering scientists supporting his counter-terrorism squad at Brookhaven National Laboratory bounded into his office one day and announced that they had come up with something half as good as a dog's nose.

"That is such an exquisite instrument," he offers in a sandy voice tinged with humility. A trained dog can reliably detect the slightest

HIGH-TECH MEET MARKET



trace of a specific chemical—sometimes from a distance of many feet—even if the scent is masked by other pungent odors. For all the technological innovation in the 20th century, Moskowitz says, “we don’t have anything that can touch that yet.”

We’re sitting in his report-stacked office in rural Long Island, 70 miles from New York City, discussing the recently restored Grand Central Terminal in midtown Manhattan, one of the iconic centers of the civilized universe. As far as counterterrorism experts are concerned, Grand Central might as well have a giant red bull’s-eye painted on the floor: The station

seems that choice a target for the next large terrorist attack, or the next one after that, or the next one after that.

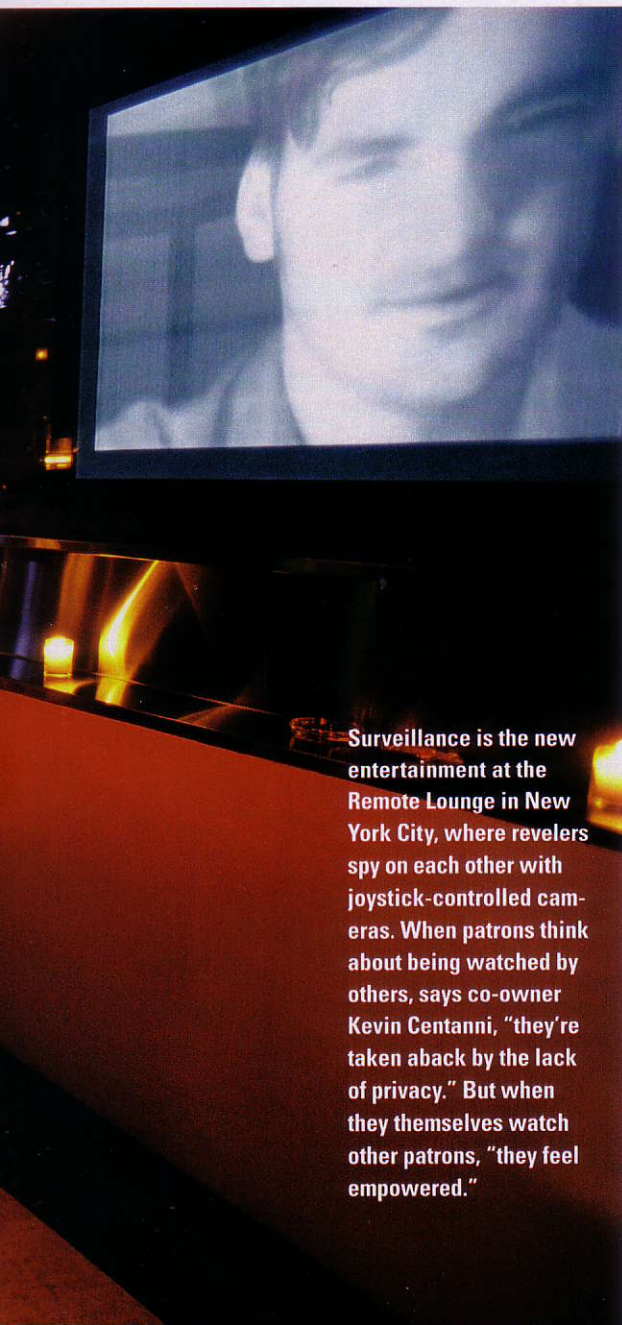
This is what scientists and technologists like Moskowitz have become obsessed with since the morning of September 11, 2001. Where is the next intended ground zero? And what can be done to protect it?

Police do, of course, have surveillance cameras trained on the 700,000 commuters passing through Grand Central each day, along with assorted other high- and low-tech detectors looking for conventional explosives, nukes, dirty bombs, chemical weapons, and bio-weapons. Hundreds of human detectives, in and out of uniform, also keep a close eye on things. But nothing in their assorted surveillance tool belt comes close, Moskowitz says, to the slightly moist olfactory surveillance machine developed in the Canidae family over four billion years of evolution. A single dog’s nose could someday save Grand Central Terminal from collapse.

