Chapter 2
Black Box Voting

Ballot Tampering in the 21st Century

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Do Voting Machines Ever Get it Wrong?

I refer to this chapter as the "I don't believe there is a problem" chapter. I wrote this obese section for the people who, when you give them the short but horrifying version, insist on minimizing the problem. When you jump into the fray, you'll soon meet them: You tell them about an election that lost 25 percent of its votes, and they say "that's just an isolated incident." When you add that another election had a 100 percent error, they call it a "glitch." When you tell them a voting machine was videotaped recording votes for the opposite candidate than the one selected, they say, "There are problems in every election."

No. We are not talking about a few minor glitches. This chapter contains a compendium (and it is by no means complete) of real miscounts by voting machines, which took place in real elections. Almost all of them were caused by incorrect programming, whether by accident or by design.

And if you run into anyone who thinks we are hallucinating these problems, I have included a "super-sized" footnote section, so you can invite them to examine sources and look them up themselves.

Of course, I realize that you're one of the good guys, and it won't take you long to see the magnitude of the problem. If you get a little light-headed after seeing all the miscounts, you have my blessing to skim, or quit reading altogether and just go on to the next chapter. Lest you get depressed after seeing what keeps happening to our votes — you know, the ones that Thomas Jefferson argued so eloquently for, the votes that define whether we have a democracy or not — don't be. Solutions and suggestions for what we can do about this problem are scattered abundantly through the rest of this book.

* * * * *

Voting machine companies claim these things are amazingly accurate. Bob Urosevich, who has been president of three different voting machine companies under five different corporate names, said in 1990 that his company's optical scan machines had an error rate of only "one-thousandth of 1 percent."[1]

At that time, Urosevich was with Election Systems & Software (ES&S; then called American Information Systems). Recently, the same Urosevich (now president of Diebold Election Systems, formerly called Global Election Systems) gave an even more glowing endorsement of his company's touch screen accuracy.[2] "Considering the magnitude of these elections, which includes more than 870,000 registered voters within the four Maryland counties, we are very pleased with the results *as every single vote was accurately counted*," he said. [emphasis added]

When Chuck Hagel accepted his position as chairman of American Information Systems, now called ES&S, he offered a rousing endorsement: "The AIS system is 99.99 percent accurate," he assured us.[3] A little later, he left this position and ran for the U.S. senate seat in Nebraska, a seat he won in the biggest upset of the 1996 general election. Hagel's victory was tallied by his previous employer's computer voting machines.

But do these claims hold up?

- According to *The Wall Street Journal*, in the 2000 general election an ES&S optical scan machine in Allamakee County, Iowa, was fed 300 ballots and reported 4 million votes.[4]

- Better than a pregnant chad — these machines can actually give birth! In the 1996 McLennan County, Texas, Republican primary runoff, one precinct tallied about 800 votes, although only 500 ballots had been ordered. "It's a mystery," declared Elections Administrator Linda Lewis. Like detectives on the *Orient Express*, officials pointed fingers at one suspected explanation after another. One particular machine may have been the problem, Ms. Lewis said. That is, the miscounted votes were scattered throughout the precincts with no one area being miscounted more than another, Ms. Lewis also explained. Wait — some ballots may have been counted more than once, almost doubling the number of votes actually cast. Aha! That could explain it! (Er…excuse me, exactly *which* ballots were counted twice?) "We don't think it's serious enough to throw out the election," said county Republican Party Chairman M.A. Taylor. Size of error: 60 percent.[5]

- Here's a scorching little 66 percent error rate: Eight hundred and twenty-six votes in one Tucson, Arizona-area precinct simply evaporated, remaining

A Quick Primer on Voting Systems

Raise your hand — Raise your voice — Put sticks in a box — Elections have been used to decide various questions for at least 2000 years. In ancient Greece, they voted by putting white ("yes") or black ("no") stones in a bucket. Early voting methods (still used in some settings) included shouting out "Aye" or "Nay," raising hands, or depositing objects to be counted.

Paper ballots — The first known use of paper ballots in an election in the U.S. was in 1629, to select a church pastor. **The Australian paper ballot system** was considered a great innovation: Standardized ballots are printed at government expense, given to voters at the polling places, and people are required to vote and return the ballots on the spot. No, this wasn't invented in America: The Australians came up with this procedure, which is now the most widely used voting system in the world.

Lever machines — Lever machines made their debut around 1890 and became popular throughout the USA by the 1950s. They've been out of production since 1982 and are now being phased out.

Punch cards — Punch cards also date back to the 1890s, but really became stylish around 1964, when we learned to program computers to count punch card votes. By the 1970s, punch cards had become the most widely used system in America. The Help America Vote Act (HAVA) mandates that punch card voting be eliminated by 2004 or, if a waiver is requested, by 2006.

Optical scanning (Also called "mark sense") — When voting on an optical scan system, you fill in the dot on paper ballots, and a computer reads them. Some optical scan systems have you connect a dot to a candidate by drawing a line. These ballots are fed into a scanner, which records the vote and provides a computer tally of the totals.

Touch screen and "DRE" machines: "DRE" stands for "Direct Recording Electronic." Most DRE systems involve touching a computer screen to record your vote. Some systems involve turning a wheel or pushing a button on a computer, instead of touching a screen. Touch Screen/DRE machines are the newest voting system, and they are sleek and fun and convenient. Without proper audits, they represent a horrifying risk to proper vote tabulation because most of them are not properly auditable.

Voting Systems (continued)

Some manufacturers, like Avante and AccuPoll, pioneered in developing touch screen voting systems that can be audited properly. However, many officials succumb to lobbying and yes, accept financial contributions from manufacturers that produce unauditable systems, purchasing the riskier systems instead.

Internet Voting — Almost no one believes that Internet voting is ready for prime time, but that hasn't stopped some companies from trying to talk everyone into it. And they are succeeding, to the dismay of computer security experts. As currently developed, Internet voting, like touch screen/DRE voting, is not auditable by proper accounting methods and carries with it a host of other security risks.

Telephone Voting — Yes, some systems have been developed to pick up the phone and vote! While this book does not spend much time on telephone voting systems, they, too, are counted by computer software and are not, at this time, properly auditable.

unaccounted for a month after the 1994 general election. No recount appears to have been done, even though two-thirds of voters did not get their votes counted. Election officials said the vanishing votes were the result of a faulty computer program. Apparently, the software programming error and the person who caused it are still at large. [6]

- Some voters aren't so sure that *every single vote* was accurately counted during the 2002 general election in Maryland. "I pushed a Republican ticket for governor and his name disappeared," said Kevin West of Upper Marlboro, who voted at the St. Thomas Church in Croom. "Then the Democrat's name got an 'X' put in it." No one will ever know whether the Maryland machines counted correctly because the new Diebold touch-screen system is unauditable.[7]

- Honolulu, Hawaii: Tom Eschberger, a vice president of ES&S, said a test conducted on the software and the machine that malfunctioned in a Waianae precinct in the 1998 general election showed the machine worked normally. He

Dozens of protesters chanted, "Gringos get out!" at ES&S technicians, and Venezuelan President Hugo Chavez accused ES&S of trying to destabilize the country's electoral process..

said the company did not know that the machine wasn't functioning properly until the Supreme Court ordered a recount, when a second test on the same machine detected that it wasn't counting properly. "But again, in all fairness, there were 7,000 machines in Venezuela and 500 machines in Dallas that did not have problems," he said.[8]

- Dallas, Texas: More than 41,000 votes were not counted during the 1998 general election because of incorrect programming. A recount was done and ES&S took the blame. Democrats picked up more than 1,000 votes, not quite enough to overturn the election.[9]

