The Tragedy of Nuclear Deterrence

IN THE post-war world, the concepts of nuclear deterrence and arms control have come to represent the sum and substance of strategic studies. The two concepts, evolved out of the highly influential intellectual activity of the Anglo-Saxon strategic thinkers across the Atlantic in late 1940s to the early 1960s. These concepts were integral to the American thinking on the nature of nuclear weapons and their political and military utility. Within a few years after their enunciation, deterrence and arms control became the dominant mode of Western strategic thought. It was a dogma, few dared challenge.

The RAND-minds of Santa Monica and the high priests of Cambridge, Mass., on the banks of Charles River, proclaimed the emergence of the 'golden age' of strategic studies. The mood of self-congratulation and the euphoria over discovering the 'laws of motion' of the nuclear age, were indeed overpowering. A British scholar wrote in 1970: “The (strategic) theorists did their job almost too well. They provided an intellectual apparatus which seems to be standing upto the test of time and is perfectly adequate for analysing present strategic policies and most of the technological and political problems likely to occur in future.”

In the early 1970s, the 'golden age' of strategic studies appeared an endless one. The champions of deterrence had by then spawned, at least in the US, of a network of think-tanks and university departments exerting great influence on the American defence and foreign policies. The American war-peace establishment gave rise to a host of civilian strategists and military experts who could move effortlessly from academic chairs to the corridors of power in the White House, Pentagon and the State Deparment. This 'deterrence-arms control' sect not only influenced the American domestic agenda, but was powerful enough to set the criteria for the 'haute coutre' of strategic and arms control fashion globally. There was little resistance to the onslaught of this veritable intellectual imperialism.

But the anti-climax to the golden age of deterrence was not too late in coming. By the early 1980s, the strategic edifice of deterrence was in shambles. The underlying assumptions of the theory of deterrence came to be challenged both from within and without the American strategic establishment. The collapse of the SALT process in 1979, the antipathy of the Reagan

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Administration towards arms control, the challenge of Reaganites to the reigning orthodoxy of mutual assured destruction, their embrace of the idea of victory in a nuclear war, the new use of strategic defences or star war techniques, represented the crisis in Soviet-American relations, as well as an upheaval in western strategic thought.

The challenge to the doctrine of deterrence also emerged from an unexpected quarter—the rising peace movements in the West. The disillusionment with the traditional ideas of deterrence and arms control, which had quite obviously failed to curb the nuclear arms race, and intensified fears of a nuclear holocaust, brought forth critical questioning of nuclear deterrence, by the people hitherto uninitiated in nuclear strategy. These included a variety of groups, including the Church.

The argument of this paper is to suggest that the theory of deterrence had contained its own seeds of destruction, and given its inherent and unshakeable faith in nuclear weapons as instruments of policy, it was bound to lead the world closer and closer to the nuclear precipice. It is also suggested that as a solution for the avoidance of global and cataclysmic war, the theory of nuclear deterrence is not only inefficient but dangerous.

The Concept of Deterrence

Although it is in the nuclear age that deterrence has been elevated to an exalted position, the concept itself is an old one and goes back to the very beginnings of human conflict. In its most rudimentary form, deterrence is a specific type of relationship in which an actor—a state, group or an individual—seeks to influence the behaviour of another in desired directions. While a party can influence another in many different ways, deterrence is distinctive. Resting primarily upon threats of sanction or deprivation, deterrence is an attempt to indicate to an opponent that the costs of an action by him far outweigh benefits. Under deterrence, an actor A seeks to prevent another B from undertaking a course of action which A considers undesirable, by threatening to inflict unacceptable costs upon B in the event if the action is taken.

The strategy of deterrence has at least three requirements—capability, credibility and communication.

The state undertaking the deterrence strategy requires demonstrable physical capacity for imposing unbearable costs relative to any likely gain his opponent could hope to achieve. Such capability would not, of course, be sufficient if the challenger is unable to assess carefully the cost-benefit trade-offs. Therefore, deterrence assumes rationality in the thought and behaviour of both sides involved. If either or both fail to make cold and sober calculations of potential risk and gain of any action, deterrence is likely to break down. However, there are no universal standards to judge rationality, and the calculations of costs and benefits could be highly subjective. In the pre-nuclear era, rational assessments of relative military capabilities was at best problematical, leaving considerable room for miscalculations and mistakes. Since such assessments were highly subjective and could only be pro-
ved or disproved in an actual war, deterrence was tenous and more often than not broke down. It is only with the advent of nuclear weapons that the costs of aggression have skyrocketed.

The mere existence of capability is not sufficient to ensure deterrence. For it to work, it must make any potential challenger believe that the costs of taking a prohibited action could exceed the gains to be made, but also that they would do so. Credibility is a complicated task and could vary from one situation to another. Credibility would depend significantly on the challenger's assessment of the deterrer's past political record, the strength of its political leadership, and how it could behave in a crisis. That is, if a challenger believes rightly or wrongly, the leadership of the state undertaking deterrence is incapable of imposing unacceptable costs or it is weak and vacillating, deterrence is unlikely to work.

