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THE NUCLEAR REVOLUTION INTO ITS SECOND PHASE

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THE NUCLEAR REVOLUTION: INTO ITS SECOND PHASE

'...in all times Kings and Persons of Sovereign Authority, because of their Independency, are in continual jealousies, and in the state and posture of Gladiators; having their weapons pointing, and their eyes fixed upon eachother; that is their Forts, Garrisons and Guns, upon the Frontiers of their Kingdomes; and continually Spyes upon their neighbours; which is a posture of War'

Thomas Hobbes

'The Parties agree that they will act in such a manner as to prevent the development of situations capable of causing a dangerous exacerbation of their relations, as to avoid military confrontations and as to exclude the outbreak of nuclear war...'

Agreement on the Prevention of Nuclear War, 22 June 1973

1. International Politics

Is international politics doomed to remain in a 'state of war' (Hoffmann, 1965) or can it become pacified? The answer to this question has traditionally separated 'realists' from 'idealists'.[1] In analytical terms the realist argument has won. Relations between independent and competing states, whether in ancient Greece, India or China; in modern Europe; or now in the world as a whole, have always been conditioned by - in shorthand - the necessity of self-help ('anarchy'), security dilemmas, and a tendency towards power monopolization ('great powers'). But for such constants a generalizing theory of international politics would be impossible (cf.Waltz, 1979).

The growth of global and regional interdependencies, the development of international institutions and law, the spread of democracy (until recently also of socialism), and the increasing destructiveness of war are invoked by idealists as changing and potentially pacifying international politics. These developments can indeed influence the interest perceptions of states. International politics does change. But the possibility of war and the need to prepare for it will remain as long as there is no central monopoly of violence at the global level to force all states, the great powers included, to behave peacefully. States do not have to justify their possession of an army.

That states can not be forced to solve their conflicts peacefully is the crux of the problem, as illustrated but all to clearly by the wars in former Yugoslavia. States themselves are characterized precisely by their successful claim to a central violence monopoly. But violence control within states is never complete. If the central monopoly breaks down completely, as in Somalia, one can no longer

speak of a state. Then the Hobbesian 'state of war' prevails again, as it does - in mitigated form - in the relations between states. In security communities expectations of war may have been removed, but they were based on classical alliances against a shared threat, led by a hegemonial power. It remains uncertain whether even the Western European security community can survive the demise of these conditions.

If a world state is both impossible and undesirable, could functional equivalents to a central monopoly of violence at the global level significantly reduce the chance of war? The competence of the Security Council of the UN, coupled with the Charter's prohibition of the use of violence not licensed by the Security Council or the Charter itself, amount to a legitimate -though not successful - claim to a global violence monopoly. Up to 1989 the rivalry between the United States and the Soviet Union made a mockery of that claim. And its development and functioning are still dependent on great power cooperation. The UN as such lacks the power to pacify international politics.
If the UN was irrelevant, what then forced the two rivalling great (or global) powers gradually into a cooperative relationship instead of remaining locked into a potentially deadly dance? How could their hegemonial struggle be pacified?

In terms of the constants - and thus the theory - of international politics this pacification process was an anomaly. The struggle for hegemony between the United States and the Soviet Union was the last of long line of similar contests. States themselves were originally formed as the result of elimination struggles between smaller units fighting for the control over the larger territories they formed together (Elias, 1982). The struggle then became 'international politics' in its modern form, first in Europe and then expanding to the world as whole. International politics was never a war of all against all. Strong powers could impose their will on smaller ones without actual war. Long periods of peace between the great powers were possible through a relatively even distribution of power between them and conscious power balancing. But wars were still frequent. The 'balance of power' could even require war, especially when it was disrupted by a would-be hegemonist. Great powers remained concerned foremost with their relative military strength. Crises were either resolved by diplomacy, requiring one of the parties (or both) to back down, or by war, as after the July-crisis of 1914. The 'struggle for mastery' (Taylor, 1954) in Europe led to two consecutive great wars.

The rivalry between the United States and the Soviet Union followed a different pattern. That it was described as a 'Cold War' shows how intense it was. The expression also meant that the rivalry was not just about power as in the past, but also about ideology, ruling out the possibility of compromise.

It was supposed to be a war in all respects but the actual use of military violence. But this intense hegemonial struggle - for political and ideological supremacy - did not lead to any direct military confrontation anywhere in the world. After 1962 there not even a serious crisis between the rivals occurred. Such a 'long peace' (Gaddis, 1987) is contrary to the expectations derived from a long term perspective on international politics. Can nuclear weapons explain this anomaly for the theory of international politics of the course of Soviet-American rivalry?

Two arguments deny this.
First, it is impossible to prove that there would have been a great war if nuclear weapons would not have been developed by both rivals. The costs of war could have restrained them anyway or their vital interests might not have clashed seriously enough (Mueller, 1989).

Second, it is impossible to prove the success of nuclear deterrence - as a one sided process at least. How can we know that aggression was prevented by the threat of nuclear retaliation or by other considerations? An attack may also not have been intended in the first place (Cf.Smith, 1993).

The first argument is partly correct. A long period of peace could indeed have been maintained without nuclear weapons. But could the rivalry between the Soviet Union and the United States in that case have ended without war? Without nuclear weapons, the Soviet Union would most probably still be there, controlling Eastern Europe and involved in arms competition with NATO or a Western European alliance. Limited to conventional weapons, the balance of forces would have remained uncertain. In such a prenuclear world the chance of war would remain considerable. Though a long peace would also have been possible in a prenuclear world, it would not have been as stable and safe, and it would not have allowed for a peaceful ending.