- Caracas, Venezuela – May, 2000: Venezuela's highest court suspended elections because of problems with the vote tabulation for the national election. Venezuela sent an air force jet to Omaha to fetch experts from ES&S in a last-ditch effort to fix the problem. Dozens of protesters chanted, "Gringos get out!" at ES&S technicians. Venezuelan President Hugo Chavez, whom U.S. officials would very much like to see unseated, accused ES&S of trying to destabilize the country's electoral process. Chavez asked for help from the U.S. government because, he said, the U.S. recommended ES&S. [10]

- For the third time in as many elections, Pima County, Arizona, found errors in the tally. The computers recorded no votes for 24 precincts in the 1998 general election, but voter rolls showed thousands had voted at those polling places. Pima was using Global Election Systems machines, which now are sold under the Diebold company name. [11]

- "It was like being queen for a day — but only for 12 hours," said Richard Miholic, a losing Republican candidate for alderman who was told that he won the Lake County, state primary election. He was among 15 people in four races affected by an ES&S vote-counting foul-up in the Chicago area. [12]

- Officials in Broward County, Florida, had said that all the precincts were included in the Nov. 5, 2002, election and that the new, unauditable ES&S touchscreen machines had counted the vote without a major hitch. The next day, the

County Elections Office discovered 103,222 votes had not been counted. Broward Deputy Elections Supervisor Joe Cotter called the previous day's mistake "a minor software thing." [13]

- An Orange County, California, election computer made a 100 percent error during the April 1998 school bond election. The Registrar of Voters Office initially announced that the bond issue lost by a wide margin when in fact it was supported by a majority of the ballots cast. The error was attributed to a programmer reversing the "yes" and "no" answers in the software used to count the votes. [14]

- Illinois Democrat Rafael Rivera said, "I knew something was wrong because when I looked up the results in my own precinct it showed zero votes. I said, `Wait a minute. I know I voted for myself.'" The problem cropped up during the Lake County election held April 1, 2003. Clerk Willard Helander blamed the problem on ES&S, the Omaha company in charge of operating Waukegan's optical-scan voting machines. Rivera said he felt as if he were living an episode of *The Twilight Zone*. No votes showed up for him, not even his own. "It felt like a nightmare," he said. [15]

- A computer program that was specially enhanced to speed the November 1993 Kane County, Illinois, election results to a waiting public did just that — unfortunately, it sped the wrong data. Voting totals for a dozen Illinois races were incomplete, and in one case they suggested that a local referendum proposal had lost when it actually had been approved. For some reason, software that had worked earlier without a hitch had waited until election night to omit eight precincts in the tally. [16]

- Ten days after the November 2002 election, Richard Romero, a Bernalillo County, New Mexico, Democrat, noticed that 48,000 people had voted early on unauditable Sequoia touch-screen computers, but only 36,000 votes had been tallied — a 25 percent error. Sequoia vice president Howard Cramer apologized for not mentioning that the same problem had happened before in Clark County, Nevada. A "software patch" was installed and Sequoia technicians in Denver *e-mailed* the "correct" results. [17]

  Not only did Cramer fail to mention to Bernalillo County that the problem had happened before in Nevada — just four months later, Sequoia salespersons

failed to mention it again while making a sales presentation to Santa Clara County, California! A Santa Clara official tried to jog their memory and specifically asked whether Sequoia had experienced a 25 percent error in any election. According to the minutes of this meeting[18], "Supervisor McHugh asked one of the vendors about a statistic from Bev Harris saying there was a 25 percent error rate...No one knew where this number came from and Sequoia said it was incorrect."

The Santa Clara meeting, above, was held Feb. 11, 2003. Just 18 days before, in Snohomish County, Washington, at a meeting called because Sequoia optical scan machines had failed to record 21 percent of the absentee votes,[19] I asked about the 25 percent error in Bernalillo County. The Sequoia representative was well aware of the problem, replying quickly that *that* 25 percent error was caused by something quite different from *this* 21 percent problem. OK. *Nothing to see here — move along*.

Sequoia's failure to disclose a known error when asked about it during a sales meeting really got me wondering:

How often do voting companies lie about known errors when they are making sales presentations?

Not often, it turns out. They don't have to lie — because our election officials *don't ask*! That's right. When deciding to buy voting machines, our representatives *don't ask* whether the machines count accurately. And only occasionally does anyone bother to ask whether the machines can be tampered with.

Decisionmaking in Action
Marion County, Indiana, Voting Technology Task Force
Meeting Minutes July 30, 1999
Election Systems & Software - Global Election Systems - MicroVote

Mr. Cockrum asked a series of questions to each vendor.
- How do you recommend instruction of voters to become familiar with your system?
- How many machines per voter/precinct?
- Could your system handle split precincts?

As a citizen, you can attend meetings like the Marion County Voting Technology meeting, below. Had Mr. Cockrum, or anyone else who attended the meeting, known about errors caused by these machines, much better questions could have been asked.

Before anyone runs out to spend a few million tax dollars on machines that may actually take away your vote, try questions like this:

Has your vote-counting system ever lost thousands of votes without flagging the error?

- In Seattle, a malfunction caused voting-machine computers to lose more than 14,000 votes during the November 1990 election. Individual ballots were counted but not the votes contained on them. The computer program didn't catch the problem, nor did any of the election officials. A Democratic candidate noticed the discrepancy after the election was over and demanded an investigation. "It was mechanical or electric malfunction with the card reader," said Bob Bruce, then superintendent of elections for King County. "We'd lost the 14,000 votes. We've got them back now. Hallelujah! The prodigal votes have come back. Now we have to make sure we don't have too many votes." [20]

- A software programming error caused Dallas County, Texas's new, $3.8 million high-tech ballot system to miss 41,015 votes during the November 1998 election. The system refused to count votes from 98 precincts, telling itself they had already been counted. Operators and election officials didn't realize they had a problem until after they'd released "final" totals that omitted nearly one in eight

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- Could your systems handle school board elections?
- Does your system allow for party crossover voting?
- What is the recount capability?
- Is your system tamper proof?
- Can your system be leased or does it need to be purchased?
- What is the percentage of availability of spare machines?
- What are the advantages?
- There being no further business before the Voting Technology Task Force, Chairwoman Grant adjourned the meeting.

votes. The system vendor, ES&S, assured voters that votes were never lost, just uncounted. The company took responsibility and was trying to find two apparently unrelated software bugs, one that mistakenly indicated precinct votes were in when they weren't, and another that forgot to include 8,400 mail-in ballots in the final tally. Democrats were livid and suspicious, but Tom Eschberger of ES&S said, "What we had was a speed bump along the way." [21]

Here's a question that you shouldn't have to ask about a company involved in the voting process:

Have any of your employees been called to testify in grand jury proceedings related to your voting machines?

- In Polk County, Florida, County Commissioner Marlene Duffy Young lost the election to Bruce Parker in November 1996 but regained the seat after a court-ordered hand recount. After the recount, county commissioners unanimously voted to ask for a grand jury probe. Testifying were Todd Urosevich, a vice president with American Information Systems Inc. (now ES&S), the company that had sold the county its ballot-counting equipment. The machines had given the election to Parker (a Republican) but a hand recount revealed that Young (a Democrat) had won. Todd Urosevich said his machines were not responsible for the miscount. [22]
- A grand jury was convened in Stanislaus County, California, to determine what caused computerized voting machines to misreport election results in the November 1998 election. The grand jury concluded that an ES&S computerized counting system misccounted the votes for three propositions. A hand recount of the ballots resulted in Measure A, a state proposition, being reversed: ES&S machines had reported that it had lost badly, but it had won. According to Karen Matthews, county clerk recorder and registrar of voters, the problem occurred because of a programming error in the software produced by ES&S. [23]

A follow-up question should be:

Will you reimburse the county if we have to go to court or pay for a grand jury probe into your errors made by your voting machines?

