FOREWORD

by
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Humanity faces three largely man-made existential challenges. The first is over-population, with its consequent excessive demand on natural resources, especially on food and water supplies, and its huge increase in energy consumption and pollution which is in the long term life-threatening, and is arguably the underlying cause of the other two. The second is climate change, whether man-made or cyclical (or even both), with its probable consequences of massive migration, destruction of habitat and fauna, famine and disease. These two are already under way; but the third, the threat of nuclear war, is almost certainly the most devastating in the short term, the most directly susceptible to human agency, and the most immediately destructive of human and other life on a global scale. The massive scale and duration of death and destruction caused by the relatively small yield weapons detonated over Japan in 1945 show just how catastrophic a modern nuclear exchange would be.

There can be no greater priority or urgency for political leaders and governments today than the prevention of nuclear war and the removal of the threat of it altogether. Faced with these challenges, and perhaps even because of them, we also find ourselves at one of history's 'hinge points'. The Western liberal consensus is fragmenting, and governance is breaking down in many areas of the world whilst global power, wealth and influence are shifting markedly. It is an environment of greater instability than for some time, with many violent but non-state groups, spurred on by extreme ideologies, also on the stage. Our political leaders and populations often seem either to be in denial of, or unsurprisingly paralysed by, the scale of the problems and seek refuge in dealing with rather more trivial and selfish issues.

Of course, there are few dissenters – although there are some important ones – from the proposition that the avoidance of nuclear war is the principal immediate task of international leaders. One is tempted to think that those dissenters cannot have thought very clearly about the probable consequences of such a war, fought with weapons very much more destructive than the Hiroshima bomb. There is, however, much less agreement as to how its prevention is best achieved and whether it must be avoided 'at all costs' – whatever that means, or whether it could be justified in some circumstances. On the whole, and perhaps rather simplistically, there seem to be two main schools of thought. The first tends to the view that unilateral nuclear disarmament, perhaps as an example to others, and anyway as a clear moral imperative, is the correct and most effective route. The other is that a massively large number of these weapons still exist and so, for the present at least, mutual deterrence and such legal controls as, for example, the Comprehensive Nuclear Test Ban Treaty, and the Nuclear Non-Proliferation Treaty (of which more anon) as means of limiting the risks, are the more practical route to achieving the same eventual goal.

Between these two positions lies the uncomfortable fact that whilst no nuclear weapon has been detonated in anger for almost 73 years, it is not possible to explain why with any real conviction. Whilst the failure of nuclear deterrence would be an incontrovertible fact for anyone who survived a nuclear exchange, the success of such deterrence is always an assertion rather than a provable fact. If one were to attempt to construct a logical syllogism on the lines of:

1. The USA and Russia have both had substantial strategic nuclear arsenals for the last 70 years
2. The USA and Russia have not been to war with each other for 70 years
3. Therefore the ownership of such weapons prevents war between two nuclear armed states,

the argument would immediately be seen to be logically invalid. It is at least as likely to be false as it is to be true and cannot be proved to be either.

Before going further, I should confess that, while the author of this book and I are committed to the same goals, the prevention of nuclear war and the removal of the threat of it, we have not always been on the same side of this intellectual divide, but I nevertheless welcome the new edition of *Security Without Nuclear Deterrence*.

I want to discuss these two approaches more fully, but first I think it will be useful to remind ourselves of some of the basic facts about

deterrence theory in general. It is important to understand that it is a concept of considerable antiquity, which goes far wider than simply nuclear deterrence.

