

Bruce Blair

Frank N. von Hippel

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Six years ago, not long after Bruce's 70th birthday, Bruce, his wife Sally, my wife Pat, and I were walking along the canal path near their place in New Hope on the Delaware River in Pennsylvania.

Bruce turned to me and said, "Frank: I probably have only ten more good years left." Bruce was focused on getting the job done.¹

More than a decade before founding Global Zero, Bruce published a book about another global zero, *Global Zero Alert for Nuclear Forces*.²

He was concerned about accidental nuclear war resulting from what he called the "hair trigger" on the nuclear confrontation between Russia and the United States.

As most of us here know, Bruce's concern about accidental nuclear war dated back to when he served as a launch-control officer for 50 Minuteman intercontinental ballistic missiles in Montana and then as a support officer for the Airborne Launch Control Aircraft, which served as backups if any of the launch control centers were destroyed or disabled.³

In the late 1970s, the Pentagon concluded that the Soviet Union's Intercontinental Ballistic Missiles were becoming accurate enough so that they could soon destroy a significant fraction of the Minuteman silos in a surprise attack. The missiles were therefore put in a posture of launch-on-warning.⁴

That put US presidents in the impossible situation of having about ten minutes to decide whether to order the launch of the ICBMs. Bruce quoted George Bush Jr. as complaining that wouldn't even give him time "to get off the "crapper".⁵

Sharon Weiner, inspired by Bruce, worked with Moritz Kuett to create a virtual reality setup where any of us can experience what a President would go through during those minutes: being pressured to quickly make a decision that could send humanity back to the dark ages.⁶

This experience became more broadly available in an 8-minute animated video, "How A Nuclear War Will Start - Minute by Minute", created by Matt Caplan, an Assistant Professor of Physics at Illinois State. That video has received 6 million views on YouTube.⁷

Of course, there is no good reason to launch the ICBMs on warning. Our ballistic missile submarines, untargetable at sea, carry more than enough warheads to destroy any attacking country or countries.⁸

But each US strategic warhead has an assigned target. This has led Strategic Command to a "use it or lose it" mentality. Bruce told me when I first met him more than 30 years ago, that, if the US and Russia were down to one ICBM each, they would be aimed at each other. That obviously creates an incentive to go first.

In 1997, Jonathan Schell, published an interview with General George Lee Butler, the first commander of US Strategic Command, who confirmed what Bruce had been saying. Butler said Strategic Command had

“built a construct that powerfully biased the president’s decision process toward launch *before* the arrival of the first enemy warhead”

He added that “neither [the US nor Russia] would survive the ensuing holocaust.”⁹

I e-mailed General Butler about our event today.

He responded,

“I knew [Bruce] very well, greatly admired him and did as much as I could within the bounds of secrecy to bolster his tireless energy and extraordinary intellect as he labored to reduce the risks and dangers posed by nuclear weapons.”¹⁰

Since his death, I’ve tried to extract as much as I can from Bruce’s writings. I recently wrote an article¹¹ based on something Bruce revealed in endnote 3 of the article, “Loose Cannons,” published six months before his death.

In endnote 3, Bruce said:

“It takes herculean sleight of mind to reconcile the law of armed conflict with a US nuclear target plan that includes around 1,500 aimpoints, many hundreds located inside large cities in Russia and China.”¹²

“Many hundreds” of nuclear “aimpoints” “located inside large cities” jumped out at me. I decided to see if I could learn more from the 2018 *Alternative U.S. Nuclear Posture Review* that Bruce co-authored with Jessica Sleight and Emma Claire Foley. I found he had revealed there that US war plans include 100 nuclear aimpoints in the greater Moscow area alone.¹³

As far as I can determine, these aimpoints are almost all so-called “leadership” targets and the transmitters the Russian leadership would use to send launch messages to Russia’s nuclear launch control centers.¹⁴

There must be a less destructive way to fight a war. The history of tactical nuclear weapons suggests one possibility.

At the end of the Cold War, the US scrapped almost all the ten thousand tactical nuclear weapons it had in Europe, South Korea and elsewhere¹⁵ and replaced them with precision-guided munitions like the Javelins and Stingers we supplied Ukraine to stop Russia’s invasion. As a result of the PGM revolution, Ukraine was able to destroy Russia’s tanks instead of using tactical nuclear weapons as NATO planned during the Cold War, which would have destroyed all of West Germany and triggered a global holocaust in the process of destroying the invading Russian tanks.

Bruce wondered if most strategic nuclear warheads could similar be replaced by precision conventional weapons. Ryan Snyder, one of Bruce’s collaborators at Princeton, continues to work on that question.

Bruce was an amazing researcher and analyst.

In the early 1980s, Congress' Office of Technology Assessment asked Bruce to lead a study on the robustness of the US strategic nuclear command and control system in a nuclear war.

Bruce had already established in his PhD thesis, *Headless Horseman of the Apocalypse*,¹⁶ that it was not robust.