A key condition for a successful deterrent strategy is that the potential opponent be made fully aware of precisely what range of actions is proscribed, and what would be the consequences if he oversteps the prohibited units. Clear communication is thus a necessity, but difficult to fully achieve in the politics of nation-states. Though a variety of communication channels exist between two adversaries, conveying an appropriate message or signal need not be easy. Decision making in modern government is a highly complex and bureaucratic process, during which often contradictory 'signals' are likely to be conveyed to the adversary. The dangers of miscalculation are considerable in such situations. The reception, analysis and assessment of signals is itself a complicated organisational process. A signal by the time it reaches the adversarial leadership, could be completely distorted and easily be misunderstood by it.

These conditions of deterrence are rarely satisfied in full measure in the real world of politics among nations. In the past, given the limited lethality, intensity and scope of warfare, the costs of failure of deterrence were not too high. But in the nuclear age, and in the era of global war, the consequences of failure of deterrence would be cataclysmic.

Before we examine the nature of nuclear deterrence, we must briefly review the two types of deterrence that existed in the pre-nuclear era. One is the passive deterrence, which seeks to dissuade an adversary from initiating war. Passive deterrence is an attempt to convince the opponent that he cannot be successful and denying him the objectives and goals he seeks. The second type, active deterrence, consists of readiness and capability to inflict unacceptable punishment and pain, in the event of deterrence failing.

Historically, the use of the strategy of deterrence was predominantly at the level of denial. It is only with the advent of sea power and, later, air power, that the technological capacity to inflict heavy punishment, without first defeating the adversary's military forces came into being. Seapower enabled the disruption of vital seaborne trade routes, access to materials and markets and thus impose heavy penalties over an aggressor. Air power, particularly the ideas of strategic bombing made deterrence credible, as it facilitated the bombing of civilian populations and adversary's warfighting capabilities. It
was with airpower with its capacity to project force quickly and globally, coupled with the enormous destructive power of the nuclear weapons, that deterrence came to the centre stage of strategic thinking.

**Evolution of Nuclear Deterrence**

Nuclear deterrence as a concept has been much abused over the years. It has become a catch-all term, under which a host of contradictory ideas take shelter. The concept has undergone continual and profound changes in the past four decades, moving from the idea of preventing a war to the doctrine of fighting a nuclear war and winning it. To understand the idea of nuclear deterrence, it is essential to examine its historical evolution.

**Massive Retaliation**

Bernard Brodie, the foremost of the American strategic thinkers of the modern era, proclaimed as early as in 1946; “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 useful purpose.” However, it was long before such an idea of the supreme need to avoid the danger of nuclear war took root. Before we examine the nature of nuclear deterrence in the first phase of the nuclear era, it is necessary to look at the technological and strategic aspects undergirding it.

Although the US had a nuclear monopoly until 1949, when it was broken by the USSR, it had very few nuclear weapons in its arsenal. This was in the main due to the shortage in the availability of fissionable materials. Until exploration led to the discovery of uranium and the setting up of uranium enrichment plants, the American stockpile of nuclear weapons was in two digits. By the early 1950s, rapid buildup of nuclear weapons began to take place. A second major development of the era was the discovery of hydrogen bombs whose explosive power ranged in the millions of tons of TNT. Along with the development of these multi-megaton behemoths, small low yield tactical nuclear weapons for battlefield use were also being built.

But the most important strategic fact of this period was the ‘overwhelming nuclear superiority of the United States over the Soviet Union. This superiority was not due to the size of its arsenal or a better delivery system, both of which were in the favour of US. It was mainly due to the geographic fact that the US was a sanctuary against nuclear attack. Despite being in possession of nuclear weapons, there was no way the USSR could deliver them on the American homeland.

Before the intercontinental bomber arrived, the US deployed its nuclear bombers in strategic bases across the Eurasian landmass—from UK to Japan. This advantage forward deployment, was something which the U.S. has enjoyed since then, and been reluctant to give up. The Soviet Union could not acquire similar geographic advantage of deploying bombers close to the US territory. Even when it built intercontinental bombers beginning 1955, the capacity to threaten US homeland was less than real. The bombers were
propeller-driven, incapable of penetrating US defences even if one-day suicide missions were undertaken.

Thus, throughout the 1950s, despite both sides having nuclear weapons, nuclear deterrence was credible only for the US. The Soviet Union's capacity to inflict punishment on the US was less than marginal. The common perception then that the Red Army could march across Western Europe in a few days was far-fetched. The near-complete destruction of Soviet economy during the war, the loss of more than twenty million dead in the war, meant that the USSR was in no position to undertake an adventurous course in Europe.

The Soviet Union did nothing to dispel the exaggerated fears in the West of Soviet military might. While striving to secure off-setting power, Moscow found it necessary to hide her weakness in extreme secrecy. The drastic nature of post-war mobilisation was not revealed. The first longer-range bombers, acquired in the 1950s would make fly-passes over Red Square, double back and fly past again to give the appearance of great numbers. The Soviet policy of strategic deception and fantastic claims of its strength perhaps encouraged Western over-reaction, and hence made their own task more difficult. But for Soviets, this policy certainly did help keep the West "off balance."

