

Panel on Public Affairs Meeting
June 3, 2011
529 14th Street, NW, Suite 1050, Washington DC

Members present:

R. Socolow, J. Dahlburg
W. Barletta, J. Davis, V. Ehlers, R. Falcone, F. Houle, R. Jaffe (via video conference), G. Long,
P. Looney (via phone for part), J. Onuchic, R. Schwitters, S. Seestrom, J. Trebes, M. Turner

Guests:

Micah Lowenthal, Monica Plisch, Becky Thompson (via phone), Randy Murch

Advisors/Staff present:

K. Cole, K. Kirby, M. Lubell, J. Russo, F. Slakey

Members Absent:

A. Falk, M. Gunner, L. Krauss, R. Rosner, K. Schwab, E. Ulrich

Call to Order

J. Dahlburg called the meeting to order at 8:18 AM.

Welcome, Introductions, & Approval of Minutes
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J. Dahlburg welcomed everyone and asked for comments on the February minutes.

Action: J. Davis moved to approve the minutes of the February 2011 POPA meeting, as presented. Motion was seconded by F. Houle.

The motion to approve the minutes passed unanimously.

Guidelines for Proposing an APS Statement - Vote

F. Slakey began the discussion. He reminded the group why we have pursued this dialogue and why POPA is tasked with developing guidelines for how to propose an APS statement. The aspects that were suggested for inclusion at the last meeting were: relevance, context, urgency, outreach, and endurance.

Commentary: M. Turner asked if we had used the guideline template with the draft statements on Quantum Physics and Healing Energy that were tabled last meeting. It was noted that the Physics & the Public Subcommittee will use the template once POPA votes to approve the format. J. Russo mentioned the recent statement proposed by the APS Texas Section; their proposal did follow the guidelines. F. Slakey explained that, while there are strict requirements on APS Statements, the APS allows some leeway for units and divisions to make statements. APS acknowledges that: "Each unit has public responsibilities and on occasion may want to advise government officials or the public on issues of concern to members of that APS

unit." APS also recognizes that: "The rest of the physics community may or may not agree with these concerns." When divisions or units make statements, POPA is only asked to review whether their proposed statement follows proper procedure and that the statement is consistent with other APS statements. R. Falcone mentioned the long discussion we had at the last meeting regarding "endurance" and asked whether we should include something in the guidelines about how statements are archived. He suggested a sentence be added to the end of the first paragraph saying, "*Per the APS bylaws, statements are subject to review, by POPA, every 5 years.*" The group agreed to this modification. F. Houle asked what the membership will be provided when they are offered a proposed statement for review. F. Slakey said they will receive the statement and all the package of information required by these guidelines. R. Jaffe asked for clarification on the procedure following the member comment period. K. Cole and F. Slakey indicated that the proposed statement returns to POPA and, taking into consideration the member commentary, revisions are made and the statement is sent back to Council. If Council doesn't approve the new revisions, they send the unmodified statement back to POPA with suggestions/comments; POPA has one more opportunity to revise the statement before it goes back to Council for their final vote. Council votes to refer the statement to the APS Executive Board for adoption. All of the editing occurs within POPA; Council has the final vote, but cannot amend a proposed statement. W. Barletta said it seems we don't ask the divisions/units for their expertise. We might want to include the clarification, "...*APS unit and member expertise*" in the second paragraph. The group agreed to the modification.

Action: W. Barletta motioned to accept the guidelines for proposing an APS Statement, with the two modifications noted in the minutes above. Motion was seconded by S. Seestrom.

The motion to approve the guidelines for proposing an APS Statement passed unanimously.

DAC Debrief/Tech Assessment Discussion

R. Socolow began the discussion. Following an edit of the technical assessment's executive summary, as prompted by POPA at the February 4, 2011 meeting, the document received a unanimous vote of approval from the APS Executive Board. Board members indicated a desire to keep "technical assessments" as a new category of report, seeing the possible need for such an end-product in the future. The assessment received some media coverage (NY Times article). An embargoed copy was released to 6 reporters, 5 days in advance of its public release. Eli Kinistch of *Science* magazine was one of those reporters. He brought David Keith's critique of the assessment, in which Keith identified two mistakes, to R. Socolow's attention. The study committee researched, confirmed, and fixed these mistakes by way of footnotes.