The second argument is persuasive if one sees nuclear weapons only as a unidirectional means to change the otherwise aggressive behaviour or intentions of the opponent. But the influence of nuclear weapons is not limited to this. Their impact on the conduct of the rivals can be demonstrated in a more concrete way: by their crisis avoidance policy, their security cooperation, their struggle to develop a meaningful nuclear strategy and by their own references not just to one-sided deterrence, but also to having to take the shared danger of nuclear war and escalation into account. The effects of nuclear weapons then appear to be so fundamental, that one can speak of a nuclear revolution (Cf.Jervis, 1989, Ch.1).

2. The Nuclear Revolution as Process

To establish the influence of nuclear weapons on great power conduct we should therefore examine the structure of the development in which the Cold War was gradually transformed into its opposite, into increasing mutual trust, 'normal' interstate relations and political cooperation. The ideological perspective of the rivals on eachother and their preoccupation with strategic balancing have tended to obscure that revolutionary process.

The nuclear revolution is not be interpreted as a drastic upheaval like the French or Chinese revolutions. It is similar to the scientific-technological or industrial revolution, a gradual process of transformation. In its first phase, ending in 1991, the nuclear revolution tamed the great powers, transformed their struggle to deny global hegemony to eachother to such an extent that it could end without war. It did, of course, not cause the end of the bipolar rivalry, but it was a necessary condition for its transformation into cooperation and its ending peacefully.

The intensity of the early phase of the Cold War meant that a crisis (such as Berlin, 1948) could have led to war. During the Korean war a world war was widely believed to be imminent. Tensions could only increase in a Cold War. Still, a brief spell of detente already proved possible after the death of Stalin and the end of the war in Korea. On the other hand, the third world more and more became the object of active rivalry, and the military postures of the rivals began to acquire a worldwide character. In 1962 these two trends joined in bringing about the Cuban missile crisis, the most serious test of the Cold War, that would unexpectedly bring it to an end.
Why did the Cuban crisis, given the stakes involved, not push the rivals into an escalation process, possibly even into nuclear war? How did the rivals manage to find a compromise solution, in a situation so full of uncertainty, anger, and suspicion - with the real danger of both raising the stakes so as to force the opponent to respond in kind?

Only the most important aspects of the Cuban crisis can be discussed here (for a more extended analysis see van Benthem van den Bergh, 1992, pp.80-104). The crisis occurred when the real nuclear superiority of the United States had already waned, so as to pull the rug out from a strategy of 'massive retaliation' and the possibility of making nuclear threats. Though the precise balance between the two nuclear arsenals was not known, President Kennedy based his policy on the assumption that the Soviet Union possessed an invulnerable, long distance capability that could inflict 'unacceptable damage' upon the United States, and surely on Western Europe (See F.E. Garthoff, 1987, p.113). A

nuclear threat could not compel the Soviet Union to withdraw. Even in theory, nuclear weapons could no longer have political utility, in the sense of obtaining a unilateral advantage. Actually, while the United States still had a nuclear monopoly and real (instead of nominal) superiority later, it did not use it directly for such a purpose, primarily because of the terrible effects of nuclear weapons and the damage for the American reputation in the world. (See Gaddis, 1987, Ch.5, and van Benthem van den Bergh, 1992, pp.64-71). But it could have done so, without being damaged by nuclear attack itself.

With the emergence of a more even nuclear balance, the nuclear shadow came to cover both rivals. The significance of such symmetry had not yet been seen clearly before the Cuban crisis. Many strategists in the United States still believed that a limited nuclear war was possible and could be to the American advantage. And Khruschev supposed that he could get away with such risky conduct as secretly putting in medium range missiles on Cuba.[2] How could he not have realized that his move could not be kept secret and that the United States would consider it unacceptable and a direct threat to its vital interests? The analogy was not that of American missiles deployed in Western Europe or Turkey, but in Eastern Europe.

One can only speak of a crisis if there is a real risk of war, Thomas Schelling once wrote (cited in Lebow, 1984, p.15). He sees crises as an exercise in 'competitive risk-taking' to make the adversary face the choice between giving up or provoking war, at least when one believes he will choose the first alternative. But that is uncertain and so is the course of a crisis itself. How great the risk of war in this case really was is not relevant. The records show that both parties believed that the risk was real enough and that competitive risk-taking was to dangerous. Kennedy immediately weighed very carefully the risks of the American answer in the Executive Committee of his main advisors he set up. He took his time and did not make Khruschev's move public until he had decided on his answer. Kennedy rejected an invasion as well as bombing Cuba, and decided on the least dangerous course, a naval 'quarantine'. That could be regarded as a weak answer, as it could only stop further delivery of missiles, not remove the missiles already on the island. Very careful conduct, that did not make it to difficult for his opponent to save face. In the meantime Khruschev had understood the danger of unintended escalation, as he expressed in a letter to Kennedy:

> Mr. President, you and I ought not now pull at the ends of the rope in which you (sic!) have tied the knot of war, because the more the two of us pull, the tighter the knot will be tied. And a moment may come when that knot will be tied so tight that ... it will be necessary to cut that knot...Consequently, if there is no intention to tighten the knot, and thereby to doom the world to the catastrophe of thermonuclear war, then let us not only relax the forces pulling at the ends of the rope, but take measures to untie the knot. We are ready for this (Kennedy, 1969, pp.89-90.)

