

Hecker really describing a new form of “scientific nuclear diplomacy,” or is he advocating for more politicization of the already difficult politics of nuclear weapons?

Ken LaGattuta
(joken@valornet.com)
Española, New Mexico

■ **In the interesting** feature article by Sig Hecker, figure 3 caught my eye. The caption attributes the drawings to an unnamed Russian. I’m certain they are drawings by Jean Effel, French illustrator and caricaturist (and Communist) who was quite popular in the Soviet Union in the 1960s. I have a book of drawings that was published in the Soviet Union in 1963, and while it does not contain the specific drawing presented in the figure, I find the style unmistakable.

Denes Marton
(marton@uthscsa.edu)
University of Texas Health Science Center at
San Antonio

■ **Hecker replies:** Irvin Lindemuth is correct in urging the Obama administration to redouble its efforts to rejuvenate US–Russia lab-to-lab nuclear cooperation. It is tragic that now, more than 15 years after Presidential Decision Directive PDD/NSC-47, we have fewer collaborations despite stockpile challenges after 20 years without nuclear testing and the need for deeper reductions of the nuclear arsenals on both sides.

Alexander DeVolpi rightly points out the essential contributions of US non-government organizations and individuals to nuclear scientific diplomacy with the Soviet Union. In addition to the ones he names, individuals from MIT, Harvard and Stanford Universities, and the National Academy of Sciences Committee on International Security and Arms Control contributed, as did individuals from the Russian Academy of Sciences. Those organizations and individuals prepared the path for the Nunn–Lugar legislation. Early visits to the Russian nuclear weapons institutes by DeVolpi and some of my Los Alamos and Lawrence Livermore colleagues should be similarly commended.

I find it unfortunate that DeVolpi appears to lay much of the blame for the cold war and the difficult post–cold war transition on the weapons labs. I was director at Los Alamos during the transition, and I believe we did a commendable job in meeting our primary responsibility of a safe, secure, and reliable nuclear stockpile while reaching out to our Russian counterparts as soon as we felt the cold war’s thaw. The collaborations allowed scientists such as



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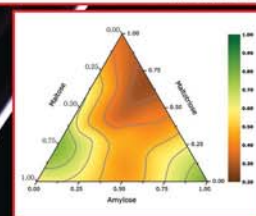
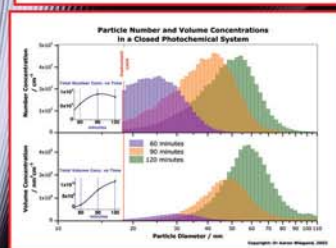
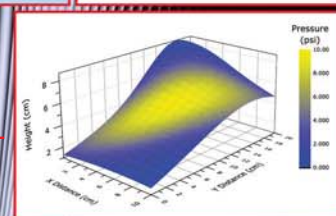
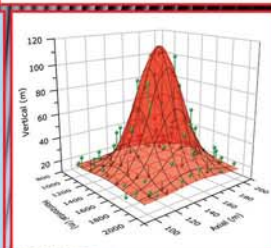
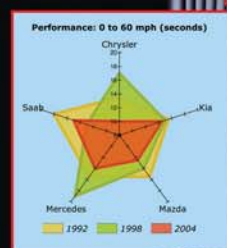
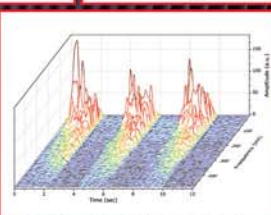
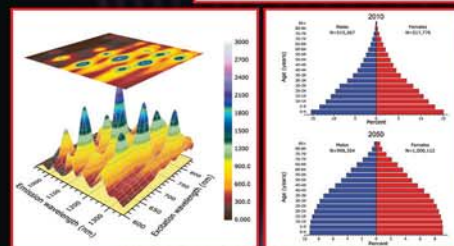
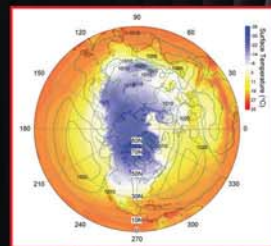
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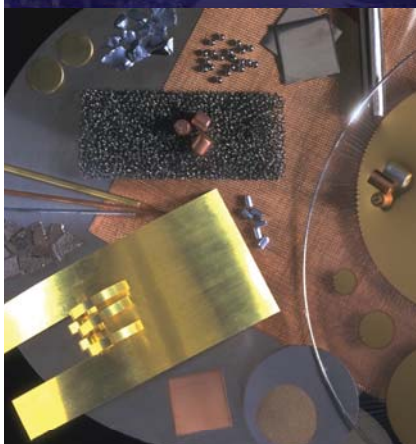
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Lindemuth from Los Alamos and their Russian counterparts to work hand in hand to generate first-rate science, develop respect and trust, and contribute to a safer world.

