



NEWSLETTER

OF THE SOCIETY FOR THE HISTORY OF TECHNOLOGY

No. 95, n.s., April 2002

SECRETARY'S MESSAGE

Thanks to all of you who've been filling my mailbox with Campaign for SHOT pledge cards. We're off to an excellent start, but we've set ambitious goals, and we won't meet them unless all of us do what we can. What you pledge is not nearly as important as that you pledge. Big donors are always impressed by the percentage of members willing to contribute to capital campaigns, and they should be. It demonstrates that we are invested in our own society. I have especially enjoyed reading the notes which many of you have included with your pledge cards. My favorite so far is from a graduate student who included a check, saying that it would be larger next year, assuming he gets a job. That's the spirit. For those of you who haven't yet returned your cards, my mailbox still has plenty of room and the Campaign has a long way to go, so please take the time to fill in the pledge card and send it off. Kudos to our Vice-President/President Elect David Hounshell, who has already put in countless hours making this Campaign a success, and to our other officers and Executive Council members, who have pledged their Lives, their Fortunes and their sacred Honor....sorry, that was another group of founding fathers. We'll settle for the fortunes.

The Campaign for SHOT is not merely about raising money, but also about setting future priorities. In preparing for the Campaign, we've been encouraged by potential donors to think broadly about SHOT's future, and about how an endowment will allow us to extend ourselves in creative ways. Over the past few years, we have undertaken a number of important initiatives to bring SHOT to a wider audience: the SHOT/AHA booklet series, four strong and counting (check out Rudi Volti's new volume *Technology Transfer and East Asian Economic Transformation*, to be followed shortly by Sara Pritchard and Jim Williams' *Nature and Technology in History*), well-attended public lectures to kick off the annual meeting, including last year's Santa Clara University gala featuring Gordon Moore, Regis McKenna, and Doug Engelbart; a number of major prizes and fellowships won by SHOT members; and quick and visible response to public issues such as the recent conference on the

history of technology after Sept. 11 organized and hosted by MIT. For a full account of that event, see Daryl Hafter's President's Message in this issue. I should also note that the plenary session which opens the Toronto meeting, organized by Roz Williams, will take a look at what SHOT has to contribute to the ongoing conversation about 9/11. As we look ahead, we should be considering how to reach out to middle and high school teachers along the lines of Susan Smulyan's "Whole Cloth: Discovering Science and Technology Through American Textile History", how to build on our strengths in museums and science centers, and how to contribute our expertise to documentary television. I'm always delighted when a familiar face (*continued on page 2*)

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SHOT Newsletter Editorial Policies, Advertising Rates, and Submissions Deadlines

The *SHOT Newsletter* is published quarterly in April, July, October, and January and is sent to all individual members of the Society. Items for inclusion will be published **if received by the 1st of the previous month**. Please note that material for the newsletter may be submitted via electronic mail. Non-members and institutions may receive the *Newsletter* by separate subscription for \$15 per year. The *Newsletter* can also be read at the SHOT website.

Readers should verify closing dates and other information provided by institutions and sponsors; the editor and SHOT are not responsible for changes or typographical errors. Advertising for books, journals, and other matters related to the interests of the Society and its members is accepted if received by the 1st day of the previous month.

Advertising Rates: Full Page (7-1/2" x 9-1/2"), \$200;
 Halfpage (7-1/2" x 5" or 3" x 9-1/2"), \$150; Quarterpage (3" x 5"), \$100

The SHOT logo was created by Brickworks of London

(continued from page 1)

pops up on "Modern Marvels" or The History Channel. Yes, that was Kelly DeVries talking about Joan of Arc on "History at the Movies". Doing more will require more—more money, more ideas, more time and commitment. I believe we are up to the challenge.

Speaking of outreach, I wanted to report briefly on our experience with the electronic version of the Newsletter. About one hundred of you asked for paper copies, and anyone else who decides she/he wants a hard copy, just ask. What's surprising, to me at least, is the number of hits our web site is receiving. Last December, we got 84,103 hits (5,084 host visits), in January we had 102,862 hits (5,725 host visits) and in February 116,897 hits (5,993 host visits). While that hardly puts us in the Amazon.com league, it does suggest that people are paying attention. Of course, there's nothing more frustrating than old links or dead links, and even though we try to check links whenever we have the chance, we need to think about how to list HOT graduate programs and course syllabi. We can simply link to graduate programs, which now have their own web pages and are regularly updated in a way that was not true when we first launched a SHOT web site. But course syllabi are another matter. Yes, you can dig for them on individual web sites, but SHOT should be showcasing the best of breed. So please consider posting your favorite courses, bibliographies, and other reference tools on the SHOT site. Since we don't have the resources for our own web master, we have to count on you to help us do more with less.

