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Democratic Civilian Control of Nuclear Weapons

Walter B. Slocombe

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Walter B. Slocombe

1. Introduction[1]

Democratic civilian control of nuclear weapons remains of central importance despite all the changes in the post-Cold War world and in the role of nuclear weapons. The continued existence of nuclear weapons in the military potential of major countries, together with the prospect of others acquiring them, means that political systems will need to continue to grapple with the question of how to control these weapons – both to serve national interests and to avoid the horror of nuclear war.

It is remarkable that the world got through the Cold War without a nuclear weapon being detonated in anger after Hiroshima and Nagasaki, but the question, however important, of why that happened is a historical one. The question for practical policy today is how the world – still possessed of many nuclear weapons – will get through the rest of history without a nuclear disaster. To be sure, nuclear deterrence between the United States and Russia is no longer at the core of international security policy as was the case for such a long time. That is unequivocally a good thing. There is, in contemporary discussion of international security issues, a good deal of misplaced nostalgia about how wonderful, or at least how simple, the Cold War was, when, supposedly, there were only two players and it was easy to figure out who the enemy was – and to imagine that its leadership was, however objectionable, basically risk-averse and self-protecting, so that deterrence would work well. But, while the problems of the Cold War may, in retrospect, seem to have been straightforward, they were truly terrible problems, and not having to worry about whether the two superpowers will somehow stumble into a fatal conflict is a huge benefit.

However, it is certainly still the case that the end of the Cold War US-Soviet confrontation has not brought the end of nuclear weapons problems, much less the end of history. The US and Russia, the two nuclear superpowers, still maintain literally thousands of weapons, and at least five other nations – Britain, France, China, as well as India and Pakistan by their own declaration, and Israel by common repute – each possesses tens to a few hundred weapons with the prospect of other countries, beginning with North Korea and Iran, joining the "club" and likely inducing still more to follow.[2] Moreover, there is the grim possibility – whether immediate or remote – of non-state organisations, notably fanatic Islamist groups,

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[1] This Policy Paper is part of a DCAF research project that will conclude in 2007 with the publication of *Governing Nuclear Weapons: Opportunities and Constraints for Democratic Accountability and Civilian Control of Nuclear Weapons*. More information about the research project is available at www.dcaf.ch/civnuc/_index.cfm. See also Born, H., 'Civilian Control and Democratic Accountability of Nuclear Weapons', in: Hänggi, H. and Winkler, T., *Challenges of Security Sector Governance* (LIT Verlag: Münster 2003); Born, H., 'National governance of nuclear weapons: opportunities and constraints', in: *SIPRI 2006, Armaments, disarmaments and international security*, Oxford University Press, Oxford, 2006.

[2] A large number of other states, including some not particularly well advanced by general economic or technological standards, could likely acquire a nuclear weapons capability – whether by indigenous efforts, black market acquisition, or some combination – within a relatively brief period – up to several years – of a decision to do so.

getting possession of some degree of capability to mount terror campaigns using nuclear technology.[3]

Thus nuclear weapons and their governance remain immensely important in international relations – and not simply in terms of seeking to prevent them from becoming available to more actors. At a minimum, for all the declared and de facto nuclear weapon states, there will remain issues of force structure, mission, and doctrine about which important decisions still have to be made – and there remains the awful prospect that at some point nations will need, or choose, to face the issue of whether to launch a nuclear attack. The specific questions that will continue to confront a nuclear weapon state, or one that has a realistic option of becoming one, include:

- Whether to take the necessary steps to develop, or otherwise acquire, nuclear weapons;
- How – and, indeed, whether – to maintain and modernise its nuclear forces, including decisions on the size of the force, what weapons types and delivery systems to have, how weapons and their means of delivery are to be based, and how communication with the operational managers of the forces are to be secured;
- What are the purposes of nuclear weapons in the current international (and, in some cases, domestic) context in which the possessor finds itself;
- What is the governing strategy and military doctrine the forces are to serve – if deterrence, the deterrence of what, if coercion, of whom and to what ends;
- What can the state accept in terms of limits on its own forces as further steps in arms control, including those designed to support a more effective non-proliferation regime;
- How and when should the weapons be used operationally – in what contingencies, against what targets; and
- Who should have what measures of physical and legal control over them, and who should make the ultimate decision on their use.

The focus of this paper is not on what ought to be the substantive answers to such questions, but rather on by whom – by what institutions and authorities acting under what procedures – they should be answered, and in particular, how the principles of democratic control of military power should be applied to these most potent of weapons. For the governance of these immensely powerful weapons presents fundamental issues, not just of substantive policy, but of the legitimacy of the decision-making process for them and of the application of basic principles of democratic government to such decisions.

[3] The issue of the feasibility of non-state actors getting actual nuclear weapons – as contrasted to material for a "dirty" bomb, i.e., one spreading radioactive material but not achieving a nuclear yield – is more complicated, but the possibility cannot be dismissed, if only because of opportunities that may exist for theft or diversion from, or cooperation by, a nuclear-armed state. The book *The Nuclear Tipping Point* by Campbell, Einhorn and Reis (Eds) (Brookings Institution Press, Washington DC, 2004) is a recent comprehensive discussion of how specific nations that are technically capable of "going nuclear" might approach the issue of reversing past decisions to abjure nuclear weapons – including the question of by whom and how such decisions would be made in the countries concerned.

Accordingly, the paper addresses how control over nuclear weapons can, and should, be exercised by the civilian authorities, and, in particular, how it should be exercised by duly constituted democratic governments. The focus is heavily on the on the case of the United States, not only because of personal experience, but because the US has the largest nuclear arsenal and has the longest, and in most respects the most open, historical record to examine.

2. The Relevance of Democratic and Civilian Control of Nuclear Weapons

A central general issue of democratic and constitutional government is that of control over military forces and their use, including:

- How to balance democratic accountability with military professionalism and the need for quick decisions;
- The need to balance transparency, which is a central value of the democratic process, with legitimate military – operational and technical requirements for secrecy (and, in many cases, how to overcome the impulse of the professionals to reject what they regard as outside interference in matters in which they have unique competence and the impulse of outsiders to indulge in just such interference);
- Who within a governmental structure is to exercise "civilian" control – in particular, what, if any, role should be exercised by the legislative, as contrasted to the executive, branches of government, and how broadly decisional authority should be shared within the executive;[4]
- What is the appropriate role for public debate on, and for media and "outside expert" discussion of, decisions on military questions that have profound implications for the society?

These broad issues of civilian control of military forces are difficult enough in the general case of military policy and decisions on war and peace, but they are particularly difficult in the context of nuclear weapons:

- First of all, the stakes are immense. It is still possible – however unlikely – that a small number of people could unilaterally take decisions that would produce virtually instantaneous, immense destruction, certainly for at least one of the parties to a nuclear conflict, quite possibly for all of them, and perhaps for the broader world. And for some of the declared and de facto nuclear states, policy on nuclear weapons may be thought to affect – and perhaps even to determine – the survival of the state;

- It is also the case that nuclear weapons, even more than conventional military forces, have an essentially political role. Nuclear weapons certainly have an operational aspect, in the sense that questions of how they could and would be used underlie issues of

[4] In principle, there is also an issue of the degree to which the judicial branch is to have a role in overseeing the compliance of the military with the law. In general, that role is more limited in the military field than with respect to other fields of government activity. In the nuclear context, it is all but non-existent.

how, if at all, they should be maintained. However, nuclear weapons are not primarily operational, that is, not primarily measured by their possible combat use, in the way that even missile defences, and much less army divisions, tanks, submarines or aircraft carriers, or fighter or bomber aircraft are. So the policy and doctrinal aspects of nuclear weapons control have a central political function and, therefore, are inevitably a part of the political system and of broader questions of national strategy and foreign relations;

