1 High Concept By a wide margin, the idea of a revolution in military affairs (RMA) was the concept-ofthe-decade among Western strategic thinkers in the 1990s. 1 RMA is a classic case of what, by analogy, Hollywood means by ‘high concept’. As such a concept, RMA was fashionable and therefore literally bankable. Almost any topic that could carry the RMA label found a ready sponsor. One should not be unduly cynical about this phenomenon. Theory is important for future practice, a nd theorists require patrons. The market for strategic ideas is not entirely one of unres tricted open competition. The academy does not rule on the salience of particular ideas. Ra ther, as Raymond Aron expressed it: ‘Strategic thought draws its inspiration each century, or ra ther at each moment of history, from the problems which events themselves pose.’ 2 Aron was almost correct, but it is more true to claim that strategic thought draws its inspir ation at each moment of history from the problems and opportunities flagged by officials acting as opinion leaders. It is the ‘spin’ put on contemporary challenges by a Secretary of State John Foster Dulles, or a Secretary of Defense Robert S.McNamara, that generates great debates, in their cases about nuclear deterrence and strategic stability. 3 Of the many high concepts in strategic studies that were the focus of more and less scholarly exposition from the 1940s through to the 1990s, RMA ranks at the more imperial end of the scale of grandiosity. Such ranking is not reduced by the fact that RMA transpired to be a hugely contestable concept. That said, notably expansive understanding of what the RMA debate is all about has been signalled by significant players in the realm of strategy. US Secretary of Defense William S.Cohen advised that: ‘A Revolution in Military Affairs (RMA) occurs when a nation’s military seizes an opportunity to transform its strategy, military doctrine, training, edu cation, organisation, equipment, operations, and tactics to achieve decisive military results in fundamentally new ways.’ 4 There are notable problems with this definition, but Secretary Cohen’s words are worth quoting both for the clarity with which they announce the importance of an RMA and for the scope of the claims advanced. Cohen talks of transformation, of decisive military results, and about fundamentally new methods. We are in the realm of high concept, indeed. RMA is almost the latest of the high concepts around which policy-oriented theory in strategic studies has swirled over the past half-century. 5 The intellectual and policy progenitors to RMA include containment in the 1940s, nuclear deterrence and then limited war in the 1950s, strategic stability and arms control in the 1960s, détente in the 1970s, ballistic missile defence (BMD), and competitive strategies in the 1980s. Asymmetric threats, strategy, and warfare succeeded RMA in the late 1990s and the 2000s. Although some among that distinctly mixed bag of ideas had the potential to open doors to wide and deep understanding of major strands in strategic history, 6 the RMA hypothesis of the 1990s had th e possibility of functioning as super-theory. Behind the hypothesis that an RMA was under way in the 1990s was the necessarily overarching proposition that the course of st rategic history has been shap ed by an irregular succession of great discontinuities which we are calling revolutions in military affairs, but which sometimes are referred to as military transformations. The very concept itself postulates the central significance of such discontinu ities. The RMA hypothesi s rests upon a theory which purports to explain, at least with broad brush strokes, how, why, when, and by which agency strategic history advanced, if not prospered. The various official and commercial patrons of RMA theory (and theories) in the 1990s undoubtedly were motivated largely by parochial—albeit legitimate—concerns of US defence policy and even simply by business opportunity. The theory which those patrons triggered, however, was soon to appear anything but parochial as to client and topic. For example, in 1994, one of the earlier and better of the contributions to the RMA debate provided a candidate historical context for the developments of the 1990s that allegedly could be traced through ten succeedi ng RMAs from the fourteenth century to the present day. 7 In the mid-1990s there was a modest scale of mobilisation among professional historians as they scampered to protect both their turf and the quality of scholarship (i.e. good history) from ruthless seizure and exploitation by strategic theorists more concerned to illustrate an argument than to write careful history. 8 This book is about matters historical, strategic theoretical, and sociological, while most especially it is about the connections between all three. More specifically, the discussion explores the strategic history of the past two hundred years, the period which frames the three historical case studies examined (in Chapters 6–8). I am interested in probing how social science and history have collaborated, and can collaborate, to contribute to a better understanding of the course of events. 