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The Real Scandal Is the Voting Machines Themselves

by Jonathan Vankin

The ongoing electoral insanity has confirmed something that I and a small number of people who have occasionally thought about these things have known for a while: Over the past three-and-a-half decades we in the United States have sold out our election process—which, unless I'm very much mistaken, is the foundation of our democracy (such as it is)—to a small but lucrative cadre of for-profit businesses and their wildly defective products. Which they manufactured, in some cases, many years ago, but which are still used to tally votes today. The real scandal of this election is that most of the problems in the voting and vote-counting systems have been well-known *for years*, and no one has done a damn thing about them. More than 11 years ago, I wrote a detailed article titled "Vote of No Confidence" for the Silicon Valley weekly, *Metro*. In the article, I discussed how "The next president of the United States may not be chosen by the voters. Instead, he may be the choice of whoever controls or manipulates the computer systems that tally the votes." The now famous "hanging chad" was but one small aspect of this story. (Until last month, I was one of the few citizens of the United States who had actually heard, much less uttered, the words "hanging chad.")

A deeper problem lay in the security and integrity of the software used to run the vote count. The software for most of the machines, I learned, was incomprehensible—what computer scientists described as "spaghetti code" and "a bucket of worms," prone to error and vulnerable to deliberate manipulation in a way that would be, for all purposes, undetectable. An ethically challenged software engineer could write a little program to make the count come out however he wanted it to, and no one would ever know. Even if a fraudulent program were detectable, someone would have to look at it first to detect it. And that was impossible, because the private companies that owned the software considered the code a protected trade secret.

In fact, there are today two companies that dominate the industry. Election Systems & Software, whose machines count about 60 percent of the votes nationwide, and Sequoia Pacific Voting Equipment of Jamestown, NY. In 1993, Sequoia Pacific won a \$60 million contract from New York City to take the city into the electronic voting age—only to have the contract ditched this year.

No one is saying that those companies, or any of their much smaller would-be competitors, don't try their best—and certainly not that they're dishonest. The flaws are inherent to computerized voting systems. I found, 11 years ago, that there was no particular reason to trust the outcome of *any* election in the United States anymore. At least not those counted by computer, which is most of them.

Since 1989 there has been no reason to update that opinion. Despite having authored that retroactively prescient article, filled with startling facts about the iffy nature of American elections, I have not, over the past decade, spent an undue amount of time waiting by the mailbox for my Pulitzer Prize. Why not? Because I

was hardly the first person to make note of these facts. No less a source than *The New York Times* ran a series about the vulnerability of elections in 1985, by reporter David Burnham, who also wrote the book *The Rise of the Computer State*.

As early as 1974, the U.S. General Accounting Office commissioned a study that found significant accuracy and security problems in the methods used to count votes by computer. In 1986, the California Attorney General's office released a report criticizing computerized vote-counting systems for "lacking a reliable audit trail and having a program structure that is very difficult even for computer professionals to understand." In 1988, the National Institute of Standards and Technology (then called the National Bureau of Standards) released a study by computer scientist Roy. G. Saltman that concluded, in the typically understated language of government documents, that "it has been clearly shown that audit trails that document election results, as well as general practices to assure accuracy, integrity and security, can be considerably improved."

Somewhat more bluntly, Computer Professionals for Social Responsibility followed up on Saltman's report in their fall 1988 newsletter, declaring: "America's fundamental democratic institution is ripe for abuse... It is ridiculous for our country to run such a haphazard, easily violated election system. If we are to retain confidence in our election results, we must institute adequate security procedures in computerized vote tallying, and return election control to the citizenry."

Also in 1988 (something of a watershed year for computer-voting exposes), the journalist Ronnie Dugger, founder of *The Texas Observer*, authored a staggeringly long and meticulously researched essay for *The New Yorker* (when *The New Yorker* was still publishing staggeringly long and meticulously researched essays) in which he singled out the "Vote-o-Matic" system in particular—still a popular computer voting system, and the very one used in those disputed Florida counties—as possibly "disenfranchising hundreds of thousands of voters."

