

Stuck in the Nuclear Age

If the picture of the world I have drawn is rather bleak, it could nonetheless be cataclysmically worse.

ALBERT WOHLSTETTER, 'The Delicate Balance of Terror', 1959¹

Over six futile weeks spent at the end of 1958, a number of representatives from five NATO and five Warsaw Pact states met in Geneva. This was the 'Conference of Experts for the Study of Possible Measures Which Might Be Helpful in Preventing Surprise Attack and for the Preparation of a Report thereon to Governments.' A sense of futility was there from the start as it became apparent that two sides were working on completely different agendas, reflecting their distinctive views about the likely source of a surprise attack. So different were the agendas, noted one observer, that it was 'difficult to understand how they could have been drafted for the same conference.'²

President Eisenhower had proposed the conference to promote an inspection regime that would reveal any preparations for a surprise attack. This was a time when the US was relying on covert U-2 spy plane flights to try to work out what the Soviet Union was up to amid fears that it was pushing ahead in the arms race. There were three problems with this approach. The first was that the sort of inspections the president had in mind might pick up dangers from long-range bombers but were less likely to do so with solid-fuelled rockets that could be prepared quickly for

launch and reach their targets in minutes rather than hours. The second was that, in the secretive Soviet system, inspections were seen as just another form of espionage, perhaps preparatory to a surprise attack, and for that reason were bound to be rejected.

The third and most crucial problem was that the American and Soviet leaderships feared completely different sorts of attack. Both had been caught by surprise in 1941 and were nervous about being so again. The Americans were worried about a nuclear Pearl Harbor, a bolt from the blue that would take out its most vital nuclear assets and leave them without any means of retaliation. By contrast, Soviet thinking went back to Operation Barbarossa. The danger they saw lay in West German membership of NATO and its rearmament, just then getting underway. Even as the conference was starting Nikita Khrushchev was challenging the special status of West Berlin, threatening to give East Germany 'its sovereignty on land, water, and in the air'. Having already been attacked twice by Germany over the previous half century the aim was to prevent it happening a third time with an even deadlier form of blitzkrieg. The Soviet focus was not on missile deployments, an area of presumed advantage (albeit illusory as it turned out), but on preventing troop concentrations on the border, and German access to nuclear weapons of any sort. 'Fundamentally', noted Jeremi Suri, 'the salient ideological differences between the East and the West at the Surprise Attack Conference had little to do with capitalism and communism, and much more to do with geography and memories of the preceding wars.'³

So both sides focused on fears of what the other side might get up to while insisting that their own preparations were purely defensive in intent. This raised again the security dilemma, 'deriving from mutual suspicion and mutual fear', as states were compelled 'to compete for ever more power in order to find more security', even though the effort was doomed to be self-defeating and potentially tragic.⁴ Misunderstandings and even accidents might play a role, so that a Third World War might start inadvertently. With all these weapons in existence and new countries starting their own nuclear programmes, how could there be confidence that somewhere down the line something would not go terribly wrong? In 1960 the British scientist and novelist C. P. Snow warned of the ease with which

plutonium could be made and the number of states that could therefore build bombs. ‘We know’, he continued, ‘with the certainty of statistical truth, that if enough of these weapons are made—by enough different states—some of them are going to blow up. Through accident, or folly, or madness—but the motives don’t matter... We genuinely know the risks. We are faced with an “either/or,” and we haven’t much time.’⁵

THIS CONVICTION THAT THE WORLD’S LEADERS FACED A STARK choice—between international action to control the bomb and complete tragedy—was present from the start of the nuclear age. The scientists who built the bomb had rationalised their enterprise as ensuring that Nazi Germany did not get this terrible weapon first and then as a way of shocking the international community into accepting the imperatives of world government. Once the war was over they took up the case forcefully. The objective was captured in a 1946 book with a title straight out of Wells—*One World or None*.⁶

But the world was now hopelessly divided. In June 1946 the United States did put forward a plan to the United Nations to develop nuclear energy solely for civilian purposes while prohibiting military use. But with relations deteriorating the Soviet Union detected a plot. Moscow saw that it might be denied the opportunity to build its own capabilities only to find that the United States had found a loophole to maintain its monopoly. For their part the Americans worried that without strong enforcement mechanisms the Soviet Union would cheat, allowing it to disclose a covert arsenal after everyone else had disarmed. Whether or not better-constructed proposals might have prevented a nuclear arms race at this stage, this effort soon petered out. The recent experience of another terrible war and the sudden revelation of a terrible new weapon had not enabled governments to bridge their differences and cooperate for the collective good. So if the choice was really one world or none the gloomy alternative to world government and serious disarmament started to loom large.