It was in this context of overwhelming American nuclear preponderance that the doctrine of "massive retaliation" was declared by John Foster Dulles in April 1954. The massive retaliation doctrine held that in response to any Soviet "aggression" in Europe or elsewhere would be swiftly answered by a devastating nuclear attack to reduce the USSR to a "smoking radiating ruin" in a matter of a few hours. The US move need not necessarily be in retaliation, but could also be a full-scale pre-emptive strike.

Politically, the idea that atomic weapons were "absolute" had taken firm hold. Economically, in that era of fiscal conservatism, nuclear weapons were considered as providing more security at a less cost—"a bigger bang for the buck". Nuclear weapons could substitute for the great expenditure on conventional armed forces and their equipment, thus making good economic sense. Militarily, the deployment of nuclear weapons was just an extension of the existing doctrine of strategic bombing. Strategic bombing had been used in the second world war to deliver massive amounts of conventional bombs over the adversary's civil and industrial targets. Now strategic bombing would be more effective with atomic and hydrogen bombs. Their use was to break enemy morale, their purpose was psychological, aimed at civilian and political leadership.

The doctrine of massive retaliation meant that US would deter attacks not only on itself but also on its allies in Europe and elsewhere with its nuclear might. The military strategy was to be willing and able to respond vigorously at places and means of its own choosing, and by reinforcing local forces with the deterrent of massive firepower of nuclear weapons.
Towards Mutual Deterrence

The US strategic superiority could not, however, last for very long. As the Soviet Union showed by the Sputnik in 1957, it was capable of breaking out of this inferiority. By acquiring intercontinental ballistic missiles, it became possible for the Soviet Union to threaten the American homeland. The ICBM was clearly the trump that was to release the Soviet Union from the straitjacket of strategic inferiority. It was the single major factor that was responsible for overthrowing ‘massive retaliation’ doctrine. But, well before the advent of Soviet ICBM capability, the dissatisfaction with massive retaliation was becoming evident.

A number of American civilian strategists began to seriously question the credibility of the massive retaliation doctrine. Well before America’s vulnerability to a Soviet counter-attack became apparent, the strategy was severely criticised as an inappropriate and, therefore, an incredible response to a wide variety of contingencies. An American reprisal on Soviet cities appeared an unbeatable threat in response to local and limited conflict—say in areas relatively peripheral to American interest. The gross disparity between ends and means inevitably paralyzed the political will of those required to implement the deterrent threat, and the entire deterrent posture began to look like a gigantic bluff. William Kauffman, one of the leading civilian strategists compared massive retaliation to going on a sparrow-hunt with a cannon. He argued that the strategy was no deterrent to small-scale attacks and encouraged the adoption of ‘salami tactics’ by the Soviet Union— even in Western Europe which was central to European concerns.

The issue of credibility of U.S. strategy was also taken up from a different perspective by the French. Can the U.S. be expected to defend, say Paris or Rome, and risk losing New York? Pierre Gallois, the French strategist, argued that the vulnerability of the American homeland had rendered the NATO alliance obsolete since the U.S. could no longer be relied upon. It is impossible for any nuclear state to extend its deterrence to its allies, at the risk of its own destruction. Nuclear deterrence, in the age of vulnerability can work for itself but not for its allies—even very close ones.

A third criticism of massive retaliation was that nuclear weapons cannot substitute for conventional forces. Since massive retaliation cannot prevent local, limited and conventional attacks, it is necessary to be prepared to fight conventional wars.

Fourth, if a massive spasmodic nuclear war envisaged by the doctrine of deterrence is not credible, it became necessary to think about limited nuclear war options. In the late 1950s, U.S. strategists came to believe that if a war threatening the entire human civilization was possible, then a certain amount of attention should be directed towards the problem of controlling and limiting nuclear wars in such a way that their occurrence would not inevitably be disastrous. It was further argued that the acquisition of limited war capability might actually plug the gaps in the strategy of deterrence, by enabling the U.S. to pose a more credible threat than massive retaliation to less than massive aggressions.
Fifth, massive retaliation assumed that a Soviet attack on the U.S. could be merely deterred by the possession of large stockpiles of nuclear weapons and delivery systems. Critics argued that the capability requirements of deterrence were much more stringent and far from being automatic. A deterring force like the bombers could also be a tempting target. If a deterrent force is vulnerable to a surprise attack by the very force it is supposed to deter, it can no longer deter and invites pre-emption. Thus, in the strategy of deterrence, it was the residual capability of that force, that part of it which could survive a surprise nuclear attack and strike back at the attacker, which is really crucial. But differently, if a deterrent was to deter, rather than merely provoke or invite a first strike, it had to have the capacity to ride out such an attack and inflict unacceptable retaliatory damage.

These were the challenges to the massive retaliation doctrine that Robert McNamara grappled with in devising a new strategy of deterrence for the United States. He and the civilian strategists he brought along into the Kennedy Administration were to have a profound and lasting impact on the evolution of nuclear strategy and the arms race. They discarded the massive retaliation doctrine and replaced it with a variety of measures. The 'McNamara Strategy', as it was called, embraced both deterrence and limited war concepts, and was a formidable attempt to reshape U.S. defence policy.