In 1986, the Office of Technology Assessment sent Bruce's draft report to the Pentagon for classification review. The Pentagon rushed a team over to seize all the copies. The report never saw the light of day.¹⁷

That gave Bruce's thesis an imprimatur similar to that once given to movies: "Banned in Boston".

A decade later, after the collapse of the Soviet Union, Bruce went to Moscow to investigate how the Soviet Union had dealt with the challenges of nuclear command and control.

Valery Yarynich, a Soviet command and control expert from the Soviet General Staff, recognized Bruce's need to know and told him about the Soviet "Dead Hand" system.¹⁸

That system would launch the Soviet nuclear missiles if sensors confirmed that nuclear warheads had detonated on Soviet territory and communications from the Kremlin and General Staff were out.

Although the US media portrayed the Dead Hand system as a Doomsday machine, it is less of a hair trigger than the US launch-on-warning posture because it requires the detection of nuclear explosions in Russia.

After Bruce published *Global Zero Alert for Nuclear Forces* in 1995, and an oped on the subject with Senator Nunn, former chair of the Senate Armed Services Committee, in June 1997,¹⁹ I proposed that we write an article together with Hal Feiveson in *Scientific American*.

Our article titled, "Taking Nuclear Weapons off Hair-Trigger Alert,"²⁰ drew a lot of attention:

- The *New York Times* and *US News and World Report* wrote supporting editorials;²¹
- We were invited to write an oped in the *Washington Post*;²²
- The *Wall Street Journal* wrote an opposing editorial, "Stay on Alert," and also published an oped from the Livermore National [Nuclear Warhead] Laboratory titled, "De-alerting Nukes Would Imperil U.S. Security".²³

Finally, General Eugene Habiger, the Commander in Chief of Strategic Command, invited us out to his headquarters in Omaha for two days so that he could straighten us out. It was a treat to hear Bruce and him debate the issue.

In a gesture of perhaps mock respect, Habiger gave Bruce his command chair at the end of the table.

Habiger was an interesting mix. On the one hand, he was visionary. Just as he had reached out to us, he had reached out to Russia Minister of Defense, Igor D. Sergeyev,

and invited him to visit the US strategic nuclear bases, inspect the hardware and visit with the personnel.²⁴ Sergeyev invited him back.

At the same time, the General was completely committed to executing the nuclear war plan if ordered to do so. On our tour of Strategic Command's headquarters, we were escorted by an officer whose previous position had been commander of a ballistic missile submarine. Hal asked innocently if he would have launched his missiles if ordered to do so.

The commander's response encouraged us: "I would put up an antenna first to see if the baseball games were still being played." He would check for evidence that the US had indeed been attacked.

General Habiger heard of this exchange and the next morning had the commander stand at attention and asked him the same question. This time it was, "I would launch, yes sir!"

Two years later, in 1999, Bruce was awarded a MacArthur "genius" fellowship. That unleashed another side of Bruce: networker and organization builder – and even film producer. It seemed that there was nothing that Bruce would or could not do.

He started by building the World Security Institute, an NGO conglomerate that included Washington-based news bureaus publishing on security issues in Russian, Chinese and Arabic.²⁵ He produced TV programs on global affairs for the Public Broadcasting System and CNN and a feature film, *Countdown to Zero*.²⁶ And then he created Global Zero.

Launching Global Zero Bruce began to travel all over the world to recruit retired political and military leaders to his cause.

In the US, Bruce recruited General James Cartwright, another former commander of Strategic Command, known during the Obama Administration as "President Obama's favorite general." I've met General Cartwright once and was struck by how thoughtful and soft-spoken he was.

General Cartwright was Bruce's favorite general too. Bruce persuaded him to co-author opeds and to co-chair Global Zero's Nuclear Crisis Group, its Commission on Nuclear Risk Reduction, and its Nuclear Policy Commission.

When he learned that Bruce had died, General Cartwright said, "Bruce understood the existential threat of nuclear weapons. His loss will be felt throughout the national security community."²⁷

Senator Nunn said, "Bruce had an effect on me."²⁸

Bruce had an effect on all of us.

¹ I'm almost exactly ten years older than Bruce, so his remark made me think.

² Bruce Blair, *Global Zero Alert for Nuclear Forces*, Brookings Institution Press, 1995 (108 pp.).

³ https://en.wikipedia.org/wiki/Bruce_G._Blair.

⁴ "The "Launch on Warning" Nuclear Strategy and Its Insider Critics," National Security Archive, 11 June 2019, <https://nsarchive.gwu.edu/briefing-book/nuclear-vault/2019-06-11/launch-warning-nuclear-strategy-its-insider-critics>.

⁵ Bruce G. Blair, "Loose cannons: The president and US nuclear posture," *Bulletin of the Atomic Scientists*, 13, January 2020.