J. Dahlburg asked F. Slakey to explain the reports that APS releases. He said there are currently two kinds of APS reports and they are distinguishable by scale and scope. A POPA report is roughly twenty pages long, completed in approximately 9 months, carries a budget of about \$25K in APS funding, and speaks directly to Congressional staff – making particular recommendations regarding preferred Congressional action. POPA reports build on existing APS statements and the approval process remains primarily within the confines of the Panel. An APS Study is larger in scale; it carries a budget of \$250K+, has a timeline of 2-3 years for completion, is generally in the range of 100+ pages in length, and is usually technical in nature.

The approval process for an APS Study involves both the APS Council & Executive Board. The DAC Assessment was a hybrid; the end-product was lengthy, took longer to complete than a POPA Report, had a smaller budget than an APS Study, was technical in nature, and the APS Executive Board provided oversight.

J. Dahlburg asked for clarification on how an APS Study normally gets started. F. Slakey said that either PPC or POPA can propose an idea for an APS Study, but either way it must move through POPA for approval. J. Dahlburg asked M. Lubell to explain the process through which the Energy Efficiency Study became an APS Study. He said that the idea started with a proposal for a POPA Report. The Panel recognized energy efficiency as a major issue that could not be thoroughly vetted within the constraints of a POPA Report's budget, timeline, and length. POPA proposed the idea for an APS Study on Energy Efficiency to the Executive Board. The Board approved and sent the proposal to Council for further consideration. Council approved and committed funding to the project. The committee chosen to work on the APS Energy Efficiency Study was selected and approved by the APS Executive Board. Once the report was complete, it was reviewed by Council for approval.

J. Dahlburg asked R. Socolow to explain how the DAC Report/Study evolved into a Technical Assessment. He described how the idea was initially introduced as a POPA Report. He thought we could do a better overall job with more capital, so additional funding was raised (above the \$25K POPA was willing to commit to the project) outside of APS. J. Franz suggested a new, intermediate genre of report be created. At that point however, money seemed to be the only differentiating factor between the "new genre" and the traditional POPA Report. Now that the DAC Technical Assessment has concluded, we need to decide if this new "intermediate genre of report" should continue to exist and, if so, to outline the parameters of such an endeavor.

Commentary: J. Dahlburg said the current "APS Study" seems to be a vehicle for exploration of issues with a more technical focus; there may not be a reason to have a third category titled "POPA Technical Assessments." M. Lubell said one of the concerns of APS, historically, is that we want the full force of the Society behind any new technical ground that we break – the full force is the Council; Council oversees APS Studies. If the Society is to stand behind a technical assessment, it should be framed as an APS Study. M. Lubell added that APS doesn't conduct technical studies very often. One could argue whether the Society should do so more frequently. J. Dahlburg asked whether POPA should consider additional types of reports besides POPA Reports and APS Studies. M. Turner said he thinks the DAC Technical Assessment could have been framed as an APS Study; we probably don't need another category. POPA Reports are short, they don't break any new technical ground, and they provide recommendations to Congress. APS Studies are longer, they break new technical ground, and they are written for a broader audience. A detailed description of both end-products, which we all agree upon, needs to be written. We must consider: which reports require the full weight of APS behind them, and which do not; funding, and where it can come from, in either case; the level of care necessary in crafting an APS Study charge vs. a POPA report charge.

Action: M. Turner will provide an overview of the "POPA Report" classification and present it at the next meeting. He will also identify the parameters for elevating a POPA Report to the level of an APS Study.

J. Davis began the discussion. He said that POPA has already completed a study on the downsizing of technical weapons. Today we are asking if there is room for another study on tactical weapons.