More questions:

How often has your voting system been subject to programming errors? Can you give me some examples of when this has happened, and tell us what steps you took to make sure it could not happen again?

- In Knoxville, Tennessee, a software programming error caused more than 40,000 votes cast during 15 days of early voting for the 1996 general election to be lumped together, instead of separating the vote tally into city and non-city ballots. Voters considered this programming error to be an outrage, because it caused one of the ballot items to fail when it was voted on county-wide. [24]

- In the Oct. 16, 2001, Rock Hill, S.C., city election, computerized vote counters were programmed incorrectly, skipping hundreds of votes cast. In a number of precincts, the ballot-counting software ignored votes for council members when they should have been included, causing omission of 11 percent of the votes cast for these races. In all, voting irregularities were found in seven of the city's 25 precincts. [25]

At its heart, our body of law is on the side of the voter. Our entire governing system is based on the sanctity of the vote. It is not excusable for votes to be counted improperly because of "programming errors." Almost all states have statutes that say something like this:

"If voting machines are to be used, they must count the vote *properly*."

Federal Election Cmmission (FEC) regulations require that the manufacturer take responsibility for providing appropriate training to local personnel to ensure that votes are counted correctly. If a system is so complicated that programming errors become "inevitable" or "to be expected," the system must not be used!

The next question will elicit disclosure of past programming errors (or cause sales people to lie, providing fodder for product liability lawsuits):

How many instances have you had in which votes were counted incorrectly because of programming errors by your own personnel?

- In Union County, Florida, a programming error caused machines to read 2,642 Democratic and Republican votes as entirely Republican in the September 2002 election. The vendor, ES&S, accepted responsibility for the programming error and paid for a hand recount. Unlike the new touch-screen systems, which eliminate voter-verified paper trails, Union County retained a voter-verified paper trail. Thus, a recount was possible and Democratic votes could be identified. [26]
- In Atlanta, Georgia, a software programming error caused some votes for Sharon Cooper, considered a "liberal Republican candidate," not to register in the July 1998 election. Cooper was running against conservative Republican Richard Daniel. According to news reports, the problem required "on-the-spot reprogramming." [27]

Decisionmaking in action

From Indiana Election Commission Minutes — August 7, 2001

- Mr. Long asked if the master PEB [electronic ballot] is precinct unique.
- Mr. Long asked if a county would be able to add or replace a voting unit in a precinct.
- Ms. Christie asked if that override could be done at the precinct level
- Mr. Long asked if the central office of the county would program the PEBs.
- Mr. Long asked if the vendor would have a person on site in the county for each election.
- Mr. Morgan asked about other ES&S DRE voting systems operating in other states.
- Ms. Christie asked what the vendor's customers are using for absentee ballots.
- Mr. Perkins asked about training provided by the vendor.

Follow-up question: ***How can computerized vote-counting possibly be considered secure from tampering when "on-the-spot reprogramming" can be used to alter vote totals?***

Here is a question no one from the Indiana Election Commission asked:

How often has your equipment malfunctioned?

- Among the problems outlined by the Democratic Party in the infamous Florida election of 2000: When a polling machine, which counts and reports the tally by modem, resulted in a DeLand precinct's reporting that presidential candidate Al Gore had *negative* 16,022 votes, the vendor blamed it on a "faulty memory card" (more on this later). The computerized vote tally gave the Socialist Workers Party candidate almost 10,000 votes — about half the number he received nationwide.[28]
- In November 2002, a voting machine was caught double-counting votes in South

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- Mr. Valentine asked if election night reporting could be reported electronically.
- Mr. Valentine asked if the data could be altered to match the State's format
- Mr. Simmons stated that he had a question about the technology for absentee voting
- Mr. Long asked for the Election Division's recommendation on the voting system
- Mr. Perkins asked if the staff had contacted any of the references or other States listed in the vendor's material provided to the Election Commission. (Mr. Valentine stated that staff had not done so at this time.)
- Mr. Cruea asked if the system had been used in an election
- Mr. Long moved that the Commission approve the iVotronic DRE Voting System for certification. Mr. Morgan seconded the motion.
- There being no further discussion, the Chair called the question, and declared that with four members voting "aye" (Mr. Cruea, Mr. Long, Mr. Morgan and Mr. Perkins), and no member voting "nay", the motion was adopted.

Dakota. The error was blamed on a "flawed chip." ES&S sent a replacement chip; voters demanded that the original chip be impounded and examined. Who was allowed to examine it? Citizens? (No.) Experts that we choose? (No.) ES&S? (That's it.)[29]

- Then there is the case of the 3.9 million extra votes during the 2000 election in Allamakee County, Iowa. Final reporting of the state's election-night results were held up until 4:15 a.m. The county's lone voting machine was fed about 300 absentee ballots. But the optical-scanning device reported it had counted a few million extra ballots. The county auditor tried the machine again but got the same result. Eventually, the machine's manufacturer, ES&S, agreed to have replacement equipment sent. Republicans hoped that the tiny but heavily Republican county would tip the scales in Mr. Bush's favor, but tipping it by almost four million attracted national attention. "We don't have four million voters in the state of Iowa," said Bill Roe Jr., county auditor. Todd Urosevich of ES&S said "You are going to have some failures."[30]

"But they are "TESTED and TESTED and TESTED again!"

This is the official rebuttal when you ask whether machines can miscount. More on this "testing" later, but for now, suffice it to say that the ultimate invalidation of

Decisionmaking in action

Indiana Secretary of State Election Commission Minutes 8/7/01

- Ms. Robertson, Co-General Counsel of the Election Division stated that ES&S had submitted its application to the Election Division, and that the system had passed approval by both Wyle Laboratories, the independent testing authority for voting system hardware and firmware and Metamor, the independent testing authority for voting system software.
- Ms. Robertson explained that under Indiana law, voting systems that involve software are required to have an escrow agreement. Mr. Valentine, Co-Director of the Election Division indicated that he believed that the Division had received the escrow agreement for this voting system but they would have to follow up with the vendor to ensure that.
- Ms. Robertson stated that ES&S had met all other requirements under Indiana law.

the testing a voting machine endures would be *a machine that can't count!*

The sub-bar starting on page 29 documents the "arduous" testing these machines go through. This is a state meeting to certify election machines. Nowhere do officials ask the manufacturer to list or explain known errors in tabulation during actual elections. Nowhere do they ask any questions about anti-tampering security.

Election officials and voting machine companies can argue 'til they are blue in the face about the excellence of the certification process and why all this testing means we should "trust" their machines. But if, even after certification and testing, the machines get it wrong, the testing isn't doing its job. Machine tallies in actual elections must be properly and robustly audited. Deal-breaker. End of discussion.

Sometimes, errors show up before or during certification tests but are ignored.

