Online Signature Gathering for California Initiatives

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Any resemblance between the initiative process as envisioned by California's Progressives at the start of the 20th Century and its present incarnation is purely coincidental. Rather than providing the average citizen with a way to make his voice heard, it has become just another way for special interests to advance their agenda. Out of this state of affairs has grown an "initiative industrial complex"[1] in which an entire business community has grown up alongside the process. There are signature-gathering companies, lawyers who draft the measures for well-healed clients, and political consultants who work to pass or defeat the measures. It is fair to call it the fourth branch of state government, except that it lacks the normal checks and balances attributable to the other three branches. It should come as no surprise, then, to learn that the days of qualifying an initiative through a purely volunteer effort have long since past. While obtaining signatures is intended to show that a proposed initiative has broad voter support, qualification in practice depends largely on how much money the proponents spend on paid petition circulators who gather voters' signatures. As former *Los Angeles Times* columnist Michael Hiltzik writes:

> "[T]he greatest risk of government by initiative is it becoming a plaything of special interests. Signature gathering in California is so costly that only those who can write big checks to professional petitioneers can be sure of qualifying a ballot measure. Sooner or later the field will be limited to celebrities, industry lobbies and the California Chamber of Commerce."[2]

One approach to balancing the influence of money in qualifying initiatives would be to let registered voters sign initiative petitions on a computer and transmit their signatures over the Internet to be counted toward the required total, so long as proper authentication and other security procedures were followed. This could help level the playing field for less-well-funded groups who could mobilize voter support via the Internet as an alternative to paying petition circulators the going rate -- two dollars and up per signature. Online petition signing could also enhance public discourse about ballot measures through interactive online commentary and discussions.

Others have voiced objections to online signature gathering on the grounds that insecure computers or communications links could lead to large-scale fraud in signing initiative petitions; that voters without computers and Internet access would be disadvantaged; and that online signing would make qualifying initiatives too easy and thus deluge voters with many more ballot measures at each election.

This paper discusses online signature gathering, beginning with the current process for qualifying California initiatives. It then describes how online signing of initiative petitions would work, how security and other objections could be addressed, and the pros and cons of adding this method of signature gathering to the initiative process.[3]

The Current Process for Qualifying California State Initiatives

This section is based on information in the Secretary of State's Initiative Guide, available online at http://www.sos.ca.gov/elections/initiative_guide.htm.

Drafting and submitting the initiative. The proponents of a proposed statutory or constitutional initiative must first submit a draft of the proposed measure to the California Attorney General. The Attorney General prepares a title and summary of the initiative (the "official summary"), which is then sent to the proponents, the legislature, and the Secretary of State. The official summary is placed on the Secretary of State's website <www.sos.ca.gov>, and the Secretary of State assumes responsibility for determining whether the proposed initiative will qualify for the ballot.

Circulating initiative petitions for signature. The initiative proponents have a maximum of 150 days from the date the official summary was sent to the Secretary of State to gather the required number of signatures.[4] California requires signatures equivalent to 5 percent of the vote in the most recent gubernatorial election for statutory initiatives and 8 percent for constitutional initiatives. Based on 8,679,416 votes cast in the 2006 Gubernatorial election, the required numbers presently are 433,971 and 694,354, respectively.[5] Signers must be registered voters in the county where the initiative petition is being circulated.

Although, in principle, anyone qualified to vote in California can circulate initiative petitions for signature, the vast majority of signatures are gathered by paid circulators who work for for-profit firms. They may go door-to-door asking registered voters to sign an initiative petition; or, more typically, circulators work from card tables in front of supermarkets, stores, movie theaters and other places where registered voters are likely to be present.

Filing and verifying signatures. Once signatures have been collected, the proponents file them with the appropriate county elections officials, who then

report to the Secretary of State the total number of signatures submitted in their county. If this "raw count" total from all counties is less than the number of signatures required, the Secretary of State declares that the initiative has failed to qualify, and the process stops. However, if the raw count equals or exceeds the required number, the Secretary of State notifies the county elections officials to verify a random sample of signatures by comparing them to the signatures on the county voter registration list. Each county must verify 3 percent of signatures filed or 500 signatures, whichever is greater. County election officials apply the results of the random sample verification to estimate the total number of valid signatures filed in the county.

