

systems website in March 2003 by an illegal hack, the nature of the information stolen could have been revised or manipulated.

There are two reasons why the United States is rushing to overhaul its voting systems. The first is the Florida debacle in the Bush/Gore election; no state wants to be the center of that kind of attention again. And the second is the Help America Vote Act (HAVA), signed by President Bush in October 2002, which promises an unprecedented \$3.9 billion to the states to replace their old punchcard-and-lever machines. However, enthusiasm for the new technology seems to be motivated as much by a bureaucratic love of spending as by love of democratic accountability. According to Rebecca Mercuri, research fellow at John F. Kennedy School of Government at Harvard and a specialist in voting systems, the shockingly high error rate of punchcard machines (3%-5% in Florida in 2000) has been known to people in the elections business for years. It was only after it became public knowledge in the last Presidential election that anybody felt moved to do anything about it.

The problem is, computer touchscreen machines and other so-called DRE (direct recording electronic) systems are significantly less reliable than punchcards, irrespective of their vulnerability to interference. In a series of research papers for the Voting Technology Project, a joint venture of the prestigious Massachusetts and California Institutes of Technology, DREs were found to be among the worst performing systems. No method, the MIT/CalTech study conceded, worked more reliably than hand-counting paper ballots — an option that U.S. electoral officials seem to consider hopelessly antiquated, or at least impractical in elections combining multiple local, state and national races for offices from President down to dogcatcher.

The clear disadvantages and dangers associated with DREs have not deterred state and county authorities from throwing themselves headlong into touchscreen technology. More than 40,000 machines made by Diebold alone are already in use in 37 states, and most are touchscreens. County after county is poised to spend hundreds of millions of dollars more on computer voting before the spring Presidential primaries. "They say this is the direction they have to go to have fair elections, but the rush to go toward computerization is very dubious," Dr. Mercuri says. "One has to wonder why this is going on, because the way it is set up takes away the checks and balances we have in a democratic society. That's the whole point of paper trails and recounts."

Anyone who has struggled with an interactive display in a museum knows how dodgy touchscreens can be. In Dallas, during early voting before the November 2002 election, people found that no matter how often they tried to push a Democrat button, the Republican candidate's name would light up. After a court hearing, Diebold agreed to take down 18 machines with apparent misalignment problems. "And those were the ones where you could visually spot a problem," Dr. Mercuri says. "What about what you don't see? Just because your vote shows up on the screen for the Democrats, how do you know it is registering inside the machine for the Democrats?"

Other problems have shown up periodically: machines that register zero votes, or machines that indicate voters coming to the polling station but not voting even when a single race with just two candidates was on the ballot. Dr. Mercuri was part of a lawsuit in Palm Beach County in which she and other plaintiffs tried to have a suspect Sequoia machine examined, only to run up against the brick wall of the trade-secret agreement. "It makes it really hard to show their product has been tampered with," she says, "if it's a felony to inspect it."

As for the possibilities of foul play, Dr. Mercuri says they are virtually limitless. "There are literally hundreds of ways to do this," she says. "There are hundreds of ways to embed a rogue series of commands into the code and nobody would ever know because the nature of programming is so complex. The numbers would all tally perfectly." Tampering with an election could be something as simple as a "denial-of-service" attack, in which the machines simply stop working for an extended period, deterring voters faced with the prospect of long lines. Or it could be done with invasive computer codes known in the trade by such nicknames as "Trojan horses" or "Easter eggs." Detecting one of these, Dr. Mercuri says, would be almost impossible unless the investigator knew in advance it was there and how to trigger it. Computer researcher Theresa Hommel, alarmed by touchscreen systems, has constructed a simulated voting machine in which the same candidate always wins, no matter what data you put in. She calls her model the Fraud-O-Matic, and it is available online at [www.wheresthepaper.org](http://www.wheresthepaper.org).