Remember, everyone gets a paper copy of the July Newsletter, with vital information on Toronto, the Preliminary Program, and so on, but you can read it sooner if you go to our web site. You will find a new electronic ballot, electronic conference registration and electronic hotel reservations. (The Johns Hopkins University Press has been working overtime to get the bugs out of their new software so we can eventually implement electronic membership renewal with passwords instead of those %&#! membership numbers.) Toronto should be another great meeting, with an engaging program, courtesy of Karin Zachmann and the Program Committee, and a full range of tours and special events, thanks to Bert Hall, Janis Langins and the Local Arrangements Committee. Don't miss it.

Stuart W. Leslie
 Johns Hopkins University

FROM THE PRESIDENT'S DESK

“Rethinking Technology after September 11” Workshop: Some Thoughts

On March 16-17, Rosalind Williams and Miriam Levin hosted a workshop at MIT, to encourage reconsidering what role the history of technology might take in the aftermath of the World Trade towers' tragic destruction. Around the table gathered scholars of specific disciplines — information systems, twentieth century science, the philosophy of science, the sociology of technology, arms control, anthropology and the environment, the Middle East, post-war reconstruction, and technological innovation. Funding for this innovative meeting came from the Massachusetts Institute of Technology and the National Science Foundation, the latter responding more quickly than anyone thought possible under the guidance of program officer Bruce Seely. The participation of seasoned scholars and graduate students, individuals from the United States and parts of the world usually considered less technically advanced, from South America, Bangladesh, Egypt, and Iran, lent this meeting an intensity and originality far out of the ordinary.

Short essays contributed in advance set the tone. Some focused on the apparent disjunctions of the way high and low tech were used in the assault, and in the ensuing U.S. military movements in Afghanistan. Many asked whether we could call the plane crashes the result of high tech. The consensus was that a combination of technical sophistication and simple expedients were intertwined in the Twin Towers destruction. By changing an airplane into a rocket, the meaning and purpose of carefully elaborated systems were overturned. From the viewpoint of study, technical disasters open up societies to reveal the intertwined nature of the infrastructure. Even more than delineating the system in itself, a sudden rupture brings to light the extraordinary contingency underlying a developed economy. Links and obstacles to linkage: at the same time that unexpected portions of the society reveal their technical symbiosis, the myriad of workers connected to each part of the system cannot fathom how to reconstruct the whole. Our understanding of what a system is may be revealed as one-dimensional when the explicit example of dysfunction literally crashes down upon us.

The human element drew profound attention in the discussion. We need to learn far more about the relationship between technological use and the Muslim world. Was the employment of “Western” technology to destroy a symbol of capitalism

intended as a rejection of the technology along with political and social Western ideals? How is the mixture of high and low tech managed in the less developed economies? What is the role of technology transfer and the development of technological expertise among non-Western societies? Do Muslims believe they would need to secularize their societies to adopt technology? Or that the introduction of new technology would somehow diminish the religious orientation of the states? What about the other side of the story, the disruption of American feelings of safety and the effective power of our technology to keep us safe? How about the use of our media to inform, and perhaps traumatize the public? Does this event signify the end of faith in progress, or the intensification of a skeptical view?

Finally, we addressed the role of historians of technology in helping the public to come to grips with this complex set of ideas. A number of participants considered this the wake up call for academics to speak out and take the role of public thinkers. As historians we can mediate between the elements of technology and the concerns of the public. We can introduce a perspective into the globalization that is occurring, to encourage more understanding among many sides. We can marshal scholars with different languages to give us more intimate knowledge and understanding of societies in the Middle East and the Afghan region. We need to understand the political currents of these worlds. We need to learn who are the engineers, and what is their mission. We could benefit from a map of the technical base of the Middle East, and an understanding of how engineers are linked to extremists. As teachers, we face the challenge of allowing our syllabi to be affected by September 11's events. As educators, we need to reach to the high schools as well as colleges. Above all, we need to put our skill and expertise at the service of government agencies, so that our questions and thoughts are reflected in a public policy that reaches toward an effective and humane path.