This implied the recognition that testing the opponent in an crisis could lead to unintended escalation. Untying the knot was therefore necessary. That required concessions on both sides. Kennedy realised that Khruschev needed a way out. He therefore accepted the compromise worked out by intermediaries: no more missiles ever again to Cuba and withdrawal of all missiles deployed there, in exchange for removal of the quarantine and the promise never to invade Cuba again. In that way both parties achieved their primary purpose. Contrary to what most Americans believed - that Khruschev wanted to redress the nuclear balance - his main aim was to prevent another American invasion of Cuba (Cf.James G. Blight and David A. Welch, 1989, pp.238-244 and 293-297).

The direct influence of the nuclear danger on the conduct of the great powers in the crisis was twofold: they both felt forced to behave in a careful and restrained manner and to accept a compromise, that in prenuclear times would surely have been unacceptable to the strongest party, the United States. It is often asserted that American conventional superiority in the region was the decisive factor forcing Khruschev to back down. If so, Kennedy's answer could have been much stronger. Nor would there have been any need for the kind of personal contact that developed between the political leaders and for the kind of compromise that was agreed on. The absolute character of the nuclear danger was more important than relative advantages. Risks are equalized by the nuclear danger, so the competitive element in a crisis is much reduced.

The first lesson of the crisis was that the nuclear danger had changed the nature of crisis. The escalation risk made competitive risk-taking so dangerous, that crises should henceforth be prevented. That lesson was learned well: after 1962 the rivals managed to avoid a crisis so serious that nuclear war became possible, even though there were a sufficient number of bones of contention with crisis potential, such as Berlin, the Middle East, Vietnam, Korea etc. The necessity of restraint was forced upon the rivals not only by the traditional properties of a crisis itself, such as the need to show resolve and answer that; the uncertainty about the opponents behaviour; the pressure of time; the coercive escalation of action and reaction, and the temptation to preempt. At least as important became the unpredictable and uncontrollable escalation risks that resulted from higher alert levels and from the worldwide character of the rivals military postures (Cf.Sagan, 1985 and Bracken, 1983). When McNamara was told about one of these incidents - a near shoot-out between American and Soviet fighter bombers over Soviet air space - he turned white and said: 'This means war with the Soviet Union' (Sagan, 1990, p.178). The discovery of these unpredictable risks impressed both rivals even more with the need for crisis prevention.

The Cuban crisis for the first time forced the meaning of the nuclear revolution upon the great powers: the certainty of their uncertainty about nuclear escalation and the increasingly symmetrical destructive consequences of nuclear war. This shared nuclear danger forced the rivals into an unprecedented degree of crisis prevention and thus of reciprocal restraint. The nuclear revolution came about because what was later called 'mutual assured destruction' developed.

The rivals were no longer deterred by the threat of nuclear retaliation of their opponent, but by the shared risk of a 'folie a deux', a common danger they faced whenever they actively pursued their competition. They did not deter eachother, they were jointly deterred by a force external to both, though formed by themselves. This force is best called 'common deterrence' in contradistinction to prenuclear deterrence. Common deterrence in fact served as a functional equivalent to a monopoly of violence at the global level, though rudimentary. The rivals were like Siamese twins, that die when they untie themselves. This made them acquire a common interest in reducing the probability of unintended and accidental war, and in the safety of their own arsenal as much as that of their opponent. Beginning with the limited test-ban and the hot line agreement they thus became entangled in security cooperation, with arms control as one, but by no means the only component. Though after 1962 their relations moved between mellow and sour, their cooperation within rivalry continued and gradually expanded. It is therefore misleading to use the term 'Cold War' for the whole of the rivalry, until 1989 or even 1991. The Cold War proper finished with the peaceful resolution of the Cuban missile crisis. That was also assumed to be so at the time, as well as in retrospective analyses (fe. Halle, 1967).

Though the term 'Cold War' lost its meaning after the beginning of security cooperation - the Test Ban Treaty and the Hot Line -the rivalry continued: for political and economic advantage; for military superiority; for protection of allies and spheres of influence. That hampered public understanding of the meaning of the nuclear revolution and explains why the term continued to be used. Though the Cuban crisis had clearly demonstrated that nuclear weapons were no longer to be seen as 'just another weapon', and in fact not as a weapon at all, competition on both sides to improve and enlarge their arsenals continued and so did the attempt to develop meaningful nuclear strategies. They became the status symbols of the rivalry, supposed to have important political-psychological meaning. Discussions about nuclear strategy were pursued on an 'as if' basis, assuming that nuclear superiority could still be meaningful for 'escalation dominance' and that nuclear weapons could be used in a limited and controlled manner (for a critique see Jervis, 1984). Though in their actual crisis and conflict conduct the political and military leaders of both rivals showed that they knew better, the danger of 'overkill'

was not great enough to drop the pretence that nuclear superiority mattered. Nuclear weapons kept being seen in terms of one-sided (if mutual) nuclear deterrence, which meant that 'we' deterred 'them'. Then one had to take seriously the question 'what if deterrence failed', meaning that the opponent might still attack. This question makes no sense, when deterrence is understood to result from a shared danger, forcing both rivals to restrain themselves from any action that can lead to a crisis and escalate into nuclear war. If common deterrence exists, as I argue, it excludes wilful attack, however small. Any use of military violence is to be avoided like the plague. Contrary to regularly expressed expectations, there were no probes of the 'credibility' of deterrence since 1962. What to do if the Soviet Union grabbed a piece of Northern Norway or in a surprise action seized Berlin were misconceived questions. So 'failure' was defined in the wrong way. Much more important was 'failure' as an unintended or accidental sequence of events that could lead to a military confrontation. What mattered in such a contingency was not how to prevail but how to stop hostilities as quickly as possible so as to prevent any further escalation.