It is not just touchscreens that are at risk from error or malicious intrusion. Any computer system used to tabulate votes is vulnerable. An optical scan of ballots in Scurry County, Texas, in November 2002 erroneously declared a landslide victory for the Republican candidate for county commissioner; subsequent hand recount showed the Democrat had, in fact, won. In Comal County, Texas, a computerized optical scan found that three different candidates had won their races with exactly 18,181 votes. There was no recount or investigation, even though the coincidence, with those recurring 1s and 8s, looked highly

## PAPER BALLOT

I agree that before the 2004 Presidential election we must secure an accountable paper ballot nationwide that is verified by the voter (not the computer) and hand dropped into the box by the voter (with provision for the handicapped) with recount capability.

Adding machines are for adding numbers.

Computers are for manipulating numbers.

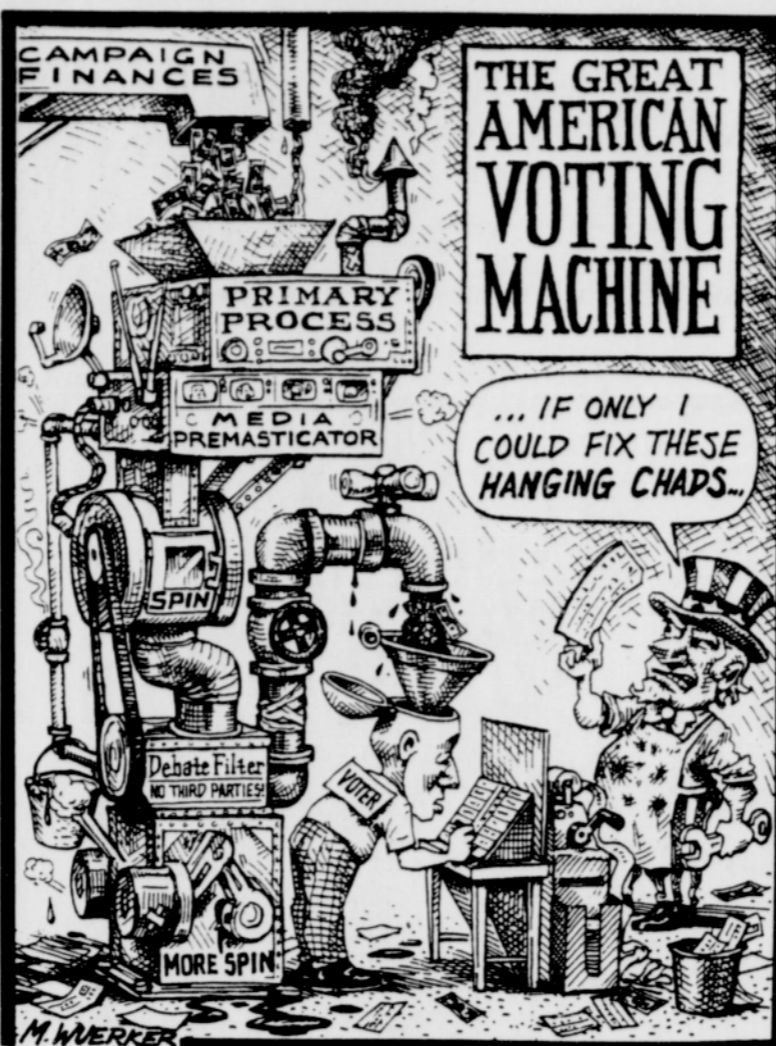
Computers can be programmed to print out a ballot then manipulate the vote. With the computer, we will feel the need to recount everything it spits out. I see endless auditing, surveillance, recounting, maintenance-protection from even future misuse, hacking, manipulation of the computer system, i.e., scammed elections.

The present and future threat of humungous voting fraud is real.

The vote is very important, essential to a democracy. What is our hurry in this nation? We can take time to count our votes by citizens in our respective counties who are personally responsible to each county.

~M. TAYLOR

M. Taylor lives in Astoria. She is an adamant activist for the paper vote. She says that she is aware "people recoil in disbelief" at the thought of computer vote fraud and that "the goal must be to educate so there will be effective group action."



suspicious. In heavily Democrat Broward County, Florida — which had switched to touchscreens in the wake of the hanging chad furor — more than 100,000 votes were found to have gone "missing" on election day. The votes were reinstated, but the glitch was not adequately explained. One local official blamed it on a "minor software thing."