Daryl M. Hafter,
SHOT President

SOCIETY NEWS

SIGs and Other Groups Meeting in Toronto

The following is the schedule for SIG meetings and other groups during the 2002 Annual Meeting in Toronto, Canada. Any changes or additions to the this list will be posted on our web site as they become available. We recommend that you check the Annual Meeting page often in the coming months

for information on the program and registration.

Friday October 18

Breakfast

Information, Computers and Society

Military History

Editorial

Lunch

Mercurians and Jovians joint meeting

Envirotech

Saturday October 19

Breakfast

Graduate Students

Albatrosses

"Tensions in Europe"

Lunch

Women in the History of Technology (WITH)

New Mobility SIG Forming

Following preliminary discussions at previous SHOT annual meetings, we would like to receive expressions of interest in the organization of a Special Interest Group for SHOT members focusing on Mobility History. We are casting a broad net within which we hope to include researchers interested in traditional transport history as well as those working on other aspects of the problem of mobility (i.e., mobility and culture, the role of users in configuring new mobility systems; intermodal and interartifactual technology choice, mobility and gender, the rise of mobility-related industries, mobility and environment, etc.). Please direct initial expressions of interest or questions to David Kirsch, dkirsch@rhsmith.umd.edu. Our initial aim is to collect a sufficient number of potential members to convene an organizational meeting in Toronto in October.

NEWS OF MEMBERS

Jeffrey K. Stine (Smithsonian Institution) has been elected vice president/president-elect of the Public Works Historical Society.

The Chemical Heritage Foundation has awarded **Erik Rau** their Eugene Garfield Fellowship in the History of Scientific Information for the 2002-3 academic year. Erik plans to use this fellowship to conduct research on the proliferation of information science and technology in American public life since World War II.

Pamela O. Long's book, *Openness, Secrecy, Authorship: Technical Arts and the Culture of Knowledge from Antiquity to the Renaissance* was awarded the Morris D. Forkosch Prize for the best book in intellectual history published in 2001 from the *Journal of the History of Ideas*.

Ron Bassett announces the publication of his book *To the Digital: Age Research Labs, Start-Up Companies, and the Rise of MOS Technology* (Johns Hopkins University Press).

2001 Recipients of Hagley's Center for the History of Business, Technology, and Society Grants and Fellowships.

The following members of SHOT received 2001 Hagley grants or fellowships.

Brian Frehner University of Oklahoma "From creekology to geology: how the search for oil transformed science, business, and government in the Southern Plains, 1905-1935"

Pamela Laird University of Colorado-Denver "Uncovering social capital in American business history: the social factors in success"

Lee R. Maddex West Virginia University "A study of Hagley's collection related to the American cut nail industry"

Laura Milsk Loyola University, Chicago "Meet me at the station: the culture and aesthetics of Chicago's railroad terminals, 1871-1930"

Christopher Tassava Northwestern University "Launching a thousand ships: wartime shipbuilding and American state enterprise, 1940-1950"

CONFERENCES

One of the largest and most comprehensive symposia ever on medieval metal will take place at the two international medieval congresses in **Kalamazoo, Michigan (2-5 May)** and **Leeds in northern England (8-11 July)**. A panel of 34 speakers will address metal use and its social roles, as well as the crucial importance of metal for medieval technology, art, architecture and cultural practice for the period extending from 500-1600 AD. Organized by **AVISTA (Association Villard de Honnecourt for Interdisciplinary Study of Medieval Technology, Science and Art)**. For more information on the program see www.avista.org, with links to the two congress home pages.

CALLS FOR PAPERS

The Pioneer America Society will hold its 34th annual conference in Springfield, Illinois, on October 17-19, 2002. The meeting will be held in conjunction with the **Conference on Historical Archaeology** in Illinois, at the Hilton Hotel just east of the Old State Capitol in downtown Springfield. The hosts for this event will be Tracey and Keith Sculle of the Illinois Historic Preservation Agency, Robert Sherman of the Elijah Iles House Foundation, and Floyd Mansberger of Fever River Research. The theme for this year's conference is: **"Cultural Crossroads."** The Saturday field trip will focus on the Abraham Lincoln sites in and around Springfield. It will also include other important historic and architectural places within the city such as the Elijah Iles House, a mid-19th century dwelling that reflects central Illinois's cultural crossroads, and the Dana Thomas House, an early Prairie School home designed by Frank Lloyd Wright. The conference committee is currently soliciting proposals for papers, special sessions, and panel discussions relating to the conference theme. Papers on Illinois are especially welcome, but presentations on all material culture topics of interest to the Society will be considered. **The abstract deadline is July 5, 2002.** For guidelines and complete conference information, contact Tracey Sculle, Illinois Historic Preservation Agency, Old State Capitol, Springfield, Illinois 62701; tel: 217/785-4324; fax: 217/524-7525; email: Tracey_Sculle@IHPA.state.il.us. Student membership in the Pioneer America Society is still \$10 a year and includes subscriptions to the Society's two journals, *Material Culture* and *P.A.S.T.* Students also receive a discount on conference registration fees.