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- ⁶ <https://sgs.princeton.edu/thenuclearbiscuit>.
- ⁷ “How a Nuclear War Will Start,” <https://www.youtube.com/watch?v=wmP3MBjx20>.
- ⁸ Hans M. Kristensen and Matt Korda, “United States nuclear weapons, 2023,” <https://www.tandfonline.com/doi/full/10.1080/00963402.2022.2156686>.
- ⁹ Jonathan Schell, *The Gift of Time* (Henry Holt, 1998) chapter V, “Abolition: General George Lee Butler.” p. 194.
- ¹⁰ General George Lee Butler (ret.) 30 Sept. 2023.
- ¹¹ Frank N. von Hippel, “Should Nuclear Weapons Be Made Less Lethal?” *Arms Control Today*, September 2023, <https://www.armscontrol.org/act/2023-09/features/should-nuclear-weapons-made-less-lethal>.
- ¹² “Loose Cannons”.
- ¹³ Bruce G. Blair, Jessica Sleight, Emma Claire Foley, *The End of Nuclear Warfighting: Moving to a Deterrence-only Posture*, Global Zero and Program on Science and Global Security, Princeton University, 2018, <https://www.globalzero.org/wp-content/uploads/2019/02/ANPR-Final.pdf>, <https://sgs.princeton.edu/sites/default/files/2021-02/Blair-et-al-2018.pdf>, p. 35.
- ¹⁴ See Matthew G. McKinzie, Thomas B. Cochran, Robert S. Norris, William M. Arkin, *The U.S. Nuclear War Plan: A Time for Change*,” Natural Resources Defense Council, June 2001, <https://www.nrdc.org/sites/default/files/us-nuclear-war-plan-report.pdf>, p. 103.
- ¹⁵ Amy Woolf, *Nonstrategic Nuclear Weapons* (Congressional Research Service, 7 March 2022) <https://crsreports.congress.gov/product/details?prodcode=RL32572>.
- ¹⁶ Bruce G. Blair, *Headless Horseman of the Apocalypse: Command and Control of U.S. Strategic Forces* (PhD Thesis, 1984) <https://sgs.princeton.edu/sites/default/files/2021-02/Blair-1984.pdf>.
- ¹⁷ Michael R. Gordon, “Tug of War, With a Twist, On Secrets,” *New York Times*, 15 May 1986, <https://www.nytimes.com/1986/05/15/us/tug-of-war-with-a-twist-on-secrets.html>.
- ¹⁸ Bruce G. Blair, “Russia’s Doomsday Machine,” *New York Times*, 8 Oct. 1993, <https://www.nytimes.com/1993/10/08/opinion/russias-doomsday-machine.html>.
- ¹⁹ Sam Nunn, Bruce Blair, “From Nuclear Deterrence to Mutual Safety,” *Washington Post*, 22 June 1997, <https://www.washingtonpost.com/archive/opinions/1997/06/22/from-nuclear-deterrence-to-mutual-safety/aa13872e-ca28-494a-978c-e17e7b5b8875/>.
- ²⁰ Bruce G. Blair, Harold A. Feiveson and Frank N. von Hippel, “Taking Nuclear Weapons off Hair-Trigger Alert,” *Scientific American*, November 1997, <https://sgs.princeton.edu/sites/default/files/2019-10/blair-feiveson-vonhippel-1997.pdf>.
- ²¹ “Take nuclear arsenals off hair-trigger alert,” *US News and World Report*, 29 December 1997/January 5, 1998. Can’t find the *NY Times* editorial.
- ²² Bruce Blair, Harold Feiveson and Frank von Hippel, “Redoubling Nuclear Weapons Reduction,” 12 November 1997, https://web.archive.org/web/20140318020047/http://www.globalzero.org/files/bb_redoubling_nuclear_weapons_reduction_11.12.1997.pdf.
- ²³ “Stay on Alert,” editorial, *Wall Street Journal*, <https://www.wsj.com/articles/SB885246354382298000>; Kathleen Bailey, “‘De-alerting’ Nukes Would Imperil U.S. Security,” *Wall Street Journal*, both 20 January 1998, <https://www.wsj.com/articles/SB885244885610728000>
- ²⁴ Interview with General Habiger, “Security of the Russian Nukes,” *Air Force Magazine*, February 1998, <https://www.airandspaceforces.com/PDF/MagazineArchive/Documents/1998/February%201998/0298habiger.pdf>.
- ²⁵ https://en.wikipedia.org/wiki/World_Security_Institute.
- ²⁶ https://en.wikipedia.org/wiki/Bruce_G._Blair
- ²⁷ Zia Mian and Frank von Hippel, “Bruce G. Blair, acclaimed expert on the risks of nuclear war, dies at 72,” <https://www.princeton.edu/news/2020/07/21/bruce-g-blair-acclaimed-expert-risks-nuclear-war-dies-72>.
- ²⁸ Michael R. Gordon, “Bruce G. Blair Manned Nuclear Weapons, Then Warned About Them,” 21 July 2020, <https://www.wsj.com/articles/bruce-g-blair-manned-nuclear-weapons-then-warned-about-them-11595360611>.