For firm believers in disarmament the case appeared more compelling than ever. This was no longer a matter of reducing armaments to reduce wasteful expenditure or levels of mistrust but an urgent need to save the

human race from annihilation. Philip Noel-Baker, for example, had long been a vigorous proponent of general and complete disarmament. He had been involved with the founding of the League of Nations and then, as a member of the British government, in founding the United Nations. Nothing, not even the dismal experience of the interwar years, diminished his conviction in the supreme rationality of his cause. The only problem was that it had not been pursued vigorously enough. In 1958 Noel-Baker set out his beliefs in a book called *The Arms Race: A Programme for World Disarmament*. The next year he was awarded the Nobel Peace Prize for his efforts. In his Nobel lecture he reasserted his long-standing principles: '[I]t makes no sense to talk about disarming,' he asserted, 'unless you believe that war, *all* war, can be abolished.' This was the heart of his beliefs. War was a terrible way to settle disputes: there were far better forms of settlement, and they now needed to be applied. 'Unless there is an iron resolution to make it the supreme object of international policy and to realize it now,' he insisted, 'I believe all talks about disarmament will fail.' With this iron will then there could be success. Disarmament could come in stages, and an eventual treaty of general and complete disarmament would be 'a long and complex document,' but he was not of the view that the devil would be in the detail. Here he quoted Salvador de Madariaga: 'Technical difficulties are political objections in uniform.'⁷

When preparing his book, Noel-Baker recruited a bright young Australian to help him out. The partnership did not last. Hedley Bull soon became convinced that Noel-Baker's approach was both dated and mistaken. It could never prosper. This might be just as well, as otherwise it would make a bad situation worse. In 1959 he published a trenchant review of *The Arms Race*. At its heart was an analysis of the relationship between disarmament and peace. Bull offered a succinct explanation of why general and comprehensive disarmament was probably impossible:

In an international society in which war is a possible outcome between politically competing states, and there is no supreme coercive authority, a state can provide for its security and protect its interests only by its own armed strength and that of its allies: this is the context in which states have armaments and maintain their own control over the level of these armaments.

Bull dismissed Noel-Baker's goal of substituting a system based on states taking responsibility for their own security with an alternative system based on collective security. This would require that 'any act of aggression, anywhere, by anyone, against anyone, will be resisted by all the members of the system collectively; faced with this threat of overwhelming power, no state will resort to aggression.' This, Bull described as

a quite abstract and unhistorical conception of international relations, in which states are bloodless, passionless units, having no natural sympathies or antipathies, loyalties, or hostilities and, like the citizens of Victorian tracts on representative government, are moved only by the rational contemplation of right or interest.

The desirability question Bull answered by noting the growing view in the West 'that the nuclear stalemate is a preservative of peace, and should therefore be left well alone.'

This explained why Noel-Baker seemed such a lone voice. The focus was now on second-order questions such as nuclear testing. Contrary to Noel-Baker's view that it was possible to dispense with armaments because war was an anachronism, Bull insisted that war between the nuclear powers was only anachronistic because of the terrible armaments. In this respect, therefore, the 'function of nuclear armaments in the international system at the present time is to limit the incidence of war.' This situation might not be satisfactory, but it was unlikely to be abandoned without confidence in some replacement. Bull concluded: 'In the present world, states are not only unlikely to conclude a general and comprehensive disarmament agreement, but are behaving rationally in refusing to do so.'⁸

Bull here was capturing a shift in thinking that had been underway since the middle of the decade. The international system was already starting to look surprisingly stable. One reason for this was its stark clarity. The complications of a system with a number of competing great powers and fluid alliances had been replaced by one dominated by two 'superpowers' (a term introduced in 1944 to cover the United States and the Soviet Union, and then also the British Empire⁹), each developing an arsenal of awesome destructiveness. Europe had been divided quite neatly

into two, with the fracture passing through Germany, and each side sharing critical features in its political and economic arrangements with its presiding superpower. Only in Berlin, also divided but stuck in the middle of East Germany, was the position still uncertain, which is why it was the main area of contention. The starkness of the divide meant that no easy reconciliation was available, but also that an act of aggression would be unambiguous, and would trigger fighting almost immediately. Because of nuclear weapons it was taken for granted that this would soon lead to a catastrophic war.

