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On-Site Observations of the Hand-Counting of Paper Ballots and Recommendations for the General Election of 2008

Introduction

Between May 2, 2006 and November 7, 2006, I observed the hand-counting of paper ballots in three elections in two New England states. The purpose of these observations was to gather first-hand data concerning the feasibility, effectiveness and accuracy of the use of HCPB. These elections were as follows:

1. Rockport, Massachusetts (MA), on May 2, 2006, Town Election
2. Hudson, MA, on May 8, 2006, Town Election
3. Acton, Maine (ME), on November 7, 2006, General Election

All three hand-countings of paper ballots were conducted smoothly and were finished in a timely manner. This paper describes the various protocols used and presents recommendations for the use of hand-counted paper ballots (HCPB) in the upcoming elections of 2008. Absentee ballots, provisional ballots and chain of custody of the ballots are not dealt with in this paper, although they are also crucial elements of an HCPB system.¹

Much has been written about the fraud and error associated with the use of electronic voting machines—both Direct Recording Electronic (DRE'S/touchscreens) and Optical Scan (op scans/opti scans).² Because of this fraud and error, HCPB have been put forth as an alternative to electronic voting machines.³

The use of an HCPB system will ensure that each vote is counted as intended and as cast by the voter. Although HCPB do not address the egregious suppression of the vote (mostly of people of color, elders and low income people), partnering a solution to the elimination of this suppres-

sion with the use of HCPB is the only way to have honest and transparent elections.

The jurisdictions that I observed were not selected randomly. They were places that I could drive to comfortably from my home in Boston, MA. Moreover, I was interested in observing an election in Acton, ME because the Town Clerk had told me that after the first hand-counting, the ballots would be hand-counted a second time.⁴ I received permission to observe the elections from each Secretary of State, or their assistants, and from each Town Clerk. For full transparency, I introduced myself as an advocate of HCPB, who wanted to observe an HCPB election. I was very well received and felt comfortable in all places. All three Town Clerks were very generous with their time and expertise.

In each of the three elections observed, number two pencils were used by the voters to hand mark their paper ballots. In each of the elections, the counters worked in teams of two. In addition, the counters were told that it was the intent of the voter that was to be counted, and when in doubt, the counters called over the Town Clerk or Warden⁵ to ask questions about specific ballots and how to count them. Finally, in each of the elections, the counters were able to hand-count the paper ballots in a short time (see specifics below).

Acton, ME, November 7, 2006, General Election

I will first describe the HCPB election in Acton, ME on November 7, 2006 because this protocol used a procedure that would produce the most accurate count of the votes—namely, a second hand-count was done immediately after the first hand-count.

The ballot box was a plain, wooden box with a slot into which voters put their ballots. There were six teams, of two counters each, doing the hand-counting. The counters came in specifically to count; they had not worked at the polls earlier in the day. Each team consisted of a Republican and a Democrat. The teams first counted the ballots into batches of 50, and then these batches of 50 were counted again.

The teams then hand-counted the votes cast in each contest for each batch of 50 ballots in the following manner: one member of the team would read out loud the name marked off for each contest; the other member of the team marked the vote on a tally sheet that corresponded to the ballot. A voter's entire ballot was tallied for all of the contests before the counters went on to tally the next voter's ballot. The talliers counted each vote by making a hash mark (small, straight vertical line).⁶ After four ver-

tical lines were made, a fifth line was made diagonally through the first four marks. For each person running for office (and for each initiative), the tally sheet was marked off into five columns vertically and two rows horizontally, providing 10 rectangular spaces in each of which five hash marks could be written—a total of 50 hash marks—i.e., votes per contest or initiative. A dark horizontal line separated the names in each contest. At the end of the counting of all of the races in a batch of 50 ballots, the counters totaled the hash marks for each race on the tally sheet and entered that number on the tally sheet in the “TOTAL VOTE” column. There was a special sheet for write-ins.

Immediately after the first hand-count of a batch of 50 ballots, a second hand-count, on a new tally sheet, was done of this same batch of 50 ballots by these same counters. Again, the entire ballot of each voter was tallied before the counters proceeded to the next voter’s ballot. This time, the person who had read the names out loud marked each vote on the tally sheet, and the person who had tallied read out loud the ballot choices. After the votes on all 50 ballots in a batch were marked on the tally sheet, the totals for each contest were obtained and written on the tally sheet. If the totals for the candidates in any contest or for any initiative were not exactly the same on the first and second tally sheets (i.e. on the first and second countings), these contests or initiatives were counted a third time. I observed such a situation two times.

