Q&A: Scholars Talk Sidney Drell’s Legacy as an Arms Control and Human Rights Advocate

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By Jonathan Movroydis

In this Q&A, Hoover fellows and associated scholars discuss the life and legacy of Sidney D. Drell, award-winning nuclear physicist, national security expert, behind-the-scenes diplomat, and champion for peace, nuclear disarmament, and human rights. Participants in this conversation include Deborah C. Gordon, former executive director of the Preventive Defense Project; Rose Gottemoeller, Hoover Institution research fellow and former under secretary of state for arms control and international security; Raymond Jeanloz, professor of Earth and planetary science and astronomy at the University of California, Berkeley; Daryl Kimball, executive director of the Arms Control Association; and James Timbie, Hoover Institution Annenberg Distinguished Visiting Fellow. The conversation begins with introductory remarks by Lenora Ferro, who with the late Susan Southworth wrote Sidney D. Drell: Into the Heart of Matter, Passionately, published by Hoover Institution Press in April 2021.

Will you describe the origins of the book project?

Lenora Ferro: It all started once upon a time when Susan Southworth became my cherished friend and later introduced me to Secretary George P. Shultz. Thereafter, the two of us, by invitation from Shultz’s beloved Charlotte, worked on an independent book project with him that resulted in George P. Shultz: A Tribute. It was great fun to compose as Susan and I were well-suited workmates who could rely on each other’s skills. During those times at Hoover, I became acquainted with Sidney Drell, bonding through our shared interests and tastes in music, literature, and art.

Drell had no interest in a formal biography of his life and career; to him, it seemed somehow egotistical or self-promoting. Ultimately, he did agree, but only if it could be similar in tenor and approach taken in the Shultz tribute. Thereafter, Sid engaged us daily with new stories and a growing list of contributors he had interacted with during his long career. Much to our delight, he also came to appreciate that some of his amazing accomplishments deserved to be recorded for posterity.

As for Susan’s contributions to the Drell book, she graces every page. Some examples of her work that I could never have done without are her creative ideas in researching, scheduling, recording, and transcribing interviews, a few of which she alone conducted with Drell. Generous with her enthusiasm, time, and talent, Susan assisted me in curating an extensive body of materials, editing, securing permissions, and compiling the index—a hellacious job that she insisted upon continuing even as she was undergoing chemotherapy. That was Susan—grand of heart and indispensable.

We came to appreciate that Drell, the man, was a product of his family’s influence. It was by his nature and nurture that he was brilliant but also down-to-earth and very approachable. Despite facilitating the very existence of SLAC National Accelerator Laboratory and his efforts in shaping international efforts for nuclear arms control policy, he never sought the spotlight. And with great courage (and eventual success), Sid was the first person to speak publicly on behalf of Andrei Sakharov, the Soviet nuclear physicist and dissident, who advocated for worldwide nuclear disarmament and human rights in the USSR and was exiled as a consequence.

We also came to appreciate just how widely and deeply Drell’s influence extended beyond particle physics, affecting in significant ways the personal and professional lives of his colleagues, students, and protégés. He enlightened with his principled brilliance and endowed every endeavor and effort he undertook with an unshakable integrity and his affability. William Perry, 19th US secretary of defense and colleague and friend to Drell, put it succinctly: “He was able to achieve lofty heights through his transcendent technical contributions to physics and arms control policy. And in his sense of humor, his delight in puzzles of the world, we should see a template for our own lives.”

Humanitarian that he was, he came to exemplify the value, even the necessity, of involvement in public service. Many of his former students followed his example by applying their own knowledge and skills for the greater good of society. Also revealed by contributors to the book are delightful stories of the Drell household as a place of welcome, respite, fun, and intellectual nourishment and discourse for visitors, friends, colleagues, students, and luminaries alike.

An important attribute to note in Drell’s repertoire of unusual talents is his black belt in academic and bureaucratic political wrangling. This title was widely recognized by anyone who had experienced it, and registered keenly with those who hadn’t but would have benefited before engaging him.
Why is Sidney Drell’s legacy important?