Dugger explained how computer systems that tabulate elections are shot through with error and wide open to what, more recently, James Baker might call "mischief." I talked to Dugger back in 1989, when I was writing my own article. Freed from the genteel strictures of *New Yorker* house style, he told me, "The whole damn thing is mind-boggling. They could steal the presidency."

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Computerized vote-counting is a terrible system. This is only news to those who haven't been paying attention. Every problem that's arisen in the 2000 election has been on the public record for more than a decade. Yet here we are. Why?

My first thought was that less-wealthy counties can't afford the latest technology. They're stuck with outdated systems like the Vote-o-Matic, for reasons of pure economics. But David Lublin doesn't think so. He teaches in the American University School of Public Affairs Dept. of Government, and is now on his second grant from the National Science Foundation to collect election data from around the country.

"I wouldn't say the wealthier places always have better or well-conducted elections," he says. "Often that is the case, but there are surprising exceptions. It depends on the willingness of the local county authority to spend the money, or the state to require them to do it."

Nor, for that matter, is increasingly sophisticated computer technology the answer. In fact, it may only make the problems even worse. For example, the next generation of voting computers what are what's known as DREs ("Direct Recording Electronic"), kind of voting ATMs that allow voters to cast ballot-free votes on a video monitor by pressing buttons, or even on a touch screen.

"DREs are even worse," says Rebecca Mercuri, a computer scientist at Bryn Mawr

who's studied computerized elections for more than 10 years and recently finished her doctoral dissertation on that exact topic at the University of Pennsylvania. DREs leave no "audit trail" (paper trail) whatsoever, she points out. Votes are recorded directly onto a memory cartridge. There is absolutely nothing to ensure that the vote that registers on the screen is the vote that gets recorded on the cartridge, or that the vote that is recorded on the cartridge is the vote that prints out on paper.

"Unless the voter sees that paper trail, how do they know?" she says. "I could teach a 12-year-old to write a program that shows one thing on the screen and another thing on the printout."

While some newer election computing companies say they've figured out how to create a foolproof electronic audit trail, Mercuri dismisses such claims as "preposterous." There's no way to make sure that software is 100 percent pure. "If we could do that in computer science, we'd have the virus problem solved," she says.

Since computers were first used to count votes in the early 1960s, there have been dozens of instances of computer error in elections. And that's counting only the known errors. There have been no verified frauds, but that may be only because computer fraud is nearly impossible to verify. Former Florida Gov. Kenneth "Buddy" MacKay suggested last week to Carl Bernstein (in an article on the website Voter.com) that computer fraud may have been behind his highly suspicious 1988 Senate loss to Connie Mack. MacKay lost by 33,000 votes out of four million. In a development that foreshadowed what happened this year, the tv networks had "called" a MacKay victory only to later tell their viewers "never mind."

Funny thing was, in four large counties—Miami-Dade, Broward, Palm Beach and Hillsborough—200,000 fewer voters registered votes in the Senate race than in the presidential race. That's a 20 percent drop-off. In other counties, and in earlier elections, the drop-off was around 1 percent. Computer error or tampering remains the most likely explanation for the alarming discrepancy, though none was ever proved. MacKay tried to get a look at the source code for the vote-counting software but was rebuffed by the election equipment companies who declared it proprietary.

"What could have happened in 1988," MacKay told Bernstein last week, "was that the machines could have been programmed so that in my big precincts every tenth vote got counted wrong."

Another "Sore Loserman," perhaps? Maybe—but MacKay was echoing what Peter Neumann, principal scientist at SRI International's Menlo Park, CA, computer lab (and author of the 1995 book *Computer-Related Risks*), said back then. Writing about the MacKay-Mack election in *Risks Digest*, Neumann noted, "Remembering that these computer systems reportedly permit operators to turn off the audit trails and to change arbitrary memory locations on the fly, it seems natural to wonder whether anything fishy went on."