The program committee for the **American Society for Environmental History** Annual Meetings to be held in Providence, RI, in **March 2003**, invites proposals for panels, papers, and posters. Proposals may address any area or field of environmental history. However, in keeping with the theme of the conference, *Frontiers in Environmental History: Mainstreaming the "Marginal"*, the program committee specifically solicits submissions that call attention to previously underrepresented world areas and intellectual approaches. Panels on the environmental history of Africa, Latin America, Asia, and Eastern Europe are particularly encouraged. Of equal interest are subjects that examine urban and industrial environments and those on the interface between environmental history and disciplines such as geography, anthropology, ecology and economics. By exploring the margins and encouraging interdisciplinary conversations, we seek to expand the frontiers of the field, and in the process, gain new insights on its traditional core. The program committee *strongly encour-*

ages proposals for complete panels with four individual papers and a chair. In order to maximize the number of papers and create more opportunity for creative exchanges with members of the audience, the program committee prefers not to include a commentator in each session. If you feel that a discussant is essential for your panel, please include in your application an explanation of why a commentator is intrinsically necessary for its coherence. Please note also that although the committee prefers full panels, individual paper proposals are welcome. The committee seeks proposals from scholars across a broad range of disciplines. Panels that are interdisciplinary or which bring together papers on common themes from across different world areas are particularly encouraged, as are those involving scholars from traditionally underrepresented regions. To apply, please download the form from the ASEH Web page (<http://www2.h-net.msu.edu/~environ/>) and send SIX copies, along with six copies of the required attachments to: Ravi Rajan, ASEH Program Committee Chair, Department of Environmental Studies, University of California, Santa Cruz, CA 95064, USA. **Deadline: Sept. 1, 2002** Please feel free to contact any member of the program committee should you have any questions: Colin Duncan, McGill University (cduncan@leacock.lan.mcgill.ca); Nancy Jacobs, Brown University (Nancy.Jacobs@Brown.edu); Byron Pearson, West Texas A&M University (bpearson@mail.wtamu.edu); Stephanie Pincetl, University of Southern California (pincetl@rcf.usc.edu); Ravi Rajan, University of California, Santa Cruz (srrajan@cats.ucsc.edu); Sylvia Washington, Northwestern University (s-washington4@northwestern.edu).

The **Journal of Women's History** is soliciting articles for a special issue on women's labors throughout the world, under diverse economic and gender systems, and in all historical periods. They seek manuscripts on all forms of women's work, both paid and unpaid, including but not limited to family, household work. Contact: jwh@osu.edu Announcement ID: 129657 <http://www2.h-net.msu.edu/announce/show.cgi?ID=129657> **Deadline: 1 August 2002**

The **Southern Connecticut State University Women's Studies Program** announces the Call for Sessions for their 12th Annual Women's Studies Conference, **"Ecofeminist Ethics & Activism: Revisioning the Future,"** that will be held Oct. 4-5, 2002 in New Haven, CT. This conference will provide an opportunity to explore topics regarding ecofeminist ethics and activism on a global scale and will seek to promote interaction among academics, community leaders, activists, professionals, artists, and others interested in women's and environmental studies. All theoretical approaches are welcome as are non-academic, practical or experiential workshops. Submissions for papers (500 word proposal) and panels (1000 word proposal) on any aspect of ecofeminist ethics and

activism are invited. Possible session formats include, but are not limited to, roundtable discussions, workshops, paper presentations, performances, slide/video shows, poster sessions, works in progress, and exhibits. **Submission deadline is June 7, 2002.** For more information including guidelines for submissions, please visit their website at <http://www.southernct.edu/departments/womensstudies/Ecofeminist.htm>, email womenstudies@southernct.edu or call 203-392-6133