The new strategy emphasized the building up of conventional forces, which was neglected under the Eisenhower administration. To redress the problem of extended American deterrence over Europe, he undertook the strategy of flexible response, which envisaged considerable buildup of non-nuclear limited war capability. The strategy called for tailoring the Western response to the nature and extent of Soviet aggression. While discouraging the development of independent European nuclear forces, the new emphasis was on proportionality, on meeting the Soviet Union on the same level as its initial attack occurred, with the implicit threat that escalation would bring in the American strategic forces into play. The new strategy for NATO was not without difficulties. It downgraded the punitive element in deterrence in favour of denial violence. Since it inevitably emphasized limited war-fighting rather than war prevention, it aroused fears among Europeans that such a war would inevitably be fought on their territory. The European preference was for an unspecified general deterrence exercised through threat of use of nuclear weapons.

The McNamara strategy wanted choices—other than surrender or suicide implicit in the age of mutual vulnerability to nuclear weapons. As President Kennedy put it:

"We have been driving ourselves into a corner where the only choice is all or nothing at all. World devastation or submission—a choice that necessarily causes us to hesitate on the brink and leaves the initiative in the hands of the enemy."

In an attempt to avoid the cataclysm implicit in the 'spasm' war, McNamara developed the distinction between counterforce (targeting
adversary's military forces) and counter-value (or counter-city) targets and sought to maximize the options available to the U.S. in conducting a limited, although nuclear, war. City avoidance strategies and counterforce targeting became important priorities for forces which were designed to limit civilian damage in the hope that Soviets would reciprocate in kind.

The search by McNamara to find ways and means of avoiding the stark alternatives between annihilation and surrender opened up the inevitable problem of thinking about the unthinkable. The ideas of limited nuclear war, damage limitation, and counterforce were nothing but a camouflage for the preparation of strategic thought process towards nuclear warfighting.

But McNamara himself realized some of the dangers of the counterforce doctrine he was propounding. He realized that his counterforce posture played into the hands of U.S. Air Force, which was bent on keeping its near monopoly of nuclear weapons. The USAF was producing an endless list of military targets inside Soviet Union and basing its demands for nuclear weapons on such a list multiplied further to compensate for various factors of uncertainty such as interception, operational failures, inaccuracies, need for assigning multiple number of warheads for each target. Thus, a counterforce strategy was leading to a strategy requiring unbelievable number of nuclear weapons. He also, perhaps, realized that the technical requirements for a counterforce doctrine—high accuracies, the complete separation of civilian and military targets did not exist.

McNamara soon reversed himself from the counterforce doctrine and espoused the strategy of mutual assured destruction, notorious since then as MAD. The whizkids and backroom boys of McNamara quantified the amount of damage that needs to be threatened on the adversary to perpetuate deterrence. This 'assured destruction' capability in McNamara formulation, was the capacity to destroy one-fifth to one-quarter of the Soviet population and one-half of its industrial capacity even after absorbing a first strike against U.S. strategic forces. It was calculated that once U.S. forces had delivered the equivalent of about 400 one-megaton bombs on the cities and industrial plants of the USSR, the percentage of additional industry and population destroyed by additional weapons would fall off sharply. Somewhat arbitrarily, they took as an axiom that the U.S. must maintain the ability to inflict the damage of 400 MT on the USSR. And if both sides had this assured destruction capability—the capacity to inflict unacceptable damage on the other—even if the other strikes first, there would be no incentive to undertake a nuclear attack, deterrence would prevail, it was hoped, forever.

Thus, the concept of MAD was born. The MAD doctrine had a number of requirements. It needed a large number of strategic forces to ensure strategic sufficiency—the ability to absorb a first strike and retaliate. It required that forces be invulnerable to a pre-emptive surprise attack by the other side. To ensure this, the Kennedy administration encouraged taking nuclear weapons to the seas, since submarine-borne nuclear forces were considered invulnerable. The Administration also put the land-based ICBMs in
hardened silos to increase their survivability. The emerging MAD strategy of McNamara had also grappled with the emerging technologies of 'defence' against nuclear weapons—then called ABM systems (now star wars). The widespread ABM debate in the U.S. was clinched by McNamara, who argued that damage limiting measures like ABMs were not viable, regardless of the amounts of money spent on them. The Soviets could always overcome these by a determined nuclear buildup. He also believed that a stable balance of terror required the USA to remain invulnerable to Soviet weapons. It was not as if U.S. had an obligation to do so, but it was sound strategically, because the USSR was likely to maintain its assured destruction capacity.

The essence, hence, of the MAD strategy was for both sides to be vulnerable to each others second strike capability, with population of either side being the hostages. This ensured that there would be no incentive for a first strike, and natural nuclear deterrence would ensure that there is no nuclear war. The MAD strategy soon gathered a bipartisan consensus within the U.S. and became the reigning orthodoxy in the U.S. The 1972 SALT I agreement between the U.S. and USSR indeed codified this strategy as the key to peace in the nuclear age. The essence of SALT was two-fold. It resolved the debate between offence and defence in the nuclear age in favour of offence. The delicate balance of terror must be preserved. Second, it limited the number of strategic nuclear weapon launches on both sides.