Based on the counties' reporting of valid signatures, the Secretary of State then conducts the following triage:

- If the total number of valid signatures is **less than 95 percent** of the number required, the initiative fails to qualify for the ballot.
- If the total number of valid signatures is **greater than 110 percent** of the number required, the initiative qualifies for the ballot without further verification.
- If the total number of valid signatures is **between 95 and 110 percent** of the number required, the Secretary of State directs the counties to verify every signature submitted within 30 days. The results of this "full check" are sent to the Secretary of State, who then determines whether the initiative has enough valid signatures to qualify for the ballot.

How Online Petition Signing Would Work

Online petition signing would permit registered voters to sign initiative petitions on a computer and transmit their signatures over the Internet to be counted toward the required total, so long as proper authentication and other security procedures were followed. Online signing would complement rather than substitute for conventional methods of gathering handwritten signatures.

Proposed initiatives would continue to be drafted by their proponents, summarized by the Attorney General, and the official summaries placed on the Secretary of State's website as is done currently. To sign an initiative online, a registered voter would access the initiative on the Secretary of State's website, and then sign it using a "digital signature" approved by the Secretary of State plus a separate unique identifier sent to the voter by the Secretary of State.

A **digital signature** is the term used for marking or signing an electronic document. It denotes a technical approach to authenticating that an online transaction (such as buying a car or signing an initiative petition) has been "signed" electronically by someone previously authorized to conduct the transaction.[6] Digital signatures use a mathematically robust method of encryption, known as "public key cryptography," enabled by "public key infrastructure" (PKI), to ensure the integrity of electronic signatures and records transmitted over the Internet.[7]

California voters would apply for a digital signature when registering to vote, or subsequently from the Secretary of State.[8] In either case, the application for a digital signature would include the voter's handwritten signature, which would remain on file. The voter would be assigned a unique pair of private and public cryptographic keys (each of which is a large number) by the Secretary of State or by a private "Certification Authority" under contract to the Secretary of State.[9]

The Certification Authority would maintain the PKI voter directory and handle secure transactions using voters' public and private keys (one key is used to encrypt a message, and the other to decrypt it). The private key would be downloaded onto the voter's computer while the public key would be controlled by the Certification Authority.

For added security, the Secretary of State would also assign the voter an additional **unique identifier** and mail it to the voter's registration address. The voter would be prompted to enter her unique identifier (or a portion of it) as part of the online petition signing process. The identifier could be a set of printed alphanumerical characters in sequence (e.g., AB12-34CD-E5F6-7P8Q) or arranged in the form of a "bingo card" matrix; e.g.:

	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
1	V	7	N	3	4	1	Z	2
2	X	V	8	2	5	B	U	4
3	C	9	7	H	L	6	4	1
4	W	8	2	4	M	D	7	9
5	E	G	3	6	1	J	4	N

It is important that this second identifier be delivered to the voter in a different way (e.g., by mail) than the private key used for her digital signature, and that it not be stored in the person's own computer where it could possibly be stolen by an anonymous hacker. While digital signatures go a long way toward authenticating that an electronic signature is associated with a unique private key assigned to an individual voter, it is possible for someone else to use the voter's computer, or for the private key to have been stolen from the voter's computer and used by someone else to sign initiative petitions. This is the reason for requiring a second unique identifier that is not stored in the voter's computer.[10]

To reduce the costs of a separate mailing, the Secretary of State could print the unique identifier in the Voter Information Guide mailed to each registered voter before each statewide election.

Once the voter has received a PKI private key (as software installed on the voter's computer) and unique identifier (as alphanumeric characters on a printed card), signing an initiative petition online would require the following steps:

1. The voter goes to the Secretary of State's website to find the official summary and related information about a proposed initiative.
2. After acknowledging that she has read the official summary, the voter clicks on an icon indicating "I want to sign this petition," which starts a secure user session[11] on a Secretary of State server linked to the Certification Authority holding the PKI voter directory and voters' public keys.
3. The voter enters her name and California voter ID (usually her driver's license).
4. If the voter is recognized in the PKI directory as eligible for online signing, a confirmation page is transmitted to her browser for her review.[12]
5. The voter signs the confirmation page, using her private key to compute a digital signature, and transmits it to the Secretary of State server.
6. The voter is then prompted to enter a portion of the unique identifier that has been mailed to her. For example, she might be queried to enter the characters in cells **A5**, **D2**, and **H4** of the above matrix. Her response would be "E" "2" "9," indicating that she is in possession of her printed unique identifier.
7. The signed page is decrypted using the voter's public key, and the unique identifier portion is matched to the Secretary of State's voter records.

