that the National Research Council (NRC) intends to speed up the production and release of reports, in part because of the demise of the Office of Technology Assessment (OTA). This should be welcome news to policy-makers in Washington, D.C. But the NRC is not the only organization with the ability to provide reports on science and technology issues. Increasingly, scientific societies should be prepared to produce high-quality policy reports for political decision-makers.

Toward this goal, the Association for Computing Machinery (ACM) established the U.S. Public Policy Committee of the ACM (USACM). One of the USACM's first major undertakings was to commission a study of encryption policy in the United States, a matter of great concern to many members of the computing community. With support from the National Science Foundation, the study committee released the report "Codes, keys, and conflicts: Issues in U.S. crypto policy." We are now initiating a second study "Design principles to promote public access to government data."

We are also increasing our presence in the Washington, D.C., policy process. Our motivation is ACM's belief that computer professionals have an obligation to assist the public and government officials in understanding the technical issues that we now find in many areas.

The USACM has set up a Web page to make available various reports, legislative resources, and statements on emerging policy issues. Anyone who is interested in our work on issues such as universal access to the National Information Infrastructure (NII) or intellectual property aspects of the NII can find this information at **http://www.acm.org/usacm/**

We encourage other professional societies to engage in similar efforts.

Barbara Simons
Chair,
U.S. Public Policy Committee,
Association for Computing Machinery,
666 Pennsylvania Avenue, SE, Suite 301,
Washington, DC 20003, USA

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Light-Emitting Electrochemical Cells

The polymer light-emitting electrochemical cell recently reported by Qibing Pei *et al.* (Reports, 25 Aug., p. 1086) represents an interesting and potentially useful device. However, light-emitting electrochemical cells have been investigated for more than 30 years, beginning with research by E. A. Chandross at Bell Labs, D. M. Hercules at the Massachusetts Institute of Technology, and our group at the University of Texas at Austin. Although such cells are described by different terminology than that used in the report by Pei *et al.*, electrochemiluminescence (or electrogenerated chemiluminescence—ECL) basically involves the same phenomena and concepts as those in the cell described by Pei *et al.* The reduced ("*n*-doped") forms generated at the cathode react with oxidized ("*p*-doped") forms produced at the anode to form excited states that emit light. In fact, ECL in polymer-based systems was demonstrated some time ago (*1*). Indeed, in a recent paper co-authored by one of the authors of the *Science* report (*2*), ECL in a film of a polyphenylenevinylene was demonstrated.

Allen J. Bard
Department of Chemistry and Biochemistry,
University of Texas,
Austin, TX 78712, USA

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2. M. M. Richter, F-R. F. Fan, F. Klavetter, A. J. Heeger, A. J. Bard, *Chem. Phys. Lett.* **226**, 115 (1994).

Response: Bard points out the similarities between the light-emitting electrochemical cell (LEC) and the phenomenon known as electrochemiluminescence. We are, of course, aware of this important earlier work. Our understanding of the two approaches leads us to conclude that, although superficially similar, the mechanisms involved in electrochemiluminescence are, in fact, quite different from that involved in the LEC.

The electrochemiluminescent devices described and studied in detail by Bard and colleagues rely on transport of the oxidized or reduced light-emitting molecules (ions) themselves through the electrolyte between the electrodes, rather than transport of the electronic charge carriers between the electrodes. The oxidized and reduced species (ions) then react with each other (or the electrode) to form the original organic or metallo-organic species in an excited state, which may subsequently decay radiatively. Electrochemiluminescent displays have been described in which the electrochemiluminescent substance is dissolved in a solid electrolyte. Nevertheless, after generation of the oxidized and reduced species, the ions diffuse away from their respective electrodes and eventually meet somewhere between the two electrodes. Alternatively, electrochemiluminescent material can be fixed on one of the electrodes in an electrochemical cell and cyclically reduced and oxidized by an alternating potential. A direct current potential can be used only if the cell contains an additional species that serves to interact with the luminescent material in such a way as either to oxidize it at the same potential at which it is electrochemically reduced or to reduce it at the same potential at which it is electrochemically oxidized.

In the LEC, on the other hand, the oxidized and reduced macromolecules are immobile; they do not physically move from one electrode to the other. On the contrary, it is the electrons in the π^*-band and the holes in the π-band (that is, the electronic charge carriers) that move between the electrodes within the immobile semiconductor. When a voltage is applied between the contacts, the semiconductor is electrochemically reduced at the cathode to form an *n*-type region containing negatively charged carriers (electrons) and electrochemically oxidized at the anode to form a *p*-type region containing positively charged carriers (holes). Ions move only during the transient formation of the *p-n* junction; after reaching steady state under a fixed applied voltage, all ion transport stops. Moreover, ion transport is not directly involved in the light emission. Under the steady-state conditions with the voltage on and the *p-n* junction formed, electrons from the *n*-type region and holes from the *p*-type region combine in the compensated *p-n* junction to form neutral pairs that radiatively decay and give off light.

Q. Pei
G. Yu
C. Zhang
Y. Yang
A. J. Heeger
UNIAX Corporation,
6780 Cortona Road,
Santa Barbara, CA 93117, USA

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Women's Longevity

In his otherwise excellent News article (Women's health research blossoms, 11 Aug., p. 766), Charles Mann states that "For most of human history, men lived longer than women. That situation began to change a century ago, as modern medical practices came into use. By 1920, the average U.S. female life expectancy of 54.6 years had outstripped the male life expectancy of 53.6." The problem in assessing these statements is that there are no reliable mortality data for the world as a whole for