Deborah Gordon: I think Drell’s legacy is important not just because of scientific or academic contributions but also for his leadership in solving the world’s most complex issues that we tackle every day as human beings. My first introduction to Drell was not through Stanford University. It was because I was a decades-long resident of Woodside, where I still live. One can’t live in Woodside without hearing the stories of SLAC and how Wolfgang [Pief] P.H. Panofsky and Drell really brought that institution to the area. I can tell you that Woodsiders were not excited about this project, fighting tooth and nail against it.

Panofsky had a different temperament than Sid, but I contend that the two of them enabled SLAC to produce enormous benefits for Stanford, Northern California, and the greater scientific community. Later in life I became very good friends with Drell. He always had a sparkle in his eye, a smile, and a sense of humor. I fondly remember him wearing a driving cap. To echo Lenora’s remarks, Drell gave us a model for how we should live our lives and make a difference in the world.

Rose Gottemoeller: I really was warmed by Sid’s humanity, his hospitality, and his graciousness, especially to someone much younger and certainly far less distinguished than he.

On May 8, 2012, there was an award ceremony at the Menlo Park Circus Club. Drell and I were being awarded the first Reykjavik Awards by the Federation of American Scientists. I was so overwhelmed by the audience that day, which included George Shultz.

I preceded Drell in my remarks and in my reception of the award. Some of you may know that the award is a gigantic and very heavy slab of metal. It depicts a mountain, which epitomizes Senator Sam Nunn’s belief about the reduction of nuclear weapons, “You slowly climb this mountain to get to the goal of zero.”

Well, I completely bungled my speech and then sat down in disarray. Sid Drell stood up next. He made the most warm-hearted, but also the hardest-driving speech, talking about the necessity of continuing to work toward the goal of achieving a world without nuclear weapons. This takes me back to, of course, the work that he did to develop a consensus with George Shultz, William Perry, Sam Nunn, and Henry Kissinger to publish, in 2007, the first of their seminal “Four Horsemen” op-eds. This really laid the groundwork for President Obama’s April 2009 Prague speech, which made elimination of nuclear weapons an explicit US national policy goal.

I would like to quote Daryl Kimball in his tribute of Sid Drell in February 2017. Kimball wrote, “[Sid Drell] was an important catalyst and advisor for the influential call to action by the ‘Four Horsemen’ for a world free of nuclear weapons and the joint work they did to support their proposals.” I absolutely agree with Daryl; Sid Drell was behind the scenes and deserves credit for inspiring this initiative.

Daryl Kimball: Sidney Drell lived a remarkable life in so many different ways. I think it’s hard to judge his legacy, because he avoided the limelight, preferring to be a behind-the-scenes catalyst. This humility was something I really admired about him. However, there are a number of Drell’s achievements that I would like to mention. I had the honor of meeting him in my twenties when I was working as junior analyst for Physicians for Social Responsibility. The mission of our organization was to ban nuclear testing. The multilateral Comprehensive Nuclear-Test-Ban Treaty was ultimately concluded in 1996.

I learned of Drell’s work in Jason, a group of scientists that advises the government on a variety of defense issues. One of the critical steps on the way to ending nuclear testing was the technical work that Drell and his colleagues conducted to advise US policy makers about whether low-yield, hydro-nuclear explosions were or were not necessary for maintaining the US nuclear stockpile, and whether the United States should move toward a zero-yield test ban.

It was only after the test ban was concluded that I had the chance to talk with Drell and ultimately understand how important Jason’s scientific contributions were at the time. Later, when I became executive director of the Arms Control Association [where Drell had been a board member from 1978 to 1994], he reached out to me and offered his support. When Drell visited Washington, despite his busy schedule he always found time to meet me.

One of his most remarkable achievements, which he did not take credit for, was his work as a scientist and policy advocate to prevent the emergence of new nuclear weapons that could be more readily used. He was a critical voice, for example, in defeating a new weapon concept called the Robust Nuclear Earth Penetrator. One of the most memorable events I’ve been a part of at the Arms Control Association was in 2003, when Drell and Sen. Ted Kennedy prompted the debate on this issue, which would take place later that year in Congress. I know from my conversations with the late Senator Kennedy that he was influenced by what Drell said that day, and he would use Sid’s arguments to build support for canceling funding for this weapon in the Senate.