• Dan Spillane, a test engineer for the Votehere touch screen voting system, says he flagged more than 250 system-integrity errors, some of which were critical and could affect the way votes were counted — known errors, yet this system passed every level of certification without a hitch. Spillane claims he brought

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- The Chair recognized Robb McGinnis of ES&S who introduced Jack Black and Pat Whalen also of ES&S.
Mr. Whalen then explained that as stated earlier, the voting system had:
- passed the testing requirements of the independent testing authority.
- been approved by both Wyle and Metamor.
- He stated that the voting system had been assigned a NASED (National Association of State Election Directors) number.
- Chris gave a description of the ES&S Model 100 version 4.5.5 certification demonstration.
- Moved by Viken, seconded by Brock to certify the ES&S Model 100 firmware version 4.5.5 optical scan ballot counter for precinct and central count use. Passed.
- Adjourned.
Joyce Hazeltine, Secretary of State - Chris Nelson, Recorder

his concerns up to all levels of VoteHere management but was ignored. Just before the system went through certification testing, the company fired him to prevent him from flagging the problems during certification, Spillane contends. He filed a lawsuit for wrongful termination, which is still pending. [31]

- According to the *Las Vegas Review-Journal*, a member of the Nevada Policy Research Institute's Advisory Council reports the following: "In July 1996, a public test to certify Clark County's Sequoia Pacific machine for early voting was conducted. During the test, a cartridge malfunctioned; also, the examiner (selected by the state) had difficulty casting his vote. He had to vote 51 times rather than the designated 50, an option not afforded the voter should the machine malfunction in an actual election. In spite of these malfunctions, the machine was given certification—the equivalent of declaring it accurate, reliable and secure." (Clark County then trotted right out and bought the machines.) [32]

Even after certification and testing, the machines get it wrong:

- In Conroe, Texas, congressional candidate Van Brookshire wasn't worried when he looked at the vote tabulation and saw a zero next to his name for the 2002 primary. After all, he was unopposed in the District 2 primary and he assumed that the Montgomery County Elections Administrator's Office hadn't found it necessary to display his vote. He was surprised to learn the next day that a computer glitch had given all of his votes to U.S. Rep. Kevin Brady, who was unopposed for the nomination for another term in District 8. A retabulation was paid for by ES&S, the company that made the programming mistake. The mistake was undetected despite mandatory testing of the program before and after early voting. [33]

- In Tennessee, a computer snafu in the August 1998 Shelby County election temporarily stopped the vote count after generating wildly inaccurate results and forcing a second count that continued into the morning. State Sen. Roscoe Dixon huddled with other politicos around a single copy of the latest corrected election returns, which quickly became dog-eared and riddled with circles and "X"s. "This system should have been checked, and it should have been known that the scanner couldn't read the cartridges," Dixon said. [34]

- Pamela Justice celebrated her re-election to the school board in Dysart, Arizona, in the March 1998 election. But because of a software programming error in the

county's computer, there had been a mistake in the unofficial election results. The computer had failed to count 1,019 votes from one precinct. When those votes were added in, Justice lost the election to her opponent, Nancy Harrower. "We did an accuracy test before election day and the computers worked fine," said Karen Osborne, county elections director.[35]

"That's what's puzzling about it. It's one of those deals where you can test it one minute and it's working fine, and you can test it the next and it's not."

- A computer defect at the Oklahoma County, State Election Board left more than a dozen state and county races in limbo during the 1996 general election. A final count was delayed until sometime the next morning while technicians installed new computer hardware. "Our memory pack receiver doesn't want to talk to our computer, basically," Sanderson said. Despite several trial runs with computers the week prior to the election, the problem didn't surface until 7:05 p.m. — five minutes after the election board attempted to begin its count. "That's what's puzzling about it," Sanderson said. "It's one of those deals where you can test it one minute and it's working fine, and you can test it the next and it's not."

  Two hundred and sixty-seven precincts (and two close races) were involved. "We could count it by hand, but I'm not going to do that," Sanderson said. "We're just going to wait here until we can do it electronically, so there will be no question" that the election's integrity was upheld. Really.[36]

- The manufacturer of Baltimore's $6.5 million voting system took responsibility for the computer failures that delayed the November 1999 city election results and vowed to repay the city for overtime and related costs. Phil Foster, regional manager for Sequoia Pacific Voting Equipment Inc., said his company had neglected to update software in a computer that reads the election results. Although it tested some programs, the company did not test that part of the system before the election. Before Sequoia agreed to reimburse the city for the problems — a cost that election officials said could reach $10,000 — Mayor Kurt L. Schmoke had threatened a lawsuit against the company.[37]

- In a 1998 Salt Lake City election, 1,413 votes never showed up in the total. A software programming error caused a batch of ballots not to count, even though

they had been run through the machine like all the others. When the 1,413 missing votes were counted, they reversed the election. [38]

Has anybody been studying error rates?

Not really. Most errors are detected only when they are caught during "canvassing" (when voter rolls are compared with vote tallies). Many of the errors listed in this chapter were found *only* because the number of votes cast did not match the number of voters who had signed in.

Because hardly anyone audits by comparing actual ballot counts with machine tallies, we are not likely to catch other kinds of errors unless something bizarre shows up (candidate gets zero votes, or the Wild-Eyed Radical Party gets 60 percent of the vote, for example).

The frightening thing is this: For every machine miscount we catch, there must be a hundred we never notice, simply because the number of voters is the same as the number of votes and nothing looks unusual. And only discrepancies in number of voters vs. number of votes can prove a machine miscounted when there is no paper trail — on those systems, if you had 100 votes cast (55 for Mary and 45 for Idiotman) but the computer says you have 100 votes, 48 for Mary and 52 for Idiotman, he wins. End of story. People can gripe about it, but that's all they can do: gripe.

Shortly after the election of 2000, the California Institute of Technology and the Massachusetts Institute of Technology mobilized a team of computer scientists, human-factors engineers, mechanical engineers and social scientists to examine voting technology. Here are voting system error rates, as estimated by the Caltech/MIT Voting Technology Project report, issued in July 2001: [39]

Most lost votes — Congressional and gubernatorial races

1. Lever machines 7.6% — 1.5% for presidential races
2. Touch screen machines 5.9% — 2.3% for presidential races
3. Punch card 4.7% — 2.5% for presidential races
4. Optical scan 3.5% — 1.5% for presidential races
5. Hand-counting 3.3% — 1.8% for presidential races

However, the Caltech/MIT error estimates omit two issues that are critical to system integrity: tampering and programming errors.

Tampering: Every voting system can be tampered with (later chapters will cover this in more detail). When scrutinizing opportunities for malfeasance, you build an "attack tree." To do that, you see if you can compromise the system. The following considerations affect how easy it is to compromise a system and how likely it is that someone will try:

- How much can be stolen.
- How many strategies can be found.
- How many people would be required to compromise the system, and who has access.
- How likely it is that tampering will be detected.

Unless we start auditing the machines using a voter-verified ballot, in some robust manner, we are moving toward more and more vulnerable systems. Based on the above factors, from most to least vulnerable:

1. Internet
2. Touch screen or DRE
3. Punch card (being phased out)
4. Optical scan
5. Hand-counting (being phased out)
6. Lever machines (being phased out)

Errors: Although the Caltech/MIT study looks at how many votes are lost (for example, ballots that show no vote because the machine failed to record the voter's preferences, or because the voter made a mistake or was confused), it fails to account for risks such as incorrect programming. The more complex the system, the greater the potential for errors. Some errors, like a touch-screen machine that fails to boot up, are discovered immediately. The more dangerous errors are those that can pass unnoticed. Based on system complexity, the most and least vulnerable systems to programming error are:

1. Internet
2. Touch screen or DRE
3. Optical Scan

4. Punch card (being phased out)
5. Hand-counting (being phased out)
6. Lever machines (being phased out)

Everything changes if we start doing proper auditing. In a few locations, such as California, a paltry 1% of precincts are randomly audited, but only for machines that produce an audit trail. In Washington state, candidates can select up to three precincts per county for audits, but unless this audit compares the paper trail to the machine, it is not a valid audit of machine accuracy.