Against that furry gold standard, the tinkers tinker late into the proverbial night, trying to speed up the process of discovery. In the post-9/11 landscape we need dog-nose equivalents for facial recognition and to detect money laundering, encrypted e-mail, bioweapons, and suitcase nukes—and we need them now.

Evolution, the supreme innovator, is too slow for these tasks. Suddenly everyone is acutely aware of our profound surveillance weaknesses. It appears that our intelligence agents cannot adequately detect or track terrorists living in the U.S.; that we cannot effectively screen ships or trucks for nuclear weapons; and that even with a sky full of spy satellites and pilotless drones, the search for the world’s most wanted man, Osama bin Laden, still turned up only cold trails two years after 9/11.

We are hurtling toward constant electronic scrutiny—of the enemy and of ourselves. Increasingly, ours is a world of ID checks, surveillance cameras, body scans, fingerprint databases, e-mail sifters, and cell phone interceptors designed to ensure that electronic trails don’t grow cold. Add to that more mundane domestic gadgets like nanny-cams, wireless heart monitors, swipe-in school and workplace IDs, and E-ZPass, a tag that attaches to your car windshield and electronically deducts



Surveillance is the new entertainment at the Remote Lounge in New York City, where revelers spy on each other with joystick-controlled cameras. When patrons think about being watched by others, says co-owner Kevin Centanni, “they’re taken aback by the lack of privacy.” But when they themselves watch other patrons, “they feel empowered.”

highway tolls from your prepaid account, and you begin to get a whiff of an emerging electronic vigilance, an ever examined, ever watched landscape of total surveillance.

Late one autumn day at the aquatic center in Ancenis, France, something went quietly, horribly wrong. With its two well-kept pools and teaching facilities, the center serves as a modern swimming hole for an entire sector of historic Brittany, attracting 150,000 French villagers a year. An 18-year-old

deep end of the pool. With his arms crossed over his head and his feet twitching, he was unconscious and drowning. It would take him as little as four minutes to die.

Although the human lifeguards watching the pool were oblivious, 12 large machine eyes deep underwater were watching the whole thing and taking notice. Just nine months earlier the center had installed a state-of-the-art electronic surveillance system called Poseidon, a network of cameras that feeds a computer programmed to use a set of complex mathematical algorithms

CAMERAS ARE BECOMING SO OMNIPRESENT THAT ALL BRITONS SHOULD ASSUME THEIR BEHAVIOR OUTSIDE THE HOME IS MONITORED.



named Jean-François LeRoy was a regular, coming often in the early evenings to swim laps in the 25-meter pool.

Drownings are often difficult to spot; they are rarely the splashy, flailing events depicted on television. Most are near-silent episodes where the victim quickly sinks out of view. On this particular day maybe the lifeguards weren't paying as close attention as they should have been. Certainly they believed the trim, athletic LeRoy was not a high-risk swimmer.

But on this evening LeRoy was practicing apnea swimming—testing how far he could swim underwater on one breath—and at some point, without making any visible or audible disturbance on the water's surface, he blacked out. The guards failed to notice as he stopped swimming and descended to the bottom of the

to distinguish between normal and distressed swimming. Poseidon covers a pool's entire swimming area and can distinguish among blurry reflections, shadows, and actual swimmers. It can also tell when real swimmers are moving in a way they're not supposed to. When the computer detects a possible problem, it instantly activates a beeper to alert lifeguards and displays the exact incident location on a monitor. The rest is up to the humans above the water.

Sixteen seconds after Poseidon noticed the large, sinking lump that was Jean-François LeRoy, lifeguards had LeRoy out of the pool and were initiating CPR. He started breathing again. After one night in the local hospital, he was released with no permanent damage. Poseidon—and, more precisely, the handful of French mathematicians who devised it—had saved his life.

Machines like Poseidon will redefine how we live. Think of your life before the answering machine, the ATM, e-mail. Think of your grandparents' lives before the television and the airplane. Think of your great-grandparents' lives before the telephone. All told, the shift will be that substantial.

Machines will recognize our faces and our fingerprints. They will watch out for swimmers in distress, for radioactivity- and germ-laden terrorists, for red-light runners and highway speeders, for diabetics and heart patients. Imagine devices that monitor the breathing rhythms of infants in cribs, watch toddlers at day care, and track children as they go to and from school; that can keep an eye on our home