

“On The Brink”—Really? Revisiting Nuclear Close Calls Since 1945

Why have nuclear weapons not been used since 1945? The more time passes, the more the question becomes relevant and even puzzling for pessimists. Most strategists of the 1960s would be stunned to hear that as of 2017, there still has yet to be another nuclear use in anger. The prospects of a “nuclear weapons ban” or recurring proposals for “de-alerting”—instituting changes that can lengthen the time required to actually use the weapons—make the question even more relevant. Has mankind really stood “on the brink” several times since Nagasaki, and have we avoided nuclear catastrophe mostly because of pure “luck”?¹ Recent books, articles, and reports, as well as two wide-audience documentaries, say yes.²

This is not the case. The absence of any deliberate nuclear explosion (except for testing) since 1945 can simply be explained by human prudence and the efficiency of mechanisms devoted to the guardianship of nuclear weapons. Banning nuclear weapons may or may not be a good idea. But it should not be based on the myth of an inherently and permanently high risk of nuclear use.

The analysis that follows covers the deliberate use of nuclear weapons by a legitimate authority, either by error (“false alarm”) or not (“nuclear crisis”). It does not cover the risk of an accidental nuclear explosion, an unauthorized launch, or a terrorist act.³ It covers 37 different known episodes, including 25 alleged nuclear crises and twelve technical incidents, which have been mentioned in the literature to one degree or another as potentially dangerous.⁴

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The short answer? If we are to discard Pope John Paul II's explanation ("Divine Providence"),⁵ it is that the system worked and that, with rare exceptions, those in charge of nuclear weapons have been responsible, prudent, and careful. "Close calls" have ranged in fact from "not-so-close" to "very distant."

False Alarms

A number of technical incidents have taken place since 1945, all of which led to one degree or another to nuclear precautionary measures, generally involving the elevation of alert levels. Most of these incidents are well documented, but one of them does not seem to have taken place at all. It was revealed in 2015 that in the midst of the Cuban Missile Crisis, a Mace missile squadron based in Okinawa received a launch order.⁶ The ambassador of a Latin American country to the United Nations claimed that this incident "could have altered the course of civilization forever."⁷ One should note that according to the account—based on a single testimony—the safeguards worked: given that the procedure was not respected (the order came at DEFCON-2, whereas it was supposed to happen only at DEFCON-1), the unit commander suspended the launch.⁸ In any case, an in-depth inquiry by *Stars & Stripes* magazine at the end of 2015 did not find any confirmation of the incident; U.S. Air Force historians did not find any trace of it.⁹

At least a dozen real incidents took place in the United States in the 1960s, 1970s, and 1980s. (Even though there is little or no evidence that as many happened in other countries, one should assume that some also occurred in the Soviet Union or elsewhere.)¹⁰ In these cases, alert levels were elevated due to a

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false alarm, generally caused by the malfunction of a technical system. For instance, in 1960 a U.S. early warning radar in Greenland confused the moonrise with a missile launch.¹¹ In 1961, a dysfunctional transmitter made the Strategic Air Command (SAC) believe that its lines of communication had been cut off.¹² In 1962, a cascade of minor incidents and misinterpretation led to bombers being put on alert.¹³ The same year, a rare con-

junction of events led a U.S. radar station to believe that a Soviet missile attack was underway.¹⁴ Something similar occurred in 1967, when a solar storm jammed three early warning radars.¹⁵ In 1980, two incidents caused by faulty computer chips led U.S. authorities to mistakenly believe that a Soviet attack could be underway.¹⁶

In the Soviet Union, a well-known 1983 incident of the same sort was recently publicized through a documentary entitled *The Man Who Saved The World* (2014), according to which “millions of lives were hanging by a thread,” and no less than “the end of our civilization” was at stake.¹⁷ A more sobering account of the incident casts serious doubts on whether this was actually the case. When the alarm sounded in the Soviet nuclear command center because of a U.S. missile launch, the officer in charge suspected that it was a mistake and requested visual confirmation. Such confirmation never came, and the command thus stood down.¹⁸