He then introduced Micah Lowenthal, a nuclear engineer and the Director of the Committee on International Security and Arms Control (CISAC) at the National Academy of Sciences. J. Davis explained that he invited Micah to join POPA today to help frame a discussion on “next steps” in nuclear arms control. This discussion was motivated by statements the U.S. Senate insisted upon in the record of ratification for the new START treaty; (1) any future negotiations must address tactical nuclear weapons and (2) the triad is to be maintained moving forward. M. Lowenthal spoke about CISAC and their longstanding relationship with the Russians. Tactical nuclear weapons have never been part of their discussions, although they have tried repeatedly to address the issue. At the public component of CISAC’s January meeting, the retired chief of staff of Russia’s Strategic Rocket Forces spoke about what it would take to logistically reduce tactical weapons and verify the reduction. He started by reiterating Russia’s iron-clad pre-condition: the U.S. must pull their tactical weapons out of Europe. But then he went on to lay out the steps Russia would have to take to reduce tactical weapons:

- (1) They would have to declare their number of non-strategic weapons.
- (2) They would have to divide their weapons into active and inactive stockpiles; he went on to propose housing the stockpiles in two separate storage locations, establishing there would be no transport of weapons between the two locations, and explaining how radiation detection could be used to determine how many weapons were in each stockpile (a technical issue that needs to be examined).
- (3) They would have to get rid of the weapons they’ve agreed to get rid of and verify that they have been dismantled.

What’s striking is that Russia has always stood by their pre-condition, without talk of how to reduce the numbers. It suggests that they are thinking about the question, where we’ve had no evidence in the past that a reduction has been considered. CISAC is also concerned about China, working to determine their intentions and the best strategy for the United States to take in treaty negotiations.

Commentary: F. Slakey said we may want to proceed in similar fashion to how the ECE Study began: inform ourselves with a workshop, prior to deciding whether a study on this topic is necessary. J. Onuchic pointed out how a study on tactical weapons would be much more political than technical. J. Davis agreed and questioned whether we make a bigger contribution by pairing with the Center for Strategic and International Studies (CSIS) to conduct a workshop. J. Trebes stressed that there are technical issues. F. Slakey said he likes the idea of teaming with CSIS. If we begin with a workshop, we can break out the questions that are policy related and those that are technical. We could bring the technical questions back to POPA and conduct a study on those. R. Schwitters asked if there would be interest from Congressional staff, understanding we would be coming at the issue from a non-classified perspective. V. Ehlers suggested it’s difficult to know because the committees in Congress that deal with these issues don’t share their information. We should invite Congressional staff to attend the workshop. F. Slakey

talked about POPA's *Technical Steps for Nuclear Downsizing* report and the positive response we received from Congress, on both sides. J. Davis said discussing the issues in the "unclassified world" is helpful to the "classified world". V. Ehlers said the difficult issue is China. Staffers are very worried about China, more so than Russia at this point. Congressional computers were hacked by China. J. Trebes said we need to determine what our minimum number of warheads should be and what other countries will do when we reduce to certain numbers. R. Schwitters wondered if we could have a discussion of bringing the numbers to zero at the workshop. The classified community doesn't normally grapple with that question. J. Dahlburg pointed out that there seems to be a lot of interest in conducting a workshop.

Action: S. Seestrom made a motion to have J. Davis come back to POPA in October with a full proposal for a workshop dealing with this issue.

W. Barletta seconded the motion.

POPA approved the motion unanimously.

National Research Policy Subcommittee

J. Dahlburg provided background on a study that was suggested by the National Research Policy Subcommittee at a previous POPA meeting, and was subsequently sent to PPC for further discussion. PPC is taking up the issue of innovation to come to a better understanding of the whole enterprise. This will be a PPC report – the "RICHES" Report. Jim Roberto is chairing the study. The goal will be to convey improvements that can be made to the system, both to policy makers and other involved communities. The committee's first meeting was held March 17th – 18th in Washington, DC. Committee members heard from experts on the topic, including: Greg Tassef from NIST, Allen Taub (VP of R&D at GM), Steve Koonin, Jason Grummet (Bipartisan Policy Center), Chad Holliday, Jack Marburger, Rob Rosner, and Vernon Ehlers. A second meeting was held in May. Some items of note: it has been discovered that we may have to go to the state level to influence innovation; Germany's S&T model is excellent and we may do well to mirror certain portions of it. A draft report outline has been developed. The final product will be a 30-page report; writing assignments have been designated and are due for completion in mid-June. The committee is looking to finish the report by October.

Energy & Environment Subcommittee

R. Jaffe began by reviewing the ideas the E&E Subcommittee is considering for new studies: substitutional research, geo-thermal power (hot dry rock), resource intensity of energy technologies, inertial confinement of fusion, and nuclear power (in light of recent Japanese reactor incidents). They will report back to POPA in October with more information.