On the NATO side the conventional forces facing the Warsaw Pact were described as having a 'trip-wire' rather than a purely defensive function. The need was to warn that a wider war would be triggered by any move across the inner-German border. This prospect introduced a degree of caution into international affairs. This was not a time to try out radical approaches. The aim instead was to encourage respect for the status quo. If the First World War had dashed confidence in the possibility of a stable balance of power, the nuclear age helped revive it. In one of his last speeches as prime minister, Winston Churchill commented on the 'sublime irony' that a stage had been reached 'where safety will be the sturdy child of terror, and survival the twin brother of annihilation.'¹⁰

In 1961 the new European order was put under its most severe challenge with a crisis over West Berlin. The Soviet leader Nikita Khrushchev challenged its special position, not least because it was providing an outlet for tens of thousands of East Germans who wished to escape communism. The tension grew as President Kennedy took a tough stance. In August of that year the Communists solved their problem by building a wall across the city to stop people leaving the East. The tension eased. But in October the next year there was an even greater crisis when it became apparent that the Soviet Union was seeking to install nuclear missiles in Cuba. Again the Soviet Union backed down, helped by a promise from Kennedy not to invade Cuba.¹¹ In both cases the logic of deterrence appeared to have worked itself through.

THE ONLY WAY THAT A NUCLEAR WAR COULD BE WON CONCLUSIVELY would be by means of a first strike that precluded enemy retaliation. The way to

prevent this was to develop a second-strike capability. This would demand sufficient forces to survive an attempted first strike to be able to retaliate in kind, so the risks of attack would be too great. But if both sides were seeking a first-strike capability a dangerous edginess might develop at times of crisis that could lead to war through miscalculation. It was therefore vital to demonstrate without ambiguity that there was no premium in a first strike. This should encourage both sides to be more cautious and concentrate on diplomacy in a crisis. This was the aspect of the nuclear relationship that Schelling had identified as the key to avoiding war through miscalculation.

Whether or not a first strike option could be developed was the pressing issue of the moment. In 1954 a team at the RAND Corporation, led by Albert Wohlstetter, was asked to consider the optimum basing configurations for the US strategic bomber force. They introduced as a key criterion vulnerability to a surprise attack and in so doing demonstrated how the United States might be caught out by a calculating Soviet Union with a pre-emptive strike.¹² This was the modern-day version of war fiction, except that there was no character development or narrative tension. The approach was rigorously analytical based on the best available data (accepting that what was known about Soviet capabilities was sketchy). The plotline, however, remained focused on how an unscrupulous foreign enemy might catch the United States unawares, piling assumption on assumption to show why a country that appeared secure in its great strength was far more vulnerable than realised.

The idea that the US might just be caught out in this way gained credence from notable Soviet successes in testing the first intercontinental ballistic missile and then the first artificial earth satellite (Sputnik 1) in 1957. In an influential article, based on his study, called the 'Delicate Balance of Terror', Wohlstetter warned against assuming a nuclear stalemate just because both sides were acquiring a capacity to destroy the other. The danger would come if one saw a realistic route to victory. A nuclear first strike would have hideous consequences for the perpetrator if it failed, but it could also be an unequivocal success; any country so disarmed of its means of retaliation would have no choice but surrender. For those contemplating such an attack the difference between suicidal

aggression and world domination could rest on fine calculations. Whether the system was truly stable therefore would depend on many factors, such as the range, yield, and accuracy of weapons and the hardness and mobility of targets, along with issues of warning and sequencing.¹³

This analysis was not geared to a mass audience but to policymakers. As with Kahn's *On Thermonuclear War*, the idea that a nuclear war could be imagined and discussed in this way was found by many to be chilling, normalising the idea of mass destruction. Yet this analytical framework shaped the way issues of nuclear war and deterrence were discussed in the professional community over the coming decades. It demanded a degree of technical competence while leaving questions of political motive and consequence unexplored. It influenced the way many policy issues outside the nuclear arena came to be discussed with terms like 'worst-case scenario' and 'damage limitation' entering the vernacular, as well more obvious terms such as 'assured destruction'.

While the origins of this form of analytical literature were not dissimilar to those of *The Battle of Dorking*, being a way of challenging official complacency, in this case the framework set up by the analysts meant that as new information came in, the degree of danger could be measured. Initially, long-range bombers had to be kept on continual alert to prevent them from being eliminated in a surprise attack. When intercontinental ballistic missiles (ICBMs) moved into full production in the early 1960s they were placed in hardened underground silos so that it would require an unlikely direct hit to destroy them. Even less vulnerable were submarine-launched ballistic missiles (SLBMs) which could take full advantage of the ocean expanses to hide from enemy attack and so provide a second-strike capability. Meanwhile, attempts to develop effective defences against nuclear attack proved futile. The standards for anti-aircraft defence in the nuclear age had to be much higher than for conventional air raids, since any penetration of the defensive screen would threaten the defender with catastrophe. Progress was made, using surface-to-air missiles (SAMs) in developing defences against bombers, but the move to ICBMs, with their minimal warning time before impact, appeared to render the defensive task hopeless. Measures of civil defence, which could offer little

protection to the civilian populace against nuclear explosions and, at best, only some chance of avoiding exposure to nuclear fallout, also appeared pathetic in the face of the overwhelming destructive power being accumulated by both sides.