Some incidents involve direct human errors. This was the case for the infamous magnetic tape mistake of 1979, which went up the chain of command to the U.S. presidency. Woken up by a phone call announcing that 200 missiles were coming in the direction of U.S. territory, National Security Advisor Zbigniew Brzezinski requested a confirmation.¹⁹ He was informed a couple of minutes later that ten times that number of missiles had now been detected. The cause was the insertion of a tape used for training and exercises in SAC computers. Nobody knows what President Jimmy Carter would have done had Brzezinski told him that he only had a few minutes to decide, but can one seriously believe that he would have launched a massive counter-strike in the absence of any confirmation that an attack was underway?

In a few of these incidents, a real launch caused confusion. In 1980, for instance, the Soviet Union launched four submarine-launched ballistic missiles (SLBMs) as part of an exercise, and a U.S. early warning radar wrongly judged that one of them was going in the direction of the United States. This evaluation was quickly corrected.²⁰

The Norwegian rocket launch of 1995 belongs in the same category and has become another poster child for nuclear dangers. However, the episode should rather be taken as a testimony to Russian cool-headedness. Norwegian and American scientists launched a new type of rocket, the Black Brant XII, in order to study weather data; they had sent word of the launch to Moscow, but the information had not reached the appropriate authorities. Since Black Brant XII was new, large, and with a high-altitude trajectory, its launch was interpreted as a possible missile strike. Some in the general staff raised the hypothesis of a high-altitude electro-magnetic pulse (EMP) detonation. Yeltsin considered an interception, but it soon became clear that Russia was not a target. “After the rocket emerged onto a ballistic curve, the direction of the flight became clear, and we could see that it would in no way touch on Russian territory, but land in the Spitsbergen region—we calmed down and took no serious measures ...”²¹ Generals Vladimir Dvorkin, a well-known Russian expert, and Eugene Habiger, former head of STRATCOM, denied that the incident had any character of gravity.²²

The System Worked

Based on the above examples, one must wonder: is luck a necessary hypothesis to explain why none of these events led to nuclear war? Is it not at least equally possible that since 1945, people in charge of nuclear weapons “have taken greater care [of them] than is taken in any other situation involving human agents and complex mechanical systems”?²³

Nuclear-armed countries have set up mechanisms designed to ensure that nuclear weapons will not be used by mistake. This includes fail-safe procedures (where non-use remains the default condition up until the last possible moment) as well as dual phenomenology (the need to confirm the attack by two independent means relying on different physical principles). When *The Man Who Saved The World* was shown in New York City, the Russian mission to the United Nations issued a communiqué that stated: “Under no circumstances a decision to use nuclear weapons could be made or even considered in the Soviet Union (Russia) or in the United States on the basis of data from a single source or a system. For this to happen, a confirmation is necessary from several systems: ground-based radars, early-warning satellites, intelligence reports, etc.”²⁴ In all the incidents mentioned above, safety mechanisms worked, even in the early 1960s when they were still rudimentary.

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Furthermore, is it credible to imagine that the head of a State or government would order a nuclear strike without being certain that a major military attack was underway? U.S. nuclear expert Jeffrey G. Lewis rightly argues that he cannot imagine that an American president would embark in nuclear reprisals if there was the slightest doubt on the reality of the attack.²⁵ Retired Russian General Vladimir Dvorkin thinks similarly, claiming that “No president, no matter what president it is, will ever make a decision about launch-on-

warning based on information about one rocket or missile or even ... two or three missiles.”²⁶

From the point of view of logic and complex systems analysis, it remains possible that a combination of incidents can lead to the failure of all safety mechanisms designed to prevent accidental nuclear war. Such a thesis is embodied by the classic work of Scott D. Sagan, *The Limits of Safety*. It would thus only be “a matter of time” due to cumulative probabilities.²⁷ In a recent documentary about nuclear risks, author Eric Schlosser reiterates the point: “it’s also due to

luck, pure luck, and the problem with luck is that eventually it runs out ... Every machine ever invented eventually goes wrong.”²⁸