8. If everything matches, the voter's signature is recorded by the Secretary of State, and a confirmation message is emailed to the voter.

While this process appears complex, and does involve significant mathematical computation, it is quite feasible to be implemented by certification authorities approved by the Secretary of State. In practice, voters would find signing an initiative petition online to be only slightly more difficult than making a credit card purchase over the Internet. The extra effort on the voter's part results from the additional authentication required for petition signing above that needed for e-commerce or other e-government transactions.

Security Issues Surrounding Online Petition Signing

Objections to signing initiative petitions online often focus on the security vulnerabilities and risks that may be involved. For example, the Secretary of State website that displays initiatives might be altered, "spoofed," or made unreachable for extensive periods of time. More troubling, individual's PCs are notoriously insecure, and private keys that are usually protected by passwords may be all too-easily accessible or otherwise compromised. As a consequence, a voter's private key might be unwittingly given to someone else or copied remotely by a sophisticated intruder, who could then use it to sign petitions.

These vulnerabilities are similar to those identified in prior reports and discussions about Internet voting, including the January 2000 final report of the California Internet Voting Task Force established by the Secretary of State.[13] The Task Force concluded that "technological threats to the security, integrity and secrecy of Internet ballots are significant" and present risks of "automated

fraud." It recommended against implementation of remote Internet voting from home and office computers. Although the Task Force "did not consider Internet petition signing at any great length," the report of its Technical Committee commented:

> "Systems that would allow online petition signing from a home or office PC are vulnerable to malicious code or remote control attacks on the PC that might prevent the signing of a petition, or spy on the process, or permit additional petitions to be signed that the voter did not intend to sign, all without detection. Hence, for the same reasons that we do not recommend Internet voting from machines not controlled by election officials, we cannot recommend similar systems for petition-signing until such time as there is a practical solution to the general malicious code problem and the development of a system to electronically verify identity."[14]

Although these objections should not be minimized, the authentication process described above, including the use of a unique identifier not stored in the voter's computer, greatly reduces the opportunities for "automated fraud." That is, a malevolent individual or group intent on massive fraud must not only penetrate large numbers of voters' computers to find their PKI private keys, but also obtain simultaneously their unique identifiers that have been printed and mailed to them. This would be very difficult to do on a large scale without detection.[15]

Possibilities for fraud or abuse by individuals certainly exist for online signatures, as they do for handwritten signatures, absentee ballots or other methods of voting. Individual voters might be coerced to sign an initiative online, or they might sell their online signatures for money. But there is no reason to believe that the problems of coercion or signature selling would be any greater for online

signatures than for handwritten signatures on petitions circulated door-to-door or at shopping malls. Coercion and signature selling are crimes under California law,[16] and it will be important and relatively easy to clarify that these laws apply to online as well as handwritten signatures. Furthermore, the criminal penalties for signature selling could be strengthened; and civil penalties could also be imposed on the auction site.

More importantly, online petition signing appears much *less* risky than online voting. The voting process intentionally disconnects the voter's identity from the recorded vote, so that it will not be possible to reconstruct after-the-fact who voted for which candidates or measures. In contrast, petition signing deliberately retains the link between signer and signature, so that signatures can be verified against voter registration records when they are counted. In transactional language, voting is non-reputable, but signing is a reputable act that can be voided if subsequently found to violate election law or procedures. The political stakes also seem considerably less for petition signing than for actual voting, with commensurately less motivation to corrupt or obstruct the process.

For added security, beyond the e-mail confirmation sent to all online signers, a query can be mailed to a sample of online signers at their registered postal addresses, asking them to confirm by return mail or phone that they actually had signed the petition. If a voter doesn't reaffirm her action, her signature is not counted. Numerous failures to reaffirm can alert the Secretary of State that something may be wrong and trigger additional audits or investigation. Moreover, if the queried voter reports that she did not sign the petition, that signature can be repudiated and election officials alerted to a potential fraud problem.