Let's quit calling these things "glitches" and "snafus"

A word about the term "computer glitch." Glitches seem to have no owner and bring with them an aura of expectability, if not respectability. The proper term is *incorrect programming*, which demands accountability.

A Compendium of Voting Machine Errors

- 1950s, Louisiana — The shape of things to come: When automated voting machines were brought into the state as a way to reduce election fraud, then-Gov. Earl Long said, "Gimme five (electoral) commissioners, and I'll make them voting machines sing `Home Sweet Home.'" [40]

- 1971, Las Vegas, Nevada — Machines declared Democrat Arthur Espinoza to be the winner of a seat on the city assembly, but Republican Hal Smith challenged the election when he determined that some votes had not been counted because of a faulty voting machine. After unrecorded votes were tallied, Smith was declared the winner. [41]

- September 1986, Dallas, Texas — Voting system reports fluctuated. The number of voters changed on various report printouts, but votes for individual candidates remained the same. The problem was attributed to a computer-programming error. Note the date on this report: Officials have been expressing concerns about computerized vote-counting for nearly two decades.

  "With paper ballots, I can make the numbers add up..." said Assistant Texas Attorney General Bob Lemens. "We are running into much tougher problems here."

Texas Attorney General Jim Mattox said the computerized vote-counting clearly has the potential for fraud. "I can't send a reasonably good programmer to look at this system and determine that it is properly tabulating the ballots," Mattox said. [42]

- 1986, Atlanta, Georgia — The wrong candidate was declared the winner. Incumbent Democrat Donn Peevy was running for state senator in District 48, which straddled Barrow and Gwinnett counties. The machines said he lost the election. After an investigation revealed that a Republican elections official had kept uncounted ballots in the trunk of his car, officials also admitted that a computerized voting program had miscounted. Peevy insisted on a recount. "When the count finished around 1 a.m., they [the elections board] walked into a room and shut the door," recalls Peevy. "When they came out, they said, 'Mr. Peevy, you won.' That was it. They never apologized. They never explained." [43]

- November 1988, Hillsborough, Broward and Dade counties, Florida — A dropoff was observed in Senate votes from the previous general election, but only in counties that used computerized vote-counting machines. Counties without computerized vote-counting showed a 1% dropoff, while counties with computerized voting showed a dropoff of 8%. "Something stands out there like a sore thumb," said Michael Hamby, executive director of the Florida Democratic Party. [44]

- November 1989, Lima, Ohio — Representatives of Sequoia Pacific, makers of the voting machine software for Lima, failed to appear as requested, and election results were delayed until someone could work out the programming error and recount the votes. Nobody was quite sure how many races were affected, but the mayoral race and the school board races were in question for nearly a week after the election. [45]

- November 1990, Seattle, Washington — Worse than the butterfly ballot, some Democratic candidates watched votes alight, then flutter away. Democrat Al Williams saw 90 votes wander off his tally between election night and the following day, though no new counting had been done. At the same time, his opponent, Republican Tom Tangen, gained 32 votes. At one point several hundred ballots added to returns didn't result in any increase in the number of votes. But elsewhere, the number of votes added exceeded the number of additional ballots counted. A Republican candidate achieved an amazing surge in his absen-

tee percentage for no apparent reason. And no one seemed to notice (until a determined Democratic candidate started demanding an answer) that the machines simply forgot to count 14,000 votes.

Incorrect programming caused machines to count ballots cast without counting any of the votes on the ballots. The miscounts were sporadic and thus hard to spot, and the errors disproportionately favored just one party. King County's election manager recommended a countywide recount. [46]

- 1994, New Orleans, Louisiana — Voting machine tests performed and videotaped by candidate Susan Barnecker demonstrated that votes she cast for herself were electronically recorded for her opponent. This test was repeated several times with the same result. (The video footage of this incident can be seen in Dan Hopsicker's documentary video *The Big Fix, 2000*, Mad Cow Productions). [47]

- November 1996, Bergen County, New Jersey — Democrats told Bergen County Clerk Kathleen Donovan to come up with a better explanation for mysterious swings in vote totals. Donovan blamed voting computers for conflicting tallies that rose and fell by 8,000 or 9,000 votes. The swings perplexed candidates of both parties. For example, the Republican incumbent, Anthony Cassano, had won by about 7,000 votes as of the day after the election but his lead evaporated later. One candidate actually lost 1,600 votes during the counting. "How could something like that possibly happen?" asked Michael Guarino, Cassano's Democratic challenger. "Something is screwed up here." [48]

- November 1996, Thurston County, Washington — An inexplicably large number of people went to the polls but did not vote in the hot House contest. A whopping 11.5% of Thurston County voters ignored the congressional race — nearly twice as many no-votes as other races in Thurston county and twice as many no-votes as other counties had. Bob Van Schoorl, Thurston County's chief deputy auditor, said, "We have absolute confidence our machine is counting appropriately." J.R. Baker, Democratic challenger Brian Baird's campaign was not satisfied. "They have not gone through any special testing to see if their machines are adequately counting the votes. Perhaps they need to do sample hand counts of precincts and compare them with the machine." [49]

• November 1996, Guadalupe County, Texas — Officials discovered a voting computer counted more votes in the presidential election than the number of ballots cast. Guadalupe County Elections Administrator J.R. Perez said the problem was with new software for the county's Business Records Corp. Eagle vote-counting system. Perez said a problem was identified with the software before the election, and he thought it was fixed. "I had no reason to believe the system was not tabulating right," Perez said. [50]

• July 1996, Clark County, Nevada — According to a Las Vegas Review-Journal article, a technician removed thousands of files from the tabulation sector of the program during the vote count "to speed up the reading of the count." Reconfiguring a computer program that affects the tabulation of votes is prohibited without prior state verification. [51]

• December 1997, Akron, Ohio — Scrambled votes: Ed Repp won the election — no, cancel that, a software programming error was discovered — Repp actually lost. (Look, twins!) Another error in the same election resulted in incorrect vote totals for the Portage County Board election. (Make that triplets!) Turns out the bond referendum results were wrong, too. [52]

• August 1997, Oklahoma — Computers gave the election to the wrong candidates, twice. The private company hired to handle the election for the Seminole Nation announced results for tribal chief and assistant chief, then decided that their computer had counted the absentee ballots twice, so they posted a second set of results. Tribal officials then counted the votes by hand, producing yet a third, and this time official, set of results. Each set of results had a different set of candidates moving on to the runoff election. [53]

• Tucson, Arizona —

1984 - 826 legitimate ballots were discarded in Oro Valley because of a computer error. The error wasn't discovered until after the deadline for counting them.

1996 - Software programming error mixed up the votes cast for two Republican Supervisor candidates.

1997 - More than 8,300 votes in the City Council race were initially left uncounted because of defective punch-card ballots, which were provided by the voting machine company.

1997 - The city had to hand-count 79,000 votes because of a manufacturing defect in the ballots, provided by the voting machine company.

1998 - 9,675 votes were missed in the tabulation. After canvassing, officials realized that no votes had been recorded for 24 precincts even though voter rolls indicated thousands had voted at those polling places. Global Elections Systems tried to figure out why the computer failed to record the votes. [54]

A breathtaking number of snafus caused candidates to liken the election to the movie "Groundhog Day," with every day starting all over...

