



THE ROLE OF NUCLEAR WEAPONS IN INTERNATIONAL POLITICS: A STRATEGIC PERSPECTIVE

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THE DAWN OF THE NUCLEAR AGE

The Nuclear Age began with the World War II Manhattan Project (1942-46), which culminated in the Trinity test on July 16, 1945, of the “Gadget” and the August 1945 bombings of Hiroshima and Nagasaki. The Project was led by Gen. Leslie Groves; physicist J. Robert Oppenheimer directed the scientific research. The Trinity test took place on a test range north of Alamogordo, NM. Gadget was a somewhat less than 20-kiloton implosion-type fission device. Its yield was the equivalent of the bomb load of 2000 fully loaded WWII B-29s. Reacting to the test, Oppenheimer quoted the Bhagavad-Gita: “I am become Death, the Shatterer of Worlds.”

Less than a month later, “Little Boy” was dropped on Hiroshima, on August 6, 1945. A gun-type bomb, it had an explosive force of roughly 15 kilotons. It was relatively simple: one piece of uranium-235 was fired at another. When Little Boy was exploded in an airburst about 1900 feet over Hiroshima, some 80,000-140,000 people were killed instantly; another 100,000 were seriously injured. The burst’s temperature was estimated to reach more than 1 million degrees Celsius. The surrounding air was ignited, resulting in an 840-foot fireball; in less than a second, it expanded to over 900 feet. The blast wave from the explosion shattered windows ten miles away and was felt 37 miles away. Over two-thirds of the buildings in Hiroshima were demolished. Virtually everything within about 4.4 miles of ground zero of the explosion was incinerated by the hundreds of fires ignited by the thermal pulse. About thirty minutes later, a heavy “black rain” infused with dirt, dust, soot, and radioactive particles began falling in areas of the city. All this was the result of a relatively small device by today’s standards.

A few days later, on August 9, “Fat Man,” a roughly 21 kiloton bomb, was exploded over Nagasaki. According to Japanese estimates, almost 24,000 people were killed and another 23,000 wounded; the lower casualty rates despite the bomb’s being larger had to do with the terrain—Nagasaki was much hillier than Hiroshima. More than 40 percent of the city was destroyed. Fat Man was an implosion-type fission weapon, a more complex plutonium bomb. Unlike Little Boy, this type of bomb had been tested—the Little Boy type had not been. This was not just continuing wartime activities using a new device, it was also a test.

On August 15, after these two uses of the bomb (and the Soviet entry into the war against Japan), Emperor Hirohito announced Japan’s surrender.

THE NUCLEAR REVOLUTION IN MILITARY AFFAIRS

The Nuclear Revolution is both a revolution in military affairs (RMA) and more than an “ordinary” RMA. From the start, nuclear weapons were regarded as so qualitatively different that everything that came before was rendered “conventional.” The most powerful bombs used in WWII until August 1945 contained 10 tons of TNT; the average yield of the Hiroshima and Nagasaki bombs was the equivalent of 18,000 tons of TNT. The first U.S. thermonuclear test, in November 1952, had a yield of over 10 megatons, almost 580 times the power of the nuclear devices exploded in August 1945. Today, one intercontinental ballistic missile (ICBM) warhead possesses the equivalent of the explosive power used in all of WWII.

A RMA has three components: technology, doctrine, and organization. The nuclear revolution was a technology-driven RMA. It was not the result of existing strategy. Certainly, the United States wanted to develop nuclear weapons before Germany did. But U.S. leaders didn’t have a specific use in mind—that came later. The Manhattan Project was viewed as a technological race with the Germans. That prefigured what was to come with the subsequent U.S.-Soviet technological competition. New doctrine and strategy was developed. The United States had to determine what role nuclear weapons were to play. Initially, the U.S. Army-Air Force (then the USAF after 1947) took the lead; relatively soon, the U.S. Army and the U.S. Navy went nuclear. New military organizations emerged--the Strategic Air Command, for instance. New service elites--strategic bomber pilots and intercontinental ballistic missiles (ICBM) operators in the USAF and nuclear submariners in the USN--appeared. New civilian structures were stood up, including the Atomic Energy Commission, which over time became the Department of Energy; subsequently, we saw the establishment of National Nuclear Security Administration.