But the probability of failure increases markedly with time only if conditions do not change—and conditions do change. Safety mechanisms have been perfected (without necessarily becoming more complex) and lessons of past incidents are being learned. Sagan claimed in 1993 that the Yom Kippur war (see below), as well as the 1979 and 1980 incidents (see above), are proof that organizations fail to learn from experience. But if that was the case, why would the number of known incidents have significantly declined since 1983? We only know of one significant incident in nearly 35 years: the Black Brant XII episode. Charles Perrow, the father of “normal accidents” theory (those resulting from the complexity and interconnection of systems), wrote: “with regard to firing [nuclear weapons] after a false warning we reach a surprising conclusion, one I was not prepared for: because of the safety systems involved in a launch-on-warning scenario, it is virtually impossible for well-intended actions to bring about an accidental attack.”²⁹

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Nuclear Crises

A second type of crisis involves episodes during which there was an alleged risk of deliberate nuclear use. One has to differentiate between types of crises: to say that the use of nuclear weapons was “discussed” for instance, is different from “considered” or from “planned.” A closer look at them suggests that in most cases, there was an elevation of alert levels and/or various forms of nuclear signaling, and in some cases contingency planning, but no evidence of intention of, or temptation to, actually employ nuclear weapons in almost all cases. As is the case for false alarms, many of the known cases involve U.S. nuclear forces. But there is no evidence in the public domain that the Soviet Union ever considered the use of nuclear weapons outside the East–West confrontation, for instance.

False Nuclear Events

One should start with the nuclear crises that were not. Many episodes sometimes labeled as such did not have any nuclear dimension. There was no “nuclear ultimatum” during the Azerbaijan crisis of 1946, for instance, despite what President Truman himself claimed.³⁰ Nor was there any significant nuclear dimension to the Falklands war of 1982, despite reports to the contrary.³¹

On some of the most-often mentioned episodes, there are important question marks. The famous Kissinger “DEFCON 3” initiative of October 1973, aimed at

detering Moscow from intervening in the Middle East during the Yom Kippur war, involved all U.S. forces, not merely nuclear ones. There was never any explicit nuclear signal or threat during the crisis, and it is far from certain that nuclear weapons *per se* played any role then.³²

Likewise for the Kashmir crisis of 1990, a moment of high tension between Pakistan and India. Despite initial reports to the contrary, which were thinly sourced, it seems that there was never any significant nuclear dimension in it—if at all. A roundtable organized in 1994 involving participants in the crisis concluded that the two countries were never on the nuclear brink during that spring.³³ Another in-depth study of the crisis one year later led to the same conclusion.³⁴ There may have been confusion between regular, unrelated Pakistani nuclear activities and deliberate crisis-time decisions.³⁵ The former head of Pakistani weapons designs has stated that his country did not have a weaponized device at the time.³⁶

One crisis deserves a separate treatment. By the fall of 1983, a particularly tense moment of the Cold War, NATO was conducting the final phase (*Able Archer*) of its annual *Autumn Forge* exercise, which was more elaborate than in previous years.³⁷ Moscow increased the alert of a significant number of forces including nuclear units. NATO simulated nuclear strikes on the 9th and 11th of November. How dangerous was the crisis? A 2008 British documentary claimed that the world had come very close to catastrophe,³⁸ but more information is available today. “We knew that NATO were [sic] doing an exercise,” said General Ivan Yesin, then head of Soviet strategic forces.³⁹ His opinion is reflected by those of other former Soviet and Warsaw Pact officials.⁴⁰ Note that by November 11, even as the NATO exercise reached its climax, the Soviet alert had been withdrawn and normal flights had resumed. Most in-depth analyses of the 1983 crisis all concur that Moscow did not really fear an attack and that the alert was just a precautionary one.⁴¹ One should also note that the Pershing 2 missiles, which were in Moscow’s view a possible instrument for a surprise attack, had not yet been deployed to Germany: the first ones arrived on November 23.