In any case, after 1962 common deterrence never failed. Though political tensions fluctuated, security cooperation expanded steadily. East and West in Europe also started to cooperate after Brandt had launched 'Ostpolitik'. When the tension level between the rivals rose again in 1979, because of Afghanistan and the dispute over deployment of medium range missiles, a second 'Cold War' was said to have started. (Cf. Halliday, 1983) It was fuelled by the 'confrontation' rhetoric and military build-up of President Reagan, which was, however, meant primarily to restore American self-respect and confidence after the humiliating defeat in Vietnam. But towards the Soviet Union Reagan acted in a very restrained manner. And he had to, because the nuclear revolution had made real acts of confrontation impossible. In Europe cooperation continued anyway. Reagan's Strategic Defense Initiative, designed to eliminate vulnerability to long distance ballistic missiles, was an attempt to escape from the constraints of the nuclear revolution, from the political stalemate it imposed. But even here Reagan did not just confront, he declared to be prepared to share strategic defense technology with the Soviet Union. And he meant that, as he showed in his discussions with Gorbachev. Reagan was not averse to security cooperation either, if on the right conditions. START was his initiative. The switch from 'confrontation' to cooperation with Gorbachev may therefore have been less difficult than it seemed. That made clear how far the conditions of the rivalry had already changed. This had remained hidden by the acrimonious character of the debate about the deployment of medium range missiles in Europe. From the common deterrence perspective these were superfluous, as the conclusion of the INF-Treaty belatedly made clear.

It is therefore misleading to speak after 1962 of a Cold War. The war analogy was no longer appropriate. The rivalry stopped being a struggle in which the participants were deadly enemies, set out on eachother's destruction and having no common interests. States engaged in a 'Cold War' do not cooperate.

3. Character of the Nuclear Revolution

When the rivalry was still continuing the full implications of the nuclear revolution were not recognized, and they still are not. Nuclear weapons were considered to be part of the weapons balance and to fulfil military-strategic functions. Nuclear deterrence kept being defined as influencing the conduct of the opponent instead of as changing the nature of the rivalry itself.

In 1948 Bernard Brodie already anticipated the revolutionary character of the relation that would come about, when the nuclear arsenals of both rivals would become capable of what McNamara then called 'assured destruction'. Superiority would no longer matter when both parties could inflict unacceptable damage to eachother. Brodie's reasoning in the Absolute Weapon (1948) was based on the assumption '(that) as one does not shoot rabbits with elephant guns, the primary targets of atomic bombs will be cities'. Indeed, despite the recurrent shifts to counterforce targeting, the irremovable capacity to destroy each other's cities - in fact societies - remained the crucial component of the nuclear danger and thus of common deterrence.[3] Brodie also emphasized the necessity of guaranteeing the invulnerability to any attack of one's arsenal to preserve the capacity to retaliate. The significance of that capacity became clear during the Cuban missile crisis, though only a small number of Soviet missiles could then reach American soil. That meant that large arsenals would not be necessary for common deterrence to work. 'Unacceptable damage' could have been an explicit criterion for establishing a lower limit to the requirements. The problem, however, was how to define it. What level of damage was necessary to make the rivals restrain themselves and prevent crises? A further complication is that both rivals will tend to assign a lower estimate satisfactory for restraining themselves than they will accept for their adversary.

McNamara began with a very high definition: the capacity to destroy 20% of the Soviet population and 50 percent of its industry.[4] And Secretary of Defense Harold Brown wrote in 1979 in his Annual Report:

> It is essential that we retain at all times the capability to inflict an unacceptable level of damage to the Soviet Union, including the destruction of a minimum of 200 major cities.

Already ten years before McGeorge Bundy had replied:

> In the real world of political leaders - whether here or in the Soviet Union - a decision that would bring even one hydrogen bomb on one city of one's own country would be recognized in advance as a catastrophic blunder; ten bombs on ten cities would be a disaster beyond history... (Bundy, 1969)

Khrushchev agreed:

> Can you picture what would be left after a few hydrogen bombs fell on Moscow... Forget about 'a few'- imagine just one. On Washington? On New York? On Bonn? It staggers the mind (cited in Catudal, 1986, p.129).

The potential destruction of the capital, with its enormously disruptive effects for the society in general and its personal consequences for the political and military leaders and their families and friends, could well be sufficient for common deterrence to remain stable. But some overassurance would surely be demanded. How much? Bundy's 'disaster beyond history' could provide the upper limit to what can still be considered reasonable. That requirement could then still be supplemented by what would be needed to guarantee invulnerability. That could have been the basis for START 2, which is now still not an answer to the old question 'how much is enough?' (Enthoven and Smith, 1971).

The huge size of the nuclear arsenals as they were in fact built up competitively shows that nuclear weapons kept being seen as relative, implying that their number, accuracy, sophistication etc.were still supposed to be strategically and politically important. It was also believed that they could be used meaningfully, that is to say for prevailing over the adversary in a nuclear war. In that way the outrageous build-up of the nuclear arsenals suppressed the inescapable fact that the nuclear revolution had changed the significance of military power in the relations between the rivals. The connection between military capability and military power was broken, as common deterrence ruled out any military confrontation. Nuclear war could only bring joint destruction, not victory. Conventional forces could not be used in direct confrontations either, they could only assured the escalation risk. So in the direct relations between the rivals military power could not be translated into political power as in the past. (But it still could in the relations with allies or with third countries, if no vital interest of the opponent was involved.)

