Does North Korea really have a nuclear bomb?

When India staged its first nuclear test in 1974, there were no doubts. It was a massive explosion estimated at eight kilotons (kt.) equivalent of TNT. Though it was conducted underground, it left a large crater on the surface. The test was celebrated in India, condemned in Pakistan and observed with caution in the rest of the world. After India’s second series of tests in 1998, Pakistan responded with a five-device test set of its own two weeks later. Again, craters were made, congratulations offered, condemnations heard and medals given. India and Pakistan have been locked in a tense nuclear standoff ever since.

Russia, China, France, the United Kingdom, and of course the United States also had unambiguously “successful” first nuclear tests—if success means blowing up a big chunk of desert while poisoning the atmosphere with tons of radioactive debris. Of course, all five countries had massive science-industrial complexes to support their research, as did India. Pakistan did not, but China is widely suspected of having provided both the technology and the materials for Pakistan’s first nuclear devices.

North Korea’s nuclear tests, as so much else about the country, have taken a road less traveled. Its first test in 2006 was either a masterpiece of minimization, or a total fizzle at less than one kt. The second test in 2009 was a more nuclear-like five kt., but apparently a masterpiece of environmental good practice: the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) estimated that the containment of radioactive exhaust gas from the explosion “was above 99.9 percent.”

The CTBTO dismissed the possibility of a faked nuclear test under the theory “that such a massive logistical undertaking would have been virtually impossible under the prevailing circumstances and would not have
escaped detection.” The CTBTO scientists apparently had never seen The Great Escape. But North Korea’s “Dear Leader” Kim Jong-il was a great film buff, and any country capable of building a clandestine nuclear weapons program would presumably also be capable of sneaking high explosives into a remote mountain fortress under cover of darkness.

Rocket Man goes nuclear

After 2009, North Korea’s nuclear testing program went back to sleep until the Dear Leader’s son, “Supreme Leader” Kim Jong-un, needed to prove himself with a test of his own. It came in February, 2013. This test was at least a nuclear-sized twelve kt., unlike the previous two, though once again North Korea claimed a great technological leap forward, claiming it had tested a miniaturized warhead suitable for missile deployment.

Building a nuclear device is hard enough. Building one that can be deployed on an intercontinental ballistic missile (ICBM), launched into space, delivered to its target and then detonated is something else entirely. That was Kim Jong-un’s threat.

But was the 2009 explosion even nuclear? The United States has conducted conventional explosion tests of nearly four kt. using chemicals packed into an forty-four-foot radius fiberglass hemisphere. Do the math, and a ten kt. explosion could be engineered in an underground chamber of roughly ninety feet (twenty-seven meters) cubed. That’s not a lot of rock to be shifted to make room for a fake nuclear test.

The United States and Japan scrambled spy planes to sniff out the tell-tale radioactive xenon from North Korea’s 2013 test, to no avail. But then, two months later, ground-based stations in Japan mysteriously detected the suspect chemical trail. It is possible that it took sixty days for the gases to waft the 600 miles from the test site. It seems just as likely that the Kim regime, coming to understand that the failure of international observers to detect radioactive gases cast doubt on its nuclear credentials, belatedly released gases to prove its test had been real.

Then there was a three year pause before the three big explosions of January 2016, September 2017 and the granddaddy of them all in September 2017. The first two were repeats of the 2013 performance, though North Korea again claimed major technical advances—with this time to a weaponized thermonuclear device. Yet both explosions were estimated at around ten kt.,
far too small to be H-bombs. Though experts did not believe North Korea’s claims of a thermonuclear device, they continued to take it as given that North Korea was exploding fission bombs.

Finally, on September 3, 2017, North Korea staged what seemed to be its first unambiguous, unfakeable nuclear test, a 108 kt. explosion accompanied by a burst of xenon gas. That would seem to have settled the issue. But once again, strange facts clouded the picture. Yield estimates are based on the size of the seismic shocks created by the explosion, and the 2017 detonation was grossly irregular. “Seismologists stumped by mystery shock after North Korean nuclear test” was the headline in Nature magazine.

The leading theories were that the secondary shock was caused either by a cave-in or a landslide, not a second bomb or secondary explosion. A week later, a second series of collapses under North Korea’s nuclear mountain reportedly killed more than 200 workers on the site. Nothing like this has ever happened in association with any other country’s nuclear tests. Whatever is going on at North Korea’s Punggye-ri Nuclear Test Site, it is unlike anything that has ever gone on anywhere else in the world. And apparently the North Koreans are still digging in a big way, though why they would need huge tunnels to test warhead-sized nuclear bombs is anyone’s guess.

A nuclear Potemkin village?

Last month, Stanford University Professor Siegfried Hecker, the former director of the Los Alamos National Laboratory and America’s leading expert on North Korea’s nuclear program, told the story of how he was allowed to see North Korea’s uranium centrifuges in 2010. He was taken to the roof of a building where he was allowed to look down through “big glass observation windows” at two centrifuge halls below, where he saw “2000 centrifuges.” North Korea has reportedly since doubled its centrifuge capacity—by erecting a second building next door. That’s 4000 centrifuges, conveniently on display under glass roofs.

Until the 2015 Iran nuclear deal, Iran’s more than 20,000 centrifuges were mostly underground, many of them in reinforced bunkers. Iran spent at least twenty years striving to develop a nuclear device. Despite ever-tightening international sanctions, it had multiple open land borders, huge
oil revenues, cadres of engineers studying overseas and myriad other advantages over the Kim’s Hermit Kingdom. Yet Iran never succeeded in building a bomb.

North Korea may in fact possess an arsenal of 30–60 nuclear bombs that have been successfully miniaturized to fit inside a nuclear warhead of an ICBM. Or Kim Jong-un may be sitting on top of a collapsed nuclear Potemkin village that he accidentally destroyed in a final hubristic attempt to prove to the world just how powerful he really is. His “sudden willingness” to use his nuclear empire as a bargaining chip can be interpreted either way.

The only certain thing in the North Korean nuclear story is that everyone involved in it—the North Koreans, the Western experts, the political analysts, the news media and the U.S. government—has a vested interest in believing it. The truth lies buried somewhere under North Korea’s tortured Mount Mantap. If Kim has his way, it just might stay there.

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