Nuclear Signaling

Instances of deliberate nuclear signaling through verbal threats or *ad hoc* deployments were frequent during the Cold War, and most of them have been well documented: the Berlin blockade of 1948–1949, the Suez crisis of 1956, the status of Berlin crisis of 1958, the U.S. intervention in Lebanon that same year, the October 1962 retaliatory threat by President Kennedy, the Sino–Soviet *Ussuri* skirmishes of 1969, the India–Pakistan war of 1971, and the Vietnam War all belong to that category. But there is no evidence in the public domain that

such episodes included either nuclear contingency planning or serious consideration of nuclear use.

What about India–Pakistan crises post-1998 (the year both countries tested nuclear devices)? In 1999, there were threats on both sides, and some evidence of an increase in alert levels of Indian missiles.⁴² There is no clear evidence of the same steps being taken on the Pakistani side: during the crisis, the head of Pakistani nuclear forces was in Switzerland.⁴³ This is also true for the 2001–2002 “Twin Peaks” crisis, during which there is no evidence, despite some heated rhetoric, that either of the two sides was ready to embark in nuclear brinkmanship. A former Pakistani nuclear official reports that Islamabad did not change the alert level of its forces during the crisis.⁴⁴

The Ukrainian crisis that began in 2014 has seen many small nuclear signals, including an increase in flights of Russian nuclear-capable bombers around the European continent. But the only known instance of a clear nuclear-related threat by Russian authorities referred to a hypothetical past situation. In 2015, answering a question about raising alert levels at the height of the Crimean crisis a few months before, Vladimir Putin said, “We were ready to do it,” but seemed to refer to a situation where Western forces would have tried to repel Russia in Crimea, since he added, “Historically, this territory is ours. Russians live there. They were in danger.”⁴⁵ Hardly a case of nuclear coercion.

Contingency Planning

Then we have crises where contingency planning was indeed made—an indication that nuclear use was possible. However, there is no evidence that any political leader had his or her “finger on the button” in any of these episodes. In some cases, the use of nuclear weapons was suggested by subordinates and not pursued further. Twice in 1950, General MacArthur suggested such use in Korea, but his requests were rejected.⁴⁶ In 1967, some in the Israeli government seem to have considered a nuclear demonstration in the Sinai if Egypt threatened the country’s urban centers.⁴⁷ In 1968, U.S. commanders in Vietnam recommended the use of theater nuclear weapons to defend Khe Sanh, but senior military authorities disagreed.⁴⁸ In 1973, it seems that part of Israel’s nuclear arsenal was put on alert⁴⁹—but even at the darkest hour, as is now known through the testimony of a direct witness, Prime Minister Golda Meir categorically refused the nuclear demonstration suggested by General Moshe Dayan.⁵⁰ Finally, in 1980, a Pentagon study reportedly considered the same option in case of a Soviet invasion of Iran;⁵¹ but the contingency never came up.

The more interesting cases are those where the approach was “top-down,” i.e. where nuclear contingency planning was ordered by the highest political authorities. In 1954, Washington considered striking the Vietminh’s positions

around Dien Bien Phu to support the beleaguered French forces.⁵² President Eisenhower was reluctant: he wanted to do it only in the case of an international intervention; he also doubted the added value of nuclear (as opposed to conventional) weapons. In any case, “Eisenhower never came close to approving any action to save Dien Bien Phu,” as former National Security Advisor McGeorge Bundy describes.⁵³

During the 1961 Berlin crisis, nuclear options were discussed in depth—a discussion that contributed to the emergence of the flexible response doctrine—but only in case of a war over Berlin, which never materialized.⁵⁴