A brief history of nuclear deterrence

The Hiroshima and Nagasaki nuclear bombs demonstrated the appalling and lasting damage that even relatively low yield nuclear weapons can cause. Following this, the development of a nuclear weapon by the then USSR and the invention of the so-called hydrogen bomb, made very clear the overwhelming importance of preventing the further use of nuclear weapons. In a world initially of only two nuclear powers, the answer was seen to be mutual nuclear deterrence of which the principal deterrent factor was the survivability, following a first strike, of sufficient capacity still to inflict unacceptable damage on the first striker; there was to be no risk-free option. The deterrence lay in the idea that a successful disarming strike would not be possible. This tended to put great emphasis on nuclear superiority, and led to a rapid growth of nuclear weapons, a nuclear arms race in fact, between the USA and the then USSR, to try to guarantee the survivability of a sufficient retaliatory force. Eventually, both sides concluded that it might make more sense if they both agreed to be vulnerable to each other and that this might make for more effective deterrence. By this time six, or almost certainly seven, other nations had followed the two main protagonists into building nuclear arsenals. In the words of Ban Ki-moon, quoted here by the author in Chapter 4, '…the doctrine of nuclear deterrence has proven to be contagious'.

Following the ending of the Cold War, there was a natural reaction in the gradual running down of conventional forces, particularly in Europe, although the two European nuclear powers, Britain and France, retained their nuclear deterrents. Indeed, the UK recently decided to replace hers, despite simultaneously running down her conventional forces to the lowest effective levels of modern times.

Now, there are those who believe that the days of force-on-force conventional kinetic engagements are over, and that intervention and military action of the future will be limited and more concerned with nation building, general stability and anti-terrorism support for allies and friends. Despite the lamentable record of history, they may be right, but our ability accurately to forecast events in the last couple of centuries has also been lamentable and there is no real evidence that it will get better. Moreover, those who hold this view must surely acknowledge that deterring all war and conflict is the goal, and the best way to avoid escalation to nuclear warfare. We are not debating ends, but ways and means and I believe strongly that for this a credible

conventional capability must underpin all other deterrent tools, soft or hard. We need therefore to understand the relationship between conventional and nuclear capabilities in the pursuit of a credible overall deterrent strategy. I shall use the example of the UK.

How does general deterrence work?

In April 2013, UK Prime Minister David Cameron made an important speech, firstly reaffirming his strong commitment to the full replacement of the UK's strategic nuclear deterrent as the ultimate guarantee of the nation's security. Secondly, he said that the Armed Services were receiving the best conventional equipment. But he ignored some highly significant conventional capability gaps created by his government's 2010 Strategic Defence and Security Review (SDSR). Together with depleted equipment numbers and delays and reductions in new equipment, further exacerbated by his 2015 SDSR and subsequently, these have seriously unbalanced the UK's force structure. No solutions to this problem are yet fully identified, let alone funded. These weaknesses seriously, possibly even fatally, undermine his major premise.

There is a dangerous and potentially misleading paradox here. The replacement nuclear deterrent is likely to pose a far more severe challenge to a shrinking UK defence industry than did either Polaris or Trident; and it is very difficult to believe that the full costs, infrastructure and timescales have yet been firmly identified: moreover, most of the costs still lie outside the current financial planning period. So, without new money the risks to the much-reduced remaining conventional programme appear to be considerable. Consequentially, conventional force levels are almost certainly facing yet further reductions and so therefore is the credibility both of the nuclear deterrent and of deterrence more generally, as I shall now explain.

The highly dangerous, and surely incredible, doctrine of 'Nuclear Tripwire' of the early days of nuclear deterrence, which envisaged rapid and possibly massive use of nuclear weapons in the event of any Soviet aggression, was abandoned in the 1960s. The more persuasive, although still dangerous, 'Flexible Response' which followed, and importantly included a variety of both conventional and nuclear escalation options, assumed that use of nuclear weapons was a last resort. NATO members signed up to this strategy and its consequences for defence spending. It has been UK policy that nuclear weapons would never be used against non-nuclear states party to the Nuclear Non-Proliferation Treaty (NPT), although the UK has never ruled out first nuclear use. This policy was perhaps inevitable during the Cold

War when the country possessed so-called 'tactical' nuclear weapons to bridge the gap between conventional and strategic nuclear forces, but was surprisingly maintained during the 2017 election campaign.