9 As strategic theory should be able to improve understanding of history, so a faithful approach to history should enable the social scientist to apply theory to good effect in the interpretation of the richness of historical experience. There needs to be a constant dialogue between the social scientist-strategic theorist and the historian. To deconstruct the book’s title, the complex s ubject of strategy and revolutions in military affairs necessarily always stands on the edge of the chao s that lurks in the sometimes nonlinear realm of the use of force for political purposes. With due thanks to Christopher J.Langton, I acknowledge readily wr itings on chaos and complexity theory as one of the propellants for this analysis. 10 Complexity, even chaos, theory, duly translated for human behaviour, is important to my story because it poses a potentia lly fatal threat to the integrity of some leading variants of the RMA hypothesis. That hypothesis, though vulnerable to assault when it appears either in simple technocratic form, or, of course, when it is caricatured, nonetheless has performed valuable service, in some cases if only for its illustration of strategic error. The RMA debate of the 1990s sparked scholarly reconsideration of the nature of strategy and strategic effectiveness which, though scarcely novel in its outcome, highlighted matters of great significance for security which people and organisations are wont to forget. Argument about an RMA in the 1990s, and more broadly about RMAs in strategic history, have had the unexpected, certainly the unintended, consequence of flushing out new or refurbished theory on the nature and working of strategy. Truly, serendipity rules. With its focus upon allegedly revolutionary discontinuities, the RMA postulate and RMA theory slid unwarily into a debate over whether the nature, or only the char acter, of strategy and war changes. 11 This book broadly is about strategic eff ectiveness, and narrowly concerns the contribution of alleged RMAs to that effectiv eness. The nature, structure, and functioning of strategy are vital to the argument, as indeed is judgement on the ever changing tactical character, or—following Clause witz—grammar, of strategy. 12 Because RMAs must function to express strategy, it is only by understanding the nature and working of strategy that a grip can be secured upon the promise in an RMA. Similarly, judicious interpretation of the constituents and the eff ect of historical RM As can rest only upon a mature comprehension of strategy. It is necessary to register the definition of seven key terms: strategy, strategic history, war, RMA, nonlinearity, chaos, and strategic effectiveness . The following are the connections between these terms for the limited purposes of this text: RMAs operate through strategy—certainly through strategic effectiveness—in and as strategic history which is inherently prone to some nonlinearity and can be chaotic in its course and consequences. By strategy I mean the use made of force and the th reat of force for the ends of policy. Of the terms defined here, strategy comes closest to enjoying truly authoritative treatment. My verbal formula is only the lightest of adaptations from Carl von Clausewitz: ‘Strategy [is] the use of engagements for the object of the war.’ 13 The most essential quality of this definition is that it insists upon the instrume ntality of strategy. Strategy is neither the use of force itself, nor is it policy, rather it is the bridge that should unite the two. By strategic history I mean the course of historical events most directly affected by the threat or use of force. There is no suggestion implicit in the concept that a high fence and moat can or should separate strategic fro m non-strategic affairs. I take a broad and inclusive view of my subject. While acknowledging wholeheartedly the merit in the approach to strategic phenomena known as ‘war and society’, 14 and while recognising the continuous two-way traffic between civilian a nd military realms, still it is desirable and necessary to distinguish the nature of the subject of strategy. While conceding that ultimately everything relates to everything else, that concession does not cancel the analytical merit in asserting the integrity of strategic history as a field of study. 15 There is no clear outer boundary line, rather is there a grey zone, demarcating the strategic from the extra-strategic, but at least we have a d ecision rule (relevance to the threat or use of force) to assist us in judging what is more, or less, pertinent to our enquiries. The merit in this use of ‘strategic’ illuminates by contrast the reasons why the largely vacuous, at least unduly inclusive, concept of ‘security’ is best eschewed. 16 I am not hostile to security studies, but I do not know exac tly what they are or how I would proceed to find out. By war I mean organised violence carried on by political units against each other for political motives. This is a modest expansion (with the addition of ‘for political motives’) of the workmanlike definition provided by Hedley Bull in his book, The Anarchical Society . 17 Given the admittedly historically re stricted scope of this enquiry ( c. 1800c. 2000), the contestability of definitions of war is not of great significance. However, the hypothesis that a contemporary information-led RMA is under way does refer to an emerging political and strategic context wherein, according to some theorists, traditional institutions—including war and the state—lose much of the character that has been their trademark since the middle of the seventeenth century. 