> "'Peaceful' nuclear explosions seem unlikely to have a future on our planet."

request of any nation, allowing underground nuclear explosions to be conducted for peaceful purposes. If a consensus is reached to allow such explosions, the treaty says, the conference should then recommend an amendment "that shall preclude any military benefits of such nuclear explosions."

But the preclusion of military benefits seems impossible, and the requirement for consensus among the parties seems to be a substantial obstacle for amendment. "Peaceful" nuclear explosions seem unlikely to have a future on our planet.

Pierce Corden
(pierce.corden@yahoo.com)
Bethesda, Maryland

Something not mentioned in Hannah Pell's article "'Peaceful' nuclear explosives?" (Physics Today, November 2023, page 34) is that the work of Project Plowshare and its Soviet counterpart became an issue during the negotiations over the Nuclear Non-Proliferation Treaty (NPT), which entered into force in 1970.

Concerned about getting left out of an important technology, non-nuclear-weapons countries insisted that the treaty guarantee them access to the benefits of peaceful nuclear-explosion applications—and indeed, the NPT's Article V covers that point. But the lines between peaceful and nonpeaceful explosions are blurry, as evidenced, for example, by India saying that its 1974 nuclear test was a peaceful explosion.

Although Article V hasn't been removed from the treaty in an official manner, it has been in essence. As stated by the National Security Archive's William Burr, Article V "has been virtually a dead letter because of the basic U.S. government policy that explosive devices were the same as nuclear weapons and involved the same risks to public health and safety."[1]

That brings me to a vital point regarding the motivation for Project Plowshare. In 1964 I was in a group of young scientists who received a briefing on it from the director of the Livermore branch of the University of California Radiation Laboratory (now Lawrence Livermore National Laboratory). He confided that the real reason for Plowshare was not economics. Rather, it was that it offered an opportunity for the public to become acquainted with nuclear explosives and more comfortable with their effects—so that in wartime, the president could more easily release nuclear weapons for use in battle.

Reference

1. W. Burr, *The Nuclear Non-Proliferation Treaty and the Mexican Amendments: The Negotiating Record*, Briefing Book 629, National Security Archive (24 May 2018).

Victor Gilinsky
(victor@gilinsky.com)
Santa Monica, California

Little quarks

Little bitty quarks
whirling inside the proton
we can't set you free

Mac Mestayer
Spring 2021

Correction

March 2024, page 38—Project Vista was mischaracterized as being focused on strategic nuclear weapons. It was focused on tactical nuclear weapons to defend Europe. PT

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