Here are a few other amusing anecdotes from the annals of wacky election computing:

In Middlesex County, NJ, this year, a DRE vote-counting computer went on the fritz. It recorded votes for both the Republican and Democratic candidates in the county freeholder's race, but simply wiped out all votes for their respective runningmates.

In the 1985 Dallas, TX, mayor's race, Starke Taylor defeated Max Goldblatt in an election so controversial that it led the Texas legislature to investigate the flaws in the state's computerized vote-tabulation process. Allegedly, according to the *Dallas Morning News*, a computer had been shut off and given "new instructions" after it showed Goldblatt leading by 400 votes.

During the Democratic presidential primary of 1980, in Orange County, CA, a

"programmer's error" gave about 15,000 votes cast for Jimmy Carter and Ted Kennedy to Jerry Brown—and, of all people, Lyndon LaRouche.

There are many more such tales. Computers in Oklahoma skipped 10 percent of the ballots in a 1986 election. A power surge in San Francisco switched votes from one candidate to another. A Moline, IL, city alderman actually took office in 1985 only to step down three months later when someone figured out that a machine had misread hundreds of ballots due to a bad "timing belt."

You get the picture. The Dallas case prompted the Texas Secretary of State to direct that, in future elections, a "manual recount" could be ordered to "ensure the accuracy of the count." The actual ballots, the computer punch cards themselves, are the only existing "audit trail," to document how people actually voted.

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I don't want to appear "partisan," but with all of these well-documented facts, it seemed to me that the Republican idea that machine counts are better than human counts is patently absurd. So I called up Bob Swartz, founder of Pennsylvania-based Cardamation, one of the nation's largest makers and sellers of computer punch cards and card-reading machines. (Not many companies are in that field anymore.) Swartz has been in the punch-card business for 40 years, though he doesn't do election business anymore. I thought that made him a good person to ask.

Turns out, in his line of work, looking at computer cards with your own eyes is standard procedure. "We didn't call it a 'hand count.' We just called it 'looking at the cards,'" he says. "We read the cards through the machine twice, and if there are differences we look at the cards. If our goal is to get 100 percent accuracy, there's no question that's the way to achieve it."

Swartz fully expects card-reading machines to make mistakes. It's when they do *not* make mistakes that he gets suspicious. "If you recount 400,000 votes and there's no difference," he says, "someone fudged the figures."

No election system can ever be fraudproof or error-free. That doesn't mean we shouldn't try to improve on the dismal systems we're using today. It just seems that casting votes on paper ballots, then counting and recounting them by hand, is the surest way to figure out who really won an election. Assuming mostly honest personnel, and barring breathtaking acts of ineptitude, human vote-counters will not, generally speaking, discard ballots by the thousands on a mere whim. Nor will they, unless they are severely reading-deficient or insane, record votes cast for one candidate as votes cast for another candidate.

Further, it is much more conspicuous for a dishonest election official to issue new instructions to a group of human beings midway through a counting session than it is for a dishonest computer programmer to type a few new lines of code into a machine. Perhaps most importantly, there is nothing "proprietary" about a person picking up pieces of paper and going "one for this guy, one for that guy." If Americans, or at least the television networks Americans like to watch, weren't so damned impatient, conducting elections completely on paper ballots would be the most sensible solution. Noncomputerized elections take a lot longer to produce results, there's no denying that. But we don't hold elections all that often in this country. We wait four years to vote for president. We can't wait another week or two to find out who won?

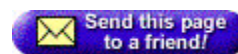
If the never-ending election of 2000 (and I have to admit, it is taking a long time) teaches us anything, it's that we can indeed wait it out for a while without untoward consequences.

If America returned to the paper ballot system, fraud and error in elections definitely would not end. They would, however, be much easier to detect and correct. Elections

would be run by people, not corporations. There are enough vested interests trying to influence every election. Why do we need the extraneous interest of profit-making companies?

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