Global Warming and CO2 Reductions Education Project Proposal

He then introduced Monica Plisch, APS Assistant Director of Education & Becky Thompson, APS Head of Public Outreach. M. Plisch began the discussion by introducing a proposal for an education project stemming from the DAC Technical Assessment. She explained that the proposal includes education activities with a broader focus than direct air capture alone; the activities will spotlight global warming, CO₂ reduction, and the role that physics plays in

understanding these phenomena. CO₂ will be explored as one of several gases contributing to global warming. The equipment needed to detect CO₂ is accessible to students; M. Plisch's team has proposed a suite of "hands-on" activities & experiments centered on these monitors. These activities are designed to explain the greenhouse effect, indicate CO₂ as a greenhouse gas and engage discussion on how to reduce the greenhouse effect. The second segment of the proposed plan includes a distributed science project. B. Thompson explained how the same type of equipment used in the education modules could be provided to anyone interested in measuring CO₂ levels in their own neighborhoods. The ultimate goal would be to generate a country-wide map of local data sets taken across the U.S. M. Plisch said the target audiences for the project are the student population (mainly K-12) and the public-at-large. It has become very popular in recent years to follow projects like this online and through mobile apps. Mobile apps and simulations to supplement hands-on activities are being investigated, as well as highlighting science/physics by way of a classroom poster. An app that directly correlates to the progression of the data set will help encourage participation in the project. The idea is to have several different suites of activities. This will allow groups to pick which module(s) will work best for them. Some of the suites will be free of charge. Dissemination of the modules will be through four lending libraries and also through professional development workshops for teachers. Formal meetings will be held to provide steering to the project as it is developed. Teachers, APS staff, project consultants, etc. would be invited. There is a budget of \$80K for the project. Half of the budget will be spent on kits for the lending libraries and the other half will be spent on development efforts (curriculum writer, IT consultant, climate education consultant, teacher stipends, etc.)

Commentary: R. Jaffe reminded POPA that we are to discuss the proposal today and consider modifications that may be needed prior to our recommendation to the APS Executive Board. He asked that a few POPA members volunteer as liaisons to the project.

S. Seestrom said she is having trouble grasping what we accomplish with four lending libraries. M. Plisch said there could be more than four lending libraries, but we are working within the budget that we have. Past experience has led her to believe that four libraries could serve several thousands of students in a region. B. Thompson compared it to Netflix for scientific equipment. The lending libraries will allow us to use a limited amount of equipment in a way that will reach the largest number of people. M. Plisch said that once some well-developed activities are released and there is exposure to the idea, other institutions will want to participate. S. Seestrom said she would like to include verbiage on how we expand the utility of this project in the proposal. J. Dahlburg suggested that we include the idea of publishing a list on how to make a kit in the lending library paragraph. M. Turner expressed concern about the outcome of the distribution project. The map created from the data collected could be misperceived. It may end up looking like APS supports the idea that climate change isn't occurring. He and R. Socolow had reservations about the reliability of data produced by an inexpensive piece of equipment. R. Schwitters agreed that we must ensure meaningful data is produced. W. Barletta added that we need to make sure the experiments conducted are true science. He also asked if we had contacted the new topical group on climate. K. Kirby said the organizing committee of the new topical group will be approached with the proposal and asked to comment, if POPA moves forward with a positive recommendation. J. Onuchic said the project provides a good opportunity to clear up misunderstandings about greenhouse gasses. W. Barletta suggested lending out a suite of sophisticated

instruments; it would help students see that they are contributing to a part of something bigger and that they are conducting quality science. G. Long agreed that a traveling suite of good instrumentation might be more effective. F. Houle said we should expand the scope of the “hands-on” part of the proposal to include modules on calibration and repeat measurements. J. Dahlburg suggested using the distributed science project as a way to provide information on climate for use in science projects/fairs across the country. R. Socolow suggested clustering the distributed science project activities in locations that have more expensive & reliable instrumentation available for student use.

Action: J. Dahlburg asked that the topical group be informed about the proposal, before it comes before POPA for a vote.

The proposal needs to include a background information section.

M. Plisch was tasked to research and report back on the reliability of the instrumentation to be used, before we vote in October.