In 1969, Henry Kissinger ordered the Pentagon to elaborate bombing plan *Duck Hook*, designed to force Hanoi to negotiate. It is possible (though still not certain to this day) that it included small-scale nuclear options. The plan was short-lived.⁵⁵ Despite his bravado, President Nixon was aware of the political costs of using nuclear weapons in Southeast Asia.⁵⁶ In fact, Kissinger said later that during his time in government, “there was no situation in which we were involved, in which we ever made a plan for using nuclear weapons [apart from the Single Integrated Operational Plan (SIOP, the massive war plan to respond to a Soviet attack)].”⁵⁷ The famous journalist Seymour Hersh himself, a staunch critic of the administration, admits that he never found any evidence of an imminent use of nuclear weapons at that time.⁵⁸

Finally, one should mention the 1990 request by Defense Secretary Dick Cheney to evaluate the results of a use of theater nuclear weapons on Iraqi forces. Mr. Cheney would later say that he was acting out of “curiosity” and for the sake of “comprehensiveness.” The study was immediately destroyed.⁵⁹

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Serious Consideration of Nuclear Use

We are left then with three cases where the use of nuclear weapons seems to have been very seriously considered: the Korean War, the two Formosa Strait crises in the 1950s, and of course the Cuban Missile Crisis.

Korea and Formosa

As soon as the Korean War began, President Truman ordered the preparation of attack plans in case the Soviet Union was to enter the fray.⁶⁰ He sent B29 nuclear bombers twice in the region, in 1950 and 1951—the second time with several assembled weapons. However, in June 1951, a Joint Staff study threw cold water on these plans by concluding an absence of “good” targets for nuclear use.⁶¹

The use of nuclear weapons was also seriously discussed several times at the beginning of the Eisenhower administration, between February and May 1953.⁶² One contingency plan involved the large-scale tactical and strategic (on Chinese territory) use of nuclear weapons.⁶³ On May 20, the U.S. president secretly approved this option in the form of a memorandum entitled “NSC Action 794” to be executed if circumstances warranted a resumption of offensive action—which never came, since the Armistice was signed in July.⁶⁴ As described by Columbia University professor Richard Betts, “NSC Action 794 was not a commitment, but it was as close to a final decision as a president can come, short of the moment of execution.”⁶⁵ Nobody knows what Eisenhower would have decided had fighting erupted again.

In any event, several reasons prevented the use of nuclear weapons during the Korean War.⁶⁶ As documented, *inter alia*, by Nina Tannenwald and T.V. Paul, both presidents appeared seriously concerned with the international reputation of the United States.⁶⁷ And in almost all scenarios, the use of nuclear weapons did not offer any prospect to make a serious difference on the ground.⁶⁸

During the Formosa Strait (also known as the Taiwan Strait) crises of 1954–1955 as well as 1958, nuclear use was seriously considered in case of an invasion of Taiwan.⁶⁹ But that was to come only as a last resort, for fear of allied reactions or Soviet escalation. Eisenhower was prepared but not “anxious” to use nuclear weapons.⁷⁰ Despite his public positions on the subject, a U.S. Air Force report made clear that “the President simply did not accept the contention that nuclear weapons were as conventional as high explosives.”⁷¹

Cuba

The Cuban Missile Crisis seems to remain the only moment since 1945 when the world came really close to nuclear use. This refers less to the retaliatory threat that President Kennedy publicly made in case a missile was launched against the Americas,⁷² instead referring more to three specific episodes about which the details only became public in the 1990s.

First, on October 24, 1962, the U.S. Navy attempted to force a B29 Soviet submarine to surface. The U.S. crew was unable to reach the general staff.⁷³ An “exhausted” and “furious” Soviet captain Vassili Savitsky considered putting the ship’s 15-kiloton nuclear torpedo in operational condition. He told his crew: “We’re going to blast them now! We will die, but we will sink them all—we will not disgrace our Navy.”⁷⁴ The traditional account holds that only the fortuitous presence in the submarine of the fleet commander, Vassili Arkhipov, prevented the shot, since he voted against it. But this version is questionable. According to the Soviet Navy rules, the circumstances for allowing the torpedo strike were not met: written rules of engagement stated that it was possible only

on Moscow's orders.⁷⁵ Also, it is by no means certain that any real vote took place. The commander "consulted" Arkhipov and deputy political officer Ivan Maslennikov—and they were both opposed. Viktor Mikhailov, an officer on board, testified that "Savitski never lost it."⁷⁶

