arranged for his staff to meet with the US delegation for what the visitors described as particularly productive talks.

High-leverage support

Financing for both trips was supplied by the Richard Lounsbery Foundation. The tiny Washington-based philanthropy also has paid for a number of visits by prominent US scientists and university presidents to Iran and for part of the cost of a scientific delegation to Syria last year (see PHYSICS TODAY, May 2009, page 28).

Lounsbery board member Jesse Ausubel calls the foundation's focus on scientific diplomacy a "high-leverage" investment for an organization that hands out a total of $2.5 million to $3 million annually. The foundation supports the AAAS diplomacy program and has even funded scientific exchanges between nuclear-armed rivals India and Pakistan. Turekian, who has been on scientific missions to North Korea, Cuba, and Syria, says that in addition to strained or nonexistent relations with the US, those three nations share a desire for economic development and aspire to the US model in which innovations developed from academic institutions are commercialized by industry. He's now considering arranging a visit to Myanmar, another authoritarian-ruled pariah state that has little contact with the outside world.

The CRDF, which was established in 1995 to help former Soviet nuclear weapons scientists find new work, began broadening its portfolio five years ago and now has projects in 30 countries, says president Cathleen Campbell, who was among the DPRK visitors. "We know that in terms of going forward [with DPRK scientists], we need to continue those person-to-person contacts and continue to have opportunities for face-to-face meetings here or there," Campbell says.

Contacts are key

One tangible result of the Syrian trip has been the selection of an early-career scientist from the University of Damascus to become the first Syrian science fellow at AAAS, says Turekian. That individual was due to begin her four- to five-month-long fellowship late last month (after PHYSICS TODAY went to press). As for Cuba, he says the two sides will be identifying potential topics of mutually beneficial research. Possibilities might include jointly investigating the ecosystem of the Gulf Stream, which passes between the two nations, or hurricanes, which regularly pass over Cuba.

Ausubel, who directs the program for the human environment at the Rockefeller University, says the contacts that are made between US scientists and counterparts in countries that have little or no diplomatic links to Washington are valuable in and of themselves, regardless of whether they evolve into more formal scientific cooperation. "The process is the product in this case," Ausubel says. "Effective communication in international relations relies upon accurate transmission. So having Americans with an accurate understanding of opening and maintaining channels is an end to itself."

Ausubel draws a parallel to his experience working from 1979 to 1981 at the International Institute for Applied Systems Analysis, a scientific organization set up by the US and the Soviet Union with the objective of keeping scientific channels open as cold war tensions were peaking. He says that some friendships he made with Russian scientists then have endured to this day.

The expert on North Korea

Few Americans can top former Los Alamos National Laboratory director Siegfried Hecker when it comes to making contacts with scientists in the DPRK. Hecker has made six visits to Pyongyang, so it's no surprise that planners of the December visit sought his advice. "I encouraged them, and I think that it's a good idea to develop as many links as possible with the scientific and educational communities in the DPRK," says Hecker. He adds, however, that "the difficult part is the follow-up and follow-through."

Hecker, an expert on plutonium, had no problem with follow-ups. The North Koreans used his visits to "reduce ambiguities" about the state of their nuclear program. On three of his trips, he was shown around the Yongbyon plutonium production complex. The first occurred soon after the DPRK withdrew from the Treaty on the Non-Proliferation of Nuclear Weapons in 2003, when all dialog with the US had ceased. Hecker recalls his hosts handing him a jar containing half a pound of plutonium.

"What they told me about their nuclear program has been remarkably accurate," Hecker says. He learned, for example, that despite years of attempts, the North Koreans haven't been able to get a 60-MW graphite reactor up and running. Had they succeeded, the country could be producing enough plutonium each year to construct about 10 nuclear weapons—putting it on a par with Pakistan's and India's nuclear weapons capabilities. Instead, the regime can only get one bomb's worth of fissile material annually from a 5-MW reactor. As a result of his visits, Hecker says, "I think we have a significantly better picture of their plutonium program." But he adds that the same can't be said about the country's uranium enrichment capability, a years-long enterprise that the DPRK refused to acknowledge until late last year.

David Kramer ■

web watch

To suggest topics or sites for Web Watch, please visit http://www.physicstoday.org/suggestwebwatch.html. Compiled and edited by Charles Day

http://www.astrosphere.org

On 10 January in Padua, Italy, a ceremony was held to mark the end of the largest astronomy education and outreach initiative in history: the International Year of Astronomy. **Astrosphere** aims to sustain IYA's goals by providing a platform for online outreach. Among the site's expanding menu of offerings are the 365 Days of Astronomy podcast and the Astronomy 2009 island in Second Life.

http://windwithmiller.windpower.org/en/kids

Wind with Miller is an education site devoted to teaching schoolchildren how electricity is generated from wind. The site was produced with the support of several Danish governmental and nongovernmental organizations.

http://www.csiro.au/resources/Energy-Saving-Handbook.html

The Commonwealth Scientific and Industrial Research Organisation is Australia's national science agency. To help Australians—and anyone else—to mitigate climate change, the agency has published **The CSIRO Home Energy Saving Handbook – How to save energy, save money and reduce your carbon footprint.**