The basis of common deterrence is thus:

1) invulnerable nuclear arsenals, with highly sophisticated C3I systems and safety and protection devices, that can inflict unacceptable destruction on the opponent under all conceivable circumstances, combined with vulnerability to retaliation of eachother's society.[5]

2) the certainty that it is uncertain whether the rivals can contain escalation in a crisis, let alone keep nuclear war limited. This rules out any military initiative or probe that imply an escalation risk.

The nuclear revolution has transformed great power rivalry in four observable ways (van Benthem van den Bergh, 1992):

a. Stable Expectations of Reciprocal Restraint

To prevent nuclear escalation the rivals were forced to restrain themselves in their conflict and crisis conduct. That is just not a matter of conjecture, as with the effect of one-sided deterrence, which can also have other causes. Restrained conduct can be observed. Vital stakes of the adversary were respected even in the Third World. Force was used only in situations where the rival had no vital interest. And to avoid unexpected risks vital interests were broadly defined. In prenuclear times crisis prevention was not a policy and never went as far. Over time expectations of restraint became more and more self-evident.

b. The Transformation of Deterrence

As already demonstrated, the nature of deterrence in the nuclear age has been transformed from the unilateral (or mutual) deterrence through superior force and resolve of prenuclear times to 'common deterrence'. That relationship even does away with the security dilemma. In other words, the nuclear balance between the rivals began to take on the character of a rudimentary functional equivalent of the monopoly of violence of the state. That also throws a different light on the so-called nuclear paradox - that the danger of nuclear war must be kept alive to prevent war. Violence control in any society has required at least an implicit threat of violence. This is not a paradox, but a condition. It does not imply that the threat has to be explicit. The danger of nuclear war can therefore be further reduced without damaging its pacifying function. But it cannot be abolished.

c. Security Cooperation

The rivals acquired a common interest in reducing the chances of accidental, unauthorized and unintended war. The assured destruction balance made their own nuclear arsenal as dangerous to them as that of the adversary. They also had a common interest in crisis and strategic stability, in preventing wasteful competition (such as ABM) and unlimited nuclear arms racing. This led to many arms control

efforts, not always successful (For an overview see Carnesale and Haass, 1987).[6] But arms control was only one aspect of the unprecedented security cooperation the rivals engaged in. There were also the NPT; the steady improvement of the hot line; confidence building measures and even risk reduction centres; the prevention of accidents at sea; the Helsinki process and in the end even disarmament, with the INF-treaty and START 1. There was also implicit cooperation in the undisturbed development of satellite reconnaissance, doing away with military secrecy (Cf.Gaddis, 1987, Ch.7). Compare all this to the futility of attempts at security cooperation in prenuclear times, such as The Hague Peace Conferences or the disarmament efforts of the League of Nations. The development of an ever more dense network of security cooperation provides the most concrete evidence of the nuclear revolution.

d. The Deadlock of Strategy

This is the most contested aspect of the nuclear revolution. In the early sixties McNamara tried to find a successor strategy to massive retaliation. An increased number of options, more selective targeting ('counterforce'), city avoidance and damage limititation were all offered successively as ways to come out of a war in a better position or to lose less then the adversary. That had always been the purpose of strategy. But the nuclear revolution made strategy in the traditional sense irrelevant: there was no way of getting around the adversary's invulnerable second strike capacity. In 1962 MacNamara already said in public that the Soviet Union would also acquire 'full retaliatory power', according to Desmond Ball 'the ultimate heresy for the times'(Ball, 1980, p.198). So MacNamara could no longer come up with a meaningful war planning strategy in his 1966 posture statement. The only recourse left was to determine a criterion that a nuclear capability had to satisfy, and that could also serve to curtail the demands of the military. That is the origin of 'assured destruction', as 'a clear and convincing capability to inflict unacceptable damage on an attacker, even were that attacker to strike first' further specified as 'the capability to destroy the aggressor as a viable society, even after a well-planned after a well-planned and executed attack on our forces' (1966 Defense Budget Statement quoted in Ball, 1986, p.204). The recognition that the Soviet Union also possessed such a capability was expressed in 'mutual assured destruction'(MAD). Though MacNamara did not change strategic targeting s a consequence of MAD, probably because he did not want to antagonize the military, giving up on an officially promulgated nuclear strategy was politically important. The stable relationship MAD implied changed the perspective on the rivalry and opened up more possibilities for security cooperation.

The acceptance of MAD as a fundamental property of the nuclear age did not for a long time stop the search for a nuclear strategy. In 1973 Secretary of Defense James Schlesinger returned to 'limited nuclear options', a variant of the 'multiple options' of the Kennedy period. His perspective was only marginally changed in President Carter's PD 59 and countervailing strategy. The superiority required for limited nuclear strikes was found in escalation dominance, in being superior at all levels of possible nuclear exchange. That would ensure control of the escalation process. But even if that was the case, such control remained uncertain, as long as there was no real strategic superiority at the 'highest' level (cf.Jervis, 1984).