Another security issue relates to how long a voter's digital credentials to sign initiative petitions online should remain valid. The Technical Committee of the California Internet Voting Task Force expressed concern that:

> "…voters who wish to sign petitions electronically would likely have to be issued authorization (means of authentication) that is open-ended in time. The longer such authorizations are valid, the more likely it is that some of them will be compromised, or sold, reducing the integrity of the petition-signing system over time."[17]

Again, requiring two-part authentication with both a digital signature and a separate, printed identifier greatly reduces the possibilities for large-scale, automated fraud. One plausible response to concerns about open-ended credentials is to have the voter's private key for digital signatures remain valid indefinitely (unless cancelled, lost, or found to be compromised), but limit the validity of the voter's printed unique identifier to a two-year election cycle. A new unique identifier would be included in the Voter Information Guide mailed before each statewide election.

Access Issues

Another objection to online petition signing is that it would create further disadvantages for lower income individuals, the elderly, people with disabilities, and others who do not have easy access to computers and the Internet. Online signature gathering, the argument goes, will favor wealthy and highly educated voters who already have Internet connections at home and work.

For most people, going online has become a daily activity. More than 70 percent of adult Americans have access to computers and are Internet users, according to surveys

conducted by the Pew Internet & American Life Project.[18] Women and men now go online in equal numbers. But income, education, race, ethnicity, and (especially) age still are significant factors in the degree of Internet usage. As of April 2006, only 32 percent of Americans 65 or older reported having Internet access, compared with 88% of those age 18-49.

Equity considerations thus demand that voters be able to sign initiative petitions online using computers in designated public facilities such as libraries, Department of Motor Vehicle (DMV) offices, and other county and state offices. This requires the use of single-session PKI digital signatures that are not stored on the public computer, such as are now used in Canada for filling out census forms online.[19] The voter must also bring her printed unique identifier to the public computer in order to sign an initiative petition.

Cost Issues

The costs to implement online petition signing appear relatively low, based on similar two-part authentication processes for e-commerce and e-government applications. The major expenses are for setting up and maintaining the PKI infrastructure for digital credentials, printing and mailing the unique identifiers, and handling the online signature transactions through the Secretary of State website. For one million voters with digital credentials, each signing an average of three petitions in a two-year election cycle, a ballpark estimate would be $2-$3 million over two years, or $1.00-$1.50 per user per year.[20] The per-user cost would decrease with scale over time as more voters request digital credentials.

The costs of digital credentials might also be shared with other e-government applications such as corporate and partnership filings with the Secretary of State,

tax filings with the Franchise Tax Board or the Employment Development Department, voter registration changes of address, and some DMV transactions. Using digital signatures for these applications would rely on the same PKI infrastructure and effectively lower the cost of handling online petition signing.

Improved Verification Process

One further advantage of using digital signatures is that there would no longer be any need to use “raw counts” and “random samples.” The Help America Vote Act[21] mandates that the current voter rolls be maintained with the chief election officer of the state. In effect, then, only registered voters would be able to digitally sign a ballot measure at the Secretary of State’s website. Every digital signature, not just a sample, would be checked when decrypted to verify that the signer is a registered voter and has not previously signed the initiative. Therefore, 100% voter authentication would be achievable.

Creating A Better Informed Voter

Requiring that a voter go to the Secretary of State website to review an initiative’s official summary means that the voter will actually see what she is signing. Paid signature gatherers sometimes fudge the truth about the contents of the petition they are asking voters to sign. The official summary and title prepared by the Attorney General would be the first thing the voter sees. It would provide a direct link to the full text of the measure if the voter wants to read further. There would also be links to the websites of the proponents and opponents. The Secretary of State website could also provide links to interactive discussions for each

proposed initiative hosted moderated by nonpartisan organizations such as the Center for Governmental Studies, the California Voter Foundation, Common Cause and the League of Women Voters. In this way, online signing can provide better voter information and encourage more deliberative discussion about proposed initiatives than we have with today's method of gathering handwritten signatures.

Would Online Signatures Overload the Initiative Process?

Another important consideration is whether online petition signing would result in qualifying significantly more initiatives for the ballot than are qualified with current signature gathering practices. Many participants in and observers of the California political scene think that the initiative process already has spun out of control, with too many initiatives on too many diverse topics presented to voters at each statewide election. For example, sixteen statewide initiatives qualified for the November 2004 ballot, out of 45 that had been circulated.