WHILE THESE ANALYSES WERE BEING DEVELOPED DURING THE 1950s and into the 1960s the expectations were of regular and destabilising technological breakthroughs. Kahn, who had been inspired by science fiction, filled the last section of *On Thermonuclear War* with predictions for the future, in the form of coming revolutions in military affairs, with four expected over the next thirteen years. Those that stand out as accurate—a man on the moon from 1969—have to be set against the others that were off mark. The problem was an exaggeration of the financial and engineering effort required, as if major breakthroughs would materialise without exceptional effort. A typical observation for 1965 was that though he had not seen any figures, ‘I surmise that relatively thin margins of cost prevent us from doing such extraordinary projects as melting ice caps and diverting ocean currents.’¹⁴ In the nuclear field he sought more defensive systems, believing these could make the difference between a recoverable society and one that was completely lost.

The assumption that the Cold War would move into outer space was widely shared, with orbiting bombs and space stations directing fire to the earth, as if this was the high ground always beloved of strategists. Perhaps because this was the new frontier that fascinated writers of science fiction it seemed only natural to make military preparations. At least one writer hoped that if the superpowers could be persuaded to fight out their battles in space then they might spare the earth.¹⁵ In 1959 army researchers explained the vital importance of establishing a lunar outpost before the Soviet Union had a chance to do so, even though they were not yet quite sure of its military potential. By 1965 the US Army Weapons Command’s Future Weapons Office was writing that:

Because of the entirely new and different environment and conditions facing man in space, we cannot wait until the eleventh hour to “crash” a weapon program through with any hope of success, for we may even now be standing on the edge of the battleground

In the end there was a strong disposition to keep space free of weapons, not least because in practice there was little point sending weapons out into orbit in order to bring them back to hit targets on earth. Where space came to be of vital importance to military operations was not for weapons but for reconnaissance, navigational and communications satellites.

DESPITE THE VISIONS OF ARMAGEDDON, BY THE MID-1960S fears had eased of a technological arms race that might encourage either side to unleash a surprise attack. For the foreseeable future each side could eliminate the other as a modern industrial state. Robert McNamara, the US secretary of defense for much of that decade, argued that the two superpowers could impose ‘unacceptable damage,’ put at 25 per cent of population and 50 per cent of industry, on each other. Mutual Assured Destruction (MAD) conveyed exactly what it was supposed to convey—destruction would be assured and mutual and certainly unacceptable. Contrary to what had been assumed, therefore, the system tended towards stability. This was not so much a deliberate policy choice but recognition of a condition which confirmed the risks involved in any attempt to achieve a decisive victory through a knockout blow.

Yet the idea that a daring and an accomplished enemy might exploit a critical vulnerability did not go away. Albert Wohlstetter’s wife, Roberta, made her name in 1962 with the publication of an original critique of how the Americans were caught out by Pearl Harbor. She understood that when designing their policies both the United States and Japan had assumed that the other would react as they would wish them to react without asking carefully whether they might react completely differently. Her answer to the question of how ‘honest, dedicated and intelligent men’ could get so badly caught out was the ‘noise’ of misleading signals that prevented them from appreciating the real clues. As a result they concentrated on the signals that supported what they already thought. There was nothing unique, she argued, about Pearl Harbor. The United States had been surprised by the North Korean invasion of the South in 1950 and then again when China entered the war months later on the North’s behalf after

the possibility had been dismissed by General MacArthur. As the book was published the US was surprised again by the discovery of Soviet missile sites in Cuba. The development of thermonuclear weapons had raised the stakes. If anything 'the balance of advantage seems clearly to have shifted since Pearl Harbor in favor of a surprise attacker.' Her lesson was that whatever improvements might be made to warning systems, the safest course was to ensure that the country's defences could cope even if caught out again.¹⁷