Most suspect of all was the Governor's race in Alabama, where the incumbent Democrat, Don Siegelman, was initially declared the winner. Sometime after midnight, when polling station observers and most staff had gone home, the probate judge responsible for elections in rural Baldwin County suddenly "discovered" that Mr. Siegelman had been awarded 7,000 votes too many. In a tight election, the change was enough to hand victory to his Republican challenger, Bob Riley. County officials talked vaguely of a computer tabulation error, or a lightning strike messing up the machines, but the real reason was never ascertained because the state's Republican attorney general refused to authorize a recount or any independent ballot inspection.

According to an analysis by James Gundlach, sociology professor at Auburn University in Alabama, the result in Baldwin County was full of wild deviations from statistical norms established both by this and preceding elections. And he adds: "There is simply no way that electronic vote counting can produce two sets of results without someone using computer programs in ways that were not intended. In other words, the fact that two sets of results were reported is sufficient evidence in and of itself that the vote tabulation was compromised." Although talk of voting fraud quickly subsided, Alabama has now amended its election laws to make recounts mandatory in close races.

The possibility of flaws in the electoral process is not something that gets discussed much in the United States. The attitude seems to be: we are the greatest democracy in the world so the system must be fair. That has certainly been the prevailing view in Georgia, where even the leading Democrats — their prestige on the line for introducing touchscreen voting in the first place — have fought tooth-and-nail to defend the integrity of the system. In a phone interview, the head of the Georgia Technology Authority who brought the Diebold machines to the state, Larry Singer, blamed the growing chorus of criticism on "fear of technology," despite the fact many prominent critics are themselves computer scientists. He says, "Are these machines flawless? No. Would you have more confidence if they were completely flawless? Yes. Is there such a thing as flawless systems? No." Mr. Singer, who left the GTA straight after the election and took a 50% pay cut to work for Sun Microsystems, insists that voters are more likely to have their credit card information stolen by a busboy in a restaurant than to have their vote compromised by touchscreen technology.

Voting machines are sold in the United States in much the same way as other government contracts: through intensive lobbying, wining and dining. At a recent national conference of clerks, election officials and treasurers in Denver, attendees were treated to black-tie dinners and other perks, including free expensive brief cases stamped with Sequoia's company logo alongside the association's own symbol. Nobody in power seems to find this worrying, any more than they worried when Sequoia's southern regional sales manager, Phil Foster, was indicted in Louisiana a few years ago for "conspiracy to commit money laundering and malfeasance." The charges were dropped in exchange for his testimony against Louisiana's state commissioner of elections. Similarly, in 2002, the Arkansas secretary of state, Bill McCuen, pleaded guilty to taking bribes and kickbacks involving a precursor company to Election Systems & Software; the voting machine company executive who testified against him in exchange for immunity is now an ES&S vice-president.

If much of the worry about vote-tampering is directed at the Republicans, it is largely because the big three touchscreen companies are all big Republican donors, pouring hundreds of thousands of dollars into party coffers in the past few years. The ownership issue is, of course, compounded by the lack of transparency. Or, as Dr. Mercuri puts it: "If the machines were independently verifiable, who would give a crap who owns them?" As it is, fears that U.S. democracy is being hijacked by corporate interests are being fueled by links between the big three and broader business interests, as well as extremist organizations. Two early backers of American Information Systems, a company later merged into ES&S, are also prominent supporters of the Chaldeon Foundation, an organization that espouses "theocratic governance" according to a literal reading of the Bible (in other words a state religion) and advocates capital punishment for blasphemy and homosexuality.

The chief executive of American Information Systems in the early 1990s was Chuck Hagel, who went on to run for elective office and became the first Republican in 24 years to be elected to the Senate from Nebraska, cheered on by the *Omaha World-Herald* newspaper which also happens to be a big investor in ES&S. In yet another clamorous conflict of interest, 80% of Mr. Hagel's winning votes — both in 1996

and again in 2002 — were counted, under the usual terms of confidentiality, by his own company.