The most damning comment on these nuclear strategies - showing at the same time that they were rhetorical, not relevant for conflict and crisis conduct - comes from Carter's Secretary of Defense Harold Brown, commenting on a passage in his own Posture Statement 1981 written by William Kaufmann:

> My own view remains that a full-scale thermonuclear exchange would constitute an unprecedented disaster for the United States and the Soviet Union. And I am not at all persuaded that what started as a demonstration, or even a tightly controlled use of the strategic forces for larger purposes, could be kept from escalating in a full-scale thermonuclear exchange. (cited in Kaplan, 1984, p.386)

On both sides prenuclear thinking about war planning strategy conflicted with the acceptance of the implications of the nuclear revolution by the political (and military) leaders at the highest level (For the Soviet Union, see Shenfield, 1987). There was a different Harold Brown at the White House than at the Pentagon. But at the top some ambivalence remained, because the rivals could not so easily accept the political stalemate, which the nuclear revolution forced them. That was another reason for the reluctance to fully and openly accept the implications of the nuclear revolution. So the deadlock of strategy was denied, though that had no effect on the crisis and conflict conduct of the rivals. That was in itself a testimony to the stability and firmness of common deterrence.

4. The End of the Rivalry

The rivals did accept that the nuclear revolution made war, any war, between the rivals impossible. The 'threat' became more and more ritual. Propaganda softened and became less manicheistic. Notwithstanding the recurring fluctuations of the tension level of the rivalry its long-term direction was towards mitigation and moderation. The last great quarrel itself was about an arms control negotiation. With ups and downs the transformation of the relationship led from the limited security cooperation within rivalry starting after 1962 to the political cooperation with only vestiges of rivalry that came about in the Reagan-Gorbachev period. As we have seen, that process would not have been possible without the nuclear revolution.

That includes the end of the rivalry. How could Gorbachev without common deterrence have given up the prenuclear Soviet strategy of the offense, based on conventional superiority and on the buffer territory of Eastern Europe? Can one imagine, that in prenuclear times a great power would not only have relinquished its buffer domain, for which its army had made great sacrifices, but would also have accepted to give up its conventional superiority, as it agreed to in the CFE-treaty? In prenuclear times it would have been an invitation to defeat, in the nuclear age the acceptance of what Gorbachev rightly called 'common security'.

So one should not confuse the breakdown of the Soviet Union as the result of the combined unintended consequences of Perestroika and Glasnost with the end of hegemonic rivalry. The disintegration of the Soviet Union occurred after the end of the rivalry, not the other way round as it would have in prenuclear times (and as it was expressed in the phrase 'managing the decline of the Soviet Union').

The rivalry could have ended with the Soviet Union remaining intact, as Gorbachev expected. He wanted to preserve great power status for the Soviet Union by a combination of domestic economic reform (which required a reduction and adaptation of the military-industrial sector) with transforming the rivalry into a shared world leadership with the United States. Hence the revival of the Security Council. But Gorbachev's scenario broke down on the impossibility of reforming the Soviet system. In his foreign policy Gorbachev was so successful because he made good use of the opportunities the nuclear revolution had opened up and to which first Mrs.Thatcher and then Presidents Reagan and Bush proved receptive. It is often suggested that Gorbachev bowed to the show of strength Reagan presented, most clearly manifested in the SDI. Gorbachev may have used the SDI to impress the Soviet military and other possible opponents with the necessity of his policies, but the argument of 'peace through strength' is not convincing. The Soviet Union's nuclear arsenal was as reliable as before, while countermeasures against SDI, if and when it would have become operational, were cheaper than effective defensive systems. The SDI therefore could only have further stimulated reform in order to improve the eroding technological capacity of the Soviet Union. That the Soviet Union fell apart was not the result of the United States having won the rivalry, but rather of the superior performance of capitalism and parliamentary democracy with respect to the Soviet political and economic system., Lagging behind required reforms, but the reforms strengthened centrifugal forces and weakened the centre beyond redeem. So after the rivalry was transformed into cooperation, the bipolar great power relation as such disappeared. That the two endings have gone together into history

as the 'end of the Cold War' is due to the same ideology that made it so difficult to perceive the meaning of the nuclear revolution.

5. The Second Phase of the Nuclear Revolution

If the Soviet Union would not have disintegrated, the nuclear revolution could have led to the 'new world order' President Bush foresaw, based on cooperation between the two former rivals in the Security Council. That was demonstrated by the cooperative resolution of a considerable number of regional conflicts and by the enforcement action against Iraq.

Now the Russian Federation has succeeded the Soviet Union both as permanent member of the Security Council and as possessor of a nuclear capability on a par with that of the United States. But Russia is no longer a great power, because it has neither the resources nor the ambition to engage in hegemonic rivalry with the state from which it needs financial and economic aid and recognition of its status. Its weakness makes it ambivalent, and in need of asserting its own identity. Though still important for the United States, Russia can not be its leading partner any more.

The world is no longer bipolar. But there has not been a revival of multipolar great power rivalry: there is no power as yet to challenge the position of the United States. China may develop that ambition, but in the foreseeable future it cannot become more than a strong regional power, challenging Japan rather than the United States. Europe is internally too divided and Japan too small to be more than economic competitors of the United States. India or Brazil are even further away from the capacity to challenge America than China. Though the United States is the preeminent world power, the world is not unipolar in the sense of America having acquired hegemony. American power resources have become relatively smaller, though the 'declinist debate' is still inconclusive (Cf.Strange, 1990). America may still be militarily preponderant and exercise a very important leadership and balancing role in Western Europe, East and South East Asia, and the Middle East, but its power and resources are not sufficient to go it alone as a global policeman. For that reason it needs support and legitimation from the United Nations. The American government is also confronted with domestic problems and with public opinion likely to put the brake on to activist a foreign policy.