Landscapes and Roads in North America and Europe Cultural History in Transatlantic Perspective Conference at the German Historical Institute, Washington, D.C., October 11-12, 2002. Conveners: Christof Mauch (German Historical Institute, Washington, D.C.) Thomas Zeller (Oakland University/University of Maryland) This conference will explore changing visions of nature, roads, and automobiles over time. It will ask how individuals, competing social groups, and policymakers sought to participate in the engineering of landscapes and culture and how they tried to establish themselves as professional authorities in the course of the 20th century. It will examine the aesthetic ideals, recreational ideas, technological challenges, issues of historic preservation, political agendas, and environmental concerns that guided the planning of roads and roadsides, and in this context we will also discuss the relevance of driving experiences. Further, the conference will explore the role of international models and transcultural exchange in road design. They invite speakers from both sides of the Atlantic to present their research at the German Historical Institute in Washington D.C. In particular, they are looking for scholars who focus on the connection between landscape design and the larger issues of cultural representation, national identity, and environmental concerns within specific countries. Comparative papers are also very welcome. Send a short proposal (500 words) together with your postal and e-mail address no later than **May 15, 2002** to both conveners. The German Historical Institute will cover lodging and travel expenses of the participants.

a graduate degree or from established scholars. Graduate students must have completed one year of study prior to receiving a grant-in-aid. For the Biot award, preference will be given to those working in the history of technology, especially in the fields of aeronautics, applied mechanics and geophysics. The grant-in-aid may be used for travel and living expenses, for photocopy or other photo-reproduction costs related to the research project, and for miscellaneous research expenses. Funds may not be used for the purchase of computer software or hardware. For further information on holdings and on-line resources, please consult the Archives' Web page: <http://archives.caltech.edu/>. Application guidelines may be obtained by writing to: Archivist, 015A-74, California Institute of Technology, Pasadena, CA 91125. **Applications will be accepted year-round and will be reviewed quarterly, on January 1, April 1, July 1 and October 1 of each year.**

Short-term grants-in-aid support visits to **Hagley Museum and Library**, Wilmington, Delaware, for scholarly research in the imprint, manuscript, pictorial, and artifact collections. They are designed to assist researchers with travel and living expenses while using the research collections. Scholars receive a stipend, make use of the research holdings, and participate in the programs of the Center for the History of Business, Technology, and Society. More information on Hagley's research collections may be obtained through our on-line catalog at <http://.hagley.org>. Further information on our grants and fellowships can be obtained from the Center for the History of Business, Technology, and Society's website: <http://www.hagley.lib.de.us/center.html>. Low cost housing may be available on the museum grounds. Stipends are for a minimum of two weeks, maximum of two months at no more than \$1,400 per month. **Deadlines for the year are: March 29, June 28, and October 31.** Contact: Carol Ressler Lockman, Hagley Museum and Library, PO Box 3630, Wilmington DE 19807, email: crl@udel.edu; fax: 302-655-3188; phone: 302-658-2400, ext. 243.

FELLOWSHIPS

The **Maurice A. Biot Archives Fund** and other funds provided by the Archives of the California Institute of Technology offer research assistance up to \$1500 to use the collections of the Archives of the California Institute of Technology. Applications will be accepted from students working towards

EMPLOYMENT

The **ACLS** invites nominations for the position of President (Chief Executive Officer), duties to begin in 2003. A well-established scholar-teacher in higher education, with pertinent leadership and administrative experience, a broad awareness of the conditions shaping scholarship and education, and a willingness to undertake fund-raising activities, is sought. A non-profit organization founded in 1919 whose headquarters are in New York City, ACLS is a federation of 64 national learned organizations in the humanities and social sciences and

is the preeminent private humanities organization in the U.S. The purpose of the Council, as set forth in its constitution, is “the advancement of humanistic studies in all fields of learning in the humanities and social sciences and the maintenance and strengthening of relations among national societies devoted to such studies.” **The review of nominations and applications will begin on May 15** and will continue until the position is filled. Letters of nomination or application should be mailed to Professors Neil Rudenstine and Sandra Barnes, Search Committee Co-Chairs, American Council of Learned Societies, 228 East 45th Street, New York, New York 10017; <http://www.acls.org/>. ACLS is an equal opportunity employer. Women and minorities are encouraged to apply.