• November 1998, Clearwater, Florida — The voting computer crashed on election night. Republicans who lost complained that the crash could have corrupted files, skewed data or lost votes. Tom McKeon, a county commissioner candidate, said "There's no guarantee the votes went to the right candidate." Elections Supervisor Dot Ruggles said it was not the first time such a crash had occurred. [55]

• November 1998, Franklin County, Ohio — One candidate was incorrectly credited with 14,967 votes; another received 6,889 in error. Deborah Pryce and John R. Kasich gained 13,427 votes and 9,784 votes, respectively, after election officials hand-checked vote totals in 371 machines that were affected by a software programming error. A spokesman for Danaher Corp., which supplies electronic voting machines to the county, told the board that such a problem had never before happened in Franklin County. No one caught the error while downloading the data into voting machine memory cartridges, which record the actual vote on Election Day. [56]

• November 1998, Washoe County, Nevada — A breathtaking number of snafus in the Washoe County registrar's office caused candidates in Reno to liken the election to the movie *Groundhog Day*, a movie in which the lead character relives the same day over and over again. Count votes. Computer failure. Go to court. Recount the votes. Software error. Back to court. Start over counting, and so on. [57]

• December 1998, Canada — What was billed as a historic first for the Canadian Wheat Board turned into an embarrassment as a software programming error threw the election results into question. The firm hired to count the ballots an-

nounced that it had detected a flaw in the computer program that tabulated results for the agency's first-ever board of directors. [58]

- September 1998, Kansas City, Kansas — Republican John Bacon, a staunch conservative, celebrated a resounding victory for the 3rd District Kansas Board of Education seat, defeating moderate Republican Dan Neuenswander by 3,018 votes. Two weeks later Neuenswander learned that the race was virtually dead even with the margin of loss being a mere 24 votes. No one offered any explanation for the descrepancy.[59]

- August 1998, Memphis, Tennessee — In the governor's race, a software programming error in Shelby County began crediting votes to the wrong candidates. Computer cartridges containing 295 individual precinct results were taken to a central location because the scanner couldn't read the cartridges. The system that was shut down had posted the incorrect results to newsrooms across the city that had computer links to the data. At least one television station broadcast the bogus results. Which brings up a question: Why were newspaper and TV hooked directly up to computerized voting machines? [60]

- November 1998, Chicago, Illinois — One hundred eight of 403 precincts were not counted. A pin from the cable connecting the ballot reader to the counting computer apparently got bent after three-fourths of the precincts had been counted correctly. No one could explain how a pin inside a cable became bent during the middle of the count. Democrats requested a full recount; a judge disallowed it. [61]

- November 1998, Honolulu, Hawaii — A state senate investigation was conducted into the 1998 election and the malfunction of ballot-counting machines in seven precincts at once. ES&S acknowledged the error and paid more than $250,000 for the recount, in which the biggest expense was hand counting, Vice President Todd Urosevich said. ES&S financial officer Richard Jablonski said ES&S would have saved a lot of money if it had been permitted to just do a machine recount, giving voice to a financial incentive for voting machine companies to get rid of the paper trail. [62]

- November 1999, Norfolk, Virginia — Machines showed totals of zero even though votes had been cast. Edward O'Neal, vice chairman of the Norfolk Electoral Board, attributed the discrepancy to incorrectly programmed computer chips: "Somehow, they lost their ability to count the votes," he said. [63]

- April 1999, Port Washington, Wisconsin — A new computer system gave the wrong election results to news media. The initial results showed that Renea Krueger had won the election for town clerk. In reality, Susan Westerbeke won the election. "Nothing is wrong with the computer. The final printout gave the correct results," said Harold Dobberpuhl, Ozaukee County Clerk. The system receives information from a modem but also requires some manual entry. The error occurred when the person inputting the information simply dropped the digit "2."[64]

- November 1999, Onondaga County, New York — Computers gave the election to the wrong candidate, then gave it back. Bob Faulkner, a political newcomer, went to bed on election night confident he had helped complete a Republican sweep of three open council seats. But after Onondaga County Board of Elections staffers re-checked the totals, Faulkner had lost to Democratic incumbent Elaine Lytel. Just a few hours later, election officials discovered a software programming error had given too many absentee ballot votes to Lytel. Faulkner took the lead.[65]

- March 2000, Shelby County, Tennessee — Computer problems halted the voting at all 19 of Shelby County's early-voting sites during the 2000 Republican presidential primary, forcing officials to use paper ballots (supposed to be provided by the voting machine company as a backup, but for some reason they were unavailable when they were needed). Election officials had to make voters wait in line or tell them to come back later. Because early voting turnout in this election was six times normal, this snafu affected about 13,000 voters. If there was a beneficiary of the problem, it likely was George W. Bush, who needed to defeat John McCain in Tennessee: Shelby County, which contains the urban Memphis population, usually votes less conservatively than the rest of the state.[66]

- November 2000, Arapahoe County, Colorado — Officials agreed to reconfigure the vote-reading machines for a recount because they had been set wrong and therefore did not read all of the votes. Because Democrats wanted the additional recounts, they had to pay the bill, which came to about $11,000.[67]

- November 2000, Denver County, Colorado — Electronic cartridges from four voting machines malfunctioned and voting officials mistakenly assumed those machines were not used, but there were 300 votes on the machines.[68]

• Crozet, Virginia (anecdotal report from a voter) — "When I pushed the button beside 'No' the machine registered my vote as a 'Yes.' I tried this a couple of more times and got the same result. Finally, I poked my head outside the curtain and asked the "attendant" what I should do... whenever I made my choice, the opposite choice lit up. He suggested then that I should intentionally push the wrong button..." [68b]

• November 2000, Volusia County, Florida — A clerk in one precinct could not reach election headquarters to report that the computer had shut down, so the clerk turned the computer off, then turned it back on, accidentally erasing 320 votes. This was discovered only when workers counted all ballots by hand. Election supervisors across Florida say the phone clog happens during most presidential elections, but few people notice. [69]

• November 2000, Davidson County, North Carolina — A computer error allowed election software to count about 5,000 early and absentee ballots twice. A reporter brought the discrepancy to light during the county election board's official canvass. The incorrect vote totals appeared only on the official report sent to the state Board of Elections in Raleigh. Vote totals listed on the Davidson County Web site were correct. [70]

• November 2000, Glenwood Springs, Colorado — At a special city council meeting held just after the election, Mayor Skramstad announced that the Garfield County Clerk and Recorder asked that he read a press release. It stated, "The Garfield County Clerk and Recorder wishes to inform the public that she is continuing to experience difficulty with the ES&S Inc. software utilized for tabulating election results. I will receive a corrected computer chip this evening. On Friday, November 10th…my office will utilize a new chip to count the ballots for Precinct 20 and re-tabulate the results…I anticipate this process will take most of the day. Thank you for your patience during this process." Signed Mildred Alsdorf. [71]

whenever I made my choice, the opposite choice lit up. He suggested then that I should intentionally push the wrong button...

• November 2000, San Francisco, California — In polling place 2214, machines counted 416 ballots, but there were only 362 signatures in

the roster and the secretary of state found only 357 paper ballots. [72]

• February 2000, Manatee, Florida — A power surge was reported to be the cause of incorrect computerized vote tallies. A hand count was performed. And because the hand count showed that a candidate lost by just two votes, another hand count was done. All results, including two hand counts, were completed within 48 hours. [73]

...internal checks revealed that the system had under- and over-reported hundreds of votes. The voting machines worked fine, they just tabulated wrong. "The machines performed terrifically," said Robert J. Urosevich, president of Diebold Election Systems. "The anomaly showed up on the reporting part."