There were further technological developments. Not only did we go from fission to fusion by 1952, but we also devised new delivery systems, truly intercontinental jet bombers developed relatively quickly during the 1950s, with the B-52 (which is still with us) making its appearance in the mid-1950s. In between going from bombers to ICBMs, the USAF worked on cruise missiles. The latter weren’t particularly successful in the 1950s but reappeared in the 1970s and 1980s. The Navy developed submarine-launched ballistic missiles (SLBMs) that were put on new platforms, nuclear-powered submarines.

The nuclear revolution is an RMA with a difference that made a difference. There were other RMAs in the 20th century, such as the German blitzkrieg that emerged during the interwar period. Like earlier RMAs, the blitzkrieg was developed during peacetime and was tested and employed during wartime. The nuclear revolution emerged during a conflict, and nuclear weapons have not been used in war since August 1945. Their impact has greater effect than on the battlefield. They have not been used against a nuclear foe. Fortunately, the world has not experienced “nuclear combat” on a “nuclear battlefield,” much less a nuclear war. There have been many tests—and we think we know a lot about the effects of nuclear explosions as a result of all those tests--but there has never been anything that resembles nuclear combat, a nuclear battlefield, or a nuclear war.

The nuclear revolution had greater strategic than operational or tactical war-fighting implications. It has been about deterrence and how we think about deterrence rather than war-fighting. Deterrence became nuclear weapons’ central role. Some, such as Bernard Brodie in 1946, recognized that very early on. Over time, a very high level of strategic interdependence developed among the states that possessed nuclear weapons, at least among those that possessed large quantities of them--the U.S. and USSR were very sensitive to each other’s nuclear moves. Some argue that nuclear weapons are responsible for what historian John Lewis Gaddis called the “long peace” of the Cold War. We have not seen a major power war since August 1945. Gaddis and other analysts argue that this is a direct result of the nuclear revolution. So we have seen a revolution in *strategic*, not merely military, affairs.

Another difference is that this RMA was led by civilians rather than the military. From the Manhattan Project on, civilians--Americans, Canadians, British, former Germans--led this RMA. More important, those who were responsible for the systematic exploration and development of U.S. nuclear policy and strategy over the years have been primarily civilians, people like Bernard Brodie, a historian/political scientist at RAND and then UCLA; the mathematician Albert Wohlstetter, also at RAND; the Nobel Prize-winning economist Thomas Schelling, who was at Harvard and then the University of Maryland; and RAND’s Herman Kahn, who wrote *Thinking About the Unthinkable* (1962). These and other civilians were the pioneers-- Fred Kaplan called them the “Wizards of Armageddon”--in developing nuclear thought. In the past, new strategy and doctrine were developed by the military.

THE CENTRAL ROLE OF DETERRENCE

In 1946, Bernard Brodie, one of the Wizards of Armageddon, observed “Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no other purpose.” Brodie here put deterrence front and center. Also in 1946, General H. A. P. Arnold provided a hint of how to think about deterrence: “[O]ur first line of defense is the ability to retaliate even after receiving the hardest blow the military can deliver.” This is about striking second, about being able to absorb a nuclear blow, having forces that would survive, and being able to retaliate and punish the enemy.

The objective of deterrence is to prevent aggression and war, not necessarily to be able to fight a war. In the past, we’ve often thought that the ability to deter depended on the ability to fight: to be able to defend yourself and to be able to go on the offense. Whether that logic applies to nuclear deterrence has been a matter of no little contention.