In the second episode, on October 27 at the height of the crisis, U.S. radars in Alaska detected two Soviet MiG-19s attempting to intercept a U.S. U2 reconnaissance plane, which was flying towards the Kola Peninsula due to a navigation error. Two U.S. F-102s took off to accompany the plane, armed with Falcon nuclear air-to-air missiles. However, Khrushchev declared in his memoirs that the Soviet Union would not have intercepted the plane under such circumstances (even less with nuclear missiles) before ascertaining that it was not a navigation error.⁷⁷

In the third episode, Soviet forces in Cuba were endowed with theater nuclear weapons, and rules of engagement initially allowed them to be used in case of an invasion if no contact with Moscow was possible. However, Khrushchev took the initiative on October 26 to alter those rules as to ensure that a Kremlin order would be a prerequisite.⁷⁸

The Tradition of Non-Use Is Strong

The Cuban crisis reveals that Soviet and U.S. officials were able to refrain from foolish judgments even in conditions of extreme stress. Adversaries have never put at stake the "vital interests" of their opponents—either because they were unable to, or because they never intended to, or simply because they feared retaliation. The barriers to the use of nuclear weapons were solid, and the "tradition of non-use" emerged very quickly.

One last element of the anti-nuclear narrative deserves discussion. There is no certainty at all that any use of a nuclear weapon would turn into a major nuclear war. Yes, Cuba was a time of great danger. But why would the use of a nuclear torpedo, for instance, necessarily have led to a global thermonuclear exchange? Is it not *at least equally likely* that the two countries would have done their best to limit escalation? It is possible, as Herman Kahn famously argued, that "the nuclear threshold is not so weak that a single use of nuclear weapons would make anyone careless about crossing it a second time."⁷⁹

Escalation in the nuclear age would not necessarily be a descent into the abyss. It might very well be the equivalent of walking up a staircase where the last stairs are considerably higher than the first ones. Resistance to actual use or launch could increase as one moves up the escalation ladder—not unlike two magnets repelling each other.

The narrative claiming that the world has stood many times "on the brink of apocalypse," or that we were within a "hair's breadth" of a nuclear catastrophe,

thus deserves deconstruction. It discards the strength of the technical, operational, or mental safety valves that prevent nuclear use. Stanislas Petrov, the “man who saved the world,” was not a superhero who single-handedly stopped a runaway train: he was an average Soviet official who applied procedures.

Some legitimate questions remain. What would happen if a false alarm erupted *during wartime*? If a full-blown conflict involving nuclear-armed countries erupted—something that has never happened, probably thanks to deterrence—can we assume that caution would still prevail? This is an important question and a legitimate preoccupation. The absence of any such conflict since 1945 suggests that nuclear deterrence is a robust construct—but no human construct is infallible. Whether it is for safety mechanisms or for deterrence, even “virtually impossible” does not mean zero. Some would argue that *any* probability of a nuclear war is too much. But surely this does not close the discussion: a very small probability of a deadly car accident has to be balanced against the benefits of driving to work, for instance. Is the nuclear system “tolerably safe”?⁸⁰ The conversation between proponents of deterrence and anti-nuclear activists should revolve around the costs and benefits equation. It is also far from certain that such safety mechanisms and human resistance will always be present in the decision-making complexes of all nuclear-armed states (think North Korea or Pakistan, for instance).

Nevertheless, a history of nearly 40 crises with some nuclear dimension has taught an important lesson: solid command-and-control arrangements, sound procedures, constant vigilance, efficient training, and cool-headedness of leadership have ensured—and can continue to ensure—that nuclear weapons will continue to play only a deterrence role. “Luck” has very little to do with it.

The narrative that the world has stood “on the brink of apocalypse” deserves deconstruction.

Notes

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