18 By RMA I mean a radical change in the character or conduct of war, or, in Jeffrey R.Cooper’s words, ‘a discontinuous increase in military capability and effectiveness’. 19 Unlike strategy and war, definition of this concept requires careful policing more for what should be excluded than included. A decade of experience with RMA debate highlights the necessity for an open mind as to catalytic agent or agents. Above all else, it is vital not to require by definition that RM As be triggered by new technology. A classic example of what to avoid is revealed in the still popular definition offered in 1994 by Andrew F. Krepinevich. This definition has the signal virtue of recognising much of the complexity of the process of the RMA, but still it has two fatal flaws. What is a military revolution? It is what o ccurs when the applica tion of new technologies into a significant number of military syst ems combines with innovative operational concepts and organisational adaptations in a way that fundamentally alters the character and conduct of conflict. It does so by produc ing a dramatic increase—often an order of magnitude or greater—in the combat potential and military effectiveness of armed forces. 20 The first fatal flaw in Krepinevich’s definition is his requirement that an RMA functions, inter alia, with the application of new technologies. 21 The second such flaw is his claim that an RMA produces a dramatic increase in combat potential and military effectiveness. This point is of a commonsense nature, and should be true. However, it suffers from the same generic weakness of circular logic as did Basil Liddell Hart’s imperial concept of the indirect approach in strategy. What is th e indirect approach? It is the approach that tends to deliver meaningful victory. 22 How can we locate this wonderful approach in strategic history? We find it in the records of strategic success. If strategy works well, it has to be a case of the indirect approach. Returning to the notion of RMAs, how do we find them? When there is a dramatic increase in combat potential and military effectiveness. But can such potential and e ffectiveness be the product of events or processes other than RMAs? Although RMAs might be triggered by change in several, or more, of strategy’s dimensions, it cannot be sound to require such change to result in a ‘dramatic increase in combat potential and military effectiveness’. What if a military machine is revolutionised, but fails to deliver ? If great military success is attributed as a matter of course to RMAs, then the RMA concept is diluted into thorough inutility. A combination of evolutionary improvement and an inept foe can suffice to bring victory. RMA is not a necessary, let alone a sufficient, condition for victory. By nonlinearity I refer to a condition structurally characteristic of, though not always dominant in, strategy and war that denies authority to the rules of proportionality and additivity. 23 In a nonlinear system, output can be disproportionate to input, while the whole is not simply the aggregation of its component parts. For example, culture, ethics, and geography are not just pieces of the puzzl e that can be slotted together with other such pieces to comprise the w hole edifice of strategy. The pr oblem is that culture, ethics, and geography interpenetrate, even though these dimensions of strategy are notionally, and in one case physically, distinguishable. Strategic culture is both a context that yields meaning to stimuli and—inconveniently for ease of study by scholars—is within the human and organisational players in that context. 24 Similarly, physical geography, though objectively distinctive, helps shape culture and indeed all dimensions of strategy. 25 If this seems rather opaque, readers are requested to withhold judgement for the moment. The most essential qualities of nonlinearity for the argument in this book are, to repeat, the apparently ‘chaotic’ disproportion between m odest (or immodest) input and immodest (or modest) output, and cons equently the frequently non-add itive working of strategy and war. A system is said to be ‘chaotic’ when its performance is both nonlinear and sensitive to initial conditions. 26 Therefore, by chaos I mean a condition of such complexity (e.g. strategy’s many dimensions, as explained in detail in Chapters 4 and 5) and nonlinearity in performance, that prediction of system performance becomes all but impossible. Strategy has to be viewed in two complementary, though tension-fraught, perspectives. First, it is a whole phenomenon which needs to be approached as a unity. Both Clausewitz and T.E.Lawrence understood th is point intuitively and analytically. The former warns strongly that ‘it would be disastrous to try to develop our understanding of strategy by analysing these factors [mor al, physical, mathemati cal, geographical, and statistical] in isolation, since they are us ually interconnected in each military action in manifold and intricate ways’. 27 The latter appreciates ‘the whole house of war in its structural aspect, which was strategy, in its arrangements, which were tactics, and in the sentiments of its inhabitants, which was psychology’. 