M. Gunner, S. Seestrom, and R. Falcone offered to participate as liaisons to the project.

Energy Critical Elements Report Update

R. Jaffe provided an overview of activity that has occurred since the ECE Report was publicly released in February. Several legislative bills have appeared in the House & Senate pertaining to ECEs. F. Slakey and R. Jaffe have developed a strategy on how best to influence a Republican bill in the House and a Democratic bill in the Senate. They are focusing on the low-cost measures suggested in the ECE report. They have partnered with the Heritage Foundation and with the American Enterprise Institute to conduct a few public briefings. They worked with Senators Udall and Bingaman to produce S.383 in April. They partnered with Congressman Hultgren to craft H. R. 2090, which reflects the recommendations of the report and was introduced on the House floor. Other bills coming out of the House Natural Resources Committee focus on accelerated permitting, mining interests, domestic production, etc. Those bills are in conflict with the philosophies of the think tanks that the Republican Party in Congress is largely influenced by (Heritage and AEI; both organizations advocate for zero cost measures and no market interventions.) Senator Murkowski from Alaska introduced a bill which focused on loan guarantees and accelerated mining; she has resubmitted that bill with bipartisan support and it is somewhat aligned with the recommendations of our report. The Senate is on track to produce a bill that reflects the recommendations of our report. F. Slakey lauded R. Jaffe for his availability; his participation has made the process much easier.

Commentary: R. Socolow mentioned substitutional research and his hopes for a follow-on study. F. Slakey stated that a follow-on activity associated with helium will be considered as well.

Old Business

Nuclear Regulatory Commission Petition Update

F. Slakey provided an update on advocacy work he has been spearheading. One recommendation that was proposed in the POPA report *Technical Steps to Support Nuclear Arsenal Downsizing*, chaired by J. Davis, was to elevate the priority of non-proliferation in the Nuclear Regulatory Commission (NRC) licensing process. A strategy was developed to petition the NRC through their formal procedure. A petition to include proliferation assessments in the licensing process was filed by F. Slakey, on behalf of the American Physical Society, last July. It was rejected; APS reformatted the petition, adding more content, and it was accepted and formally posted for public comment in late December. The public comment period lasted 3 months. During that time, the NRC received 60 comments (usually they get about 10). [NOTE: The actual number of comments received was 2,388; this was uncovered after the June 3rd meeting.] Some of those who weighed in on the issue on behalf of APS included: Dick Garwin, Mike May, and non-proliferation experts at CSIS, Carnegie and the Stimson Center. Two bi-partisan letters from the House of Representatives were also posted (Reps. Berman/Ros-Lehtinen and Reps. Schiff/Fortenberry). The Nuclear Energy Institute did not support the APS petition, as they view the current system for licensing as sufficient. The NRC staff will now take up the issue. The five NRC Commissioners may take up the issue, due to the large number of comments and the status of the responders (Congressmen, experts in the field, etc.). In order for the petition to succeed, three of the five Commissioners will have to vote in favor of the petition. Two people will be coming in to take meetings with NRC Commissioners; John Browne (former Director of Los Alamos National Laboratory) and Linton Brooks (former Director of the NNSA). They will also meet with Anne Harrington, at the NNSA.

International Focus of Subcommittees

J. Dahlburg introduced the topic. APS has a large international component. POPA does not, and neither do the POPA Subcommittees. J. Russo reminded the group of concerns that were voiced at the last meeting:

- Should there be a subcommittee dedicated to international issues?
- Should current subcommittee titles be changed to reflect a broader focus?

J. Dahlburg read off the current list of POPA Subcommittees. She said she thought we might ask the APS Nominations Committee to start cultivating international membership for POPA. About 21% of the APS membership comes from countries outside of the United States. Discussion ensued about changing the titles of the subcommittees to include a more global perspective. F. Slakey suggested having a dedicated membership seat on POPA for an international member. The membership of POPA should reflect the membership of APS. Creating an international subcommittee to handle issues related to global science might solve this. POPA is typically U.S. focused, but it seems wrong not to represent our international membership. R. Falcone said sensitivity to welcoming international perspectives, through POPA membership and when conducting our studies, is important. M. Turner said the only subcommittee name that might require tweaking to better include an international perspective is the National Research Policy Subcommittee. We could drop “National” and it broadens the focus. If anyone has an idea for activities that would make creating an international subcommittee reasonable, they should reach out to J. Dahlburg, K. Kirby, J. Russo or F. Slakey. R. Schwitters suggested that K. Kirby invite individuals holding international council positions to future POPA meetings. V. Ehlers

suggested tapping into the network of traveling scientists who are introduced around Washington, DC by embassies/ambassadors. We should send a blanket letter to all of the embassies indicating our interest in having them attend a future POPA meeting. J. Dahlburg suggested this would be a perfect first activity for an International Collaboration Subcommittee.

