
ARTICLES

Reflections on the Forum at Forty

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[Editor's note: A fuller version of Prof. Hafemeister's history can be found on the Forum's homepage at www.aps.org/units/fps/]

This year marks the 40th anniversary of the founding of the Forum on Physics and Society. Because physics principles underlie so many societal issues (nuclear arms, energy, climate change, technical innovation ...) and because physics offers a way to quantify some aspects of them, members of the American Physical Society (APS) should be encouraged to understand, analyze and debate them. This is precisely why APS members formed the FPS at the 1972 APS San Francisco meeting. In this article, I review the history of FPS and some of its accomplishments, and offer some brief thoughts for the future.

The Early Years: Getting Established and Winning Respect

The FPS was born in the tumultuous 1960's and 70's. The issues of that era - the Vietnam War, the Anti-Ballistic Missile system, and the energy crisis—along with the start of the environmental movement and the civil/human rights revolution, impelled that generation of physicists to consider their professional responsibilities. Many felt that the APS should have a division or forum in which appropriate science and society issues could be debated by informed participants before the APS membership. An excellent review of the early days of the Forum was published by Barry ("Mike") Casper in the May 1974 issue of *Physics Today* [1].

In its early days, the Forum was looked upon with suspicion by the APS leadership, which was concerned that the Forum would move issues too far and too fast. Because of this concern, the APS Council appointed a senior APS member to attend Forum Executive Committee meetings to make sure that the Forum did not embarrass the APS. Embarrassment never happened, and the FPS has long since won the respect of the APS Council; they no longer appoint a representative to the Forum Executive Committee. Indeed, the Forum is regarded as a source of manpower and ideas for the APS to utilize in preparing its public positions. As of January 2011, the Forum had just over 6,100 members, 12.7% of the total APS membership of nearly 48,300. Of 38 chairs of the APS Panel on Public Affairs (POPA; see below) from 1975 to 2012, six have also been chairs of the FPS.

The Forum has had many excellent leaders over its 40 years. I would like to describe briefly the four "founding fathers" pictured in Casper's article: Earl Callen (American University), Martin Perl (SLAC), Mike Casper (Carleton College) and Brian Schwartz (then MIT, now CUNY). Callen was the founding chair of the Forum. Although his particular interest was international human rights of scientists, the major goals of his term were building membership, developing a reputation within the APS membership for quality and objectivity, and establishing effective working relationships with the APS Council.

Martin Perl can only be described as a phenomenon. While acting as the second chair of the Forum in 1973-74, he discovered the tau meson, for which he was awarded a share of the 1995 Nobel Prize in physics. In his spare time, Perl established and edited the forum's newsletter, *Physics and Society*, from 1972-79, and mobilized two Penn State Conferences on graduate physics education (1974, 1977). Casper, the Forum's third chair, established the two Forum Awards. After that, he actively worked on arms control and became a senior advisor to the late Senator Paul Wellstone. Schwartz, the ninth chair of the FPS, served brilliantly and creatively in the crucial job of organizing the first Forum panels at APS meetings. He has gone on to be an APS insider, serving as the Society's Education Officer and Associate Executive Secretary. He was also responsible for much of the planning for the APS centennial activities in 1999.

The FPS was the first APS Forum. Recognizing that the Forum would attract members from across disciplinary lines, the APS waived the additional dues that are traditionally charged to members for joining a Division. With the subsequent creation of additional fora, APS instituted a charge for membership in each forum over two per member. The success of this approach induced APS to create other fora, such as those on the History of Physics (1980), International Physics (1985), Education (1991), Industrial and Applied Physics (1995), Graduate Student Affairs (2001), and Outreach and Engaging the Public (2010). The FPS can be said to have incubated subsequent Forums.