The HCPB election in Acton, ME demonstrates that paper ballots can be hand-counted immediately a second time, at the precinct on election night, before the results are posted at the precinct, in order to ensure an honest and transparent count in a timely manner. The election in Acton, ME also indicates that paper ballots can be hand-counted in a very short time. With seven races and two initiatives, the six teams of two people each were able to hand-count twice 944 ballots in four hours.

Rockport, MA, May 2, 2006, Town Election, Hudson, MA, May 8, 2006, Town Election

The elections in Rockport and Hudson will be discussed together because they were similar in various respects. Both counted the votes cast only once,⁷ and both used the same kind of tally sheets provided by the MA Secretary of State. In both jurisdictions the ballots were counted into batches of 50. The tally sheet was a large piece of paper that was marked off into a grid with horizontal and vertical lines forming small rectangular boxes (similar to the squares of graph paper). The vertical columns were

marked with a heavy line at each multiple of five columns. There were 50 rectangular boxes across each horizontal line. At the top of the tally sheet, each vertical column was numbered from 1-50. On both the left hand and right hand sides of the tally sheet were the names of the people running in that particular race. One tally, as a hash mark, was put into one box, beside the name of the person voted for. A voter's entire ballot was tallied for all of the contests before the counters went on to tally the next voter's ballot. After the 50 ballots were tallied, the totals for each contest were entered into the "Totals" column at the end of the 50th box. Blanks and write-ins were also marked on this sheet. Four or five teams of two poll workers did the hand-count. One read from the ballot, and the other person placed the hash mark in the appropriate box on the tally sheet.

Rockport, MA used an old wooden ballot box.⁸ A poll worker turned the brass handle on the box as each voter put her/his ballot into the box. Numbers on the front of the box automatically changed as ballots were placed in it, counting the cumulative number of ballots placed in the box. The ballot box marked each ballot with the precinct number down the center of the ballot as it went through. The preceding characteristics of the ballot box provided a measure of security for the ballots, minimizing the danger of stuffing the ballot box, a criticism often leveled at the HCPB process. As noted earlier, this paper does not examine in detail issues of security such as chain of custody, but rather deals with protocols for HCPB.

There were two crews of poll workers, morning and afternoon. One crew came in at 6:30 AM and worked until 12:30 PM. The second crew came in at 12:30 PM and worked until 6:30 PM. At 6:30 PM, the second crew went home for dinner until 8 PM, when they came back to hand-count the paper ballots. The morning shift came back at 6:30 PM to work at the polls and then to hand-count the paper ballots. The polls closed at 8 PM. The paper ballots were hand-counted by five teams of two workers each.

In Hudson, the ballot box was an old box made of gray wood. The ballot box rang when the voter put in her/his ballot, and the poll worker turned the crank of the box, moving the ballot from the slot of the box into the box. When the poll worker cranked the ballot into the ballot box, each ballot was inked with "Town of Hudson, precinct 6."⁹ This ballot box also provided a degree of security for the ballots.

The Clerk could hire eight people per precinct, not including the Warden and Clerk, who were also present for the hand-counting. There were two shifts of poll workers, 7 AM to 5 PM and 5 PM to 8 PM, which was when the polls closed. The second shift did the counting. Poll workers had to be registered voters in the town of Hudson. Although it was preferred that

the counters lived in the precinct where they worked, it was not necessary.

The elections in Rockport and Hudson again demonstrate that paper ballots can be hand-counted in a reasonable time. In Rockport, it took about one hour to hand-count 522 ballots; there were six races and no initiatives. In Hudson it took about one hour to hand-count 59 ballots; there were 14 races and no initiatives. As noted, both communities used ballot boxes that provided a degree of security for the ballots.

Recommendations To Begin With The 2008 General Election (Which Includes The Presidential Election)

Recommendations Based on My Observations

1. Based on my observations in Acton, ME, this paper recommends the hand-counting of paper ballots followed immediately by a complete second hand-counting and a reconciliation of the two counts, if necessary, by additional counting.¹⁰ A second hand-counting is crucial to check the accuracy of the first hand-count. If a discrepancy is found between the two countings, counting should continue until the counts are reconciled. This paper also recommends the procedure used in Acton of counting the ballots into batches of 50, counting a batch of 50 and then immediately counting that batch of 50 again. Some critics of electronic voting machines have pointed out the need to obtain a second count, called an audit, after the first original tabulation of votes; however, there is no consensus as to how such an audit should or could be done. The second counting of ballots recommended in this paper goes beyond the concept of an audit to a comprehensive process encompassing a second counting of every vote and a reconciliation of the two counts.
2. From my observations of these three hand countings, I prefer the tally sheets used in Acton, ME over the graph-like grid used in both Rockport, MA and Hudson, MA. During my observations, it appeared that the Acton tally sheet was easier for the counters to use. With the grid-like tally sheets, care had to be taken by the counters not to lose their place.
3. Because HCPB require careful attention to and scrutiny of the ballots, it is recommended that people who have not worked at the polls all day come in to do the counting, as in Acton, ME.