- Nuclear weapons have a special mystique of secrecy. All military forces and preparations have some element of secrecy, but, to a much greater extent than with most other forms of military force, the whole history and biography of nuclear weapons – whether they are being built, how they work, how many exist, where and how they are deployed, and, especially how they would be used – is shrouded in secrecy. This is the case, moreover, even in countries where there is no dispute that they weapons exist and indeed a good deal is known about their numbers and characteristics and even something of the doctrines and plans for them. The weapons are technically extremely complex and, while the "trick" of how they work in principle is widely known, it remains the case that the detailed engineering and manufacture of a workable weapon is a complex – and in some respects still a hidden – formula. And the need to protect them from pre-emption – or theft – makes legitimate a fog of security about numbers, locations, movements, and the like. But the mystique of secrecy goes far beyond technical questions. Part of the point of having nuclear weapons is to exploit the uncertainty that surrounds them;

- It is also significant from the point of view of democratic control – and of the distinctions between nuclear weapons and other forms of military capability – that, with two exceptions 60 years ago in which weapons profoundly primitive by today's standards were used against two Japanese cities, no one has any actual experience in the operational use of nuclear weapons. Indeed, the number of people who have even personally *seen* a nuclear detonation is rapidly dwindling. The result is to diminish the normal gap between the professional experience of the combat-hardened soldier and the political perspective of his civilian chiefs. The fact that the discussion of nuclear weapons, happily, is carried on almost entirely in theoretical and conceptual terms has an important impact on how civilians, democratic or otherwise, influence that discussion and how the decisions are made.

3. Key Elements of Nuclear Weapon Decision-Making

The question of civilian governance of the military in the context of nuclear weapons involves a spectrum of topics, spanning every stage in the existence of a nuclear weapon capability.

Is a nation to have nuclear weapons? In a fundamental sense the most critical nuclear weapons policy decision for a country is whether to have nuclear weapons at all, second only to the question of whether to actually use them. That decision for acquisition has never been taken with any real measure of public debate, but it has everywhere had a heavy – indeed decisive – element of being a political, rather than a military, decision. Even allowing for

special situations – such as China or Pakistan – where the military and political leadership were closely intertwined, the basic acquisition decision has been made by the political leadership, albeit with military input.

But it is equally true that, while the decision has been "political," and in most cases "civilian," it has been only a very restricted inner core of the national leadership that has been involved. No country has yet acquired nuclear weapons after a meaningful public debate on whether to do so, and parliamentary knowledge, not to speak of oversight or control, of the basic acquisition decision has been minimal. And that is as true of the democracies that have nuclear weapons as it is of the dictatorships. Interestingly, some countries, including Germany and Japan, have taken the *negative* decision – that is not to develop nuclear weapons – by a much more public process, involving considerable explicit public debate. But even most negative decisions – those of Canada, Sweden, and others – have been made by a very small circle of civilian executive branch leaders and their most senior military and scientific advisors, with at best only the most minimal parliamentary, much less public or media, input. [5]

How is the force to be maintained and modernised? Once a nation has a nuclear force, there continues to be a need for decisions on its scale and shape. The most prominent are decisions on how, if at all, to modernise and strengthen the force and its delivery systems and other support elements. But possessing a nuclear force compels not only technical acquisition decisions, which are in some sense merely the equivalent of decisions on whether a nation should buy high performance fighter aircraft or make any other major military investment, but also resolution of issues of subordination and custody, and of the organisational structure by which the nuclear weapons are managed and controlled. Here the record of democratic participation is much more varied. In some cases, including the US, and to a lesser degree, Britain, with revelation of the existence of nuclear weapons – and the passage time – the veils of secrecy have parted considerably; in others – even highly democratic states with vigorous public debate on many public issues, including France and Israel – decisions about the maintenance and modernisation of the nuclear force remain virtually as tightly held as the initial decision.[6]

What is the nation's strategy for nuclear weapons? Closely linked to the decision to build and maintain a nuclear force are questions about the strategy, i.e., the fundamental principles of policy and purpose that will define how a country sees its nuclear weapons as serving its national objectives and how it will manage the force. In this regard, declaratory positions vary greatly. One country, Israel, which no one seems to dispute has nuclear weapons, resolutely declines to say so, much less promulgate a policy for their use. Others – China, India, and Pakistan, barely go beyond mere acknowledgment of possession. In the United States, by contrast, there exists an extensive bibliography of official statements, which not only detail the structure of the force, but also describe, more or less completely, doctrine, policy, and even basic principles of targeting. Britain and France have each made

[5] To be sure, there is always the possibility that the political and the military leadership in a country are so intertwined that it is difficult to make any meaningful distinction. It appears to be the case, for example, that it was military juntas in both Brazil and Argentina that chose to convert long-standing (and partially covert) nuclear research programs into a focused effort to develop nuclear weapons. R. Jones and M. McDonough, *'Argentina' and 'Brazil'*, *Tracking Nuclear Proliferation: 1998*, available at www.carnegieendowment.org/publications/index.cfm

[6] For a comprehensive discussion of a series of "negative" decisions, see M. Reiss, *Bridled Ambition: Why Countries Constrain Their Nuclear Capabilities.* (Woodrow Wilson Center Press, Washington DC, 1995).

official statements on the very broad outlines of their nuclear strategy, but with considerably less detail than the US. Russia has, in the last decade, with a more open political system, a recognition that nuclear weapons are the one area in which it remains an unquestionable superpower, and at least the perception of significant external military threat for which its degraded conventional forces may not be adequate, seen a outburst of public discussion – and official pronouncements – about its nuclear force and its purpose and place in Russia's overall defence strategy. But even in countries that say essentially nothing publicly about their nuclear strategy, there will need to be some internally recognised basic policy, and even in those that have a publicly declared policy, there will normally need to be confidential elaborations – and perhaps qualifications – of the public position.

What is the plan for use of nuclear weapons? Any nation with nuclear weapons has to make quasi-operational decisions about the circumstances in which its nuclear weapons would be used and at what targets they would be directed. That is to say, in addition to a basic strategy for a nation's nuclear force, there must be operational plans for how that force would implement the strategy. For any nuclear strategy other than pure bluff – for even the purest form of deterrence of nuclear attack by "last ditch" retaliation – to be meaningful, mere possession is not enough; there must be at least the appearance, and preferably the reality, of not only of a capacity but of practical plans actually to launch a successful attack, and to do so in the face of efforts to prevent it. Those plans will, of course, be guided by the nation's basic strategy: A country that regards nuclear weapons as serving solely to deter a threat to its very existence will face a very different operational problem from one that contemplates the possibility of using them for broader purposes, such as support of allies or of conventional force operations. Therefore, any state with nuclear weapons must decide such questions as: How do possession and possible use of nuclear weapons contribute to the nation's overall interests and objectives? Are they to be regarded as exclusively for retaliation, in the sense of being used only after a nuclear attack on the nation? Are they to be available for use where catastrophic conventional defeat looms? For threats against nations who seek to frustrate the nuclear powers less ultimate interests, say by intervening to assist in defending against the nuclear power's attack? What targets are appropriate, given the political objectives at stake? What desired military or economic effect is guiding the choice of targets? What range of options should be available to the decision-maker? To what degree are the weapons to be kept in a state of instant readiness, which has its advantages as well as its costs and dangers? Given that nuclear weapons states must anticipate that there may be very little time for deliberation or detailed planning in the sort of contingencies in which launching any part of the nuclear force would be a plausible option, what specific operational plans should be prepared in advance? Who is to have the authority to order – or withhold an order – to launch the weapons, and how to insure that the rules on the issue of authority are followed.