By lowering the cost to proponents of obtaining a signature, online signing could be expected to lead to more initiatives qualifying for the ballot if the overall signature requirements remained the same as they are today. For this reason, proponents of online petition signing should consider increasing the total number signatures required for qualification. One way to accomplish this would be to double the current percentage of Gubernatorial votes needed from 5% (for statutory initiatives) and 8% (for constitutional initiatives) to 10% and16%, respectively.[22] A second approach would be to apply the current percentages to the number of registered voters eligible to vote in the last statewide election, rather than the number who actually voted in the last Gubernatorial race.[23]

Another possibility would be to reduce from 150 days to 90 days the length of time an initiative has to qualify.

Still, the net result -- over the short term, at least -- would likely be an increase in the number of ballot measures put before the voters. Californians would then have to decide whether Increased democratization of a process firmly in control of moneyed interests is worth it. One reform worth mentioning here is to allow for the return of the indirect initiative in California.[24] More involvement by the legislature in the initiative process would likely reduce the number that appear on the ballot. At the very least, legislative hearings would have to be held, allowing for a greater public airing and scrutiny before it goes before voters. The legislature would even have the option of enacting the measure, thus obviating the necessity of putting it on the ballot.

Still, over the long term, the solution is to make the representative system work better. The ultimate goal is to return to a time when the ballot measure was used as an escape valve, used infrequently only when the legislature proved unresponsive. To make the representative system work better, systemic reforms to state government would have to be made to ensure that our representatives respond to the public interest and the average citizen's concerns Those reforms would include campaign finance reform and a fair districting process, Ironically, those very reforms would likely have to come about by resorting to the ballot box.

Endnotes

[1] Phrase attributed to J. Fred Silva, as quoted in the final report of the Speaker's Commission on the California Initiative Process, at page 7 (January, 2002).

[2] Hiltzik, Michael, "Ways to Reform the Initiative Process," Los Angeles Times, July 28, 2005, http://www.latimes.com/business/la-fi-golden28jul28,1,2750191.story

[3] Many of the points presented here were initially developed in a paper prepared in 2001 for the Speaker's Commission on the California Initiative Process. See Walter S. Baer, *Signing Initiative Petitions Online: Possibilities, Problems and Prospects*, Public Policy Institute of California, January 2001, available at http://www.ppic.org/content/pubs/OP_101WBOP.pdf.

[4] However, the initiative measure must qualify at least 131 days before the next statewide election at which it is to be submitted to the voters (§ 9013; Cal. Const., art. II, § 8(c)). The initiative qualification process is the subject of Chapter 4 of *Democracy By Initiative: Shaping California's Fourth Branch of Government, Second Edition,* Center for Governmental Studies (2008)

[5] Secretary of State, State of California, "Initiative and Referendum Petition Signature Requirements," http://www.sos.ca.gov/elections/sov/2006_general/rqmts.pdf.

[6] Under, California Digital Signature Regulations, "a"Digitally-signed communication" is a message that has been processed by a computer in such a manner that ties the message to the individual that signed the message.." The digital signature must embody "all of the following attributes:

1. It is unique to the person using it.
2. It is capable of verification.
3. It is under the sole control of the person using it.
4. It is linked to data in such a manner that if the data are changed, the digital signature is invalidated, and
5. It conforms to Title 2. Division 7. Chapter 10 of the California Code of Regulations.."

See http://www.sos.ca.gov/digsig/regulations.htm.
Electronic signatures for contracts and many other transactions are authorized under the 1999 California Uniform Electronic Transactions Act (UETA) and the federal Electronic Signatures in Global and National Commerce (E-SIGN) Act of 2000. These laws basically state that a signature, document, or record may not be denied legal effect or enforceability solely because it is in electronic form. The laws deliberately do not specify the methods to be used for electronic signatures or the level of security required.

[7] For a brief tutorial on digital signatures, see http://en.wikipedia.org/wiki/Digital_signature.

[8] For example, the voter could go to the Secretary of State Website to download an application for a digital signature, complete and sign the application, and mail it to the Office of the Secretary of State.