The **National Science Foundation** invites applications for the position of Program Director, to begin preferably in August 2002. The position is a rotational one, carrying an initial one-year appointment, normally renewable for up to two years or more. The Program Director for Science and Technology Studies (STS) represents STS to colleagues in the NSF and other Federal science agencies and to the Administration. STS encompasses history, philosophy, and social science studies of science, engineering and technology. The Program Director provides intellectual leadership and is responsible for all aspects of program administration and development. He or she administers the review of research proposals submitted to NSF in this field and is responsible for recommending and documenting actions on the proposals reviewed, for dealing with administrative matters relating to active NSF grants, and for maintaining regular contact with the relevant research communities and providing advice and consultation to persons requesting them. Program Directors are also expected to engage in NSF-wide initiatives and interagency collaborations. Applicants must have a Ph.D. in a relevant discipline, and must be active in research in some area covered by the program. They should show evidence of initiative, administrative skill, and ability to work well with others. Six or more years of research experience beyond the Ph.D. are required for appointment as Program Director. Salary is negotiable, and is comparable with academic salaries at major US institutions. Please direct inquiries and expressions of interest to Dr. Daniel H. Newlon, Acting Division Director of the Division of Social and Economic Sciences, phone: (703) 292-8761; e-mail: dnewlon@nsf.gov; or Dr. Bruce Seely, Program Director, Science and Technology Studies, phone: (703) 292-8763, e-mail: bseely@nsf.gov; or Mrs. Bonney Sheahan, coordinator of the cluster housing the STS program, phone: (703) 292-8764, or e-mail: bsheahan@nsf.gov. All are located in Suite 995, National Science Foundation, 4201 Wilson Blvd., Arlington, VA 2230, fax: (703) 292-9068. Qualified persons who are women, ethnic/racial minorities, and persons with disabilities are strongly encouraged to apply. The National Science

Foundation is an Equal Opportunity Employer committed to employing highly qualified staff that reflects the diversity of our nation. Web site: <http://www.nsf.gov/sbe/ses/sts/start.htm>

DISSERTATIONS COMPLETED

David C. Arnold, *Supporting New Horizons: The Evolution of the Military Satellite Command and Control System, 1944-1969*. Auburn University, March 20, 2002

ELECTRONIC NEWS

The **Historical Construction Equipment Association** (HCEA) is completing a comprehensive upgrade of their website at <http://www.hcea.net>. The Historical Construction Equipment Association (HCEA) is a non-profit organization dedicated to preserving for public education the history of all types of construction, surface mining and dredging equipment. **Founded in 1986, they have 4,300 members worldwide. It operates the National Construction Equipment Museum and an extensive Archives of construction, surface mining and dredging equipment industry at its headquarters in Bowling Green, Ohio.**

A recent issue of the *Journal of Design History* is devoted to the topic of Technology and the Body. The web site www.jdh.oupjournals.org has the full contents together with abstracts. There is also a downloadable pdf order form offering the issue at a reduced rate

Public History and Public Debate, a Response

In the January 2002 SHOT Newsletter, the Secretary, Bill Leslie, raised the issue of whether SHOT ought to get involved, as an institution, in public debates over science and technology. He asked, “...are there times when SHOT itself should take a public stand?” In his view, the problem is not that ‘we don’t irritate each other enough,’ to paraphrase Alex Roland, but that “we don’t irritate anyone else.”

Bill raises a fair question. I do not offer an unequivocal answer to it, but I do wish to respond to what was, for me, a mild feeling of irritation which I felt at the Awards Banquet at the Annual Meeting in San Jose. The occasion was one speaker’s harsh criticism of President George W. Bush’s renewed emphasis

on developing a ballistic missile defense system, at great cost, even while most admit that such a system would not have prevented the terrorist attacks of last September 11.

What bothered me was not the speaker's opinion about President Bush's proposal—in many respects I share that opinion. Rather it was that the opinion was expressed without reference to what members of SHOT know best, namely the history of technology. If we are to enter into public debates in such a way that our voice is heard, we must do it from a position of strength. And that strength comes not from our job titles but from the expertise and skills that we have, that others do not have.

Not many of us have a background in physics, radar, rocket propulsion, missile guidance, Artificial Intelligence, etc. that would allow us to make an informed judgement of the technical feasibility of missile defense systems. But we do have an expertise in the history of large-scale, complex technical systems. SHOT members do understand that the development of large-scale technical systems involves a large social and political component. And we have developed analytical tools to tease out those components and study them alongside the internal "hardware" history.

What we have not done is apply those skills to the Ballistic Missile Defense debate. On this score I confess that I am as guilty as anyone else, but now would be a good time to apply our skills to this issue. What is the historical context that surrounds missile defense? When Ronald Reagan proposed a system, christened "Star Wars," in 1983, a few scholars connected his desire for such a system to his deeply-held belief in the moral superiority of the United States and its ability to use technology for morally good ends. Are those beliefs operational today? But the history of missile defense goes much further back: to the days when the first V-2 rockets began to fall on London during the Second World War. These efforts increased in intensity in the United States during the early 1950s.