By the 1980s the Anti-Ballistic Missile (ABM) Treaty of 1972 had been followed by Strategic Arms Limitation (SALT) talks, the Intermediate Nuclear Forces (INF) Treaty of 1987, and then the two Strategic Arms Reduction Treaties (1991 and 1994), which in turn were superseded by the 2002 Strategic Offensive Reductions Treaty (SORT). Some of these have now effectively been overtaken by the 2010 New Strategic Arms Reduction Treaty (New START), and Russia and the USA have very recently reached the missile launcher levels required by that treaty. However, it did not further limit weapon stockpiles and a huge number of nuclear warheads still remain.

The ABM Treaty of 1972 added what was perhaps the most sophisticated twist to the theory of nuclear deterrence. In effect, both sides agreed to limit their missile defence capability, thus deliberately leaving themselves vulnerable to a retaliatory attack, following a first nuclear strike. This was the so-called Mutual Assured Destruction, with its ironic acronym MAD. Counter-intuitively perhaps this was actually, in the circumstances, a stabilising measure because it greatly reduced the prospects of surviving a retaliatory attack, thus reducing the incentive to engage in a first strike. I shall return to this point later.

But the cardinal point is that the nuclear deterrent is not, and cannot be, a substitute for conventional capabilities. The credibility of flexible response depends upon deferring any decision to use nuclear weapons until the very existence of the nation is at stake. This requirement means that the conventional forces must be of sufficient capability to deal with any lesser threat; and that one's potential enemy must believe this to be so. The matter at issue must be of such severity that the risk of nuclear obliteration, possibly on a global scale, is worth even considering; one's opponent must believe that too. Self-evidently there are very few such issues; most people would probably argue that there are none. Some will argue that an opponent might never believe the threat is credible anyway, but the deterrent effect may in fact rest on a deliberate ambiguity – 'you may not be sure I have nuclear weapons or would use them, but can you afford to take the risk?' This ambiguity is something Israel has exploited in her policy of neither confirming nor denying her possession of nuclear weapons.

If the conventional means at our disposal are weak, the point of transition to nuclear use may be lowered to levels at which the threat of nuclear obliteration is self-evidently wholly disproportionate to the issue at stake. At that point, it is likely that deterrence through the threat of nuclear use becomes overtly incredible and can be so perceived by an opponent – a bluff waiting to be called. Thus, through

conventional weakness, the nuclear deterrent is compromised, whether it is a rogue state or a major power that is involved. To be credible, it must be underpinned by strong conventional deterrence. The idea that nuclear deterrence is synonymous with strong defence is to assume that 'big bang' is 'big defence'. It isn't; it may even be quite the reverse.

Moreover, there is little evidence from the past 50 years that a nuclear deterrent is particularly effective at deterring non-nuclear nations', or non-state groups', actions for precisely the same set of reasons. It is not credible to suppose that nuclear weapons would be used against such nations or groups. Indeed, the UK has specifically ruled that out and it is clear that in 1982, Argentina (a non-nuclear nation) was not deterred from invading the Falkland Islands by the fact that the UK possessed both strategic and 'tactical' nuclear weapons at the time.

But conventional military action must also be deterred if we are to reduce the risk of escalation. The key here is that deterrence is a broad continuum; conventional deterrence also deters. The threatened use of conventional force, at a lower level of intensity, is genuinely credible because it is plainly *usable*. Any potential adversary is likely to believe in the possibility of its use, but only provided that it is also clearly sufficient for the particular purpose or operation to hand. And in so doing it can snuff out dangers before they escalate, thus preventing bad things happening and getting worse, so that escalation towards 'nuclear territory' does not occur. Some people may believe that bad things are never going to happen, but this demands a very eccentric view of both human nature and human history. When bad things don't happen, it is probably because they have been deterred. Nuclear deterrence is simply the most extreme example of this.

That was the missing link in Mr Cameron's speech – recognition of the link between conventional deterrence and nuclear deterrence. This continuum of deterrence should set out wherever possible to deter action at the earliest and least violent point and postpone or prevent arrival at the point of nuclear decision, allowing time to be bought for resolution of whatever may be the cause of conflict.