[9] Certification Authorities currently approved by the State of California include Digital Signature Trust; Entrust, Inc.; VeriSign, Inc.; GeoTrust, Inc.; GlobalSign, Inc.; and Thawte, Inc. The list is available at http://www.sos.ca.gov/digsig/digsig.htm.

[10] See Bruce Schneier, "Why Digital Signatures Are Not Signatures," Crypto-Gram Newsletter, November 15, 2000, http://www.schneier.com/crypto-gram-0011.html

[11] Strong, end-to-end encryption services are assumed here, which are available from Certification Authorities approved by the Secretary of State.

[12] The confirmation page is signed with the Certification Authority's private key and decrypted by the voter's browser using the Certification Authority's public key to protect against man-in-the-middle attacks.

[13] Secretary of State, State of California, *Final Report of the California Internet Voting Task Force*, January 18, 2000; available at http://www.sos.ca.gov/executive/ivote/.

[14] Ibid., Appendix A, http://www.sos.ca.gov/executive/ivote/appendix_a4.htm.

[15] Of course, large-scale fraud by insiders within county election offices, the Secretary of State's office, or the Certification Authority could be possible for online signatures, as it is now for handwritten signatures or for any method of vote counting.

[16] California Elections Code Section 18603.

[17] *California Internet Voting Task Force*, op. Cit, Appendix A.

[18] Mary Madden, "Internet Penetration and Impact, April 2006," available at http://www.pewinternet.org/pdfs/PIP_Internet_Impact.pdf

[19] Mel Turner, "Bringing Canada's Census Online Conveniently and Securely" and Brian O'Higgins, "PKI for Census Online and other e-Democracy Applications," presentations at GTEC 2004, Ottawa, Canada, October 18, 2004 .

[20] Dan Rupinski, private communication, November 1, 2004. Costs would increase substantially if implementing online signing required hardware such as smart cards and readers, or USB tokens.

[21] 42 U.S.C Section 502

[22] Based on the Gubernatorial vote in 2006, 867,942 signatures would then be needed to qualify a statutory initiative and 1,388,708 signatures to qualify a constitutional initiative.

[23] Applying the current requirements of 5 and 8 percent to 23,033, 970 registered voters eligible to vote in the June 2008 statewide primary election, 1,151,699 signatures would be needed to qualify a statutory initiative and 1,842,718 signatures to qualify a constitutional initiative.

[24] An indirect initiative allows the proponent of an initiative to gather signatures and present the measure to the legislature for enactment. A unique form of the indirect initiative is one of the recommendations put forth by the authors of *Democracy By Initiative, supra,* at 134-137.

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About the authors….

Walter Baer is a Visiting Fellow at the Annenberg School for Communication at the University of Southern California. His research centers on the future evolution of the Internet, and how the Internet and other information technologies affect both commercial and public sector organizations and activities. He has published widely in the fields of communications, information technology, media, energy, and science and technology policy.

He previously held positions as deputy vice president of the RAND Corporation and professor of policy analysis at the RAND Graduate School; chief technology officer for the Times Mirror Company; assistant to the director of the Office of Science and Technology in the Executive Office of the President, and member of technical staff at Bell Telephone Laboratories.

Dr. Baer chairs the external advisory board of the UCLA Center for Embedded Network Sensing and has served on the Electric Power Research Institute (EPRI) advisory council, and the Governor's Council on Information Technology for the State of California. He is a Fellow of the American Association for the Advancement of Science and former chair of the AAAS Industrial Science and Technology Section.

He holds a bachelor's degree from Caltech and a Ph.D. from the University of Wisconsin, both in physics.

Roy Ulrich is a public interest lawyer, consumer advocate, and public radio broadcaster who lives in Santa Monica. A graduate of the University of California, Berkeley, where he majored in Communications and Public Policy, Mr. Ulrich went on to receive his law degree from California Western University in San Diego in 1969.

Mr. Ulrich's field of interest is political reform law. He specializes in drafting legislation and initiatives on behalf of public interest groups. In that capacity, he serves as President of the California Tax Reform Association and Vice Chair of the board of directors of California Common Cause.

Currently, he co-hosts a weekly public affairs program on Pacifica station KPFK in Los Angeles which focuses on law and politics.

Mr. Ulrich has written for the editorial pages of the *Los Angeles Times* and *The Nation* magazine, among other publications.