These are difficult issues, even at a technical level. The massive destructive power of nuclear weapons does not necessarily translate directly into a plausible concept for using them to achieve a particular military, much less a strategic, result. Moreover, even where the basic objectives are well-defined, the plans must be workable in concrete terms, detailing what units are to do what, how orders are to be transmitted, how targets are to be identified and approved, and how readiness is to be maintained

Who has authority to order the weapons to be launched and how to ensure that such an order would be carried out? In some sense the ultimate issue from the point of view of governance of nuclear weapons is how to assure that the decisions about actual use or non-use of the weapons are be made by the right authorities in the extreme circumstances when they would have to be made and that those decisions will be carried out. Any nation with nuclear weapons must decide who has the formal authority over a military decision that is, of all such decisions that a country may confront, the one that is clearly "too important to be left to the generals?"

In every case in which anything is known, the fundamental rule is that nuclear weapons can only be used on the authority of the most senior political leadership. This very general proposition, however, leaves much unresolved: Is the authority to be given only in "real time," i.e., in the midst of crisis and perhaps only after an enemy attack? Is there to be any form of delegation of authority, whereby the political leadership exercises its prerogative to decide by giving advance directions – and if so is the delegation to be general, or limited to certain circumstances? How is succession to the authority to decide to be determined? What is to happen if communications with any decision-maker fail under attack? Should the principle of political decision-making be re-enforced by technical measures that make it difficult, or even impossible, for the weapons to be launched or detonated without the receipt of some "key" to be transmitted to the military forces that would implement the order only in the event an attack is to be executed?

The answers to all these questions are gravely complicated by the fact that, by definition, the decision will be taken under the most trying and extreme circumstances, under heavy time pressure, and with inevitable confusion about information. In setting up a command system, the designers must balance the need for assurance of no use without authority against the need for certainty of use when authority is given.[7] Accordingly, there is a concern with accidents, with unauthorised use, with the usurpation of legitimate power – and with the countervailing risk that a properly authorised order will not be carried out, whether because of hostile action that prevents it from reaching those who would have to carry it out, failure of the release "keys" to be transmitted or received properly, doubts about the order's authenticity, or simple refusal to obey.

The centrality of ultimate launch authority – and the decision to restrict that authority to the most senior political leadership – has programmatic and investment implications. A critical part of the system for control of nuclear weapons is how to base and operate them so that they are not themselves highly vulnerable (which would facilitate hostile efforts to prevent an attack order from being given or received) and how to communicate with them, both to maintain positive control and to order their use. Moreover, given fears about accidents, theft, and unauthorised use, questions of security and safety and communications will continue to require decisions.

[7] On the "always/never" problem, see P. Feaver, *Guarding the Guardians: Civilian control of Nuclear Weapons in the United States* pp. 12-28. (Cornell University Press, Ithaca, NY, 1992).

4. The Actors in the Process of Control

In any state possessing nuclear weapons, there will exist multiple constituencies that are the objects of control of nuclear weapons, but that also generally have some role in the exercise of that control.

The executive. Executive agencies – and in particular the head of the government and the senior security officials in the executive have the central role in control of nuclear forces. Most obvious as a source of authority is the formal role of the chief executive. In every country that has nuclear weapons, there is some individual, normally the head of the government, or, in some cases some collective body – that has ultimate political authority, including over nuclear forces. That official could in principle be a collective body, and is almost invariably advised by – and to some degree expected to decide in consultation with some equivalent of the US National Security Council (NSC). The executive authority not only has the formal power of military command. As a practical matter, much of the responsibility – and capacity – to oversee and direct the programs and budgets and to set the policies of the military and scientific-technical establishments for nuclear weapons rests with the executive branch of government headed by the chief executive. That executive is supported by – and at least nominally controls – the various executive agencies, including ministries of defence, the security agencies outside the military, and the nuclear specialists and nuclear infrastructure, all of which are part of an overall governmental process that, with varying limits and reconfigurations works in the nuclear context as well as in others.

Different legal and political systems will also have different mechanisms for succession, delegation and bypass authority, dealing with who, in emergency conditions, has the legitimate power to exercise this executive authority. In this respect, democratic systems, being based on legal principles rather than arbitrary power, arguably have an inherent advantage over authoritarian systems, because they can more reliably set up procedures for succession and transfer of authority that will be recognised as legitimate, even in conditions of grave emergency.

That such power should rest all-but-exclusively with the executive is not necessarily inconsistent with the principle that control should be democratic. In a functioning democracy, the executive will be selected by a democratic process, whether that process is direct election (as in the US, France, and Russia) or installation by an elected parliament to which the executive remains responsible (as in Britain, India, and Israel). Therefore, even executive power that effectively excludes parliamentary action or public debate can accurately be said to be democratic. Indeed all democracies reserve some authority – particularly in the military field – to the virtually exclusive competence of the executive. Nevertheless, eventually the executive remains accountable to parliament.

The parliament. It is the case everywhere that executive governmental institutions, including those that are democratically chosen, are the principal element of control over nuclear weapons. But democracy – at least constitutional democracy – implies not only derivation of executive authority from popular consent by election, but some measure of shared authority with, and acceptance of accountability to, other democratic elements of the political system, notably the parliament. Everywhere parliaments have a minimal operational

role and a pretty remote doctrinal role. However, subject to how different democratic systems work, parliaments have a very considerable control over the budgets, some element of oversight; and, at least in the American context, a considerable degree of power to set the organisational structures and processes of the executive. This power includes to determine (by law) which executive agencies will have what sort of role in different parts of the control of and decisions about nuclear weapons.

The application to nuclear weapons and their delivery systems of normal principles of parliamentary control of budgets and appropriations is a difficult one, comparable in many respects to the issue of parliamentary oversight of intelligence agencies. On the one hand, the systems are relatively expensive, so the financial implications of a nuclear force are considerable – and exempting it from normal oversight would leave a major lacuna in parliamentary budgetary control. On the other hand, there are calls for secrecy – both legitimate and less so – that create pressures to forego normal parliamentary oversight and budgetary authority. Different democratic nations have reached rather different answers to this question – the normal pattern being for deep secrecy about the initial decisions accompanied by de facto exemption from normal budgetary processes, with gradual – sometimes very gradual – movement toward greater parliamentary involvement as time passes and systems mature.

The public, the media, and non-governmental voices. At least in relatively open societies, extra-governmental democratic elements and specialised non-governmental communities have a voice on nuclear weapons issues. To some degree, the principles of pressure-group politics apply even in this highly specialised, highly controlled context. One key group, from this point of view, is the nuclear industry, which may or may not be nominally public or private, and, some role may also be played by the broader scientific communities. But increasingly, in democratic countries that possess nuclear weapons, defence analysts, think tanks, pressure groups, and the media also play a role. Moreover in almost every country, there are what may rightly be called "former people," that is, those who once held official positions with responsibility for nuclear weapons, and therefore may have the credibility and the inclination to participate in public discussion of nuclear issues.

The substantive impact of these public voices varies greatly even in unquestionably democratic societies. Even in those countries with a robust public debate, the substantive direction of a public role is uncertain. While "peace" groups have had a strong impact on the public debate – if less so on actual practices – public debate is by no means always a force for moderation or caution. In the US, public and partisan political pressure over various "gaps" tended to press successive administrations to greater measures to build and modernise the nuclear arsenal than might otherwise have been thought necessary, and it seems very likely that public pressure was a significant factor in both India and Pakistan openly conducting nuclear tests. Moreover, there is also sometimes a serious gap between the terms of the public debate and the operational reality regarding nuclear weapons and their potential use. Even in those states with reasonably well-articulated public statements of strategy, the detailed operational plans remain secret – and there can be tendencies for operational plans to be inconsistent with declared policy. For example, a nation that ostensibly has a "no-first-use" policy may well find it appropriate to have "in reserve" plans for using nuclear weapons pre-emptively.