'New ways of warfare' and asymmetric warfare

Unfortunately, the situation has become further complicated by the development of so-called 'new ways of warfare', of which the best known, but not the only, example is cyber warfare. This phenomenon has become categorised, perhaps rather lazily, as 'asymmetric warfare' and is held by some to signal the decline of kinetic warfare and to justify an assumption that future wars will not be of the kinetic variety and thus to smuggle in an assumption that they may also replace nuclear warfare and the risk of it.

This is surely to misunderstand the nature of asymmetric warfare, which is not warfare of any particular kind. Rather it is an attempt to fight the war on a battlefield where the enemy is not significantly present – to find his greatest vulnerability, his 'weakest link'. The unfortunate consequence of this is that, whenever a new way of war fighting is developed, it does not mean *ipso facto* that an existing form is rendered obsolete and unnecessary. It means rather that there is a new vulnerability, a new base to be covered. But if the old base is stripped of cover in order to fortify the new one, then the old base may become a new vulnerability, and more attractive for an enemy to target. This leads to the very uncomfortable consequence that kinetic warfare is not dead (as a brief glance round the world will confirm) but rather that it is only one of the forms of warfare. The invention of new forms almost certainly means that a nation's defence becomes more complex and more expensive as new threats open. This was probably best put by the late Sir Michael Quinlan:

> In matters of military contingency, the expected, precisely because it is expected, is not to be expected ... What we expect we plan and provide for; what we plan and provide for, we thereby deter; what we deter does not happen. What does happen is what we did not deter, because we did not plan and provide for it, because we did not expect it.[1]

The greater the risk of defeat in any of these varying forms of warfare, the closer becomes the decision point for a nuclear nation of the choice between capitulation and escalation to nuclear use, which the whole concept of deterrence is designed to avoid. From a rational strategic viewpoint therefore, and for as long as nuclear weapons exist, I would argue that it is not possible to separate nuclear doctrine, force structure and strength from conventional force structure and strength, across an increasingly wide range of non-nuclear war making capabilities. Moreover, this is of particular relevance to the second-rank nuclear powers, such as Britain and France, which have tended to sacrifice substantial conventional and other non-nuclear capabilities in order to finance their strategic nuclear forces, thus undermining the credibility of those very forces.

Tactical nuclear weapons and Ballistic Missile Defence

The situation is further complicated by two other recent developments. Firstly, by recent American proposals to solve the problem of the conventional/nuclear gap by re-introducing so-called battlefield, 'tactical' or theatre nuclear weapons and increasing the temptation of first nuclear use. This may be a response to Russia's

apparent breach of the INF Treaty by deploying Iskander short range ballistic missiles in Kaliningrad. Both are dangerous developments. The second complication is the planned deployment of Theatre Ballistic Missile Defence (TBMD) systems. Whilst the supporters of both are able to advance rational and logical arguments for their plans, there are good reasons for concern, which I examine next. There is a considerable irony in the fact that some of the reactions to the end of the Cold War may have made nuclear war more likely.

In the first case, that of 'tactical' nuclear weapons, there is a legitimate philosophical debate about this additional, but qualitatively distinct, 'step' on the escalation ladder. Does it provide additional space for consideration and negotiation, or does it smooth the path to further nuclear use, effectively removing an important taboo? Is there in reality, as opposed to in nuclear 'theology', such a thing as a 'sub-strategic' nuclear weapon, given the substantial and potentially long-lasting consequences of any such use? Does the breaking of the taboo represent a greater threat than the strengthening of the escalation ladder represents a stronger deterrent to strategic use? And does the development and deployment of a 'sub-strategic' capability, and the way it might be perceived by potential opponents, contravene the spirit if not the letter of the NPT and the INF, and open the way to other even more dangerous breaches? In a nutshell, does it improve or reduce stability? These are not readily answerable questions, but they certainly cannot be answered by simple appeal to perceived military necessities. One thing can, however, be said with reasonable certainty: it can never be wise to increase the number of nuclear weapons in a world which already has the capacity to destroy almost every living creature on the planet.