As noted, this paper does not deal in detail with the issue of security of the ballots. However, it is recommended that research be done concerning the cost of manufacturing ballot boxes with the characteristics described

for Hudson, MA and Rockport, MA.

Additional Recommendations

I have been involved with voting rights since the 2000 presidential election and the fiasco in Florida. Based on my previous work,¹¹ I include the following, expanded HCPB recommendations:

1. In addition to the four recommendations presented above, it is recommended that an HCPB protocol also have the following characteristics:
 - a. Ballots would be counted at the precinct by registered voters in that precinct.
 - b. The counting would be done in full view of the public.
 - c. The counting would be videotaped.
 - d. The results would be posted at the precinct immediately after the count.
 - e. To be manageable, precincts would be no larger than 1000 registered voters. (Because the concept of HCPB operates at the precinct level, even large communities can adopt such a system.)
 - f. In each precinct there would be at least 10 teams of two counters each (a Democrat and a Republican).¹² These teams would count the ballots, one counter reading the name and the other counter making the mark on the tally sheet. For the second counting, the counters on each team would switch roles.
 - g. Whether or not there would be observers as part of the team of counters, and if so, how many, needs more research and is beyond the scope of this paper.
2. This paper recommends that poll workers who participate in the process of HCPB be paid at a rate that will be respected by the community. This will be possible because a large amount of money will be saved with the elimination of electronic voting machines. The Help America Vote Act (HAVA) paid states hundreds of millions of dollars to buy electronic voting machines, both DRE'S and/or op scans.¹³ One machine can cost anywhere from \$3,000 and \$5,000¹⁴ and that amount does not include storing, maintenance, and upgrade. In contrast, for an HCPB election, the cost for the counting could be \$2400.00 per precinct for each election, with ten teams of two workers each, as described above, and paying each worker \$20/hour for six hours (\$120). HCPB by registered voters from the precinct would also keep the money in the community. As is true

for op scan electronic voting machines, money would also have to be spent for the cost of printing the ballots.¹⁵ If hundreds of millions of dollars had not been spent for the purchase, storage and upgrade of electronic voting machines, imagine the money our communities could have used for health care and education.

Epilogue

On January 4, 2006, I had the good fortune to watch on TV the voting in Congress for Speaker of the House. One at a time, each representative called out orally her/his choice for Speaker, and that vote was tallied by hand. This hand counting of oral votes was done by two Republicans and two Democrats, all of whom had been appointed by the Clerk of the House. The Electronic Board that usually counts the votes of the Representatives was not used for this count; the official vote was tallied by hand. I could not help but wonder how the Representatives would have felt had their votes not been recorded accurately, or not at all, as voters throughout the USA experienced in recent elections. For voters in each precinct in the USA, hand-counting of paper ballots would assure that each of our votes is counted as intended and as cast, as the oral votes of our Representatives, were hand-counted, as intended and as cast, in the House of Representatives.

This article originally appeared in OpEdNews, 18 July, 2007 (http://www.opednews.com/articles/opedne_sheila_p_070718_on_site_observations.htm).

Endnotes

¹ For a beginning discussion of chain of custody, see “*Chapter III—Hand-Counted Paper Ballots Now.*” “Ballot boxes must be clearly marked and visible in plain view. Ballot boxes will be sealed and locked whenever they contain ballots and are not being actively used. Ballot boxes are secured from the beginning of voting until the end of counting by a chain of custody procedure. Ballot boxes never leave the polling place until after the vote is counted, audited and certified. Each time ballot boxes move from the physical control of or visual contact from one person to another, a duplicate record signed by all counters and observers must be made relinquishing and gaining control. There will be a documentation process wherein each ballot box will have a record of its handling from the beginning of the day to the end of counting. On the web site of computer science expert Professor Douglas W. Jones, there is a very clear and detailed protocol for “Ballot and Ballot Box Transportation” and “Ballot Storage.” The reader is referred specifically to these two sections (the last two on this link): <http://www.cs.uiowa.edu/~jones/voting/paper.html>.