The military establishment. Everything that has to do with nuclear weapons is tightly compartmentalised, even within a nation's military forces, and it is a safe generalisation that in no country are nuclear forces the central priority of the professional uniformed services as a whole. They are not where traditional navies, and air forces, and armies "live;" that is the services' central self-identification is not as the managers of nuclear weapons. However, within the military establishments of any country with nuclear weapons, there are specialised military units and a cadre of military specialists whose whole focus is nuclear weapons. In the United States, these include not only the Air Force strategic bomber and missile units and the Navy's ballistic missile submarines, but also the complex of intelligence and communications systems whose missions are heavily (though seldom exclusively) to support the nuclear forces.

Historically, there has been a profound distrust by political authorities of all degrees of democratic character of complete military control of nuclear weapons, even in the physical sense. That was certainly the case in the United States but also in the Soviet Union, where, for all the differences in their political systems, not only was the process of development of nuclear weapons largely taken out of the hands of the normal military structure, but the physical control of the first weapons was placed in the hands of other institutions, the Atomic Energy Commission (AEC) in the United States and the KGB in the Soviet case. While, for the most part, the militaries of nuclear weapons states have over time secured effective physical control of the deployed weapons, the basic concept that nuclear forces are too sensitive to be under the degree of military control that prevails for other types of weapons has survived. In the US at least, the concept has been to offset the perceived risks of having the weapons in the physical control of the military by elaborate systems designed to make it very difficult, and in some cases even physically impossible, for the weapons to be used without some "key" that can come only from political authorities. It has also been US policy – even in the depths of the Cold War – to encourage other nations to set up such systems.

But control of the military in regard to nuclear weapons is not simply a technical matter. It is also a question of procedural mechanisms of control that rely on military discipline. For the military command structure, properly understood, is itself, not just an object for control; it is – or should be – a part of the system of legal and political control. Military organisations, however much they may declare themselves to be "guardians of the nation," and seek to be above the political fray, also proclaim themselves to be disciplined and to obey orders, including, within a very considerable range, orders they may disagree with. Central to the effective exercise of civilian control, therefore, is the banal fact that each element, from the senior command levels to the individual units – whether a missile or bomber unit or a missile submarine at sea – is commanded by a particular military officer who is part of, and who exercises command within, an established structure of military chain of command and discipline.

Accordingly, any system of control of use will seek to mobilise this inherent willingness of military organisations to conform to direction – and to minimise any contrary tendencies. The process of establishing clear standards for the military is a fundamental part of political control, from setting the most general principles of nuclear doctrine and strategy to determining the specific procedures that must be followed for the weapons to be used.

The scientific-industrial military community. In every country that has nuclear weapons, there are highly specialised scientific-industrial organisations whose task it is to develop and maintain them, in the first instance literally to invent them (including, in some cases, by the use of stolen or purchased or donated information and materials) and thereafter to build and operate the technical and industrial infrastructure for the design, manufacture, and maintenance of the weapons. Accordingly, there exists in every nuclear weapons state what may fairly be called a nuclear "establishment". Control of the various "military-industrial complexes" is a fundamental challenge to democratic (or indeed any) political control of a military establishment, but nowhere is the problem as acute as in the case of nuclear weapons. Whether the relevant organisations are formally part of the military establishment (as the American World War II Manhattan Project was) or separate institutions (as is the current American system), they are highly autonomous with a very high degree of specialisation and unique expertise, and they operate on highly technical matters in deep secrecy and assert a very broad autonomy.

From the perspective of the political leadership, therefore, the key figures in this scientific-industrial complex and the institutions themselves often seem to seek to be a power unto themselves, outside the normal political control. Accordingly, the political system will need to establish procedures to insure that the actions of these institutions – not only their financial resources but their substantive programs as well – are subject to oversight and direction from the political leadership.

However, the nuclear establishments, like the military, are not only objects of political control, but part of the system by which control and oversight is exercised. To a very considerable degree, in the countries where we know most about the history of nuclear weapons programs, the technical specialists, the scientists have, for good reasons and bad, assumed a role in the policy regarding nuclear weapons that goes far beyond simply the technical questions of how they are built and how they work. Not only are the institutions large and well-financed; their leaders, at least in the early days, are, almost by definition people who combine scientific brilliance with management skills verging on the charismatic. The Oppenheimers, the Tellers, Kurchatovs, the Sakharovs, and the A.Q. Khans – and their less well-known successors and counterparts in other countries as well as the scientific institutions they create – tend to conceive themselves, often with some reason, to be have a unique competence, not only over technical questions, but larger considerations of policy and strategy. This phenomenon is by no means necessarily a bad thing – even in terms of democratic governance. The scientific community that led the development of nuclear weapons has served – certainly in the US, and to a remarkable degree also in the USSR – as a credible alternative voice and a force to foster debate (sometimes even public debate) over issues that would otherwise have been left entirely to the military and the most senior (and closed) executive branch circles.[8]

[8] A phenomenon in the United States, and one which is the subject of some concern generally, is that the scientific community, which has historically been a major part of the public debate on military issues in general, and on nuclear issues in particular, has to a considerable degree withdrawn from that function.

5. The Case of the United States

The United States' system for the political control of nuclear weapons may be the most developed; it is certainly the best publicised, reflecting perhaps the characteristic of the American political system, compared even to other highly developed democracies, to be open and multi-polar sometimes to an extreme degree. To implement civilian control, the US maintains – perhaps typically – a complex system of inter-related institutions, governed by a maze of statutory standards, executive branch regulations, congressional oversight procedures, and bureaucratic relationships.[9] Even in the United States, however, effective civilian and democratic control presents a series of challenges to democratic principles because only a very small community has anything like full information or has much impact on the decisions, and it is certainly the case that many elements of the system have a dual character – they are themselves the institutions that need to be controlled and simultaneously they play a role in controlling other elements.

The President. At the top of the system stands the President, whose constitutional role as Commander in Chief of the armed forces assumes its most direct form in the case of nuclear weapons. Only the President (including a successor as determined by the general law on presidential succession)[10] can authorise the use of nuclear weapons. The President exercises that authority in respect of nuclear weapons, as in all other respects, through the legally established chain of command, with runs through the Secretary of Defense to the operational military commanders.[11] Formally, control of nuclear weapons (and, indeed, of all American military forces, is exercised by the "National Command Authorities," comprising the President (or his lawful successor) and the Secretary of Defense, who are linked to the operational nuclear forces, through the military chain of command, by a communications system that is designed to be both highly survivable, with multiple overlapping channels to the operational force, so that it is not subject to being interrupted, and uniquely authoritative and controlled, so that it is not subject to being usurped or misunderstood.[12]

In addition, the President, as head of the executive branch, has the ultimate authority over the array of civilian executive branch agencies and officials with responsibilities for control, funding, and oversight of the military and scientific-technical institutions that operate and maintain the nuclear weapons and the forces for their delivery. Among these civilian, politically responsible officials and agencies, the most important are, of course, are the Departments of Defense and Energy, which have jurisdiction over the two principal institutions to be controlled, the military and the scientific-technical military establishment.

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[9] The nuclear weapons policies and programs of the United States are, to some degree, limited by formal international agreements, such as treaties on arms control, atmospheric testing, nuclear weapons free zones, and non-proliferation, and by less formal international arrangements, including so-called "negative security assurances" forswearing use of nuclear weapons against NPT parties, nuclear weapons cooperation and assistance programs with allies, NATO dual use aircraft basing arrangements, and undertakings to consult "time and circumstances permitting" with host countries before using bases for nuclear attacks. These international constraints are outside the scope of the present paper.