The United States has attempted to deter threats against itself and against its allies and friends. Deterrence of threats against the U.S. homeland has been referred to as core, central, or fundamental deterrence. The deterrence of threats against allies

and friends is known as extended deterrence. When we've talked about countries like South Korea or Japan being under the U.S. nuclear umbrella or about preventing Soviet aggression against our NATO allies, we were talking about extended deterrence.

Deterrence entails persuading potential aggressors that the costs and risks of aggression are sure to exceed its benefits. This requires the requisite capabilities and the willingness to use them. Extended deterrence is regarded as more difficult than core or central deterrence: would the United States really risk the destruction of New York or San Francisco to save Bonn or Paris? It is generally thought that the target of deterrence has to be a rational actor. A very limited definition of rationality is at play here. It doesn't mean that an adversary has to think like us; it simply has to recognize that the costs and risks of aggression will exceed the benefits. If you do A, we'll do B, which could well be the destruction of your society as you know it.

It's usually clear when deterrence has failed. If the Soviets had invaded Western Europe during the Cold War, deterrence would have failed. Some argue that the Iraqi invasion of Kuwait in 1990 was a deterrence failure. It's very difficult, however, to know for certain when deterrence is working. Does the fact that the USSR never invaded Western Europe mean that U.S. extended deterrence worked? That something we wanted to prevent, or deter, didn't happen doesn't necessarily mean that what we did worked. Conclusively demonstrating why something did not occur is always problematical.

During the Cold War, two ways were developed of persuading a potential adversary that the costs and risks of aggression would be greater than the benefits. The first approach emphasized the threat of punishment; aggression would be met with the infliction of unacceptable costs; an aggressor would pay an unacceptably high price. The second approach emphasized the denial of objectives: aggression would fail; an aggressor would be stopped and defeated. Although these two approaches were developed in the context of the dyadic, U.S.-Soviet Cold War relationship, they continue to frame the post-Cold War nuclear policy and strategy debate.

Punishment

What kind of nuclear capabilities are required to punish an aggressor, to impose unacceptable costs on an aggressor? Punishment is thought to require not only offensive strike capabilities, but also retaliatory, second- (rather than first-) strike capabilities. The emphasis on second-strike capabilities requires survivable forces. Survivability is enhanced by dispersing forces, rather than concentrating them, by deploying them underground in concrete, steel-reinforced silos; or by putting them out at sea in submarines that cannot be easily tracked and targeted. Redundancy, in the form of the triad of bombers, ICBMs, and SLBMs, also enhances force survivability. Punishment embraces the defense of military systems, whether passive (dispersal, hardening) or active (point defense). It requires as well the ability to destroy urban/industrial or "countervalue" targets, a targeting capability that does not require an especially high degree of accuracy.

The threat of punishment does not require civil defense capabilities or national ballistic missile defense capabilities that would serve to erode an opponent's ability to punish you (population centers were to remain vulnerable--Reagan's SDI was seen as providing an offensive rather than a defensive capability). Punishment requires relatively low cost, finite, or absolute, capabilities. It provides an answer to "how much is enough?" Punishment came to be known as "Assured Destruction" or, when both sides subscribe to it, "Mutual Assured Destruction"--MAD. Advocates of this approach viewed the Anti-Ballistic Missile Treaty of 1972 as the enshrinement of punishment, assured destruction, and MAD. In their view, by embracing the ABM Treaty, both the U.S. and the USSR agreed not to take their population centers out of hostage.

Denial

What kind of nuclear capabilities are required to deny an aggressor the accomplishment of objectives? Denial requires all the capabilities needed for punishment and more. It emphasizes the need for a full range of offensive and defensive capabilities. Denial requires offensive strike capabilities, not just to retaliate but to strike first. Some argue that extended deterrence necessitates a first-strike capability. Like punishment, denial requires survivability and redundancy. Needed too are robust, survivable C4ISR (command, control, communications, computers, intelligence, surveillance and reconnaissance) capabilities. Unlike punishment, denial places a premium on the ability to destroy not just countervalue but military, "counterforce," targets, especially the other side's nuclear capabilities, such as its ICBMs and command and control centers. Counterforce targeting is much more demanding than countervalue targeting; hardened, underground target and mobile targets must be put at risk. A much higher degree of accuracy, therefore, is required. Denial demands passive and active defensive capabilities to protect not only military capabilities but population centers. It requires civil defense (air raid shelters) and national anti-ballistic missile defense capabilities as well as point defense, hardening, concealment, dispersal, and mobility.