The expectation in the early 1970s, was that mutual nuclear deterrence would last for the foreseeable future, and there was no other answer for maintaining peace in the nuclear age. However, the onslaught of technological and doctrinal change, slowly but certainly, began to chip away at the unshakeable rock of deterrence. To these two factors we must now turn to, in order to understand the collapse of deterrence.

Technological Changes and Deterrence

The theory of deterrence held that it can manage technological change and preserve nuclear deterrence, through the process of arms control. The prime function of arms control was to maintain the mutually beneficial state of stable deterrence, and manage the impact of military technology on the stability of military balance between the two adversaries, so that a nuclear war does not become more likely. Arms control and deterrence theorists emphasized the need to recognise the common interest of the possibility of reciprocation and cooperation between the adversaries to reduce the likelihood of war, its scope and violence if it occurs and the economic costs of being prepared for it. But the philosophy of deterrence and the practice of arms control have utterly failed to cope with the dynamics of nuclear arms race.

Numbers: Why Large is Beautiful

The theory of deterrence had always great contempt for disarmament. They were always suspicious of drastic arms reduction proposals. They scoffed at the balanced reduction of forces which the U.S. advocated at the
disarmament conferences of the 1950s. They argued that such utopian proposals undercut the essence of mutual deterrence in the nuclear age. Strategic instability would arise if one side or both lost the ability to impose assured destruction on the other, after absorbing a first strike. Drastic cuts in nuclear arsenals would reduce the number of delivery systems below that needed for a second strike capability and hence the working of the balance of terror. The central question of deterrence and nuclear arms control was not reduction but maintenance of strategic stability, which alone can avoid nuclear war, and not those sentimental plans for disarmament and drastic cuts.

This naturally meant that the addition of any new nuclear weapon system could be permissible, if it meets the requirements of deterrence—strategic stability, crisis stability and aviodance of nuclear war. It was this philosophy that led to the most awesome buildup of nuclear arsenal under the Kennedy Administration. It ordered the building of 1,000 land-based missiles, nearly 700 odd submarine missiles, nearly 7,000 theatre nuclear weapons were deployed in Europe. Thousands more went into bases around the world and ships at sea. The proclaimed ‘assured destruction’ capability was only a baseline; the deployed deterrent was probably 10 to 20 times larger than the 400-MT level.

The mutual deterrence doctrine was basically a product of an age of declining American superiority. But the high-sounding rhetoric of MAD about balance of terror, mutuality of interest of the adversaries in deterrence and arms control notwithstanding, the U.S. strategic community was never fully prepared to face the consequences of strategic parity between the U.S. and the USSR. The theory of deterrence was fine so long as the U.S. retained visible supremacy in nuclear arms. Once the Soviet Union responded to the Kennedy buildup and attained strategic parity in the 1970s—a parity pegged at an absurdly high level, the paradigm of deterrence began to unravel.

Are There Good Nukes and Bad Nukes?

Just as the doctrine of deterrence permitted expansion of nuclear arsenals, it also encouraged technological modernization of nuclear arsenals by bringing in new weapons. Provided, of course, they were stabilizing. Similar to the way in which the Americans see the world as being divided between “good guys” and “bad guys”, the deterrent theory distinguishes between good nuclear weapons and bad ones as it does between good military technologies and bad ones.

The standard categorisation was that nuclear weapons which gave a disarming first strike capability are bad and those that are only capable of a second strike are good. The good weapons are those that are relatively invulnerable to attack and not themselves accurate enough to be used in a first strike mode. Their invulnerability means they can survive an attack and be used in retaliation. Their lack of accuracy implies they are not threatening to the adversary’s retaliatory forces. Such weapons are considered stabilizing and good.
The bad ones are those that make it possible to launch a discriminating first strike against the adversary quickly and accurately and are also vulnerable themselves to attack. They thus have to be used first to destroy the adversary's retaliatory capability or face the likelihood that they will be destroyed before they can be used. The "use them or lose them" syndrome makes these weapons highly destabilizing. This neat characterization of weapon systems by the deterrence theory is less than real. Let us look at some specific examples.

The deterrence school has always considered the submarine launched ballistic missiles as good. They are invulnerable, since their position at any point of time is unknown. They are mobile and can stay underwater in the seas of the world. They have also been inaccurate, hence cannot threaten a disabling strike against the adversary. However, these features of SLBMs are neither permanent nor universal. First, the accuracy of SLBMs has steadily increased making it conceivable for use in a first strike mode. For example, unlike the Polaris and Poseidon and Trident C-4 SLBMs, the new American Trident D-5 SLBM is very accurate and is capable of taking out Soviet missiles in hard silos or their command and control facilities. Second, the invulnerability of submarines could be steadily eroding, under the impact of the rapidly evolving anti-submarine warfare (ASW) technology. The oceans of the world which have so far provided a comprehensive cover to the submarines might soon become transparent as a package of satellite tracking, reconnaissance aircraft, underwater sound systems, and attack submarines that could put the missile submarines at risk. Third, the invulnerability of submarines has been more true of American sea-based forces, rather than of Soviet SLBM force. The U.S. superiority in ASW technology and the weaknesses of the Soviet seapower have always meant that "benignness" of sea-based forces has only been true to United States. Unlike the United States which has open seas on either side, the Soviet naval access to oceans is through narrow choke points, which are under the thorough surveillance of American ASW systems. The Soviets also lack a global system of naval facilities and bases forcing Soviet submarines to stay at home most of the time. It is for these reasons that the Soviets have been unwilling to shift their missile forces from land to sea. The U.S. strategic theorists have rarely been willing to see that their distinction between good and bad weapons could be highly subjective. Fourth, the SLBM forces never met another criterion for "good" weapons—the need for strong central political control over nuclear weapons. It is now fairly well known that SLBM forces do not have the Permissive Action Links (PAL) that exist for land based nuclear weapons, and that the submarine commanders have had considerable "launch autonomy" in releasing nuclear weapons.