One of the crucial events in this history was a study by Bell Labs that was undertaken in 1955. The study concluded that, although many thought it impossible, it might just be feasible to intercept and destroy a warhead coming in at hypersonic speeds. Based on an unscientific survey of recent issues of *Technology and Culture*, and of monographs published by SHOT members, I find numerous studies of Bell Labs and its culture of innovation and research, but almost nothing on this study, nor on Bell Labs' involvement as a prime contractor for missile defense systems for almost three decades beginning in the 1950s. Of course, those who are debating the current administration's proposals might not care all that much, nor see

much value in, an historical monograph on Bell Labs' work several decades ago. But such a study, if properly done, could contribute something positive to that debate; what is more, it would be something that members of SHOT as a whole could endorse.

Let me end with a story of how another professional society, and its journal, became involved in this controversy (whether this offers any "lesson" for SHOT I leave for further discussion). While scanning through a set of papers at the MIT Archives last year, I came across a dispute that broke out thirty years ago among members of the Operations Research Society of America. Some members objected to the "politicization" of its journal, *Operations Research*, which had published a report on the effectiveness of the "Safeguard" Anti-Ballistic Missile system. A letter in the files, written in the fall of 1971, offered support to the journal's editor for his decision to publish. The author of the letter? Donald Rumsfeld, then holding the title of Counsellor to the President. My point? Only that when debating Ballistic Missile Defense, a knowledge of history can be informative. By all means let's get involved in this debate, but as we do, whatever side we take, let's do it from a position of strength.

Bill suggested that our problem is that we don't irritate each other enough. I hope I am not causing any irritation by this letter, but if I am, well, then I guess I will have countered his criticism!

Paul E. Ceruzzi

LETTERS TO THE EDITOR

We received a letter continuing the discussion on **EC2000** (January 2001). To read the original essay and other response (April 2001), visit the electronic newsletter archives on the SHOT web site www.shot.jhu.edu.

To the Editor:

Both David Morton and Andrew Todd have in recent issues of the Newsletter presented an optimistic picture of what the newest accreditation rules for college engineering programs (EC 2000) might mean to those teaching the history of technology. As a professor in a department of electrical and computer engineering whose college has just undergone the scrutiny of a visiting team from the Accreditation Board for Engineering and Technology (ABET), the implementer of EC 2000, I am less sanguine about historians getting more engineers into their classrooms—indeed, they may have been better served by the old standards.

The previous ABET regulations specified a minimum number of liberal arts courses that engineering students were required to take. This threshold is gone, having been replaced by Section C in Criterion 4 of EC 2000 which demands that the curriculum contain, "a general education component that compliments the technical content of the curriculum and is consistent with the program and the institution objectives." The statement is vague and subject to different interpretations. It is doubtful whether an ABET inspection team, typically comprised of people with engineering degrees, has the knowledge and sophistication required to see whether this goal is being met. I recently was present at a meeting of the faculty of my college of engineering where, unfortunately, a resolution was overwhelmingly passed to convert the second term of our students' freshman English course into a semester of technical writing. The proponents of this measure argued that it in no way violates EC 2000.

Andrew Todd asserts that the heavy use of computer software packages in engineering programs has freed the curriculum of much drudgery and will reduce the number of technical courses students will be required to take, thus creating opportunities for historians to attract engineering students into their field. Indeed, oppressive calculations have been almost eliminated throughout engineering education but Todd is oblivious to the insatiable demand for the introduction of new engineering subjects. I would invite the curious to visit the ABET web site (www.abet.org) and go to the section captioned III Program Criteria. The list of required topics for my own specialty is long enough so that I will not present it here; however a personal example might be helpful. In the period 1956-61 I was an undergraduate in a 5 year program in electrical engineering at Cornell. Most of the required courses in my department were concerned with electric power and electronics. Nowadays students in the four year program in which I teach not only take these older subjects but also feedback control systems, digital circuit design and computer software, materials science, analog and digital signal analysis, wireless communication as well as a variety of mathematical topics that were optional in the 50's such as complex variable theory, linear algebra, applied probability and discrete mathematics. I can report from harsh experience that the ABET visitors look carefully for this material. Moreover, engineering design, not a part of the curriculum until a generation ago, is now a prime focus of ABET. My students spend much of their senior year attempting a "real world" design project which, in spite of what Todd suggests with his emphasis on the pleasures of software, involves a great deal of sweating over electrical circuits.