² Listed here are some of the outstanding articles about the fraud and error resulting from electronic voting machines; some are from the mainstream media, others from scholarly sources, and yet others from technical groups:

The public hacking of electronic voting machines, by Hari Hursti working with [Blackboxvoting.org](http://www.blackboxvoting.org), 21 February, 2007 <<http://www.bbvforums.org/forums/messages/2197/6847.html>>.

“September 2005 Report on Elections” U.S. Government Accountability Office (GAO) in its nonpartisan report states in its conclusions: “Numerous recent studies and reports have highlighted problems with the security and reliability of electronic voting systems...the concerns they raise have the potential to affect election outcomes...Federal Efforts to Improve Security and Reliability of Electronic Voting Systems Are Under Way, But Key Activities Need to be Completed,” 07 March, 2007 <<http://www.gao.gov/new.items/d05956.pdf>>.

Robert F. Kennedy, Jr., “Will the Next Election be Hacked?” *Rolling Stone Magazine*, # 1002, 15 June, 2006 <http://www.rollingstone.com/politics/story/11717105/robert_f_kennedy_jr__will_the_next_election_be_hacked/>. Note: retrieved from the web 07 July, 2012; to view this article, you must be a print subscriber and registered for online access at <http://www.rollingstone.com/allaccess/search>. A similar article by Kennedy, “The 2004 Presidential election was stolen via institutional fraud,” is available at <http://wisconsinwave.org/news/robert-f-kennedy-jr-2004-presidential-election-was-stolen-institutional-fraud>.

“Report of the Brennan Center Task Force of NYU,” 27 June, 2006 <http://www.brennancenter.org/press_detail.asp?key=100&subkey=36345> and 22 February, 2007 <http://brennancenter.org/dynamic/subpages/download_file_38150.pdf>. Note: this second link produced an error on the web on 07 July, 2012.

Ed Felten *et al.*, “Security Analysis of the Diebold AccuVote-TS Voting Machine,” Princeton Center for Information Technology, Princeton University, Sept. 2006.

<<http://citpsite.s3-website-us-east-1.amazonaws.com/oldsite-htdocs/voting/>>.

Rachel Kapochunas, "Jennings Officially Contests Race in Florida's 13th District," The New York Times, 20 February, 2007; Problems that occurred with electronic voting machines in many states in the General Election on November 7, 2006, especially the 18,000 under-votes in Sarasota County, FL. <http://www.nytimes.com/cq/2006/12/20/cq_2056.html>.

National Institute of Standards and Technology, discussion draft, 01 December, 2006 <<http://vote.nist.gov/DraftWhitePaperOnSIIinVVSG2007-20061120.pdf>>. Note: this link could not produce any results from the web 07 July, 2012.

Rady Ananda, "The annotated bibliography," 11 May, 2007 <<http://tinyurl.com/2gw1ve>>.

³ Listed here are examples of the outstanding work people and groups have done to put forth ways to have ballots be hand-counted, so as to do away with the fraud and error of the electronic voting machines:

Nancy Tobi, "The Granite State Delivers Rock-Solid Information on Hand Counting," 04 August, 2006 <http://www.opednews.com/articles/genera_nancy_to_060804_the_granite_state_de.htm>.

An editorial first carried in the Ketchikan Daily News, 01 December, 2006, Ed. Terry Miller, called for HCPB for the president and vice president, <<http://www.ketchikandailynews.com>>. (Thanks to John Gideon of *The Voting News* for pointing out the *Ketchikan* editorial.) On 07 December, 2006, the editorial was then picked up by the Juneau Empire <<http://juneauempire.com>>. (Neither of these documents were available on the internet, 08 July, 2012.)

Rady Ananda wrote an "HCPB Implementation Strategy for 2007," 03 January, 2007 <http://www.opednews.com/articles/opedne_rady_ana_070102_evoting_ex-it_strateg.htm>.

In February 2007, Phil Lindsey, introduced an initiative to go on the ballot that, if passed, would mean that MO would not use electronic voting machines in their elections, but would use HCPB. This initiative must first get enough votes from the public to appear on the ballot; Michael Collins, "Missouri Activists Say 'Show Me The Vote,'" Scoop Independent News <<http://www.scoop.co.nz/stories/HL0702/S00271.htm>>.

Another former HCPB initiative, led by Kathleen Wynne, was in the form of a petition from the American People to Congress, urging Congress to reintroduce the Paper Ballot Bill of 2006.