28 Lawrence advises that these apparently distinctive matters are really better regarded as ‘points of view from which to ponder the elements of war’. Second, strategy needs to be appreciated as a house with many rooms, a phenomenon with distinguishable, though interpenetrating, elements, factors, or dimensions. Strategy is not perennially essentially shaped, let alone driven, by—for example—technology, geography, culture, theory and doctrine, or even by people. There is no truly independent variable or variables that can be studied, or manipulated, to yield reliable predictive a dvice on how strategic effectiveness in the necessary amount can be guaranteed. Strategic effectiveness is a less common concept and term than is military effectiveness. This compara tive rarity reflects accurately enough the greater difficulty of strategic, over military, effectiveness. By strategic effectiveness I mean the net (i.e. with the adversary dimension factored in) effectiveness of grand strategic performance, which is to say of behaviour relevant to the threat or actual use of force. That effectiveness can be measured in regard to the advancement of political goals. Military effectiveness, even in the form of a series of crushing victories, need not equate to strategic effectiveness because strategy’s political dimension may shap e a contest that is all but beyond military help. 29 Strategy (and war) is complex and sometimes nonlinear in both technical and commonsense meanings. Military genius in command, advantageous geography, a supremely just cause—each, and its obverse, can be important, but strategic performance, indeed the course of strategic history writ large and small, cannot be reduced to any one of these factors. Not only does strategy have several, or many—as preferred for understanding—dimensions, but those dimens ions are not entirely discrete, save conceptually. The levels of analysis—which is to say policy, grand strategy, military strategy, tactics, and preparation of all ki nds for war—are thoroughly interdependent. For example, tactical behaviour is pointless out of strategic context, but strategic behaviour has to be done tactically. Beyond that functi onal view, each of the many dimensions of strategy behaves dynamically in ever shifti ng relations with every other one, while the whole edifice interacts with its several political and social, inter alia, contexts. Alan Beyerchen takes the high ground of proper understanding when he emphasises that ‘the heart of the matter is that the system’s variables [e.g. strategy or war’s dimensions] cannot be effectively isolat ed from each other or from their context; linearisation is not possible, because dynamic interaction is one of the system’s defining characteristics’. 30 Also he observes that ‘Clausewitz understands that war has no distinct boundaries and that its parts are interconnected.’ 31 Clausewitz warned of the ‘dreary analytical labyrinth [that] would result’ from a misguided scholarly effort to examine in isolation every factor, or dimension, of strategy. Heaven protect the theorist from such an undertaking! For our part we shall continue to examine the picture as a whole, and take our analysis no further than is necessary in each case to elucidate the idea we wish to convey, which will always have its origins in the impressions made by the sum total of the phenomena of war, rather than in speculative study. 32 To recognise the nonlinearity and complexity of strategy is important, even vital, but in and of itself such recognition has only modest value for comprehension. Scholars, let alone responsible officials, are not excused further duty towards strategic understanding or performance just because they have lifted the veil and gained significant insight into the chaotic world of strategic behaviour. Mu ch about strategic performance is literally unknowable because persistently it pertains to nonlinear conditions that must, as suggested above, defy reliable detailed unders tanding. The same could be said for the biological sciences, for economic behaviour, and for meteorology. However, to fail to know everything does not equate to knowing nothing. Moreover, with reference to strategy, security communities do not require immaculate performance, only performance good enough ‘on the night’. The course of war is governed by relative, not absolute, competencies. To win one needs only to be better over-all than the enemy; one is not performing against some absolute standard of strategic virtue. To recognise that the strategic realm is complex and sometimes ch aotically nonlinear is indeed to secure insight. But is this recognition only of bounded, if important, insight, or is it enthronement of a governing principle? How chaotic is strategy? More to the point, perhaps, if chaos rules, how is strategy feasible at all? These questions are posed, explored, and answered in Chapter 4. Strategy is difficult. 