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## The Real Problem with Voting

By Ted Selker November 17, 2004

As co-director of the [Caltech/MIT Voting Technology Project](#) (VTP), I have been involved in inventing new secure voting machines, designing better ballots, and analyzing problems in the overall voting experience. Concerns about opportunities for voting equipment fraud have always been central to debates about elections. The VTP's analysis of elections has shown that registration problems, poor ballot design, and careless polling place procedures dominate the way votes are lost. Now, people are concerned about the 2004 election; to help, we released a [report](#) showing that exit polls did not in fact predict that John Kerry would fare better than he actually did in Ohio polling stations that used electronic voting machines. I have enjoyed the opportunity to carefully watch elections at hundreds of polling places nationwide for the past three-and-a-half years. What I have observed is that grave errors of judgment and protocol are apparent almost everywhere, regardless of the voting method used. Even in a well-run election, a poll-watcher witnesses an array of problems.

Nothing demonstrates this more clearly than what I saw on November 2 while watching voting at 28 precincts in the Boston area. Boston has one of the best election set-ups in the country. The city used optical scan ballots; in our evaluation of the 2000 election, we at VTP recommended this as the method which had shown the fewest errors of currently available voting methods. Moreover, through their hard work, local election officials showed an earnest desire to deliver an election free from tampering or fraud. Still, even in Boston, sloppy polling place practices and ill-conceived procedures abounded. These seemingly innocuous mistakes can result in lost or uncounted votes and can compromise the integrity of the final vote count.

Minor problems I observed in Boston included inadequate and poorly placed signage, making it confusing for people to know where to go. Disorganized check-in registration systems at numerous locations not only led to long lines, which deter people from voting, but also, in some instances, messed up the lists that allow officials to compare the number of people issued with ballots to the total number of votes. Some polling places casually permitted persons other than the voter (such as a poll worker or family member) to interfere in the process of completing and scanning ballots.

More dangerous irregularities also occurred. A poll worker removed ballots from a balloting box without monitoring. The person meant to observe him simply wandered away. At another location, the poll warden, also unsupervised, took bunches of ballots from the scan reader from time to time so that it wouldn't jam. Those he removed lay to the side in a pile of manila envelopes next to the voting machine. He had been instructed to remove the ballots only when the scanner reached its 1,200-ballot capacity. However, he proudly explained his invented "system" to avoid this. No one should ever—prior to, during, or after an election—touch voting materials without a witness to vouch for their actions.

As usual, the most frightening things that I saw on Election Day occurred after the polls had closed. At 8:00 p.m., I watched one of two precincts at a polling place stumble through the inefficient shutdown procedure, which had many steps and required intricate handling of small bits of paper. The longer workers struggled at it, the more dubious were the results they calculated. In the meantime, the other precinct at that polling place had kept its lists of who checked-in and who deposited ballots together, and accidentally muddled them up. Poll workers still toiled to sort out the mess, which was done by scribbling notes and erasing other marks—certainly, not a vouchsafe election technique. Erasers have no place in the preparation of election records. All marks should be made in pen.



After finishing its closing paperwork, the first precinct packed manila envelopes stuffed with ballots into a suitcase. Workers then strapped the computer, containing its own internal set of vote records and the separate balloting module, to the suitcase and handed the whole lot to a single, unescorted police officer who wheeled it off to his car to drive it to election headquarters. In 2003, lids to balloting boxes were found floating in San Francisco Bay! I was informed that every precinct in the Boston area had been instructed to transfer election materials in this way.

In a nation screaming for verifiable audit trails on electronic voting machines, Boston (and probably many other places) election officials, by this policy, threw away the optical scan system's advantage of creating multiple records. If the balloting module had been removed from the computer, as it should have been, and these two items had traveled separately, with a third team carrying the actual ballots, the loss of any one of these things would have been compensated by the vote count provided by the other two.

I do not mean to single out Boston. Similar problems occurred at the September 7, 2004 election in Reno/Sparks Nevada, which I attended for the rollout of the Sequoia direct record electronic voting system with verifiable paper-trail printers. Voters adapted to the new technology better than I had expected they would. However, inadequate training and guidelines caused problems in nearly all of the eleven polling places that I visited. At one location, workers daisy-chained 20 different machines into a single electrical circuit. No one noticed that they were running on battery power and at 8:30 a.m. all of the machines began shutting down.

Instances of poll workers improperly tackling sensitive election tasks without a corroborating witness occurred from the beginning of the day, when I saw a manager write down odometer readings by herself, to the end of the day, when the sole official in charge of the counting room told me that he was going to drive the results to headquarters in his car by himself. At several locations I witnessed voters wrongly issued with provisional ballots, which excluded local races, because poll workers accidentally typed in the provisional ballot code rather than that of the correct precinct. A second person to check smart card programming might have caught these simple transcription mistakes.

The most alarming incident I witnessed was an unsupervised poll worker struggling with a jammed paper trail printer. In the process of trying to rethread the paper she actually took a pair of scissors and cut off a section of the printed paper trail receipts and, when that didn't work, tore some more off. One hopes that she remembered to somehow put them back inside the paper trail box when she finished, and that someone managed to find them. These scraps of paper were part of the official audit trail whose purpose was to verify the electronic count. As happened in Boston, the utility of the expensive, new technology designed to provide the back-up records became almost moot because it was improperly handled.

This individual, like the majority of the poll workers I have encountered in my travels, was trying her best. No one had given her instructions about rethreading paper; nor had she had a chance to practice the procedure. Most importantly, she had never had the opportunity to make a habit of the special behavior necessary in an election setting—such as finding a second person to watch her. The majority of poll workers I interviewed that day had had only one hour of training.

The mistakes in Boston and in Nevada resemble those I have witnessed at polling places in every part of the country and with every possible voting system in use. What sets these two cities apart is that both spent huge amounts of money on sophisticated voting technology and both chose systems that produce an audit trail. These localities spent time, energy, and money to give their constituents fair and reliable voting conditions. However, because neither city matched its investment in technology with similar commitments to training and operations, the sad result was that the problems that occurred were depressingly similar to those seen elsewhere.

As the dust settles on this last election, the Caltech/MIT Voting Technology Project will methodically analyze what occurred and strive to make voting easier and more reliable. User-friendly ballot designs, efficient registration systems, and alternative verifiable audit trail systems are already in progress. However, we are just as carefully examining ways to simplify polling place operations and improve poll worker training. Addressing the troubled American voting process with isolated technological solutions would be like putting a band-aid on a large, disease-riddled beast. Curing the election system will require a holistic approach. We implore local election officials and the public alike to provide much-needed support for this multi-faceted effort so that every vote in America can count.