In theory, the federal government should be monitoring the transition to computer technology and rooting out abuses. Under the Help America Vote Act, the Bush administration is supposed to establish a sizable oversight committee, headed by two Democrats and two Republicans, as well as a technical panel to determine standards for new voting machinery. The four commission heads were supposed to have been in place by February 2003, but so far just one has been appointed. The technical panel also remains unconstituted, even though the new machines it is supposed to vet are already being sold in large quantities — a state of affairs Dr. Mercuri denounces as "an abomination."

One of the conditions states have to fulfill to receive federal funding for the new voting machines, meanwhile, is a consolidation of voter rolls at state rather than county level. This provision sends a chill down the spine of anyone who has studied how Florida consolidated its own voter rolls just before the 2000 election, purging the names of tens of thousands of eligible voters, most of them African-Americans and most of them Democrats, through misuse of an erroneous list of convicted felons commissioned by Katherine Harris, the secretary of state doubling as George Bush's Florida campaign manager. Despite a volley of lawsuits, the incorrect list was still in operation in the November 2002 mid-term elections, raising all sorts of questions about what other states might do with their own voter rolls. It is not that the Act's consolidation provision is in itself evidence of a conspiracy to throw elections, but it does leave open that possibility.\*

Meanwhile, the Bush administration has been pushing new voting technology of its own to help overseas citizens and military personnel, both natural Republican constituencies, to vote more easily over the Internet. Internet voting is notoriously insecure and open to abuse by just about anyone with rudimentary hacking skills; an experiment in Internet voting in Toronto in January 2003 was scuppered by a Slammer worm attack. Undeterred, the administration has gone ahead with its so-called SERVE project for overseas voting, via a private consortium made up of major defense contractors and a Saudi investment group. The contract for overseeing Internet voting in the 2004 Presidential election was recently awarded to Accenture, formerly part of the Arthur Andersen group (whose accountancy branch, a major contributor to President Bush, imploded as a result of the Enron bankruptcy scandal).

Not everyone in the United States has fallen under the spell of the big computer voting companies, and there are signs of growing wariness. Oregon decided even before HAVA to conduct all its voting by mail. Wisconsin has decided it wants nothing to do with touchscreen machines without a verifiable paper trail, and New York is considering a similar injunction, at least for its state assembly races. In California, a Stanford computer science professor, David Dill, is screaming from the rooftops on the need for a paper trail in his state, so far without result. And New Jersey Congressman Rush Holt has introduced a bill in the House of Representatives, the Voter Confidence & Increased Accessibility Act, asking for much the same thing. Not everyone is heeding the warnings, though. In Ohio, publication of the letter from Diebold's chief executive promising to deliver the state to President Bush in November has not deterred the secretary of state — a Republican — from putting Diebold on a list of preferred voting-machine vendors. Similarly, in Maryland, officials have not taken the recent state-sponsored study identifying hundreds of flaws in the Diebold software as any reason to change their plans to use Diebold machines in the Presidential primary in March.

The question is whether the country will come to its senses before elections start getting distorted or tampered with on such a scale that the system becomes unmanageable. The sheer volume of money offered under HAVA is unlikely to be forthcoming again in a hurry, so if things aren't done right now it is doubtful the system can be fixed again for a long time. "This is frightening, really frightening," says Dr. Mercuri, and a growing number of reasonable people are beginning to agree with her. One such is John Zogby, arguably the most reliable pollster in the United States, who has freely admitted he "blew" the November 2002 elections and does not exclude the possibility that foul play was one of the factors knocking his calculations off course. "We're plowing into a brave new world here," he says, "where there are so many variables aside from out-and-out corruption that can change elections, especially in situations where the races are close. We have machines that break down, or are tampered with, or are simply misunderstood. It's a cause for great concern."

Roxanne Jekot, who has put much of her personal and professional life on hold to work on the issue full time, puts it even more strongly. "Corporate America is very close to running this country. The only thing that is stopping them from taking total control are the pesky voters. That's why there is such a drive to control the vote. What we are seeing is corporatization of the last shred of democracy.

"I feel that unless we stop it here and stop it now," she says, "my kids won't grow up to have a right to vote at all."

Andrew Gumbel wrote this article for the *Independent* of London.

\*This is being researched in Oregon by the secretary of state's office.



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