33 It is difficult to understand b ecause it has many dimensions constantly in dynamic interaction (e.g. ge ography, technology, admi nistration, quality of political and military command, theory, and doctrine). Also, strategy is difficult to understand and do because it can appear insubs tantial and therefore elusive. Where lies the realm of strategy? It is neither the terrain of military threat and action, that is tactics, nor is it the ground of policy and politics. Whereas security co mmunities educate skill groups to perform as politicians and soldiers, 34 how do they train their strategic thinkers and doers? Remember that strategy is not fighting, nor is it policy. Strategy is the purposeful use of fights and threats of fights to advance the goals of policy. At least, in an ideal polity that is how ma tters should be arranged. By the argument I mean the architecture of ke y assumptions, asserted logical connections, and by inference the substantive narrative trajectory of the enquiry. What is presented here is an extended hypothesis, not detailed conclusions—those must wait, of course, upon the outcome of the quarrying in later chapters. These points risk exposing more than perhaps is usual or even prudent at the outset of an analytical quest, but it would be foolishly disingenuous of me to pretend that this book is the, or even my, first assault upon its subjects. In a sense it is the very maturity of the transnational RMA debate that both licenses and enables this book to attempt comprehensive appraisal. Much remains to be explored in the pages below, but the duration of the debate and this author’s exposure and modest contribution to it allow the argument here to be framed with some confidence. The intellectual keystone in the arch of my argument was flagged in the preceding section. Namely, the structural complexity and substantial nonlinearity of strategy is always likely to frustrate some or all of the promise in an RMA . This judgement, or caveat, is embedded in the whole argument outlined below. Rephrased, the dimensions of strategy that a particular RMA fails, or is unable, to reach—geography, for example, or political and military leadership—in principle must threaten the integrity of its promise of relative strategic advantage. Similarly, to extend the point, the adversarial dimension of strategy and war is perennially liable to thwart the aspirations of RMA proponents, through the working of what Edward N.Luttw ak has revealed so brilliantly as ‘the paradoxical logic of conflict’. 35 The most potent fuel for friction in war is the behaviour of an enemy who seeks to thwart you and impose his will. Success today may not mean success tomorrow if its sources become formulai c in application in the face of an enemy willing and able to learn from his own, and others’, mistakes. The idea of a ‘winning formula’ in strategy—understood narrowly as a plan of action—is an oxymoron. Any method that becomes a formula must invite and reward the development of countervailing methods. It is surp rising how frequently this elem entary logic is neglected. Seven interdependent points comprise the train of logic which shapes, sustains, and advances this whole enquiry. 1. The nature and functions of strategy and war are immutable. 36 A week may be a long time in politics, while a month can seem an eternity, but approximately three millennia of variably accessible strategic history is scarcely any time at all biologically, psychologically, or even socially. This book is not substantially about the causes of war, conditions for peace, or indeed in any fundame ntal sense about the st anding of the social institution of war. Those are intriguing topics which thus far have attracted a huge and hugely inconclusive body of scholarship; they are not, however, prime targets for assault here. 37 Nonetheless, root-and-branch consideration of the nature and functions of strategy and war cannot be eschewed entirely in this enquiry. The historical case studies examined in Chapters 6–8 explore the record of candidate RMAs which, in the assertions of many, either achieved, or promised or threatened to achieve, a thoroughgoing transformation not only of the character of strategy and war, but of their nature and functions. The First World War was, after all, hailed by the hopeful and naive as the ‘war to end wars’; while the nuclear revolution was keyed eponymously to a supposed ‘absolute weapon’ which could have ‘utility [only] in non-use’. 38 The purported contemporary information-led revolution promises in its pure cybercombat options ‘war’ without physical pain, force, or indeed violence as usually understood. 39 I am not impressed by claims registered on behalf of successive variants of transformational theory bearing upon the nature and functions of strategy and war. 40 However, I recognise that this first point in the logicchain of my argument is only a working assumption, albeit one in which I repose confidence. 2. The character of strategy and war is ever changing. Although, as hypothesised under paragraph 1 above, strategy and war have not altered in structure or purposes for millennia, their character has shifted bot h continuously and o ccasionally perhaps discontinuously in seismic measure, as society, economy, t echnology, and political fashion have changed. Perhaps paradoxically, stra tegy is as eternal in its architecture and components, as it is kaleidoscopic from conf lict to conflict, both between and within historical periods. The dimensions of strategy have been stable throughout history, as Chapter 5 explains, but the character of each dimension and its dynamic role in the ‘whole house’ of strategy and war, must vary from case to case. Strategic performance is the dynamic and sometimes nonlinear product of the same interacting and synergistically interpenetrating elements, but the tactical grammar of strategy’s ‘doing’ is always unique. For example, physical and mental geography always matters, 41 but they do not always matter to the same degree and consequence. 