Cruise missiles also illustrate the futility of distinguishing between good nukes and bad nukes. The deterrence theorists recommend cruise missiles because they are slow, like aircraft, and would not threaten a first strike. Being small and mobile, they could ride out an attack and retaliate. But advances in Cruise missile technology such as 'autonomous terminal homing' would
make them more accurate, and its speed could go up from its present subsonic speeds of 550 mph to supersonic speeds, allowing it to be used in a first strike. The Cruise missile case shows that today's good weapons could be tomorrow's bad ones, as they undergo technological modernisation.

_A priori_, there appears to be no way to distinguish between good and bad military technologies. For long, the arms controllers have praised the stabilizing role of military satellite technology. Satellites give early warning of an attack and hence reduce the prospects for a disarming first strike; they help in better communications between adversaries and also enable tighter central political control over nuclear weapon systems; by continuously monitoring adversary's territory they facilitate the verification of arms control treaties, so essential for retaining confidence between the two nuclear weapon powers.

The very same military satellite technology, blessed as a stabilizing factor in deterrence, has today evolved into something totally contradictory. Were it not for satellites, doctrines of limited nuclear war counterforce attacks would not be as popular as they are today. Military reconnaissance satellites have helped in precisely mapping missile silos and other military targets, the destruction of which is central to nuclear warfighting doctrines. Navigational satellites, like a NAVSTAR of the U.S., when fully operational at the end of the decade will contribute towards enhancing the accuracy of SLBMs to the same level as those of land-based ICBMs. Geodetic satellites have helped develop accurate gravitational mapping of the earth necessary for the most accurate working of inertial guidance systems for ballistic missiles. Communication satellites, considered virtuous in their ability to retain control over nuclear weapons, also help in planning and executing highly coordinated and sophisticated nuclear strikes on the adversary in a so-called controlled nuclear war. Nuclear explosion detection satellites praised as benign because they verify test ban agreements, are also useful to make damage assessment during a nuclear war, so as to retarget and redirect one's nuclear forces for their 'optimal' use. Here, then, is the classic case of a 'good' military technology transformed into a 'bad' one over a short period of time.

The reality is that there are no 'good' or 'bad' military technologies. All of them are positively ugly, since they can never make it cozy or comfortable to live with nuclear weapons. The U.S. arms control and strategic thinking in its formative phase was dominated by the system analysts, game theorists and scientists. For all their analytical brilliance and technical virtuosity, they sadly overstated the capacity of deterrence theory to manage the impact of technological change on the nuclear balance.

The technological change in nuclear weaponry, propelled by vast military research and development establishments, has worked unrelentingly to undermine the objectives of stable deterrence and avoidance of nuclear war. The distinctions drawn between stabilizing and destabilizing weapons, of first strike and second strike was illusory. The incremental advances in the accuracy of nuclear delivery systems, the miniaturization of warheads, the blurring distinction between conventional and nuclear
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weapons, the re-emergence of technologies have made the belief that a nuclear war could be fought and won as a credible and powerful one, undercutting the essence of the theories of deterrence, that nuclear weapons are meant to deter and not to be used.

The idea of stability, so dear to the practitioners of deterrence has proved to be elusive. The problem is not external to the doctrine of deterrence but is at its very philosophical foundation, which encourages the development of so-called stabilizing weapons and technologies. The problem with the deterrence approach is that it cannot prevent the ceaseless advances in military technology from undermining the very objectives of deterrence. The best example of the failure of deterrence and arms control approach is the consequences of MIRV technology.

The SALT process, instead of reducing nuclear arsenals, had fixed the balance at a terrifying high level. This was justified on the need for strategic sufficiency. The SALT treaties limited launchers but not warheads. The MIRV technology allowed the deployment of more than one warhead per launcher. The deterrence approach channeled the nuclear arms race in the direction of building more warheads on each missile. In purely technical terms, it was just an economical way of packaging warheads. But strategically, it proved disastrous. While the number of launchers remained under the ceiling, the number of warheads multiplied rapidly. This inevitably brought about the 'window of vulnerability' since the number of targets (launchers) remained the same, and the number of weapons increased, it became theoretically possible to use a small portion of one's arsenal to destroy a large part of the adversary's arsenal—at least that part which was on fixed land-based ICBMs. The 'window of vulnerability' for the land-based forces was made much out of by the U.S. right-wing since the late 1970s, but it was clearly a problem for both sides. Perhaps it was far more dangerous for USSR, which had concentrated nearly all of its strategic forces on land. However, it was in the U.S. that the SALT process came under attack, thanks to the hysteria over the "window of vulnerability."