Denial, clearly, requires a full suite of nuclear war-fighting capabilities. It emphasizes relative rather than absolute capabilities--superiority matters. Since one can never have too much superiority, denial is essentially open ended. Thus a denial posture is a great deal more expensive than a punishment posture. Kennedy and McNamara came into office convinced that the Eisenhower approach, which emphasized massive retaliation, provided too few options—it appeared to be all or nothing. They initially embraced a move to a denial, or "Flexible Response," posture. Once McNamara realized how open ended this was, he moved to an assured destruction posture. With their emphasis on the need for not just a deterrent but a nuclear war-fighting capability, the proponents of Flexible Response became known as NUTs--nuclear utility theorists.

The positions of the two schools can be compared as follows:

	Assured Destruction	Flexible Response
Can nuclear weapons be used to fight a war?	No; their role is to deter via punishment.	Yes; indeed, deterrence requires the ability to fight a nuclear war.
Is it possible to win a nuclear war (against another nuclear power)?	No; there can be no meaningful victory in a nuclear war.	Yes; it is possible to “prevail” in a nuclear war.
Once initiated, can nuclear war be limited or controlled?	No, or at least we can’t assume it could be; we don’t know and we are better off not finding out.	Yes; there is no reason to think that nuclear war is any different than conventional war.
Should we develop the capabilities to enable us to fight a limited nuclear war, to control a nuclear war?	No; doing so would erode deterrence and make nuclear war more likely; it implies you think you can survive a nuclear war.	Yes; escalation dominance would provide that capability.
Does nuclear superiority matter?	No; absolute capabilities are what matter. We know how much it will take to destroy whatever proportion of an adversary’s urban, industrial targets needs to be targeted	Yes; war-fighting demands an emphasis on relative rather than absolute capabilities.
Is deterrence difficult?	No; as Jervis wrote: “The healthy fear of devastation... makes deterrence relatively easy.”	Yes; it’s not nearly as easy as assured destruction advocates would have us believe. We must be able to deter and operate along the entire spectrum of nuclear conflict, which requires escalation dominance. Wohlstetter, in a famous piece in <i>Foreign Affairs</i> , wrote of “the delicate balance of terror.”
Do nuclear weapons represent a revolutionary military development?	Yes; indeed, assured destruction is based on this presumption.	No; nuclear weapons were a technological breakthrough, but they are weapons to be used like any other weapons. Assured destruction advocates refer to this as the “conventionalization,” or “mainstreaming” of nuclear weapons.

We see differences in objectives here. For Assured Destruction, it’s all about the ability to deter and retaliate, to punish, to harm. Flexible Response is about the ability to deter, fight, and win a nuclear war. This is much more demanding. Flexible Response has a fallback; Assured Destruction does not. Does having a fallback make it more likely that deterrence will fail? Assured destruction answers “Yes”—and that this is an experiment we should not want to run. Does a nuclear war-fighting capability enhance or erode deterrence? According to Assured Destruction, it erodes deterrence; according to Flexible Response, it enhances deterrence.

Have we been MAD or NUTS? Both, actually. We’ve gone back and forth. At times we’ve been a combination of the two, even though the two are in tension with one another. In the 1950s, the declaratory policy of massive retaliation amounted, essentially, to an early version of Assured Destruction. Many argue that it was credible in the 1950s because the U.S. had nuclear superiority, and Assured Destruction wasn’t mutual. As noted, Kennedy and McNamara initially shifted away from Assured Destruction to Flexible Response, saw how demanding and expensive it was, and moved back to Assured Destruction. It became MAD in the late 1960s-early 1970s. Nixon and Kissinger placed a declaratory emphasis on “essential equivalence,” i.e., MAD. That’s when the ABM Treaty was negotiated and signed. After James Schlesinger came in as secretary of defense, we moved away from Assured Destruction to Flexible Response and emphasized the development of limited nuclear options, especially counterforce options. Under Carter and Reagan we moved further away from Assured Destruction to Flexible Response.