In June 2007, at The DFA (Democracy for America) Democracy Fest in New Hampshire, in a telephone call to the attendees, Representative Dennis Kucinich stated that he will introduce The Paper Ballot Bill of 2007, mandating HCPB for all federal offices. Kucinich has changed the bill from his 2006 version, H.R. 6200, which had mandated HCPB for the offices of president and vice-president only <http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:h6200ih.txt.pdf>, retrieved from the web, March 30, 2007. This link could not be found on the internet,

09 August, 2012. The following is a shortened link: <<http://www.govtrack.us/congress/bills/109/hr6200>>. Retrieved from the web, 09 August, 2012.

⁴ I observed one of the three HCPB methods authorized by the Maine Secretary of State, called ‘The Reading Method.’ “The team counts each lot together; 1 member reads and the other member tallies. The team members then switch roles, so that the tally is done a second time. If they agree, that count is completed. If there is a discrepancy, the team must recount the race or races where the count was off....” Maine Revised Statutes Annotated (MRSA), “Conduct Of Elections,” Ch. 9, p. 3, (Title 21-A §695). A link could not be found on the internet to these statutes, 15 July, 2012.

⁵ “Warden” is the name used in Massachusetts for the poll worker in charge of the election in that precinct. Different names are used in different states. The person is not an elected official.

⁶ In April 2004, Teresa Hommel described some hand-counting methods used in Canada and New York City; “How to Hand-count Votes Marked on Paper Ballots,” *WheresThePaper.org* <<http://wheresthepaper.org/CountPaperBallots.htm>>.

⁷ Another method of hand-counting paper ballots is the sort and stack protocol, <<http://sos.nh.gov/search.aspx?searchtext=sort%20and%20stack>> This link takes you to the election procedure manual (EPM) 04 October, 2011. Pages 149-152 describe the sort and stack method (Section XXVI, “Hand-counting Instructions-Model 1, Sort and Stack by Candidate Method). In this method, used by the state of New Hampshire, the ballots are first sorted into stacks for each candidate, and then the stacks are counted. In e-mail correspondence, December 2, 2006 and December 4, 2006, with Nancy Tobi from Democracy for New Hampshire, Tobi states that NH uses the sort and stack method for both election night counts and for recounts. She says that it is used primarily for “... single member races—where there is a yes/no choice...” and for straight ticket votes. Sort and stack is not usable in all situations. With this protocol, as with those used in Rockport and Hudson, votes are counted only once; the manual recommends a second count if there is a “close race.” A “close race” is not defined. A mandatory second count for all ballots could be added to this protocol.

⁸ The ballot box said “Town of Rockport, Precinct 2,” and was dated 1922.

⁹ The ballot box was made by S. Ralph Cross and Sons, Inc., 120 Mayfield Street, Worcester 2, MA, now out of business. The box was dated 1971.

¹⁰ Joanne Karasak has recommended a first count followed by “an immediate second ‘blind’ count’ (blind count meaning that the second team of counters do not know the total on the first count).” E-mail posted June 26, 2007. Based on my observations in Maine, I think it would be too confusing to change counters.

¹¹ See “*Chapter II: What Went Wrong in Ohio and Black Box Voting*,” “*Chapter III: Hand-Counted Paper Ballots Now*” (see endnote 1); and “*Chapter XI: Hand-Counted Paper Ballots: Frequently Asked Questions*.”

¹² If there are additional parties on the ballot, representatives from these parties should also participate in the counting.

¹³ “Help America Vote Act Of 2002,” 107th Congress Public Law 252. U.S. Government Printing Office Thanks to my good friend Lucius Chiaraviglio, HCPB activist, for his help with this endnote <http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_cong_public_laws&docid=f:publ252.107>.

¹⁴ Thanks to my good friend Paul Lehto for sending me this information. “Agreement Between Snohomish County, Washington and the Sequoia Voting Systems, Inc. for the Purchase of the AVC Edge Electronic Voting System,” Appendix A, 27, March, 2007 <<http://www.votersunite.org/info/SequoiaContract.pdf>> for a detailed example of what electronic voting machines cost. This contract was for more than five million dollars. Appendix A is contained in his lawsuit against Sequoia Voting Systems, Inc., 18 March, 2007 <<http://www.votersunite.org/info/lehtolawsuit.asp>>.

¹⁵ E-mail correspondence, 06 March, 2007, with Chief Legal Counsel, Election Division, Office of the Secretary of State, MA. In MA in 2006 there were 71 precincts using HCPB. For the MA State Primary election in 2006, the cost was \$444 per precinct (which included two parties) for ballot printing, which included absentee ballots, specimen ballots and instruction cards. For the General Election in 2006, the cost was \$391 per precinct.