Some of the issues with which the FPS becomes involved are contentious and have led to awkward situations, but these have generally been dealt with even-handedly. I recall two cases in particular. The first concerns an amendment to the APS Constitution proposed by Robert March, which would have required the APS to “shun activities which contributed harmfully to the welfare of mankind.” It was very difficult to obtain a speaker to oppose March’s amendment at an April-1972 FPS session. Earl Callen stepped forward and filled that role, in which he believed. His presentation helped to defeat the amendment. The second example concerns the publication of a very political cartoon by the editor of *Physics and Society*. The editor was warned not to run any more such one-sided cartoons, but he ignored the warning, and the Forum Executive Committee was forced to adhere to the principle of objectivity and fire him.

Physics and Society

P&S is in its 41st year. Martin Perl was founding editor (1972-79). He was succeeded in 1980 by the late John Dowl- ing (1980-86, Mansfield University). Art Hobson (University of Arkansas) was editor from 1987 to 1996. Al Saperstein (Wayne State University) was editor from 1997 to 2003, when Jeff Marque joined him as Co-Editor until 2009, after which Cameron Reed (Alma College) became the current editor. *P&S* fulfills an extremely important function by informing FPS members of current topics and providing a non-peer reviewed forum for the exchange of ideas. With the passage of time, the contents of *P&S* have shifted from more general commentary to more technical aspects of physics and public policy issues.

With the exception of issues from Volume 1 (1972) and the July, 1973, and April, 1980, editions, all back issues of *P&S* are freely available on the FPS website, along with an Index arranged by topic.

Summaries of many FPS symposia are published in *P&S*. A partial list serves as an informative snapshot of the evolution of issues: SDI (September 1986), land-based intercontinental ballistic missiles (July 1988), energy research (July 1989), pseudoscience (July 1990), energy (October 1991), power lines and public health (January 1992), climate change (October 1992), environmental physics (July 1993), theater ballistic missiles (October 1994), legacy of radiation from cold war (July 1995), sustainable technologies (October 1995), linear low dose radiation (January 1997), monitoring nuclear materials (July 2006), reflections of presidential science advisors (October 2006, January 2007), and the role of nuclear weapons (October 2007, April 2008). Among the talks in these various symposia, one of my favorites is

the one by James Randi (October 1989) on “Fooling Some Scientists Some of the Time.” The juxtaposition of Randi’s talk and the debate on “cold fusion” at the 1989 Baltimore APS meeting was timely, albeit unplanned. On many occasions an editor (and the editorial board) has disagreed sharply with the contents of letters and articles, but openness has often dictated their publication as long as the view makes some logical points in a respectful manner.

A highly-publicized controversy occurred with the newsletter in 2008. The editors wanted to promote a debate between those who accepted the scientific findings that man’s activities were having an impact on the climate and those who did not. Unfortunately, they chose a highly controversial and outspoken non-scientist, Christopher Monckton, to represent the arguments of the climate-change deniers. Monckton subsequently presented his piece to journalists as a peer-reviewed paper from a “learned journal” and touted it as evidence for APS support of his position. The newsletter subsequently tightened its editorial oversight and now adds a disclaimer to every article that it has not been peer reviewed.

FPS Sessions

One of the most important activities of the FPS has been to sponsor sessions at APS meetings on topical science-and-society issues. Some FPS sessions have had more than 1,000 attendees. Over the first 27 years up to 1999, the FPS offered 197 sessions, and between 2000 and 2012, offered 111 sessions. This rise is somewhat remarkable since sessions are now rarely held in Washington, DC, an easy source for experts on policy-related issues. Sessions continue to be vibrant and well-attended.

A look at the topics of sessions over the years reveals that interest in some issues has remained essentially constant, particularly National Security, Policy Process, Awards, Education, and Environment. But each area has had changes of content. For example, National Security moved from SS-18s and Star Wars to Terrorism and Proliferation. Energy topics have dropped in frequency, although two short courses in this area held in 2008 and 2011 at UC-Berkeley produced some 1000 pages in AIP Conference Proceedings. “Miscellaneous” sessions have risen dramatically, implying that FPS is becoming more eclectic as we consider topics such as the debate over biological evolution, physics and art, physics and entertainment, and more. Contributed Paper sessions were dropped after 1999 as it was decided that the diverse collection of ten-minute papers lacked focus.

