

The organization has to pay more attention to its members; make sure it is adding value to their professional efforts. I also want to make more use of the scientific fellows who are elected each year. It's an honor that should mean more than a little lapel rosette. It should mean real involvement in the issues of the day.

PT: As the publisher of *Science*, do you see a threat from government mandates to provide free access to papers that are funded by federal agencies?

HOLT: I'm still working through that. I don't think anybody really knows. In your business and in every other place, anyone will have to admit they have not seen a good business model for sustainable scientific publishing into the future. So that's a little unnerving.

Communication is a sine qua non of science. If you don't publish, you can't call yourself a scientist. But it can't be a publishing free-for-all that is a race to the bottom of editorial standards. There

has to be some way to encourage open communication while maintaining high standards and doing it with a sustainable business model.

PT: Some in Congress are taking aim at the social sciences.

HOLT: I appreciate the social sciences as science as much as I appreciate the physical sciences. For members to say that somehow, because it deals with human lives rather than electrons and point particles, it is less based on evidence or is less necessary, is misguided. Physical scientists should defend social sciences because the attacks on social sciences are attacks on the very idea of science. It is not wise to sit back and say, "Well, those are the softer sciences. That doesn't affect us." Because anything that undermines an appreciation of science—evidence-based thinking that is empirical and verifiable—will eventually hurt any of the other components of science.

PT: What do you think will happen with fusion?

HOLT: When you have a big project like [ITER], you have to lock the construction in place years ahead of completion, and it's hard to incorporate newer findings. So that makes ITER look less exciting scientifically than it might be if it were designed this year. But you can't redesign it every year. That presents a real problem, but it's still worth undertaking because it will be a really good demonstration. But you have to keep the other [fusion research] work going at the same time. And arguments that we can't afford it are so misguided. If we are spending, just in the US, well above \$1 trillion on energy, why can't we spend \$1 billion a year on research for a promising alternative and \$1 billion a year on other promising energy research? We should be spending many tens of billions a year on energy research of various kinds. **David Kramer**

New park will honor US atomic heritage

Provision ensures preservation of World War II-era structures.

A 15-year effort to save sites and buildings vital to the Manhattan Project as a national historic park paid off in December when President Obama signed the fiscal year 2015 National Defense Authorization Act. Tucked into the massive legislation was a provision instructing the Departments of the Interior and Energy to have the park open within one year.

The two agencies were told to conclude a memorandum of agreement delineating the roles of each in creating and maintaining the park. Interior's National Park Service (NPS) will most likely operate the park, which comprises World War II-era structures at the three locations where most of the development of the atomic bomb took place: Los Alamos, New Mexico; Oak Ridge, Tennessee; and Richland, Washington. DOE, which owns all the facilities, is expected to maintain them, says Cynthia Kelly, founder and president of the non-profit Atomic Heritage Foundation (AHF). Kelly was the major force behind the park's creation; she took early retirement from DOE in 2002 and has been lobbying for the park ever since.

"The park service is America's storyteller, and they will be the ones to take on this contested history and tell it in a way that will ask people to use

their critical thinking, learn about the circumstances in the context of World War II, and think through the ambiguities and complexities of what happened," says Kelly. She notes that the new park will be one of only a few

among the NPS that recognize industry.

Saved from the bulldozer

The park won't be fully formed in one year; the legislation designates more than 40 specific sites, many of them



J. Robert Oppenheimer's former home in Los Alamos, New Mexico, remains occupied but is open to the public at times. On the departure of the current owner, it will become a permanent part of the newly authorized national park honoring the Manhattan Project.

ATOMIC HERITAGE FOUNDATION



The B Reactor at the Hanford Site in Richland, Washington, produced plutonium for the first nuclear test device and for the Fat Man bomb dropped on Nagasaki in 1945.

located in areas that are now secured. Public access arrangements will have to be worked out, and some may be available only on a limited basis. But each of the three locales already has facilities that are open to the public, including the B Reactor on the Hanford Site near Richland, where the plutonium for the Fat Man bomb dropped on Nagasaki was produced; the Fuller Lodge social center and the homes of J. Robert Oppenheimer and Hans Bethe at Los Alamos; and the calutrons at the Oak Ridge Y-12 National Security Complex, which enriched uranium-235 for the Little Boy weapon detonated over Hiroshima. Each of the three locations has at least one atomic museum.