Over the years, we’ve been MAD and NUTs. What should we be now? What specifically are we trying to deter with nuclear weapons?

- State use of nuclear and other weapons of mass destruction?
- State use of conventional weapons? Do we still need to use nuclear weapons to deter other states’ use of conventional weapons?

- Non-state actor use of nuclear or other WMD? (Can terrorists be deterred the way states are deterred?)
- State support for non-state actor use of nuclear or other WMD?
- Non-state actor use of “conventional” weapons?
- State support for non-state actor use of “conventional” weapons?

Today most advocates of Assured Destruction, or a minimalist approach, argue that the only role for nuclear weapons is the deterrence of the use of nuclear weapons. The proponents of a Flexible Response, or a maximalist approach, continue to see a broader role for nuclear weapons.

NON-DETERRENT ROLES

Nuclear weapons have had a truncated war-fighting role. They were only used in August 1945; most of us think that’s a good thing. A tradition of nonuse, which some think is sufficiently strong as to constitute a nuclear taboo, has developed over the years.

For some, nuclear weapons clearly are a status symbol, an indicator or attribute of major power status. The U.S. development of nuclear weapons was replicated by the USSR (1949), Britain (1952), France (1960), China (1964), Israel (1966/67), India (1974, 1998) and Pakistan (1998), and the DPRK (2006). Now we’re concerned about Iran going nuclear. Is it a coincidence that the first five nuclear powers were the five permanent members of the UN Security Council? Of course they’re also the only nuclear weapons states recognized by the Nonproliferation Treaty of 1968.

In addition to their role as status symbols, nuclear weapons have served as an equalizer. During the Cold War, nuclear weapons were relied upon by the United States and its NATO allies to counter, or offset, the conventional advantage of the Soviet Union and the Warsaw Pact. This was what, for instance, the Eisenhower administration’s New Look was all about.

Today, the tables have been turned. It’s the U.S. that possesses an enormous conventional advantage; Russia, which in conventional military terms is a mere rump state of the former Soviet Union, relies on its nuclear capabilities to the extent that it’s concerned about the need to counter U.S. and NATO conventional capabilities. Others, state and non-state alike, seek a nuclear counter to U.S. conventional superiority. There are a number of reasons states seek to go nuclear. But to the extent that is U.S. military capabilities that spur them to do so, it is not U.S. nuclear capabilities but U.S. conventional capabilities, particularly the manner in which they have been used since 9/11, that is most prominently at play.

Nuclear weapons have thus served as a substitute for conventional forces. In the past, the U.S. and NATO quite explicitly substituted nuclear for conventional weapons. Today, Russia is doing that; like the United States and NATO in the past, Russia more recently hasn’t been able to afford, or hasn’t wanted to pay for, the conventional capabilities required to match those of an erstwhile adversary. Again as in the past, nuclear weapons continue to play a role in dampening defense spending.

Finally, nuclear weapons arguably have played a role in discouraging both horizontal and vertical proliferation. Extended deterrence has provided an excuse for European states such as Germany and Asian states such as Japan, South Korea, and Taiwan for not going nuclear. It has been suggested as well that the sheer size of the U.S. (and Soviet or Russian) nuclear arsenals have dissuaded others from attempting to increase their nuclear capabilities or even joining the nuclear club since competing seriously with the likes of the United States is hopeless. For some (although not this author), this dissuasion effect is cause for not reducing the U.S. nuclear arsenal below the Moscow Treaty range of 1,700-2,200 warheads.

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