The last thing I would say about Drell is that although I first got to know him on a professional basis, he became a dear friend of mine. I had the pleasure of meeting with him in his home just a year before he passed away. I was amazed how persistent and engaged he was in old age. He impressed upon
In the meantime, through his work as a physicist, he was closely associated with the likes of John Wheeler, his undergraduate thesis advisor at Raymond Jeanloz:

that public awareness was fundamental to bringing about systematic change. This was true in his scientific research as well as in his policy advocacy. He did not exhibit any form of political partisanship, yet he was somehow remarkably astute about how he presented problems and corresponding solutions to politicians and other important stakeholders in the policy-making process.

While I had occasionally crossed paths with Sid early in my career, I started working with him in the mid-1990s, especially in the Stockpile Stewardship Program discussions regarding sustaining the US nuclear weapon stockpile, and the associated Comprehensive Nuclear-Test-Ban Treaty of 1996. We collaborated on these and similar issues, mostly on the technical side, at the request of the US government. We also partnered in a unique domain, which was advising the University of California in its management of its two nuclear weapon–design laboratories, in Los Alamos and Livermore. Given Drell's expertise in the field and influence in academia, it was natural for him to advise the university system on the broad policy implications of managing institutions that would ordinarily be under the direct purview of the US government.

I worked with Drell until the end of his life, in particular on the initiative toward a world free of nuclear weapons. I would just like to remark that Drell thought it very important that there should be two pillars to this initiative: one, the difficult step-by-step work that needs to be done to make any progress to reduce stockpiles of nuclear weapons; and two, the larger vision of taming the technology behind nuclear explosions. These are themes I saw in working with Drell. He was an important mentor to me and many others.

James Timbie: Drell was crucial to my transition from physics to arms negotiations. Before I received my PhD in physics from Stanford, I worked with Drell and Panofsky to help teach a course on arms control. This was in the 1970s, at the height of the Vietnam War. It turned out to be a very popular course.

At the time, Drell and Panofsky were also advisors to the team negotiating the first strategic arms agreements with the Soviet Union. One piece of advice they gave was to hire me as a scientist at the Arms Control and Disarmament Agency. With their reference, I started my career there in 1971.

Whenever technical issues were raised in arms control negotiations, Drell and Panofsky were asked to come to Washington and solve them. They dutifully answered the call and always had sound suggestions. Drell's expertise on the technical aspects of nuclear weapons was widely respected throughout the government and on both sides of the political aisle.

Will you describe some of Sidney Drell's contributions to the field of physics?

Raymond Jeanloz: Drell was a theoretical physicist, which is a very demanding practice of science. He made, in my opinion, two distinct but complementary contributions. One contribution involved testing and applying quantum electrodynamics, which is the marriage between quantum mechanics, physics at very small scales, and electromagnetism. Electricity and magnetism combined with quantum mechanics offered new tools and insights for making predictions of experiments that were being conducted on the components that make up the nucleus, particularly protons. Drell, his students, and his collaborators made very seminal contributions to how to think about these concepts theoretically and also how they can be applied in experiments.

Drell's second contribution centered on his efforts in creating, nurturing, and enhancing a very powerful human intellectual infrastructure at SLAC National Accelerator Laboratory and beyond. He brought people together through his mentorship, teaching, and many forms of collaboration, and leveraged this human capital to amplify his and colleagues' scientific research.

What inspired Sidney Drell to take up the cause of a world free of nuclear weapons?

Rose Gottemoeller: I believe that the roots of Drell's involvement in this issue probably stem from his history as a science diplomat, particularly his engagement with Soviet nuclear scientist and dissident Andrei Sakharov, because worldwide nuclear disarmament was at the heart of Sakharov's vision. However, this relationship reflected a proud tradition that goes back to Albert Einstein and Bertrand Russell when they published their joint manifesto in July 1955. American scientists and their counterparts worldwide, including the Soviet scientific community, were thinking for a long time about the dreadful destructive power of the atom. Many scientists at the time saw the need to engage with one another and establish technical parameters, which could provide the basic groundwork for arms control agreements and treaties.