Thus, the land-based ICBMs which had become more accurate and capable of a disarming first strike, were also now vulnerable, thanks to the MIRV-ing of missiles permitted by SALT. Once the need arose to resolve the vulnerability of land-based ICBMs, many a fancy solution were considered. But one answer which inevitably come to the fore was the reconsideration of defence. The research into defensive technologies, permitted by the ABM Treaty, had progressed sufficiently to make influential sections of the U.S. Government in early 1980s to believe the defensive technologies or Star Wars was a worthy goal to pursue. We are thus at a stage where technological opportunity has reopened the entire issue of offence-defence relationship in the nuclear age. It is very well for the American liberal arms controllers to attack the Reagan Administration on the Star Wars programme. But it is the inherent weakness of the deterrence approach embodied in the ABM—SALT accord that has caused the inevitable destruction of the grand bargain that was made.
Doctrinal Change and Deterrence

The common argument in the studies on arms race is that 'technological creep' is responsible for the escalation of the arms race. This argument is not completely true. It is a fact that technological change has been one of the most intractable problems in grappling with the nuclear arms race. But the reality is that technology, rather than being the driving force behind the arms race, has spent the last two decades catching up with nuclear doctrine. The demands of the doctrine of deterrence, which technologies strove to fulfill, are the real culprits of the current nuclear crisis.

The Lure of Counterforce

We have noted how President Kennedy wanted choices between surrender and annihilation. The lurch towards counterforce and limited nuclear war doctrines did not stop as McNamara outlined the doctrine of mutual assured destruction. But MAD doctrine and the debate about it were real only at the declaratory level. But at the operational targeting level, McNamara continued with the counterforce doctrine. Since he had built up the thousands of weapons, far in excess of the requirement of assured destruction, it was obvious that the actual target planners had to do something with them. What they did was continue to follow McNamara's 1961 target planning guidance and aim the weapons at military as well as civilian targets. Whatever the stated preferences for MAD over nuclear war-fighting, counterforce remained the de-facto target policy. But the real limitation on counterforce was technology, which did not permit limiting damage, executing precise strikes over military targets, etc. For the U.S. Presidents, the lure of counterforce, of the need for choices between all or nothing, continued to prove attractive. And technology slowly but certainly began to give confidence about executing counterforce.

It was perhaps inevitable that after the 8 years of nuclear buildup by Kennedy and Johnson Administrations, President Nixon should have asked the same question as Kennedy. Nixon wondered: "Should a President, in the event of a nuclear attack, be left with the single option of ordering the mass destruction of enemy civilians, in the face of certainty that it would be followed by the mass slaughter of Americans?" This led him to announce, through James Schlesinger the Defense Secretary in 1974, that the U.S. was welding on to its established 'assured destruction doctrine', a new targeting philosophy, which was very similar to the old 'counterforce strategy' of McNamara. The Schlesinger doctrine called for a greater range of options in the U.S. targeting policy. These included "clean surgical strikes" against Soviet missile sites, now made feasible by increased accuracy, speed and reliability of nuclear delivery systems. The development of smaller sized warheads, in contrast to the earlier megaton behemoths, the new attraction for 'tailored' or specific mission-oriented weapons like the neutron bomb gave the confidence that limited nuclear war options are feasible, a nuclear exchange can be controlled by avoiding population centres. Though lip service was paid to 'assured destruction', the emphasis of Schlesinger was on cir-
cumstances in which limited nuclear use might occur, than of an all-out massive attack on the urban centres of the adversary. This was clearly a shift from the focus on the mutual hostage relationship of deterrence to acquiring the ability to actually execute a nuclear war. The number of options had now increased in their range and sophistication to a point at which nuclear war becomes thinkable.

This thrust was continued under the Carter Administration. In July 1980, President Carter issued the Presidential Directive 59 providing for a larger number of limited nuclear options in the new philosophy known as 'countervailing strategy'. The doctrine enlarged the concept of controlled nuclear war into a 'protracted nuclear war'. The nuclear war no longer was be a spasmodic cataclysm, but one which can be controlled over a long period of time though execution of limited nuclear strikes. The doctrine emphasized:

1. *Flexibility*, providing for a continuation of options ranging from the use of small numbers to a large portion of U.S. nuclear forces;
2. *escalation control*, making possible "negotiated termination of the fighting";
3. *Survivability and endurance* of both nuclear forces and command, control, communications and intelligence (C 3) facilities;
4. targeting objectives
   a. strategic nuclear forces
   b. other military forces
   c. leadership and control targets
   d. industrial and economic base;
5. reverse forces for maintenance of nuclear dominance both during and after a protracted conflict.