[10] The order of succession is prescribed in the Presidential Succession Act, 3 U.S.C. sec. 19.

[11] Formally, the Chairman of the Joint Chiefs of Staff (CJCS) is not part of the chain of command, but the orders of the President and the Secretary of Defense are normally transmitted through the Chairman and by means of communications under his jurisdiction, so as a practical matter the Chairman and the Joint Staff system he heads are crucial elements in the process by which orders are sent to the military forces.

[12] A. Carter et al (eds), *Managing Nuclear Operations* (Brookings Institution Press, Washington DC, 1987) reviews the range of command and control issues for American nuclear forces at the height of the Cold War.

The Congress. Due to its highly developed and well-established power over both the shape of military programs and their funding, Congress has its most powerful and significant impact on nuclear weapons policies through its power over budgets. The congressional role is far less significant in the other major broad aspect of civilian oversight of nuclear weapons policy – the establishment of overall strategic nuclear doctrine and detailed planning for actual attacks. That process is almost wholly under the control of the executive branch, and while the pattern has been for an increasing degree of civilian and politically responsible oversight, most of the process remains deeply shrouded in secrecy. Congress, however, maintains a voice even in these aspects of policy by its committees' ability to require administration officials to explain their policies – and by the power of congress to prescribe the procedures by which executive decisions are made, if not their substantive content.

Congress can also shape national security decision-making by establishing formal procedures that the executive branch must follow, requiring the participation of designated entities,[13] and assuring that the results are communicated to the Congress.[14] Though the motivations for setting up the process were heavily substantive – concern at the effect of a long term test ban and a desire for a stronger Department of Defense (DOD) voice in nuclear weapons issues – the legal requirement is, at least ostensibly, purely procedural, and the emphasis is on who gets a voice, not what they say.

Congress is, however, quite capable of imposing substantive requirements on the nuclear infrastructure. The ban on testing that aroused such concerns in some technical and Congressional circles as to result in the legislation reorganising the Energy Department's role in nuclear weapons matters is itself embodied in statute.[15] Also, while the laboratories, the nuclear industry, and their military allies are powerful constituencies, they are by no means always successful. Efforts to move forward to develop a "deep earth penetrator" – a package of nuclear warhead and delivery system modifications and developments designed to drastically increase the effectiveness of nuclear weapons against very hard, very deep targets have consistently been resisted by a Congress that is otherwise very receptive to military initiatives.[16]

The Department of Defense (DOD). In practice, all American nuclear weapons that could be used within a relatively short time are under day-to-day military control. This includes nuclear-armed ballistic missiles in silos and on submarines on patrol, as well as the bombs and cruise missiles on (or ready to be loaded onto) bombers, all of which are part of the operationally ready military forces. In addition, the elements of the complex and redundant communications system that links the delivery systems and the units that command them to each other and to the ultimate decision-makers are parts of the integrated military command system. Substantially all the nuclear forces are under the ultimate military

[13] Since the laboratories are under the overall management of the University of California – an arrangement often criticised from both right and left and recently renewed only after the management contract was subject to competition – the statute even provides for a limited participation by officials of the University.

[14] For example, as noted above, Congress has mandated an overall review of the American "nuclear posture," i.e., the broad strategy for nuclear weapons, and required that the result be submitted to Congress.

[15] 42 USC sec. 2121.

[16] See "House Armed Services Committee Takes New Approach to Bunker Buster," in American Institute of Physics Bulletin of Science Policy News, No. 78, May 26, 2005, available at www.aip.org/fyi/2005/078.html

oversight of the Strategic Command (STRATCOM).[17] Operationally, they are part of the specific component commands. For example, the ballistic-missile-equipped submarines are under the relevant naval fleet command for matters concerning day-to-day operations. The military role goes beyond simply operationally managing the forces and seeing to their readiness. The process for making plans for possible use of the weapon, including selection of targets and packaging sets of targets in attack options is in the hands of a military staff within the Strategic Command.

The Secretary of Defense is, second only to the President, the key civilian official in the exercise of control over the military establishment of the United States. In addition to serving as the only civilian, aside from the President, in the operational military chain of command, the Secretary exercises a significant measure of control over nuclear forces by virtue of his oversight authority over military plans, his role in setting and articulating the nation's defence strategy, and his responsibility for decisions on the development and funding of military programs. The detailed military plans for the potential use of nuclear weapons must be presented to, and approved by, the Secretary of Defense before they take effect. In his "national command authorities" role, the Secretary of Defence is the only civilian in the DOD to be directly involved, but in all the other aspects of his authority – over contingency planning, establishment of doctrine, approval of programs and their funding – the Secretary is supported by substantial expert specialised staffs in the Office of the Secretary of Defense. In addition, the Defense Department has a substantial voice in decisions of the Department of Energy regarding the nuclear weapons themselves, and the technical-industrial infrastructure that supports them.

The Department of Energy and its predecessors. The American nuclear system as a whole is by no means exclusively military. Design, construction, and maintenance of the weapons themselves (as distinct from the planes and missiles that would deliver them and the command control communications and intelligence (C3I) system through which their use would be controlled) are in the hands of a civilian agency – the National Nuclear Security Administration (NNSA) within the Department of Energy (DOE).[18] This arrangement – often challenged but not fundamentally changed – whereby the responsibility for the construction and maintenance of the nuclear weapons themselves lies outside the Defense Department is intended in principle to be a part of the means of assuring civilian control of nuclear weapons. Yet, in practice, it also means that there is a substantial and powerful technical community, outside the normal military chain of command and system of civilian oversight of the armed forces that must itself be overseen and monitored by a responsible political authority.

Responsibility for the nuclear weapons themselves rests with the NNSA, the lineal descendant of the Atomic Energy Commission (AEC), and, indeed, of the scientist-led

[17] STRATCOM is the acronym for the Strategic Command. The few tactical nuclear weapons that still remain in the force are under the command of the relevant theater commanders.

[18] This arrangement traces its ancestry back to the decisions, made in the immediate post-World War II period, to set up a civilian-led Atomic Energy Commission that would be the lead agency for nuclear weapons. Initially, the AEC maintained physical possession of the weapons it had built, but the role of the agency – eventually absorbed into the DOE and then, more recently, give quasi-independent status as the National Nuclear Security Administration – has gradually been restricted largely to overseeing the research and industrial infrastructure that builds and maintains the weapons. Nonetheless, nuclear weapons remain a unique case – they are the only part of the American military arsenal whose design, acquisition, construction, and maintenance lies outside the jurisdiction of the Department of Defense.

Manhattan Project that developed the first American atomic weapons during World War II. In the US, as elsewhere, the decision to try to build an atomic weapon was made by the President, in his commander in chief role, in the deepest secrecy, which was maintained – at least as concerned the German and Japanese enemy and the American Congress and public, though not the temporarily allied Soviet Union – until the first products of that development effort were used to destroy two Japanese cities (a decision also made – including with respect to target selection – at the presidential level.)