• November 2000, Albuquerque, New Mexico — A software programming error in New Mexico led officials to withhold about 60,000 ballots from their vote count. According to an AP wire service report: "Their (voting) machines have a problem in the database," elections bureau director Denise Lamb said, "and they can't count any of the straight-party ballots." [74]

• November 2000, Allegheny County, Pennsylvania — City Councilwoman Valerie McDonald reported that machines in Pittsburgh's 12th and 13th wards and other predominantly black neighborhoods malfunctioned on Election Day. They began smoking and spitting out jammed and crumpled paper. Poll workers felt the machines had been intentionally programmed incorrectly and had been sabotaged. Whether or not it was sabotage, what is clear is that the spit-and-polish image so carefully crafted in election company press releases didn't seem to apply to the African-American precincts that day. Poll workers in the 12th and 13th wards waited hours for repair, and voters who couldn't spend the day at the polling place were rendered politically voiceless. [75]

• February 2000, Passaic, New Jersey — About 75 percent of the voting machines in the city of Passaic failed to work when the polls opened on Election Day, forcing an undetermined number of voters to use paper ballots during the morning hours. Independent consultant, V. Thomas Mattia, a Philadelphia voting machine supervisor who later examined the machines concluded the problem was due to sabotage, which led a Democratic candidate to refer the matter to the FBI.

Mattia later reversed himself. "I believe that it was an oversight, and there was no fraud involved," Mattia stated in the letter. Freeholder James Gallagher, who had referred the matter to the FBI based on Mattia's previous suspicions, said that he was surprised by the reversal, and needed more information about why the expert changed his mind. [76]

- November 2001, Buffalo, New York — The poll book and tally sheet show 96 Republicans signed in to vote at the polling place in Ohio Elementary School, but when the machine was checked, it tallied 121 votes for mayor: 74 for David Burgio and 47 for Mary Kabasakalian.[77]

- April 2002, Johnson County, Kansas — Johnson County's new Diebold touch screen machines, proclaimed a success on election night, did not work as well as originally believed. Incorrect vote totals were discovered in six races, three of them contested, leaving county election officials scrambling to make sure the unofficial results were accurate. Johnson County Election Commissioner Connie Schmidt said that internal checks revealed that the system had under- and over-reported hundreds of votes. Schmidt said the voting machines worked fine, they just tabulated wrong. "The machines performed terrifically," said Robert J. Urosevich, president of Diebold Election Systems. "The anomaly showed up on the reporting part."

  The problem, however, was so perplexing that Schmidt asked the Board of Canvassers to order a hand re-count to make sure the results were accurate. Unfortunately, the touch screen machines did away with the ballots, so the only way to do a hand recount is to have the machine print its internal data page by page. Diebold tried to re-create the error in hopes of correcting it. "I wish I had an answer," Urosevich said. In some cases, vote totals changed dramatically.[78]

- November 2002, Palm Beach, Florida — A Florida woman, a former news reporter, discovered that votes were being tabulated in 644 Palm Beach precincts, but only 643 precincts have any eligible voters. An earlier court case in Florida found the same discrepancy, and the reason for it was never satisfactorily explained.[79]

- November 2002, New Jersey — A reporter in New Jersey observed 104 precincts with votes in an area that has only 102 precincts. "Ghost precincts," no matter what

the official explanation, do not provide the transparent accounting needed to protect voting integrity."[79]

- November 2002, Comal County, Texas — A Texas-sized lack of curiosity about discrepancies: The uncanny coincidence of three winning Republican candidates in a row tallying up exactly 18,181 votes each was called weird, but apparently no one thought it was weird enough to audit.[80]

- March 2002, Palm Beach County, Florida — Touch screen machines sometimes froze up when voters selected which language to use. Phil Foster from Sequoia Voting Systems said that was a software programming error. Elections Supervisor Theresa LePore also said she heard that some people touched one candidate's circle on the screen, only to see an X appear by another candidate's name. [81]

- August 2002, Clay County Kansas — A squeaker — no, a landslide — oops, we reversed the totals — and about those absentee votes, make that 72-19, not 44-47. Software programming errors, sorry. Oh, and reverse that election, we announced the wrong winner — The machines said Jerry Mayo ran a close race in the county commissioner primary but lost, garnering 48 percent of the vote, but a hand recount revealed Mayo won by a landslide, earning 76 percent of the vote. [82]

- November 2002, Adams County, Nebraska — Adams County Election Commissioner Chris Lewis says she will be meeting with representatives of ES&S to further discuss "what went wrong" on November 5th. During the General Election, Adams County was the last in Nebraska to have election results, due to both machine and software glitches. ES&S has talked about some compensation for the election problems including paying for election worker overtime and not charging for programming adjustments. The board went into executive session to discuss their options, including seeking a refund from ES&S. Lewis said, "no one wants a lawsuit." [83]

- November 2002, Dallas, Texas — When 18 machines were pulled out of action in Dallas because they registered Republican when voters pushed Democrat, Judge Karen Johnson, a Republican, quashed an effort to investigate the accuracy of the tally. [84]

- November 2002, Scurry County, Texas — Scurry County poll workers got suspicious about a landslide victory for two Republican commissioner candidates.

They had a new computer chip flown in and also counted the votes by hand — and found out that Democrats actually won by wide margins, overturning the election.[85]

Same tallies, same county:
18181
18181
18181

• November 2002, Miami, Florida — Fuzzy math in Miami: On November 10, the *Miami Herald* listed the following figures for the total votes cast at the Democrat-friendly Broward County Century Village precinct in the general election:

1994: 7,515
1998: 10,947
2002: 4,179

Yet an accountant called Century Village and was told that their occupancy has remained stable (around 13,000 residents) since the complex hit capacity in 1998. [86]

• March 2002, Medley, Florida — Voting machines gave the town council election to the wrong candidate. The cause was attributed to a software programming error by a voting machine technician. County Elections Supervisor David Leahy said he was concerned because the computer did not raise any red flags, and humans had to spot the error.[87]

• November 2002, Baldwin County, Alabama — No one at ES&S can explain the mystery votes that changed after polling places had closed, flipping the election from the Democratic winner to a Republican in the Alabama governor's race. "Something happened. I don't have enough intelligence to say exactly what," said Mark Kelley of ES&S. Baldwin County results showed that Democrat Don Siegelman earned enough votes to win the state of Alabama. All the observers went home. The next morning, however, 6,300 of Siegelman's votes had disappeared, and the election was handed to Republican Bob Riley. A recount was requested but denied. [88]

• November 2002, North Carolina — Computer misprogramming overturned the House District 11 result in Wayne County. A mistake in the computer program caused vote-counting machines to skip over several thousand party-line votes,

both Republican and Democratic. Fixing the error turned up 5,500 more votes and reversed the election for state representative. [89]

- November 2002, Monterey, California — California machines that can't add: The problem in Monterey, California, was that the department's mainframe computers refused to add the results of early absentee votes and those cast on touch-screen computers prior to Election Day. "We didn't have any problems whatsoever during our pre-election tests," said the elections official. [90]

- November 2002, Gretna, Nebraska — This crushing defeat never happened: Vote-counting machines failed to tally "yes" votes on the Gretna school-bond issue, giving the false impression that the measure failed miserably. The measure actually passed by a 2-1 margin. Responsibility for the errors was attributed to ES&S, the Omaha company that provided the ballots and the machines. [91]

- November 2002, South Carolina — A software programming error caused more than 21,000 votes in the squeaker-tight race for S.C. commissioner of agriculture to be uncounted, an error margin of 55 percent. Only a hand-count was able to sort it out. Good thing there were paper ballots. [92]