The context of the nuclear revolution has thus considerably changed. It evolved in the bipolar context of a global power rivalry. Reciprocal restraint, common deterrence, security cooperation and the end

of traditional strategy all developed in the context of a dyadic relationship. Does this mean that these characteristics of the relation between nuclear powers cannot survive?

There are now five powers with an invulnerable second strike capability, also possessing sophisticated C3I facilities. Whether all five measure up to the 'assured destruction' criterion depends on its definition. Though the British, French and Chinese arsenals are much smaller than the Russian and American ones, that they are now able to inflict 'unacceptable damage' on eachother (in the form of what appears to be the upper limit, the destruction of ten major cities) is not in doubt. MAD and common deterrence now extend to all five of them despite their differences in strength. But there are no longer three pairs (the Soviet Union and China as well as the United States and China formed separate MAD-relationships; but Britain and France were despite claims to independent status part of the American-Soviet relationship) but ten pairs. If common deterrence obtains between all, now and in the foreseeable future five, full nuclear powers, the 'long cycle' pattern of successive hegemonial rivalries can not repeat itself again (cf.Goldstein, 1988). A future 'great war' has become excluded, or, to be more precise, has an extremely small probability. This most important consequence of the nuclear revolution will thus remain.

The number of pairs, however, implies a greater chance of accidental or unintended war. That implies a continued and even increased need for security cooperation. It is both more necessary and more demanding to stabilize a pentagonal than a bipolar nuclear balance. To develop arms control/reduction agreements for each of the ten pairs separately would be impossible, because they affect eachother. But if the relations between the five are not regulated, fear of a technological breakthrough, an unintended crisis, or some accident could have unforeseen consequences. A common nuclear regime should therefore be formed for all relationships together, based on the lessons and experience of the bipolar relation. Arms control and arms reduction could then lead to the smallest possible nuclear arsenals needed to preserve common deterrence. That would assure mutual security, and it would also make anti-proliferation policy more plausible. If such a standard can not be agreed upon, a pentagonal relationship, perceived as asymmetrical to boot, will be extremely difficult to regulate.

The case for arms reduction has become stronger. Nuclear competition has become irrelevant after the demise of hegemonic rivalry. There is a promising base for arms reduction. The three smaller nuclear powers have all improved ('modernized') their arsenals recently (See IISS, 1993). The strategic superiority of the United States and Russia is thus already reduced before the implementation of

START 1 and 2, which will leave both with no more than 3000 to 3500 long range deliverable warheads (single warhead ICBM's; multiple warhead SLBM's), about one third of present capabilities.

On the basis of less inflated 'unacceptable damage' criteria and assuming no deployment of strategic defense systems, which is now possible, negotiations between the five nuclear powers are possible. But as the former great two may well want to preserve their lead in some way, while China will want to become equal to them, negotiations will be very difficult. As little thought is now devoted to the future of relations between the nuclear powers - it sometimes seems as if nuclear arsenals hardly exist any more - in the near future a nuclear regime is unlikely. There are other problems. What if other states than the five present nuclear powers acquire an invulnerable AD-capability with an adequate C3I capacity. India might be able to do this in the future, and Pakistan too. Should they then not also become members of the nuclear regime? If they would develop their own 'minimal' common deterrence regime, that might not be wise. Still, two categories of nuclear powers would not be a good thing either. And there is still the problem of further proliferation. Just one remark on that problem: to become a full nuclear power, invulnerable and with adequate C3I facilities is very expensive and time-consuming. Vulnerable weapons invite preemption and reduce security. So it is attractive to remain a threshold power: demonstrate one's capacity at least danger and low cost. Nuclear weapons can anyway not be used for positive political purpose. Their only utility is still in non-use, in common deterrence. Both their value for newcomers and the undifferentiated danger of their spread tend to be exaggerated.

The nuclear balance (or MAD) as the basic element of the nuclear revolution remains. So does the second, the escalation risk, in the direct relations between the nuclear powers. But there is a difference. In the bipolar world all conflicts involving vital stakes of the rivals were seen to imply the risk of nuclear escalation. Moreover, the escalation risk was assured by the deployment of short range (or 'tactical', a misnomer because battlefield use could have no rational purpose) nuclear weapons. There are still American airbased SNF deployed in Germany and the UK. It is argued that these are still needed as assurance to prevent Germany from developing its own nuclear arsenal, because a Western European nuclear force, the only other alternative, is not in sight (Yost, 1993).

The nature of escalation risks in the present world has changed. The end of the rivalry has taken away the need to assure the escalation risk directly. It can do its work in the background. A more important change has followed from the disintegration of the security community in the Eastern half of Europe. Three areas can be distinguished.

The first, former Yugoslavia, though belonging to neither of the two security communities, was in the past nevertheless seen as vital stake by both rivals, in the sense that it should not get under control of the other rival. A violent conflict in Yugoslavia could therefore easily spillover and escalate - and for that reason was contained. Now the wars of succession in Yugoslavia, though geographically near, are no longer seen as a vital interest and as implying the risk of nuclear escalation. So Western policy became halfhearted and ineffective.