However, in the immediate aftermath of the war, there was a broad and spirited discussion, in which the Congress was a major participant, and the ultimate decisional authority, over how these new weapons should be controlled – a discussion in which the principle of maintaining civilian and politically responsible authority was a major focus. The model adopted in the 1946 Atomic Energy Act was to treat nuclear weapons as fundamentally different from what were coming to be known as "conventional" weapons – to be built and developed by a highly specialised industrial/technical community under the control of a civilian agency – the Atomic Energy Commission (AEC).[19] The very small numbers of weapons initially in the stockpile were kept under the physical control of the AEC, reflecting a determination to avoid "militarisation" of the field and respect for this supposedly uniquely technical character. This arrangement – predictably – came under almost immediate strain, with the military, principally the newly independent Air Force, insisting that practical considerations of military effectiveness, as well as principles of unity of command, required that use of nuclear weapons be firmly within the normal military chain of command, subject to presidential authority, with physical control also lodged with the military. The result was a relatively rapid evolution to essentially the current arrangement, whereby the day-to-day operational control of nuclear forces rests with the military (though with an unusual degree of civilian oversight in Office of the Secretary for Defense [OSD] and the presidency), with the civilian nuclear agency limited to an essentially support role as supplier and maintainer of the weapons.

Periodic efforts to shift the entire nuclear complex to the Defense Department have been rebuffed – arguably more in response to bureaucratic pressures and congressional interest than to the principle of "civilian" control.[20] But the Defense Department has a strong voice even on matters regarding nuclear weapons strictly defined and the complex that supports them that are nominally within the responsibility of DOE. In the late 1980's, a Nuclear Weapons Council – a joint DOD-DOE body but housed in the DOD – was established to "coordinate" nuclear weapons activity and insure adequate attention to military concerns. In the late 1990s, in part in reaction to (probably overstated) concerns about lax security at the DOE-run nuclear laboratories and (alleged) low priority for nuclear weapons relative to the DOE's many purely civilian concerns,[21] Congress put authority over nuclear weapons in a new agency, the NNSA, over which the Secretary of Energy has only limited control.[22]

[19] Recognising that nuclear technology had civilian as well as military potential, the Act lodged federal government responsibility for civilian applications in the AEC as well. That responsibility remains with the Department of Energy, but has been separated from the military aspects.

[20] In a broad sense, the argument for keeping the maintenance of the weapons outside the DOD is less about civilian control than about concern that military (even the DOD) oversight would compromise the need for deference to scientific and technical expertise in the field.

[21] Yet another factor was concern that the DOE would not be sufficiently vigilant, in a world without actual tests of nuclear weapons, in maintaining the reliability of the stockpile, or raising the alarm if the technical establishment judged that lack of tests was compromising that reliability.

[22] 42 USC secs. 7144, 7132(c), 50USC sec. 2401 et seq.

Reflecting these concerns, the legislation establishes a formal process for annual "assessment of the status of the nation's stockpile" of nuclear weapons, with particular focus on reliability, safety – and whether resumption of testing is required.[23] The review is directed to include surveillance of the weapons, assessment of their reliability, identification of any needed refurbishment, and steps required to correct any problems detected. In this process, the lab directors, as the titular heads of the technical nuclear establishment, participate, as do critical project offices in the DOD and the NNSA, and the STRATCOM commander. The resulting conclusions are subject to review by the DOE-DOD Nuclear Weapons Council, with participation by both the Joint Staff, as the representative of the operational commands, and by the OSD, as the representative of the civilian leadership of the Pentagon. The final stage is submission to the President and Congress by the Secretaries of the two departments of a formal assessment and request for permission to deploy nuclear weapons at specified levels,[24] leading to formal approval by the President of the annual "Stockpile Memorandum," containing direction for the deployment and maintenance of nuclear weapons for the coming year.[25]

5.1. Civilian Control and Nuclear Policy, Strategy, Programs, and Plans

American strategic nuclear policy and doctrine ultimately derives from presidential guidance – in the form of a National Security Council (NSC) directive[26] that sets broad guidelines. Typically, that directive is issued by each president, following a general review of military policy overall and, in recent years, a formal "nuclear posture review" mandated by Congress.[27] The instruction itself is the product of extensive analysis and debate within any administration, with the NSC staff managing the process, and with the DOD having the leading role on details, but with other agencies – State, the intelligence community, and even the fiscal authorities – having a say. However, the process is essentially dominated by the Defense Department on the one hand, representing the military interest and the NSC staff on the other, representing the perspectives and priorities of the President, with the weight given to the views of other agencies dependent largely on current pre-occupations.[28] The actual orders are invariably highly classified, but their general terms are usually made public, by some combination of official speeches, press statements, and publications, such as the annual posture statement of the Secretary of Defense. The armed services committees of the Congress are usually briefed in considerable detail, but the actual document is not provided to Congress.[29]

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[23] 42 USC sec. 7274.

[24] Parallel processes within the Defense Department assess the strictly DOD components, including integration of the weapons with the delivery systems, and present a STRATCOM review of nuclear weapons readiness, reliability, and requirements.

[25] 10 USC sec. 179.

[26] Congress required that such a review be conducted by a special provision (section 1041) of the National Defense Authorisation Act for the Fiscal Year 2001, illustrating how the budget power can be used by Congress to impose procedural mandates on the executive.

[27] The prior order, which will generally have been issued by the previous president, remains in effect until changed by his successor. In some cases, certain controversial provisions of the prior order have been modified very early in a new administration, before a comprehensive review. In others, a President has been content to leave his predecessor's order in force throughout his term.

[28] Thus, when affordability is a major issue, the Office of Management and Budget (OMB) will be a major player; when diplomatic or arms control issues are at the forefront, the State and the intelligence community will have a greater voice.

[29] For example, the 2002 Nuclear Posture Review was partially released in an unclassified form, outlining, among other things, the Bush Administration's adoption of the overall concept of a "modern triad" whereby deterrence rests on a combination of offensive capabilities (both nuclear and conventional), defenses, and a robust nuclear infrastructure, and not

Formally the presidential directive is not only a statement of policy but a military order issued in his constitutional capacity as Commander in chief of the armed forces. The presidential directive, in principle, serves not only to shape targeting policy, but also to guide procurement of weapons, delivery systems, and supporting intelligence and communications capabilities, and it may also address arms control issues. On the basis of the presidential directive, the Secretary of Defense issues more detailed guidance to the military, in the form of the Nuclear Weapons Employment Policy (NUWEP). In practice, the NUWEP is developed by the OSD staff in consultation with the Joint Staff and STRATCOM.

These directives from the President and Secretary of Defense as the civilian elements of the chain of command form the basic instructions for the military and the defence establishment generally in planning on nuclear issues, particularly on targeting. The actual detailed overall target plan – the Single Integrated Operations Plan (SIOP) is drawn up by military staff within the STRATCOM structure. The SIOP is reviewed by the Joint Staff, on behalf of the Chairman of the Joint Chiefs of Staff (CJCS), and then presented by the CJCS for the approval of the Secretary of Defense, whose review is supported by elements of his own, civilian directed staff in the OSD.

The SIOP, as its name implies, is a highly detailed contingency plan, identifying specific targets and weapons assigned to them, designed, among other goals to ensure coordination and 'de-confliction' among the various delivery systems and the efficient use of weapons available under various conditions. The SIOP also takes account of various possible initial conditions, such as whether the force is in its day to day peacetime posture when the attack is ordered or has been brought to a higher state of alert, because these factors will determine what weapons are available. It also provides for more or less comprehensive attacks, ranging from an all-out attack on all targets for which appropriate weapons are available in the relevant initial condition to very small attacks on a very limited set of targets. The output is a complex matrix of options and sub-options for various initial conditions and target sets, with corresponding details of expected effects and remaining post-attack uncommitted forces.