The potential deployment of widespread TBMD systems following the Bush Jr administration's unilateral withdrawal from the ABM Treaty in 2002 and its impact on nuclear deterrence is much more difficult to assess. On the face of it, gaining the ability to defend one's deployed forces against ballistic missile attack (whether with conventional or nuclear warheads) is a reasonable, if very expensive ambition. Moreover, it is significantly less grandiose than President Ronald Reagan's Strategic Defence Initiative, which sought to provide complete protection to the USA and her allies against strategic nuclear attack and which was, in the mid-1980s, seen as a potentially deeply destabilising concept. This was because it would have overturned the mutual vulnerability described earlier and made a first disarming strike more feasible. Similar concerns seem to surround the potential deployment of TBMD; and at least one significant research project is under way with an international cast of participants to investigate the impact of these weapons on deterrence.

All this demonstrates the considerable difficulty and complexity of the whole subject of deterrence, whether conventional or nuclear. And deterrence is surely the central issue of the nuclear debate in a world in which war seems very unlikely to disappear as long as human beings remain competitive, and the resources for which they compete become increasingly scarce. The sad fact is that, over the period of recorded history – perhaps about 6,000 years – human nature shows very little sign of having changed very much. If deterrence, and specifically nuclear deterrence, could be relied upon to hold in all circumstances, then the problem might perhaps be contained. If it cannot be so relied upon, then we have to consider other ways in which the goal can be achieved. This returns us to the two different approaches to which I referred earlier.

Approach 1 – general nuclear disarmament

Nuclear weapons obviously cannot be uninvented and the knowledge of how to make them somehow lost, nor is ownership of them incontrovertibly *per se* illegal, as the NPT clearly implies. So the first approach is of course the voluntary abandonment of nuclear weapons by those nations which own them and those which aspire to do so. This has long been the dream of many nuclear disarmers, and is entirely understandable, worthy and moral. The difficulty of course lies in the practicalities and durability of such a decision – which in turn hinge on a paradigm shift in the mindset from indispensable security and prestige assets to unusable and unaffordable liabilities. Up to now, as far as we know, very few nations which had acquired nuclear weapons have subsequently and voluntarily surrendered such weapons. Three of these states were former members of the USSR, namely Belarus, Kazakhstan and Ukraine, and the weapons concerned were, of course, Russian and were returned to Russia or destroyed following the collapse of the USSR. The fourth was South Africa, which abandoned its limited nuclear arsenal in 1989 and acceded to the NPT two years later. In this last case, the reasons are more complex and perhaps largely *sui generis*.

Can this precedent be further extended? In particular, can it be extended to the major powers? If it cannot, there would be little point in embarking on this route in the first place. Would the major powers ever feel sufficient confidence and trust in one another to agree on a planned complete disposal of their arsenals? Whilst some will say that such confidence was found during the various rounds of the SALT and START talks, the case is not directly comparable, since there was then no question of either side ever losing a substantial deterrent capability, let alone being ‘stripped naked’. The hope was that these treaties

would increase confidence that disarmament could go much further. Moreover, as the recent behaviour of North Korea may demonstrate, any such move might be perceived to present an irresistible temptation to a rogue nuclear state, against which some nuclear 'insurance' might be desirable. It is, therefore, certainly possible that the progress towards total nuclear disarmament could even create a new, if possibly transient, instability which might present an even greater danger than the current situation.

But, some will say, this is no reason why those nations which do wish for nuclear disarmament should not disarm unilaterally, and moreover that this is the morally correct action to take and would set an example which might influence other nations. I do not dispute that, nor would I try to dissuade any nation from this course, although I am more dubious about its likely success in influencing the major powers. And, given that some lesser nuclear powers have reduced their conventional force structures in order to afford nuclear weapons, it is at least conceivable that such unilateral disarmament will increase the risk of conventional war at any rate for a period. While this may be less globally catastrophic than a major nuclear exchange, it is hardly an outcome over which to rejoice. There is, whether one likes it or not, a difficult moral argument to resolve as to whether the possible creation of greater instability and risk *en route* to a moral goal undermines the morality of the original purpose. This is a classic 'ends versus means' debate which cannot simply be ignored. Nor are morality and legality necessarily the same thing. The author tackles this question in his Chapter 5.