- November 2002, Taos, New Mexico — Software programming error caused machine to count the wrong names: In Taos, New Mexico, just 25 votes separated the candidates in one race; another race had a 79-vote margin. After noticing that the computer was counting votes under the wrong names, Taos County Clerk Jeannette Rael contacted the programmer of the optical machine and was told it was a programming error. [93]

- November 2002, Pennsylvania — One hundred percent error tabulating Libertarian votes: In Pennsylvania, a voter reported that he had followed his conscience and voted Libertarian. When he reviewed the results for his precinct, though, the Libertarian candidate received zero votes. Two ways to look at this: Unimportant, just a vote; or, a 100 percent error. Either way, why bother to vote? [94]

- November 2002, New York — Voting machine tallies impounded in New York: Software programming errors hampered and confused the vote tally on election night and most of the next day, causing elections officials to pull the plug on the

vote-reporting Web site. Commissioners ordered that the voting machine tallies be impounded, and they were guarded overnight by a Monroe County deputy sheriff. [95]

• November 2002, Tangipahoa Parish, Louisiana — "I can't say every precinct had a problem, but the vast majority did" — Tangipahoa Parish, Louisiana, Clerk of Court John Dahmer said at least 20 percent of the machines in his parish malfunctioned. "One percent might be acceptable, but we're not even close to that," Dahmer said. He said 15 employees worked to combat the malfunctions. [96]

• November 2002, Maryland — Vote Republican (read "Democrat") — In Maryland, a software programming error on Diebold touch screen machines upset a lot of voters when they saw a banner announcing "Democrat" at the top of their screen, no matter whom they voted for. [97]

• November 2002, New Jersey — Forty-four of forty-six machines malfunctioned in Cherry Hill, New Jersey: Election workers had to turn away up to 100 early voters when it was discovered that 96 percent of the voting machines couldn't register votes for mayor, despite the machines' having been pre-tested and certified for use. [98]

• November 2002, North Carolina — Trying to find 300 voters so they can vote again: In Wake County, North Carolina, one out of four new touch-screen voting machines failed in early voting, losing 294 votes. The machines were shut down before Election Day, so election workers looked for the 294 voters to ask them to vote again. (A paper trail would have solved this problem.) [99]

• November 2002, Florida — Bill McBride was a tough guy to vote for: One voter said that he tried 10 times, and every time he pressed McBride the Jeb Bush choice lit up. He could only get his vote to light up the McBride choice when he pressed a dead area of the screen. No paper trail was available, so no one really knows who got any of the votes — regardless of which candidate lit up. Similar problems were reported in

Trying to find 300 voters so they can vote again (a paper trail would have solved this problem)...

various permutations, for various candidates, by several Florida voters, and an identical problem was noted in Texas. [100]

When all else fails, use duct tape (that was the only way it would feed the votes through)

- November 2002, New Jersey — "What the hell do I do with this?" A bag full of something that looked like rolls of cash register tapes was handed to the Mays Landing County Clerk. A computer "irregularity" in a New Jersey vote-counting system caused three of five relay stations to fail, leaving a single county clerk holding the bag for a hand count. [101]

- November 2002, Ascension Parish, Louisiana — An elections official gnashed his teeth as more than 200 machine malfunctions were called in. The Parish Clerk said his staff was on the road repairing machines from 5 a.m. to 9 p.m. In one case, a machine wasn't repaired until 12:30 a.m. Wednesday. "A mechanic would fix a machine, and before he could get back to the office, it would shut down again," Bourque said. [102]

- November 2002, Sarpy County, Nebraska — A call-in report I received on election day reported that in Sarpy County, Nebraska, they had to use duct tape to stick something under the machine — that's the only way it would feed votes through. [103]

- November 2002, St. Bernard Parish, Louisiana — All the king's horses and all the king's men…couldn't put the tally together again: With a 34-vote margin separating the two justice of the peace candidates in St. Bernard Parish, the machine ate 35 absentee votes and left everyone guessing about the outcome of the race. The ballots became inaccessible when the system locked up; even the technician couldn't get at them. [104]

- November 2002, Georgia — In one Georgia county, ballots in at least three precincts listed the wrong county commission races. Officials shut down the polls to fix the problem but didn't know how many wrong ballots were cast or how to correct errant votes. In another, a county commission race was omitted from a ballot. Cards voters needed to access machines malfunctioned. Machines froze up and dozens were misprogrammed. [105]

• November 2002, Ohio — A vote-counting machine malfunctioned with 12 of Crawford County's 67 precincts left to count. A back-up vote-counting machine was found, but it also could not read the vote. Election workers piled into a car and headed to another county to tally their votes. [106]

• November 2002, Pickens County, South Carolina — Two South Carolina precincts worked to extract information from the computer: Pickens County was unable to get totals from two precincts because of computer glitches. [107]

• November 2002, Georgia — Election officials lost their memory: Fulton County election officials said that memory cards from 67 electronic voting machines had been misplaced, so ballots cast on those machines were left out of previously announced vote totals. No hand count can shine any light on this; the entire state of Georgia went to touch-screen machines with no physical record of the vote. Fifty-six cards, containing 2,180 ballots, were located, but 11 memory cards still were missing two days after the election: Bibb County and Glynn County each had one card missing after the initial vote count. When DeKalb County election officials went home early Wednesday morning, they were missing 10 cards. [108]

• November 2002, Nebraska — U.S. Senate Candidate's ballot was pre-voted for his opponent: Charlie Matulka, the Democratic candidate for U.S. Senate in Nebraska, arrived at the polls to vote for himself. When he looked at the optical scan ballot he was given, he discovered it had already been filled out — for his opponent, Chuck Hagel, giving Nebraska the most newfangled voting of all — not just electronic voting, but *automatic* voting! [109]

• November 2002, Marina del Rey, California — In posh Marina del Rey, California, one precinct had no voting booths, the voting machine was broken, voters couldn't get their cards into one machine, and someone broke the puncher out of the machine. So voters were told to vote in public. [110]

• November 2002, Nebraska — Candidate for governor finds vote-counting computer asleep: Paul Rosberg, the Nebraska Party candidate for governor, eagerly took advantage of a Nebraska law that lets candidates watch their votes being counted. He first was invited to watch an optical scanner machine, which had no counter on it, and then was taken into the private room, where he was al-

lowed to watch a computer on a table with a blank screen. So much for public counting of votes. [111]

- February 2003, Everett, Washington —If there was any doubt that Republicans were right to ask for a recount of some Snohomish County absentee ballots from November's general election, it was erased by one sobering number: 21.5 percent of the ballots cast in 28 selected precincts were not counted. The Snohomish County Auditor's Office recounted 116,837 absentee ballots Thursday after county officials discovered that the optical scan ballot-counting machines had miscounted. The cause was attributed to a faulty "read head" on each of two optical scanner machines, causing them to fail to read ballots with blue ink. The machines had passed the test on blue ink before the election. The Sequoia representative could not recall that the read head problem had ever happened before.

  When asked how many machines of the same make and model number Sequoia has in the United States, she said "about 1,500." When asked how many years they'd been in use, she said about six years. "Why, then," asked a citizen, "would this unheard-of problem happen at exactly the same time in exactly the same place on two different machines at once?" The Sequoia rep said she had no idea.[112]

* * * *

Phew! Had enough? Well, while you are resting from marathon of error, consider these points:

1) "Logic & Accuracy" tests did not prevent these problems.

2) It doesn't matter if the miscounts were accidental or intentional, the results were the same: Citizen's votes were not counted as cast.

3) The information on these preceding pages is the result of only a few hours research. Space constraints prohibited me from devoting more pages to this topic. Suffice it to say, I only scratched the surface of the voting machine Encyclopedia Errata.

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