The history of the SIOP during the Cold War, particularly from the point of view of the civilian authorities, has been one of the tension between both maximising deterrence and military effect by the prospect of a massive attack on the one hand, and, on the other, the desirability of flexibility – and, it is often argued, greater credibility and hence deterrent effect – of an ability to launch less-than-all-out attacks aimed at more limited target sets, holding in reserve the prospect of still greater attacks. Typically, the civilian authorities have pressed for more flexibility, and the military for more certainty and effectiveness. The quest for flexibility has been hampered by many factors, including the complexity of any multiple option/sequential strike concept and concerns that any crossing of the nuclear threshold, in which even "limited" attacks would have massive effects, could set off a cycle of escalation that might be prevented by the prospect of a massive initial response. In the debate over the prudence and the wisdom of flexibility, a sub-theme has been the effort of most administrations to seek greater capacity for real-time adjustment of plans to current conditions, as against the argument of the technicians that the process is so complex that

simply on attack capabilities alone. See "Nuclear Posture Review [Excerpts]" January 8, 2002, available at www.globalsecurity.org/wmd/library/policy/dod/npr.htm

only careful advance planning can ensure both military effectiveness and full control of events.

The SIOP is modified on a continuous basis to take account of changing weapon availability, as units come into the force and are retired, and as they go off-line for maintenance, and as targets change. Accordingly, each year the plans for the forthcoming year are briefed up the chain of command, and ultimately to the Secretary of Defense, whose approval is required before the new annual plan goes into effect. More comprehensive revisions of the plan occur at longer intervals, particularly when there has been a major shift in presidential or secretarial guidance, or when there has been a major change in the international situation in ways that affect targeting requirements.

The details of the SIOP are highly classified; only a handful of military officers and even fewer civilians are fully aware of the all the details of specific targets, weapons assignments, operational details, and attack plans. However, the basic principles of the plans – including the sorts of contingencies provided for, the types of targets covered, broad categories of target packages, and the expected effects – are more widely known. The President and Secretary of Defense, of course, have access to whatever level of detail they request – and, in practice, they direct that details be made known to a few highly trusted senior members of their staffs so as to make meaningful review possible.[30] Moreover, with time, a very considerable amount of detail has been released to the public about the basic principles upon which the nuclear attacks plans are based.

The civilian review focuses not on operational details of timing and weapon assignment, but on overall consistency of the proposed plan with the basic policy guidance issued by the President and the Secretary of Defense, responsiveness to varying potential contingencies considered relevant to strategy and current conditions, adequacy (or excess) of predicted effects, and similar considerations, importantly including the implications for future program decisions. However, the sheer complexity of the plans – and, it may be argued, the irrelevance of most operational details to policy decisions – as well as their sensitivity, mean that the detailed planning process is very much a matter left to the military staffs. Nonetheless, the trend over the years of the Cold War was for more and more access outside the military commands and planning staffs and a greater and greater impact of the civilian review process on the principles reflected in the plan details.

A further aspect of both the planning process and of civilian control over nuclear weapons is the procedures established for decision on use of nuclear weapons. The two basic desiderata are clear enough – only the President can authorise a nuclear attack – and if he does so, there must be assurance the orders will be carried out. Under the American constitution, the President is the commander in chief of all the armed forces, but for most military operations, the President's role is one of general oversight of policy and approval of the broad objectives of the operation and the principles of the plans to be carried out. In the case of nuclear attacks, the President's role is far more operational and he would be directly

[30] Senior members of the armed services committees are briefed on the basic structure of the plans. The degree to which individual members of Congress have access to SIOP information has been a matter of some controversy, both because of the sensitivity of the information and questions of the prerogatives of the congressional and committee leadership relative to the membership as a whole.

involved in selecting the contingency plan to be executed.[31] This awesome potential responsibility is reflected in one of the peculiar rituals of American democracy: Since the new president will immediately assume this operational authority upon inauguration, it is necessary that he be given some degree of preparation beforehand. Accordingly, it has become traditional for the president-elect to visit the Pentagon a few days before his inauguration, accompanied by a select few of his future senior advisors, for a briefing on the attacks plans and his responsibilities regarding them. Thereafter, until the day the President leaves office, he is always accompanied by a military aide who, at least by common understanding, carries with him the "nuclear football" – actually a briefcase containing the codes which the President would use to issue and authenticate an order to launch an attack – and, at least as important, by means of communication that enable him to receive information needed to make a decision and to communicate that decision through the military chain of command.[32]

There can be no doubt that all presidents take this responsibility seriously, but the degree to which they concern themselves with the details – or cause their senior White House advisors to do so – varies considerably. At least one President – Jimmy Carter – insisted on the preparation of quite detailed graphics and other information geared to his own sense of what data should be immediately available to him in the event he had to make an emergency decision. Others have focused on different concerns, including demanding a greater range of choices, the assurance that orders, once issued, would reach the forces, protections against unauthorised use, and provisions for continuity of legitimate decisional authority in the event of attack.

The question of authorisation of a nuclear attack has, inevitably been dominated by what has been called the "never/always" dilemma – the tension between the principle that nuclear weapons should never be used without legitimate civilian authority, which can only come from the president, and the imperative that they should always be used when such authority has been given. The concept of civilian control implies both legs of this proposition: The control cannot simply be a negative one of preventing unauthorised use; it must also encompass the affirmative. Given the possibility, even the probability, that the question would only arise in the chaotic conditions that would follow the initiation of nuclear attack on the United States, resolving this tension poses the problem of assuring that a decision can be made in time and communicated effectively under conditions of immense time pressure, limited information, and strenuous efforts both to prevent a timely decision and to interrupt its communication to the forces that would have to execute it. During the Cold War, planners and presidents needed to consider the day to day necessity of assuring that none of the thousands of nuclear weapons deployed with operational forces be detonated

[31] This high degree of presidential involvement in operational military decisions traces back to the only actual precedent: the targets and timing for the 1945 attacks were determined in Washington after considerable analysis and debate. Recommendations were made by an all-civilian "Interim Committee," chaired by Secretary of War Henry Stimson. At one point Gen. Leslie Groves, commander of the Manhattan Project, objected to giving Stimson the report of a military committee on target selection until Gen. Marshall had approved it, saying it was a military operational matter. Stimson replied, "This is a question I am settling myself. General Marshall is not making that decision." L. Groves, Now It Can Be Told, (1962), p. 273-75, quoted in M. Bundy, *Danger and Survival* (Random House, London, 1988), p. 77. President Truman made the final decision.

[32] President Carter describes the pre-inauguration briefing, the accompanying "football" and its impact in his memoirs, *Keeping Faith: Memoirs of a President*, (University of Arkansas Press, Arkansas, 1982), p. 39-40. President Clinton records the pre-inaugural briefing as "a sober reminder of the responsibilities just a few hours away," in Bill Clinton, *My Life* (Random House, New York, 2005), p. 474.

without proper authority, whether by accident or usurpation. At the same time, those same planners and presidents needed to confront the possibility that there might be as few as 5 or 6 minutes between the launch of a missile from a submarine close to the east coast of the United States and its impact over Washington DC accompanied by a massive effort to disrupt, jam, and destroy communication links between the President and the nuclear bombers, missiles, and submarines.

To some degree, of course, this dilemma has, like much else about nuclear weapons, been eased by the end of the US-Soviet confrontation, but it still exists, and still needs to be addressed. The danger of unauthorised use – the "never" horn of the dilemma – has been addressed both at a technological and a human level. Beginning as far back as four or five decades ago, nuclear weapons began to be fitted with what are generically known as Permissive Action Links or PALs – devices that, in effect, "lock" the weapon and that cannot be released without external information – a "key" – that would come only with an order to launch an attack. These devices have now been installed on all deployed US weapons – and indeed have been refined in recent years to address not only the problem of accident or usurpation by those in legitimate possession of the weapons but the conceptually and technically distinct problem of tampering or seizure by outsiders. Equally important, many would argue, as "never" assurances, are the measures that rely not on technological devices – which are in principle potentially liable to disablement or bypassing, given sufficient time and expertise – but on other mechanisms of control. These include "personnel reliability programs" that attempt to ensure that individuals with access to nuclear weapons are stable, loyal and otherwise worthy of the trust given them, as well as elaborate requirements for authentication of any execute order, involvement of multiple independent individuals, and redundant confirmation arrangements. These measures have the virtue of simultaneously addressing both elements: they bring to bear a range of factors that will both prevent improper or unauthorised use of the weapons and will assure execution of proper orders.