Action: W. Barletta made a motion to change the name of the National Research Policy Subcommittee to the National & International Research Policy Subcommittee. M. Turner seconded the motion.

The motion passed unanimously.

Action: J. Trebes made a motion to establish an International Collaboration Subcommittee, to be chaired by R. Schwitters. M. Turner seconded the motion.

The motion passed unanimously.

The International Collaboration Subcommittee should come to the October meeting prepared to discuss their charter and activities that they plan to take up. POPA members who showed interest in participating on this Subcommittee include: R. Schwitters (Chair), W. Barletta, J. Onuchic, J. Trebes, and M. Turner.

National Security Subcommittee – Guest Speaker, Randy Murch

J. Trebes began by introducing the issue: what is the responsibility of a physicist regarding weapons of mass destruction and the knowledge associated with producing WMDs? Some scientific societies have tried to create a “Culture of Responsibility” through their codes of conduct; we should consider today whether APS needs to amend its Guidelines for Professional Conduct.

He then introduced Randy Murch, who has been heavily involved in national security and bio-defense. He has worked in forensic science, microbiology, and as an FBI agent. He spoke about engendering a culture of responsibility. The idea has been embraced by several scientific societies. In the life sciences, nature produces global threats every day. Source materials are not limited. Bio-weaponeers need only sample nature. It’s a diverse, wide-spread, and uncontrollable problem. You can’t secure pathogens; they can be found anywhere and they can be made anywhere. However, creating a code of conduct that sheds light on those who behave unethically can help detect nefarious activities that would otherwise be easily concealed or obscured, even in plain sight. Self-governance has emerged through codes of ethics and conduct. The idea of “do no harm” is pervasive and incorporated early in many fields of science. This increases the likelihood that positive conduct will prevail and illicit behavior will be reduced.

Commentary: M. Turner said he liked the American Society of Microbiology’s code of standards. He’s struck by the length of their last “guiding principle”

ASM members are obligated to discourage any use of microbiology contrary to the welfare of humankind, including the use of microbes as biological weapons. Bioterrorism violates the fundamental principles upon which the Society was founded and is abhorrent to the ASM and its members. ASM members will call to the attention of the public or the appropriate authorities misuses of microbiology or of information derived from microbiology.

F. Houle said she could see how the biologists would be worried about this issue; she questioned how to craft something similar, in context for physicists, which would be accepted and well-received. R. Murch suggested starting with younger members who are socially and politically aware. It is important to find champions who are well known, respected, and willing to educate and inform the debate. J. Onuchic reminded POPA of the training students awarded NIH grants receive. J. Dahlburg mentioned the parallels in cyber security. J. Trebes said we should open up a discussion on this matter as a Society. The APS code is pretty bland – fabrication, personal integrity in research – not the broader swath of life. J. Onuchic said we should begin by educating members about the problem, so any changes made to the current code don't feel like a top-down decision put in place to over regulate. J. Dahlburg would like to see a list of areas the code might address (cyber, bio, nuclear, etc.) at our next meeting.

Action: J. Trebes will draft a list and seek additional comments in preparation for our October meeting.

New Business

R. Socolow discussed the two tabled statements that were originally introduced by the Physics & the Public Subcommittee. Both statements have been rejected once by the Executive Board. That rejection led POPA to create the guidelines we reviewed and approved earlier today. POPA agreed that L. Krauss, Chair of the Physics & the Public Subcommittee, should review both statements following the template guidelines. J. Russo will contact L. Krauss to request that his Subcommittee proceed with a review. Some POPA members made comments about stepping away from both statements, in general. The Subcommittee should be prepared to discuss their continued action on these items at our next meeting.

Next Meeting

The date for the next POPA meeting will be Friday, October 7th, 2011.

Adjournment

Action: J. Dahlburg adjourned the meeting at 2:54 PM.