With the PD 59, a nuclear warfighting strategy had emerged from under the mantle of nuclear deterrence. Here was a doctrine which claimed it was 'enhancing' deterrence, but actually seeking to wage a nuclear war. It sought the survivability of its own nuclear forces, and yet wanted the ability to destroy the Soviet retaliatory capability. It wanted a survivable C 3 network to enable US to wage a controlled nuclear war, and yet made the Soviet C 3 facilities and political targets a high priority target. The claim of Carter Administration that countervailing strategy was not a "radical departure from the U.S. strategic policy" is unexceptionable. It was only "a refinement, a codification" of actual developments "in the light of current conditions and current capabilities." New nuclear capabilities have been translated into warfighting strategies. It was the realization of the counterforce and limited war ideas of McNamara.

**War-fighting to War-winning**

The developments of the 1970s U.S. doctrine to a stage where, it was believed that deterrence will work only if U.S. had the demonstrable capability to wage a nuclear war, in the event of deterrence breaking down.
But this capability was indistinguishable from one which made a discerning first strike feasible. It was thus no longer deterrence by mutual vulnerability and secure second strike forces, as conceived under MAD, but deterrence through threat of war-fighting and first strike.

The Reagan Administration is usually accused of radically recasting the U.S. nuclear policy. While its style has contributed towards this view, there is no real substance in it. All that Reagan did was to take U.S. nuclear strategy a few more logical steps forward from the PD59. He transformed the policy from 'deterrence through war-fighting' to a strategy based on 'deterrence through war-winning'. The Reagan nuclear doctrine is based on the principle 'victory is possible'. The doctrine is based on several propositions. First, a nuclear war can occur. Second, it can be won in some meaningful sense. And third, for the U.S. to prevail, it must have strategic superiority. Deterrence is one object of war-winning, but in contrast with assured destruction and war-fighting, deterrence is to be achieved by the threat to use nuclear weapons to "defeat" the Soviet Union, while activating measures to protect the United States, in the event of deterrence failure.

The requirements of a war-winning strategy have been articulated by Colin Gray, whose views have come closest to those of the Reagan Administration on nuclear strategy. Gray has argued that the U.S. needs a strategy in the sense of specific political objectives to be achieved in war. Gray recommends that the U.S. "seek to impose such a military stalemate and defeat as is needed to persuade disappointed Warsaw Pact allies and ethnic minorities inside the Soviet Union that they can assert their own values in very active political ways." Here are the outlines of ethnic targeting—decimate the Russian nationality, and you will have the other Soviet ethnic groups and Warsaw Pact allies waiting to welcome the U.S. armed forces as liberators.

The breakup of the Soviet Union as a nation state would only take America half way to victory. The other half involves damage limitation to insure the survival of enough of the U.S. to enable it to continue as a nation-state. Gray observes that "a combination of counterforce offensive targeting, civil defense, and ballistic missile and air defense should hold U.S. casualties down to a level compatible with national survival and recovery." He suggests that an offense-defense strategy "should reduce U.S. casualties to approximately 20 million, which should render U.S. strategic threats more credible."

The reality of these mind-numbing strategy of Gray was soon confirmed by statements by Alexander Haig and President Reagan that a nuclear war is winnable. This was further reinforced by a leak in New York Times of May 30, 1982 of the top secret Defence Guidance document of the Reagan Administration which set a requirement for American forces to have the capability to "prevail" in a nuclear war and "render ineffective the total Soviet (and Soviet-allied) military and political power structure." Though the public furor over this leak in Europe and America led to softening of the public posture of the U.S. leaders, the policy appears to be intact.
NUCLEAR DETERRENCE

Thus, from the temple of deterrence, there emerged finally the satanic idea of fighting and winning a nuclear war. It was a logical evolution of the ideas of deterrence from the 1950s. President Reagan's initiation of the Star Wars in 1983 was not surprising, given the inexorable thrust of the war-winning doctrine. The Star Wars is presented to the U.S. public as a total astrodome defence of American population. The U.S. liberals attack this as pure technological fantasy. But the direction of the U.S. Star Wars programme is not to defend U.S. people, but to protect its nuclear forces. Star Wars makes little sense against a hypothetical full-scale Soviet nuclear attack. It could make sense as a shield against a depleted Soviet attack, after an American first strike. The essence of Star Wars is thus to deny the Soviets an ability to retaliate, thus completing U.S. strategic superiority.

The most ironic defence of the counterforce and Star Wars doctrines of the USA has been in moral terms. The resurgent right wing strategic thinking gave the final knockout blow to the declining breed of those championing MAD, in a powerful religious argument. Is not MAD immoral, holding populations as hostages to maintain deterrence? Is not a doctrine which emphasizes attacks on military targets and defence of people a better way of deterrence? Thus, the new jargon for war-winning strategy is 'mutual assured survival' as opposed to mutual assured destruction.

The tragedy of deterrence lies in the fact that forty years after the invention of nuclear weapons, we are now closer to a nuclear war than before. The hope that deterrence can prevent a nuclear war is in shambles. Instead, it has finally enshrined Vince Lombardi's dictum: "winning is not everything, it's the only thing." Thus, deterrence appears to be the problem rather than the solution. The only alternative to nuclear deterrence is nuclear abolition. The proposals by Gorbachev calling for elimination of all nuclear weapons has fallen on deaf ears in the West. Forty years of addiction to nuclear deterrence is difficult to shake off.