Ken LaGattuta laments the change in contracting of the US nuclear weapons physics design labs to for-profit entities. I fully concur. However, I take strong exception to his insinuation that my work on the North Korean nuclear problem is meant to create fear of North Korean nuclear aggression and generate political pressure for more US weapons R&D. That's nonsense. My aim is to provide as accurate a picture as possible of North Korea's nuclear capabilities to assist a diplomatic resolution. His critique of my having signed a letter expressing concerns about some specific language in the Obama administration's Nuclear Posture Review is similarly off the mark.

Great detective work by Denes Marton. Thanks for pointing out the unmistakable style of French caricaturist Jean Effel in the stockpile stewardship depiction presented by Rady Ilkaev. One of the Russian institute's artists clearly borrowed from Effel's characters to bring them into the world of nuclear weapons.

Siegfried S. Hecker

*Center for International Security
and Cooperation
Stanford University
Stanford, California*

Premature Nobel Prize decision?

The awarding of the 2011 Nobel Prize in Physics "for the discovery of the accelerating expansion of the universe" (see *PHYSICS TODAY*, December 2011, page 14) ventures into model-dependent speculation based on the observations of highly redshifted supernovae. The interpretation of the *just* 13-year-old discovery that the light from distant type Ia supernovae appears to be fainter than expected remains a matter of current astrophysics research.

In mainstream cosmology, type Ia supernovae are treated as calibratable standard candles, and since the more distant ones are apparently increasingly fainter than expected, the usual conclusion is that the universe is expanding at an accelerating rate. But the methodologies that allow the proper calibration of peak luminosities of the type Ia's—and thus their use in cosmological studies—are empirically based and may introduce systematic errors that give the false impression of an accelerating universe.

The intrinsic peak luminosities of type Ia supernovae depend on the nickel-56 yield of the explosions and vary by a factor of approximately three, whereas the supernova searches have found that distant type Ia's are only about 25% less luminous than expected after empirical corrections are made. But in 2011, new corrections based on masses of the host galaxies introduced new luminosity recalibrations¹ on the order of 10%. The field is clearly still evolving; other systematic corrections may need to be made in the future.

Various alternatives to an accelerating universe have also been proposed.² Whether such alternatives are viable remains to be seen, but the Nobel Committee for Physics has perhaps acted somewhat prematurely by selecting a preferred interpretation of the supernova projects' data. The effect, intentional or not, is to bully the skeptics into silence, self-censorship, or ridicule, whereas good science proceeds with a healthy dose of skepticism and with open minds.

It may turn out that the universe is indeed expanding at an accelerating rate; however, the scientific issue of the fate of the universe is too important to be settled by Nobel committee fiat. The case is not yet closed, the 2011 Nobel Prize notwithstanding.

References

1. P. L. Kelly et al., *Astrophys. J.* **715**, 743 (2010).
2. See, for example, C. Tsagas, *Phys. Rev. D* **84**, 063503 (2011).

Yousaf M. Butt

*(ybutt2002@yahoo.com)
Cambridge, Massachusetts*

The "Doctor" title: Respect or confusion?

Although Robert Cassola's letter about the media not giving scientists and PhDs proper credit by using the appropriate title (*PHYSICS TODAY*, September 2011, page 8) is very interesting, I do not want to be called Dr. Kovalev unless I am acting as such.

Being a police officer or a physician gives a person both rights and obligations while off duty: You may be needed in an emergency. You have to be Officer Jones to handcuff somebody, and you have to be Dr. Jones to treat a patient. You also should uphold a certain level of personal integrity. So the media simply reflect the public perception of a special status those professions