Daryl Kimball: I think Rose is right. Historically, leading scientists who have worked on nuclear weapons were deeply conscious of their potentially devastating effects. Drell in particular had a keen awareness that experts did not have all the answers. I was struck by this humility in our conversations, because he was the one asking me questions. I'm sure he asked others questions about how the politics of the issue could work more constructively. Drell may not have been a partisan person, but he certainly was curious and thought about the politics of a situation just as he thought about physics problems.

In 1983, Drell wrote that nuclear weapons and policy are “too important to be left to the experts. . . . All of us are the targets of these indiscriminating weapons of mass destruction. There is, therefore, no excuse for us not to constitute an informed and an effective public constituency insisting on the imperative of arms control.” His concern ran deep, and I think that's why he became involved at the intersection of science and politics. He understood that public awareness was fundamental to bringing about systematic change.

Raymond Jeanloz: Drell's first encounter with the effects and implications of nuclear weapons occurred in 1945, when Allied forces dropped atomic bombs on Japan. He was influenced by that event and its aftermath. It would be another ten to fifteen years before he started offering his policy advice. In the meantime, through his work as a physicist, he was closely associated with the likes of John Wheeler, his undergraduate thesis advisor at
Princeton, Viki Weisskopf at MIT, and Pief Panofsky at Stanford. They were all strong influences on Drell, not just in science but also because they were quite engaged in advising the government and thinking about broad policy issues.

When Drell met with Sakharov at a 1974 physics conference in Moscow, he was prepared to discuss the implications of nuclear proliferation. At the time, Sakharov was resisting the very same system that he had helped build and empower. Drell said this in admiration about Sakharov: “I think the man will go down in history books along with Gandhi, Martin Luther King, and other people like that in this century.”

Deborah Gordon: Certainly, Drell's advocacy was shaped by a culmination of life experiences and interactions with people and science. I don't just mean people working in science or politics. He enjoyed being in the world and experiencing and listening to people of diverse backgrounds and skill sets. Drell deserves recognition for being the person who inspired the four-horsemen effort (George Shultz, Henry Kissinger, William Perry, and Sam Nunn) of ridding the world of destructive nuclear weapons. However, he was also aware that he would not be the one leading the charge. He would have an active role in the background. He was almost like the fifth horseman.

**Will you talk about Drell's beliefs about nuclear weapons as an element of US defense policy?**

James Timbie: In the 1980s, the biggest issue was the Strategic Defense Initiative. In Drell’s view, President Reagan’s vision of a large advanced missile defense went well beyond what was justified. Characteristically, Drell offered a balanced and well-grounded position in the debate about what constituted a legitimate nuclear-deterrence strategy. For example, he called for a vigorous research and development program within the bounds of the 1972 Anti-Ballistic Missile Treaty. Ultimately, Drell didn't believe that the United States should withdraw from the ABM Treaty and go whole hog on missile defense. However, he maintained that we shouldn't abandon missile defense either.

Rose Gottemoeller: The American Catholic bishops wrote an important letter in 1983 on the moral issues surrounding nuclear deterrence. The prelates said, "Deterrence is not an adequate strategy as a long-term basis for peace; it is a transitional strategy justifiable only in conjunction with resolute determination to pursue arms control and disarmament." I believe Drell consulted with the bishops, because he similarly expressed doubts about the long-term morality of nuclear deterrence and whether it is a defense strategy that we should continue to depend on.

Daryl Kimball: Drell along with our friend Jim Goodby were asking the question again and again, “What are nuclear weapons for? They exist, we must manage them, but what ultimately are they for?” Drell was trying to encourage the public and policy makers to think about the fundamentals. He and Goodby published a report in 2005 that answered these questions. This preceded the Wall Street Journal op-ed that Drell helped the “Four Horsemen” author in 2007.

Drell recognized the practical value of a country being equipped with nuclear weapons but concluded that it was not ultimately a sustainable approach to maintaining world order. He argued that we had to reduce the number of nuclear weapons to reach the lowest possible numbers, and we needed to accomplish this on a stable basis. I think it’s also fair to say that he did not have special knowledge about whether nuclear weapons would ever be eliminated. However, he emphasized the need to keep moving toward that end goal. Reducing the number, reducing the reliance, and reducing the salience of nuclear weapons is essential to preventing their further use and to possibly achieving their eventual elimination.