This was the gravamen of her husband's position during the 1950s. His warnings had been taken seriously in the design of US strategic forces during the 1960s, but then MAD suggested a stage had been reached when there was no premium on a surprise attack. By the end of the decade, however, Albert Wohlstetter was back to the fore challenging the complacency this implied. He promoted a scenario that was presented as technical discourse yet had elements of fantasy. After a slow start the Soviet ICBM programme had been through a growth spurt. According to Wohlstetter's scenario, the numbers could soon reach a point where a surprise attack by Soviet ICBMs might effectively eliminate the American ICBM force. The US would be able to retaliate but, assuming long-range bombers bases were also hit, could only do so with submarine-launched missiles. Unfortunately these were inaccurate, so while the Soviets would have attacked military targets the US retaliation would be against cities. This in turn would invite a Soviet response against American cities, thereby making the situation far worse. This scenario was first set out in making a case for a new anti-ballistic missile (ABM) system that could protect the US missile silos. This was a complex calculation, requiring assumptions about missile and warhead numbers, their accuracy, and the hardness of the missile silos. If the threat could not be confirmed then the ABM would be unnecessary. On the other hand, if the threat was even greater than claimed, the ABM would be unable to cope.

These scenarios lacked a basic credibility. Such a strike would require confidence that weapons would perform exactly as promised in an attack that had never previously been attempted; that it would not be detected in time for missiles to be launched before they were destroyed; and that, even successful, the victim would show restraint, because the attack would

somehow be experienced as one solely directed against the nuclear force and not against society as a whole, despite mass casualties. Perhaps in the face of such carnage an American president might hold back in a shocked paralysis. But the Soviet leader could not rely upon such restraint, and would know that if the remaining US arsenal was used then his country would no longer exist as a modern industrial society.

Almost as soon as this idea was introduced the proposed remedy became unavailable as the United States and Soviet Union agreed to limit deployments of defences under the 1972 ABM Treaty. The schemes then designed to make land-based ICBMs less vulnerable became ever more complex. One involved a large track with many spurs so Soviet targeteers could never be sure where the missiles were hiding. The easiest place to hide long-range missiles remained underwater on submarines, which were becoming more accurate. After years of anxiety and expense addressing what was essentially a non-problem, an official commission decided that this was not an issue worth worrying about. The concern soon faded away.¹⁸

Contrary to the laments of those who could not imagine anything worse than a situation in which two huge, ideologically opposed and nuclear-armed alliances opposed each other, theorists of international relations continued to follow Bull and insist that this was almost the best of the possible worlds. The bipolarity produced a clarity and focus, without the complications produced by shifting alliances, while nuclear weapons were just the trick needed to hold the two behemoths back from war. There could be no doubt that war would be joint suicide. Kenneth Waltz observed in 1981 that the international system had developed a high ability ‘to absorb changes and to contain conflicts and hostility’. He was in no doubt of the contribution of nuclear weapons to this happy state of affairs. They had made ‘the cost of war seem frighteningly high and thus discourage states from starting any wars that might lead to the use of such weapons’. So confident was he of this effect that he welcomed the spread of nuclear weapons to other conflicts as a source of peace.¹⁹

The top British nuclear strategist Michael Quinlan emphasised how nuclear weapons carried war’s potential ‘past a boundary at which many previous concepts and categories of appraisal—both military and political

—ceased to apply, or even to have meaning.’ They had made ‘achievable what is for practical purposes infinite destructive power, unstoppable and inexhaustible at any humanly-relevant levels.’ There was a spectrum of force, with nuclear war at one end. It was tempting to divide this up to establish thresholds. But such a division would be unreliable: ‘no conceptual boundary could be wholly dependable amid the stresses of major war.’ Hence the restraining effect on all war: ‘non-nuclear war is not just appalling in itself. It is also the likeliest route to nuclear war—in practice indeed the only likely route, since scenarios of the holocaust being launched by accident or through technical malfunction are absurdly far-fetched.’²⁰

In 1983 six top Harvard scholars explained the international community’s adaption to the nuclear age as a result of the ‘crystal ball effect’—foreknowledge of the probable effects of a nuclear war. As a result of this knowledge there was a wise propensity to avoid war.²¹ On further contemplation the Harvard team were not wholly convinced that they wished to rely on this. In a project connected to their programme on avoiding nuclear war, they considered the alternatives to deterrence, with ten scenarios for a lessened threat. These went from reducing the vulnerability of populations, less dependence upon nuclear weapons or else their abolition, to a variety of political possibilities, including accommodation with the Soviet Union and even world federalism.²² In looking at the workings of the ‘crystal ball effect’ during the 1962 Cuban Missile Crisis, James Blight argued that the effect worked when combined with a ‘visceral fear’ that this might actually come to pass. Without the emotion that made the dangers seem so real and immediate, the knowledge would just fall into the ‘trash heap of received wisdom’, accepted ‘by rote and not from conviction’. To get governments to behave responsibly they needed not only the crystal ball but also the fear that it might be shattered.²³ Then, as the book was published, the Cold War came to an end and the fear evaporated.