Approach 2 – nuclear control regimes

The problem has not, however, been ignored either in the United Nations or in individual countries. The alternative approach is that of incremental control and regulatory regimes, and this has been pursued for some considerable time now. Examples of this are the Partial Nuclear Test Ban Treaty (PTBT) of 1963, the Nuclear Non Proliferation Treaty (NPT) of 1968 (extended indefinitely in 1995), the Intermediate Nuclear Forces Treaty of 1987, the Comprehensive Nuclear Test Ban Treaty (CTBT) of 1996, the New START Treaty of 2010 and the Treaty on the Prohibition of Nuclear Weapons (TPNW) of 2017. In addition, there are, as we have already seen, other more limited bi-lateral agreements to try to enhance mutual deterrence and reduce the costs and the risk of nuclear use.

The first obvious problem is that either nations will not sign or ratify such agreements, or will subsequently ignore or withdraw from them, and this has certainly been one of the outcomes. There are several

reasons for this, some of them worthier, or at least more plausible, than others. For example, China, France, and North Korea, *et alii,* have not signed the PTBT; the CTBT has not yet entered into force because five nations (USA, China, Israel, Iran and Egypt) have signed but not ratified it, and three nations (India, North Korea and Iran) have not even signed it, although some of these countries have thus far abided by its provisions. Nevertheless, the enforcement of international treaties and indeed international law generally is far from straightforward. In particular, where nations have not actually shared a common view either of morality or of the basis of the law, or where perceived national interest is at odds with the body of law, enforcement is a very difficult issue indeed.

The NPT is of somewhat greater interest in that it attempted to differentiate between peaceful and warlike use of nuclear technology. It is the case that, for the moment at least, nuclear power generation is indispensable, and that there are important medical applications of nuclear material. Clearly this issue is technically difficult to handle and provides opportunities for circumventing the provisions of the treaty, which are designed to prevent the spread of nuclear weapon technology beyond the five original overtly nuclear powers. 191 nations are states parties to the NPT; India, Israel, Pakistan and South Sudan have not signed it, whilst North Korea signed the treaty and subsequently withdrew from it in 2003.

Finally, the TPNW is the first attempt by the UN to commit nations to specifically outlaw nuclear weapons. However, some 69 nations have not adopted, let alone signed or ratified this treaty, including importantly all the current nuclear powers, and all US allies and NATO member countries. For it to enter into force, 50 nations must have signed and ratified it; so far 55 nations have signed and seven have done both, although the treaty was only adopted on 7 July 2017 and opened to signature on 20 September 2017.

Progress is therefore both encouraging and disappointing. For reasons that must by now be clear to the reader, there are considerable technical difficulties. There are political difficulties, too, not least because the current NPT can be seen as discriminatory, enabling just five nuclear states – which non-coincidentally are the permanent members of the UN Security Council – to enjoy the benefits of nuclear deterrence claimed by them until some utopian moment of their choosing, whilst trying to prevent other nations from doing so. It appears to many as a dispensation designed by the former and current masters of the world solely in their own interests. Moreover, it makes little allowance for shifts of power and influence around the globe, nor for the threats that specific nations perceive. Nevertheless, the fact remains that there has been no nuclear weapon detonated in anger for

73 years, and there is a clear and strong international majority view in favour of the control and ultimately the abolition of nuclear weapons. And in the 2017 TPNW one might argue that both approaches I have identified have begun to converge, despite the many difficulties and complications that lie in the way of achieving the final goal. This must surely be a reason for at least some limited optimism.

Will it all work?