At the same time, steps have been taken to cover the "always" problem. These include investment in multiple redundant links between the President and the forces, and measures for presidential succession, delegation of certain authorities to legitimate successor decision-makers, and continuity of civilian government. For understandable reasons, the details of exactly how decisions would be made and communicated in the event of a successful "decapitation" of the normal government are treated as among the most sensitive secrets of the American system, because the measures taken, if known, might themselves be vulnerable to disruption.[33]

[33] The possibility of terrorist attacks has meant more attention has been focused on the continuity of government issues in the post-Cold War context, though the problem, serious enough, is somewhat eased by the reduced need in the event of a terrorist attack for immediate retaliation decisions of massive purport that dominated the issue in prior contexts.

5.2. Nuclear Weapons' Programs and Funding as Instruments of Civilian Control

A major instrument of civilian and democratic control over the US military's nuclear establishment is control over programs and budgets, a control that, unlike attack planning and even doctrine, the executive shares with the Congress. Ultimately, the shape and character of the nuclear force depend on decisions about acquiring and modernising delivery system (missiles, bombers, and, in prior times, tactical systems), manning levels, and command and control systems – and setting priorities for these elements devoted to the nuclear force relative to those for other missions. Nuclear forces are subject to the same budget and programming process as other military systems. All military programs, including those for the acquisition and support of nuclear forces, are subject to the control of the Secretary of Defense through his authority to formulate and recommend to the President, and through him to Congress, the funding and authorisation for all military programs. [34] "Requirements" are defined by the military, with a strong input from the operational commanders – STRATCOM in the case of nuclear forces – within broad strategic policy guidance set by the President and Secretary of Defense. However, the budget and programming process that sets priorities as among the various competing missions and elements of the military is under the direction of the Secretary of Defense, and functions within the broad fiscal guidelines set by the President through the Office of Management and Budget (OMB) – all very much subject to the will of Congress.

Nuclear forces have – from the very beginning, and to a much greater extent since the end of the Cold War – been seen by the military as competitive with conventional forces in the allocation of funds. Even in the periods of greatest investment in nuclear forces during the Cold War, the share of the defence budget devoted to nuclear forces was much less than that devoted to the conventional forces. However, major nuclear weapons systems tended to receive far more detailed consideration at senior levels – in the DOD, in the White House, and in Congress – than comparably expensive conventional programs. This was partly due to the high individual costs of programs, but more to their perceived political sensitivity and links to arms control policy. Certainly there was intensive public attention, media coverage, and congressional debate on most of the major programs – including the missile build-up of the early 1960s, the controversy over ballistic missile defences in the early 1970s, and responses to the alleged "window of vulnerability" of intercontinental ballistic missiles (ICBM) in the late 1970s and early 1980s and the various responses, ultimately leading to the deployment of MX ICBMs. This level of attention accorded to nuclear programs has considerably faded with the diminishing role of nuclear weapons in national strategy, and the concomitant long "holiday" in the procurement of any major nuclear weapon delivery system and the fading of the once-bitter controversies over strategic arms control.

[34] The nuclear warheads and bombs themselves and their supporting infrastructure are not funded or managed by the Department of Defense, but through the Department of Energy. Their costs, however, are included in the "national defense" part of the budget and, as explained below, the DOD has a substantial voice in decisions on them.

6. General Observations and Recommendations

The mechanisms for democratic, constitutional control of armed forces that are appropriate to a particular country will depend to a considerable degree on its broader political culture, traditional patterns of civil-military relations, its strategic and security situation, its overall structure, and its history – and on its degree of democratic development. For example, in a democracy with a strong executive with effective ability to secure a virtually automatic parliamentary majority, the parliament will not have a particularly powerful voice in nuclear matters. Workable and acceptable practices will almost certainly be different for large forces and for small forces, and for countries that regard themselves as under existential threat for which nuclear weapons provide a key element of deterrence compared to countries that have nuclear weapons for quite different reasons. Having said this, the following general observations and recommendations concerning democratic and civilian control of nuclear weapons can be made.

- A nation's nuclear weapons programs are very much properly subject to political control, if anything even more than for conventional military forces;
- "Democratic" control is not synonymous with "civilian" or "political" control. A thoroughly non-democratic regime may exercise strong control over a state's military institutions, including over nuclear weapons, without that control being in any sense "democratic";
- The goal is democratic governance of all critical aspects of a nation's possession of nuclear weapons, not simply the ultimate authority over their actual use. Governance embraces not just "whose finger is on the button" but also who takes decisions on acquiring the weapons, on the shape and scale of the force, on the place of nuclear weapons in the national security strategy, on strategy and doctrine, and on advance planning for possible use;
- As with other aspects of control of military forces, the main locus of democratic authority over nuclear weapons is the executive, which must have the acknowledged legitimacy, access to information, and staff support needed to make its formal authority meaningful. Since in a democracy, the executive is itself a part of the democratic system (whether directly elected or selected by an elected parliament to which it is accountable), executive control is itself an important element of democratic control;
- The ultimate decision on use of nuclear weapons must be in the hands of the politically responsible leadership of the government. This entails full access by that leadership to the details of capabilities, plans and procedures, and meaningful on-going review of them by the civilian authorities;
- In maintaining civilian, democratically responsible control over nuclear weapons (as well as minimising the potential for accidents or misappropriation), technical devices that, in effect, require an outside "key" controlled by the political authority play an important part. Almost equally important, however, are measures that build on military discipline and requirements for adherence to prescribed procedures and clear authentication by multiple individuals, rather than strictly mechanical devices;

- It is by no means inconsistent with the principle of democratic control that there should be procedures, including for continuity of succession to authority and delegation of authority in extreme conditions – themselves set by the democratically selected executive or the elected parliament, or both – to protect against the possibility of hostile efforts to disrupt the mechanisms by which decisions would be made and communicated;
- In a similar way to the military units that operate the weapons, the scientific-industrial community that builds and maintains them is a critical object of political control; it cannot be a world unto itself – but it can be a significant source of advice and oversight, and act as a counterweight to purely military (or political) perspectives. Neither the military nor the scientific constituencies should be allowed to exempt nuclear weapons programs and priorities from normal or executive and legislative controls over approval, funding, or oversight;
- However, democracy not only means action by elected executive officials, but a system of accountability and shared power. Parliamentary institutions both can, and should, uphold democratic principles and have a meaningful role in decisions on programs and budgets, help ensure democratic control by prescribing by law procedures to be used within the executive, and do so without compromising legitimate security interests. Mechanisms can be created to permit parliamentary oversight without dangerously sacrificing necessary confidentiality;
- While there are legitimate reasons for secrecy about many details of nuclear weapons and for reserving many operational plans and decisions to executive action, public debate is a necessary condition of democratic control. Consequently, a democratic system of control over nuclear weapons – and the opportunity for informed and relevant debate – entails acceptance by the executive of the responsibility to make public sufficient information concerning their existence, their basic characteristics and the ways in which they are intended to support the nation's overall security strategy and requirements – for meaningful public understanding and discussion.

Geneva Centre for the Democratic Control of Armed Forces (DCAF)

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