The goal of Forum sessions is to present the best arguments on both sides of an issue in a no-holds-barred debate. Unfortunately, this goal is occasionally abused by people

who wish to offer views that are unscientific or that confuse the debate. For instance, at the spring 1986 APS meeting in Washington, the Forum held a session on the Strategic Defense Initiative (SDI). Organizers invited representatives from the Reagan administration and from the Congressional Office of Technology Assessment, along with some university faculty. It never occurred to us to invite Lyndon LaRouche's Fusion Energy Foundation. However, this group felt they should have been invited, and attempted to shut down the session. As Forum Chair at the time, it was my task to go head-to-head and threaten them with police action if they would not be quiet and allow the session to continue. They did so, and the details of lasers in space were quantified and debated. It can be difficult to define when a position should be categorized as "unscientific".

The Panel on Public Affairs and the Forum

There often is confusion on the roles of the two APS entities that deal with physics and society issues. The Panel on Public Affairs (POPA) was established in 1974 under the leadership of Wolfgang Panofsky, two years after the Forum was established. The major distinction is that POPA is an APS committee whose members are elected by the APS Council and whose role is to advise the APS Council, whereas the FPS is a membership organization whose executive board is elected by the members and whose roles include publishing a newsletter and sponsoring invited sessions at APS meetings. As a membership unit, the FPS is responsible to the FPS membership and not the Council. In practice, these distinctions become somewhat blurred in that all divisions and fora are responsible to the Council if the actions of the APS units run counter to the goals of the APS.

POPA has sponsored studies of certain issues, after receiving outside grants to pay the expenses of experts; the most famous is probably the 1987 Directed Energy Weapons Study. POPA also prepares reports by POPA members, and gives advice to the Council on a wide variety of issues. The advice from POPA generates about 3 APS resolutions and 5-10 letters for the APS leadership to send out per year. On the other hand, the Forum organizes sessions to raise technical issues in a public arena, publishes *Physics and Society*, carries out Forum studies, offers short courses, and organizes the presentation of two APS Awards each year.

Other Forum Activities

Forum Studies – The FPS has sponsored three studies, on Civil Defense (1986), the future of land-based strategic missiles (1989), and energy (1991). All were published by AIP

Press. These studies arose after a small group of individuals decided to study a selected issue in depth. The individuals contributed their own time, talent and energy, and FPS contributed some funds toward helping the authors hold occasional meetings. Time has eclipsed many civil defense issues and there has been progress on strategic arms control, but the energy volume, prepared by Ruth Howes and Anthony Fainberg, remains a valuable resource on the timeless principles involved with energy supply.

Employment – The first "job crisis" for young PhD's took place in the early 1970's. The Forum responded by organizing two conferences at Pennsylvania State University (August 19-23, 1974 and August 1-3, 1977). Martin Perl and Roland Good were the driving forces behind these conferences, which examined the data and possible responses by the physics academic community. The results of the first conference, on "Technology Change in Physics Graduate Education", were published in the February 1975, issue of *Physics and Society*, which still remains the newsletter's largest single edition. The results of the second conference, "Changing Career Opportunities for Physicists" were edited by Martin Perl and published in the AIP Conference Series. These studies were a precursor to the later studies by the APS Committee on Careers and Professional Development and the Young Scientists Network.

The Political Arena – A number of our members have moved on from Forum activities to larger political roles. Former Executive Board member Vern Ehlers, once a Physics Department Chair from Calvin College, served as a Republican Congressman for nine terms from Michigan (1993-2011). Rush Holt, former Assistant Director of the Princeton Plasma Physics Laboratory, is serving in his 7th term as a Democratic Congressman from New Jersey. They were joined by Bill Foster, a particle physicist from the Fermi National Laboratory, who served in Congress from 2008-2011. I like to think that the Forum's examination of the critical aspects of science and society issues not only helped send them on their way, but also shaped their approach to some of the issues that they deal with today.