Meanwhile some very big questions remain. Can we find a way through these great technical difficulties which is acceptable to all nations and provides adequate re-assurance to all? Can we get through this journey without creating great and dangerous instabilities *en route,* for example by contemplating, as the USA apparently is, deliberate pre-emptive nuclear use? In making this journey, can we avoid nuclear war through miscalculation or, just as likely in an era when split-second decisions are made by computers, through technical error or through what the stock markets call 'algorithmic action'? Conversely, can we reach a final position which does not simply make the world 'safer for conventional war'? Can we safely and with certainty separate the peaceful uses of nuclear technology, some of which can confer huge benefits on humanity, from the enormous dangers of military use which threaten humanity's survival? Perhaps above all, can we devise some method by which all this can be adequately policed and enforced? The current North Korean situation illustrates many of these points and highlights both the difficulties and the dangers, and the recent behaviour of stock markets shows the dangers of robotic decision-making without adequate human judgement and intervention. And of course, as I write this, the two great powers are both in the process of modernising their nuclear arsenals, making it very unlikely that they will be prepared to dispose of them, at least in the first half of this century.

All this needs to be approached with a level of humility, humanity, morality, understanding and ambition which is sadly rare in contemporary international politics; the art of statesmanship seems to have died, to be replaced by 'megaphone diplomacy'. This is typified by some shockingly loose and even crude use of social media, and by a failure to grasp the intellectual complexities of the subject, the various opposing arguments and, perhaps most of all, the immense and appalling consequences of failure. It almost seems that for some it is a 'reality TV' game in which their own personal success and ambition trump the interests of the human race, and indeed of our planet. In such a climate, serious and meaningful negotiation is very difficult. We are badly in need of statesmen of vision and courage.

For this reason and at this critical juncture in global affairs, a watershed indeed, I very much welcome this new edition of Rob Green's book, even though I do not agree with all his conclusions. I entirely share, however, his goal so that the gap between us is more about means than ends. Few people have devoted as much thought and effort, over so long a period of time, to the subject of reducing and ultimately removing the risks of nuclear war as he has; his views deserve to be carefully read and pondered, whatever one's own position may be. In the end, in this as in any crucial question which is part moral and ethical and part practical, we each have to make up our own mind. However, it is surely a serious error to think that, because one differs on means, one cannot share the same goal. It is worse still, whatever view of the matter one takes, to impugn the motives and moral standing of another thinker merely because one happens to disagree with his route map to achieving a shared objective. None of us is likely to be the owner of the 'whole and unvarnished truth'.

Rob Green tackles all these issues and more with a personal honesty, and with deep knowledge, clarity, and detail, and an impressive sense of purpose. He takes us movingly through his own journey of conscience and then, from the moral position he has reached, tackles all the issues I have briefly sketched out in this foreword. He analyses the historical development of nuclear weapons and more importantly nuclear 'theology', and considers whether the policies and actions of the various nations concerned are moral, honest, rational or effective. His answer to this question is very clear, and on the whole I share it. However, I am less sure that his detailed prescriptions are the right ones, in the sense of being capable of delivering safely and certainly the outcome all sensible and decent people must wish for. None the less, by addressing this deeply sensitive and controversial issue in so full and clear a manner, he has done us all a great service. Uncomfortable though the debate may be for some governments, there is no issue on which informed, open and widespread public debate can be more important. It has always been my own view, irrespective of other views I have from time to time held, that the nuclear protest movements performed, and perform, a critical function in ensuring that the subject is not 'buried'. This book is part of that vitally important tradition and brings authoritative intellectual support to the more emotional arguments.

Not everyone will agree fully with everything he proposes, nor with all his conclusions. I very much hope, however, that this revised and updated edition of his book will be read by those from both sides of the argument, as carefully and critically as it deserves. I hope that they will carefully distinguish fact from opinion and when they decide on

their own views, they will be informed by what is fact and evaluate what is opinion – there is plenty of both. This is a most important contribution to the debate on a subject which is crucial to the survival of the human race, and it needs to be read with a degree of humility and with an open mind – qualities not always apparent amongst our decision makers and their advisers. So vital an issue deserves nothing less.

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Note

1 Sir Michael Quinlan, '*Quinlan's Law',* 2008, unpublished but quoted in Hennessy, P., *Distilling the Frenzy: Writing the History of One's Own Time,* Biteback Publishing, London, 2012. For a more idiosyncratic and fuller treatment of the unexpected, readers may wish to read Taleb, N.N., *The Black Swan*, Penguin Books, London, 2007.