The second area is constituted by the new states of the CIS, or the former Soviet republics. Here Russia claims a vital interest in keeping the peace - and protect fellow Russians. The position of Russia implies that any military intervention of the West in the CIS area implies a nuclear escalation risk - and must be regarded as impossible. A special problem in the CIS is the spread of long distance nuclear weapons to Belarus, Kazakhstan and especially Ukraine. It is by now practically certain that all nuclear warheads destined for short range delivery vehicles have been withdrawn to Russia. The three republics in question have not become nuclear weapons states, as they have no C3I facilities, nor do they possess the necessary codes to launch the missiles (which are actually still targeted on the United States). It is possible that Ukraine will eventually develop the appropriate codes, as it possesses the scientific and technological capacity to do so. Belarus and Kazakhstan have already come to an agreement with Russia. Ukraine now also, but there is much domestic resistance to the deal Kravchuk, Jeltsin and Clinton have made. It may become a transitory problem, not a new case of proliferation.

The third area, Central Europe, including Bulgaria and Rumania, is no longer a vital stake for Russia as successor state to the Soviet Union. But what about its relation to NATO? Should the Visegrad countries, for example, become members of NATO? This may be useful for their political stability. But is it necessary from a security point of view? It is inconceivable that Russia (or any other state) would not take into account that a military confrontation at the NATO-border and directed at countries becoming increasingly integrated in Western-Europe might spill-over and escalate. Here too, common deterrence already protects these countries from any military initiative against them.

Outside Europe the risk of nuclear escalation of civil, local or regional wars no longer plays a role. The former rivals have lost the strategic interest in the Third World they had before 1989. Does this imply that the nuclear powers have become irrelevant outside of Europe and East Asia? Not quite, but in a different capacity. Now that the bipolar rivalry no longer blocks it, the United Nations collective security system has been revived, at first with the enthusiasm created by the Gulf-operation, now rather because there is no alternative for it.

In the UN security system the use of violence can only be legitimated in two ways: by the right to self-defense on the basis of art.51 of the Charter or by a mandate of the Security Council. Unilateral intervention by a permanent member of the Security Council - a nuclear power - or an ad-hoc coalition led by it - is ruled out. This claim to a violence monopoly by the UN can of course not be enforced by effective sanctions. The UN relies primarily on the established principles of peacekeeping: consent of the parties and use of violence only in self-defense. Still, the development of a nuclear regime as discussed requires generalized political stability. It may therefore well tend to facilitate and stimulate more far reaching security cooperation in the Security Council. That would make it in turn more and more difficult for them to use violence against their neighbours or other third countries. In that way the five nuclear powers could be forced to not only restrain themselves in the relations between themselves but also with respect to third countries. The use or threat of violence by the nuclear powers would then be limited to collective security actions as mandated by the Security Council and perhaps to actions against proliferators.

6. A Few Conclusions

The previous analysis has, of course, tried to provide a long term perspective. We are only in the very beginning of the second phase of the nuclear revolution. But the forces emanating from the nuclear revolution are clear enough. It is quite clear that the 'assured destruction' nuclear arsenals of the five nuclear powers and the common deterrence between them will not lose their pacifying function. The 'functional equivalent' will not disappear.

Nuclear arsenals will become more simple, however. Intermediate or middle range nuclear missiles have been outlawed by the INF Treaty (only not if deployed on airplanes). Their role has passed. The same can be said for short range means of delivery. For 'tactical' or battlefield functions they could not be used anyway. They can be used on the battlefield only when not opposed, but that would constitute genocide. Only assurance of the escalation risk could remain a meaningful function, if that would still be needed for strengthening common deterrence, as in Germany before. In the foreseeable future this does not seem to be necessary. One of the first aims for the five power nuclear regime could therefore well be a ban on short range nuclear weapons. Such a ban would also be very useful to reduce suspicion of third countries that the continued nuclear oligopoly would be used for political purposes. It would also strengthen the legitimacy of great power cooperation in the Security Council.

The UN-operations in Yugoslavia and Somalia make it unlikely that the Security Council will soon be able to function as the 'collective sheriffs' originally envisaged by President Roosevelt. There are contradictory forces at work in the second phase of the nuclear revolution: as long as great power interests are not directly involved, the road to war for smaller powers has become easier. Regional destabilization, violent disintegration, conflicts under the banner of nationalism have become more likely. On the other hand, hegemonial rivalry has become severely constrained and a great war remains impossible. Powers that would have become rivals in prenuclear times now have a strong common interest in forging a nuclear regime and cooperating in the Security Council.

Notes

1. Neo-realism is a misnomer. Kenneth N. Waltz' Theory of International Politics (1979) led to a revival of realism, but did not contain a new theoretical perspective.

2. It is still uncertain whether nuclear warheads had arrived in Cuba and were deployed on the missiles at the beginning of the Cuban missile crisis. (See Garthoff, 1987).

3. 'Collateral damage' makes the difference between modes of targeting spurious. If military and industrial targets are located in cities, as they are, counterforce targeting becomes hypocrisy. Cities would then be destroyed anyway.

4. But in 1968 the American nuclear arsenal had already become so large that a retaliatory attack could destroy 50% of the Soviet population and 80% of its industry (Enthoven and Smith, 1971, p.177).

5. Foolproof systems to eliminate vulnerability are impossible, even in theory (Cf.van Benthem van den Bergh, 1992, Ch.5).

6. The shared advantages of arms control are clearly illustrated by the unfortunate development of MIRV-technology. Kissinger kept MIRV out of the SALT I negotiations because he believed the US was ahead by at least five years. But the Soviet Union caught up very fast. As the Soviet Union possessed a much larger number of ICBM's based on land it could multiply its capability. That in turn led in the United States to the so-called 'window of vulnerability' scenario, which soured American-Soviet relations and then also influenced the policies of President Reagan. According to START 2 land based MIRV'ed ICBM's should finally be abolished. But this troublemaking device might never have been deployed in the first place.

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