Many of the new park's 17 cabins and other small structures at Los Alamos National Laboratory had been due to be razed. They are located at the V Site, where "the gadget," the plutonium implosion device detonated in the Trinity test, was assembled, and at the Gun Site, where Little Boy was put together. Included is the building where Louis Slotin received a fatal dose of radiation while performing a post-war criticality experiment.

Richard Rhodes, author of *The Making of the Atomic Bomb* and an AHF board member, says that writing his-

tory requires more than poring over documents. "When it's possible, you need to walk the ground. There is a reality to the physical structure of historical artifacts that is of a different order from looking at documents," he says. "This immense historic process that went on in exploring the energy release from nuclear fission will be there for people to think about and look over."

The park isn't a celebration of the US invention of the bomb, he says. "It's really something more, just as the preservation of Auschwitz and the preservation of American Civil War battlefields is also for a much more serious purpose. It's an acknowledgment of the fact that it was."

No funding was authorized by the legislation. The NPS has estimated \$2.5 million to \$4 million is needed annually to operate the park and to offer onsite historical interpretation. The Obama administration included \$180 000 for the park in its fiscal year 2016 budget request, released last month.

Some sites left out

The list of sites to be included in the park's inventory evolved over time, says Kelly. In 2001, DOE officials designated certain "signature facilities" of

the Manhattan Project. Several of those are part of the park: at Hanford, the B Reactor and the adjacent T Plant chemical separation facility; at Oak Ridge, the calutrons and the X-10 graphite reactor; and at Los Alamos, the V and Gun Sites. The remaining facilities on the list are not part of the park: The mile-long K-25 gaseous diffusion uranium enrichment plant at Oak Ridge has been demolished; Chicago Pile-1, the world's first manmade nuclear reactor, is long gone; and the Trinity site at the US Army's White Sands Missile Range in New Mexico is open to the public only one day a year.

Working under a DOE grant and with input from DOE, the NPS, state and local governments, and the public, the AHF developed a preservation plan in 2003. The NPS then evaluated the significance, structural integrity, and potential for public enjoyment of the properties.

Kelly's foundation has done some of the advance work for NPS; for a few of the major facilities it has already put together a smartphone-accessible self-guided tour, which she calls "ranger in your pocket." The AHF also offers to the public hundreds of hours of recorded interviews with major wartime atomic figures, including Leslie Groves, the army general who headed the Manhattan Project, and Oppenheimer, its scientific director.

The park boundaries will be expanded in the future, Kelly predicts, to encompass labs at the University of California, Berkeley, where Glenn Seaborg discovered plutonium, and at the University of Chicago, where Enrico Fermi did foundational work on nuclear reactors. "We're not going to forget about those," she promises.

David Kramer

APS looks to improve climate for LGBT physicists

An ad hoc committee of the American Physical Society (APS) is looking into issues relevant to lesbian, gay, bisexual, transgender (LGBT), and other sexual- and gender-minority physicists. The charge of the committee is to investigate their "representation in physics, assess the educational and professional climate in physics, recommend changes in policies and practices that impact LGBT physicists, and address other issues that affect inclusion." The nine-member committee will report to APS in spring 2016.

The APS committee stems from a request by LGBT+ Physicists, a group started in late 2009 by Elena Long, now

a postdoc in nuclear physics at the University of New Hampshire. A trans woman, Long got involved in activism because she was "concerned I could be fired for being LGBT." While working as a graduate student at the Thomas Jefferson National Accelerator Facility, she led a successful lobbying effort to amend the lab's employment policies to bar discrimination based on sexual orientation or gender identity. Later, meeting other LGBT physicists helped her stay in the field, she says. "The draw of leaving behind the work I love for a culture that is more accepting was tempting."

"Are we underrepresented? We just don't know. But we do know that some

of us have experienced exclusionary behavior," says Michael Falk, a materials physicist and gay man at the Johns Hopkins University who chairs the APS committee. Data indicate that attitudes in academia are heterogeneous, notes Falk. "Some campuses are welcoming, while at others faculty report experiencing hostile work environments. Nonacademic workplaces are most likely similarly diverse in their levels of acceptance. We will try to get a handle on that."

When LGBT physicists get together at APS meetings, as they have for the past five years, they trade notes about whether to be out of the closet with PhD advisers and prospective employers,