In talking with various department heads about EC2000 I have heard such words as "nightmare" and "strait jacket." The

evolution of the new standards will someday absorb the attention of a historian in the mold of David Noble. Their subtext is apparently a desire on the part of industry to obtain new engineering graduates who can be put directly to work with minimal corporate training. This reflects the decreased mutual loyalty of both engineer and employer, and the shorter period of time that fresh graduates stay in their initial job.

The vagueness of much of the EC2000 rules and the micromanaging that they represent derive from their origins- Total Quality Management ¹ (and its offspring ISO 9000) which has been so effective in the manufacturing sector but which is only roughly applicable to education. A student is not a customer in the sense that someone buying a car is. Moreover, the student's future employer might be regarded as the true customer of an engineering program or perhaps the student's parent who pays the tuition bills. ABET requires the perpetual polling of an engineering faculty's "constituency" to see if it is pleased with the product being graduated and it is here that the nightmare, known as "outcomes assessment," begins. Is the recent graduate the best judge of his education or is it this same individual 5, 10 or 20 years later? How do you find these people and poll them? If the school has a national reputation its graduates may work for numerous employers spread throughout the country. How does one locate the employers and get them to respond? The logistics become difficult and burdensome to deans and department chairs. My point in airing this pain is to show that changing the curriculum to include more history is very far from the minds of engineering department chairs- the sheer effort of interpreting EC2000 and pleasing ABET is all that most can think of.

I must conclude with a matter raised by Todd that I find offensive. He states, "... engineering students no longer come out of the top drawer; with very few engineers being the children of doctors, lawyers and professors; and that engineers no longer have the kinds of connections needed to enforce their views in the larger society." This statement is both incorrect and elitist in the worst sense. Engineering school has *never* attracted in large numbers the children of Todd's "top drawer." It has traditionally educated the children of engineers, technicians, blue collar workers and low paid immigrants. I have had in my classes doctors' sons and professors' daughters - they were no more or less impressive than anyone else.

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¹ See Quality Assurance in Engineering Education: A Comparison of EC-2000 and ISO 9000 by Sanjiv Sarin, Journal of Engineering Education, October 2000, pp. 495-501

We also received the following request:

To the Editor:

I'm trying to preserve some of the history of the IBM 1401 computer. My primary interest is manuals and software. Others are interested in hardware. If you have any manuals, software tapes, or software decks, please contact me. I'm not collecting as an investment, so copies of manuals are fine. Electronic representations of software tapes or decks are preferred to original media, if you can read them. For tapes, it is important to preserve the record boundaries, and maybe even parity information if there are errors. If you cannot read cards or tape, I can arrange to convert them. I can return the original media to you if you want to keep it.

Collectors are interested in other sorts of memorabilia such as coding sheets and flow-charting templates, so don't discard them. The people who have hardware would find the engineering drawings that Customer Engineers used for field service to be quite useful.

I don't have access to 1401 hardware, but I do have Bob Supnik's simulator. I have successfully run a few programs using it. I have two-tape Autocoder, but I can't figure out how to run it. I have a copy of the listing tape output, which has object card images embedded in it. But just extracting the object card images and trying to run them in the simulator doesn't work. I can supply details of the mechanism of failure if you're interested. If you have any recollection of how to use this program, please contact me.

Van Snyder
(Speaking strictly for myself)
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MISCELLANEOUS NEWS

The **American Association for the Advancement of Science** (AAAS, pronounced "Triple-A-S"), the **oldest general scientific society in the world**, welcomes researchers and interested individuals to visit its archives and use its extensive collections. Descriptions of other AAAS collections are online at <http://archives.aaas.org>. Contact the AAAS Research Archivist, Amy Crumpton (202-326-6791 or acrumpto@aaas.org), for more information or to schedule an appointment.

2002 Annual Meeting Toronto, Canada Delta Chelsea Hotel October 17-20, 2002

Check your July issue of the *SHOT Newsletter* for:

Annual Meeting Program

Local Arrangements

Registration Form

Elections Slate and Ballot

And check the SHOT Web site in June for:

July issue of the *SHOT Newsletter*

On-line Meeting Registration

On-line Hotel Reservations

On-line Election Voting

Up-to-the-minute Meeting news