Education – Over the years, the Forum organized some 30 sessions on education issues. Former FPS chairs Ruth Howes and Ken Ford took an active role in organizing the Forum on Education in 1991. FPS maintains an active interest in physics education issues, but is now in a supportive role with the existence of the Forum on Education and the APS Committee on Education.

Short Courses – In order to help members study physics and society issues more deeply, the Forum has organized a

series of short courses, which last for 2 to 3 days. Participants hear some 20 hours of lectures from 24 assorted experts; later, they receive copies of the AIP Conference Proceedings. The Forum has offered three such courses on arms-race matters, three on energy, and one on climate change. The last two short courses, both on sustainable energy, attracted 200 attendees each.

APS (Forum) Awards – The FPS presents nominees to the APS Council for two APS awards, the Joseph A. Burton Forum Award and the Leo Szilard Lectureship. The Burton-Forum Award “recognizes outstanding contributions to the public understanding or resolution of issues involving the interface of physics and society,” while the Szilard Lectureship “recognizes outstanding accomplishments by physicists in promoting the use of physics for the benefit of society in such areas as environment, arms control and science policy.”

The Awards were first offered by the FPS (not the entire APS) in 1974. David Inglis received the first Szilard Award and Ralph Lapp earned the first Forum Award. Initially, a modest honorarium of \$250 was given, along with a handsomely scripted scroll. The honorarium became even more modest in 1985 when the Szilard Award was shared among the seven dominant authors of the papers on the “Nuclear Winter” calculations. This motivated a move from monetary awards to symbolic art plus a travel stipend for recipients to receive their awards. Two California artists created statues whose bases are engraved with the names of the awardees. The winners kept the statues for one year, after which they passed them on to the next year’s winners. The statue accompanying the Szilard Award, which was created by David Smith, is a dolphin, the symbol of Szilard’s novella, *The Voice of the Dolphins*. The Forum Award statue is an abstract spherical model of the Earth created by Crissa Hewitt. After many years of transcontinental shipping, the awards now reside in this author’s backyard as a statue (Burton-Forum) and in my home-office (Szilard).

In 1986, the two Awards were promoted to awards of the entire APS. This promotion in status came with pressure to create a permanent endowment for them. In 1997, the Forum Award was endowed with \$70,000 from the Apker Award Endowment, creating an annual honorarium of \$3000 plus travel expenses to the April meeting. The Forum Award was renamed the Joseph A. Burton Forum Award in honor of Joe

Burton, a former APS Treasurer and long-time FPS supporter. In 1998, the Szilard Award received an endowment of \$70,000 from the MacArthur Foundation, the Energy Foundation, the Packard Foundation, the FPS, and a number of individual donors. In order to create a climate for graduate students to consider careers in physics and society, the award was changed to a lectureship, and its name was changed to the Leo Szilard Lectureship Award. Starting in 1999, the recipient has received a \$1000 honorarium and travel money to present talks at an APS meeting and at universities or research laboratories.

The Current Situation and a Look to the Future

There has been trend in the evolution of the make-up of the Forum leadership over the years. Early Forum leaders were essentially all from academia, but this is not true today. This year, the Past Chair, Chair, Chair-Elect, Vice Chair, Secretary-Treasurer, and the *Physics and Society* Editor hail from a variety of locations: 2 national laboratories, 2 universities, 1 federal agency, and 1 non-governmental organization. This is a good overall mixture since each individual contributes a different perspective.

For the future, it is very important for the Forum to continue to present the issues and to show students that there are career paths other than the academic route. Most important, it is imperative that the Forum keep the candle of professional responsibility well-lit. We cannot slip back to the old days when APS meetings had no sessions on physics and society issues. The FPS continues to be a way for physicists in all fields to keep abreast of the technical aspects of problems facing society. At the personal level, the Forum’s members and activities have been a great source of friendship, knowledge and inspiration to me and the other members.

Reference

1. B. M. Casper, “Physicists and Public Policy: the “Forum” and APS,” *Physics Today* 27(5), 31-38 (1974).

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