3. From time to time strategic history can appe ar to accelerate to such a degree that great discontinuities, nonlinear ‘events’, are discernible which we have come to label as RMAs (or transformations of war). Whether or not it is misleading to identify periods of rapid change, or apparently rapi d change, as revolutionary, is at least as much a matter of intellectual taste and political convenience as it is of empirical evidence. RMAs are intellectual constructs; they are the inventi ons of scholars and other thinkers. Napoleon’s corps d’armée, British and German indirect artille ry fire (1917–18), a nd atomic bombs were as actually corporeal as the identifica tion of each as key to an RMA is a case of socially constructed knowledge. Conceptually and empirically, RMA remains very much a contestable hypothesis of a term. Whether or not the appa rent speeding up of the pace of strategic history that we have identified as the RMA phenomenon tends unhelpfully to overreach on the evidence, and as a consequence tends to mislead, or whether it is helpful as a tool to aid strategic understanding, is a question central to this enquiry. While the RMA debate can be treated as a fascinating episode in strategic intellectual history, that debate happens to relate directly to extrem ely high stakes in national and international security. 42 4. The nature, which is to say the structure, and the somewhat nonlinear dynamic working of strategy limit the reliable scope and scale of advantage that exploitation of an RMA can confer. Because of its complexity, inter a lia, strategy is rarely approached holistically. Usually it is just too difficult a task to think systematically about strategy’s dimensions, let alone to consider how those dimensions behave dynamically as fuel for the unity in behaviour that is strategic performance as relative effectiveness. Even thoughtful and mature approaches to the RMA question, written by people who are historically aware, can stumble on shortfalls in the holism department. For example, earlier in this chapter I quoted former US Secretary of Defense William Cohen’s praise of RMAs. But Cohen defended his claim that exploitation of an RMA enables a nation ‘to achieve decisive military results in funda mentally new ways’, by offering some illadvised historical hostages to critical scrutiny. He tells us that History offers several such examples [of RMAs]: the revolutionary French Republic’s levée en masse; the development of the blitzkrieg by the German Air Force and Army; and extensive, sustained open ocean maritime operations developed by the US Navy. In all of these examples, the underlying technologies which made these revolutions possible were readily available to many countries. Bu t in each case, only one country transformed the essential elements of its armed forces in such a manner as to achieve a dominant and decisive advantage in warfare. 43 Cohen arguably is right to point to the cases that he does as RMAs, but he appears unaware of the grim irony in his choice of examples. Of his three historical cases of RMAs which supposedly enabled their exploiters ‘to achieve a dominant and decisive advantage in warfare’, two of the partie s he praises (revolutionary and Napoleonic France, and Nazi Germany) pr oceeded to lose their wars. 44 What happened was that the complexity and dynamism of strategy and war proved vastly more potent than did the RMAs, which, admittedly, yielded major relative advantage for a while . Had Secretary Cohen considered the French and German RMAs at issue in their full historical context— especially with reference to the course of events in the medium term—he might have appreciated dire synergies be tween ‘adversary’, ‘time’, and ‘geography’, regarded as dimensions of strategy and war, which can prove lethal to the legacy value of today’s RMA on the battlefield. 45 Intelligent, well-resourced, and amply motivated adversaries, given time—which they were—and blessed w ith a permissive geography (Russia and Britain), found good-enough solutions to the French and German ways of war under illustrative discussion here. The moral of this point could hardly be clearer. Reductionist approaches to strategy and war can founder upon a complexity that they ignore at their peril. 5. Fungibility is a two-edged sword. As stra tegy’s complexity may confound strategic hopes that rest upon a narrowly based RMA, so also that complexity can provide sources of strategic compensation for relative weakness. The Confederate States of America (Confederacy) lacked depth in economic resources as well as numbers of combat-capable white male adults relative to the war-making assets of the United States. But, during the first two years, for what the Confederacy lacked in industrial power and in numerical strength it found more than adequate compensati on in superior generalship, better combat skills, and higher morale. Those relative, though fragile, advantages were much assisted by an extensive national physical geography , ingenious industrial improvisation, and maritime blockade-running. By 1864 Confederat e armies had trained their Yankee enemy in the ultimate school of battle itself. Un ion generalship was much improved, and, unsurprisingly, high morale ceased to be a Confederate strength as the tide of military success flowed strongly, if irregularly, in favour of the Union. 46 Every historical conflict can be examined for bilatera l evidence of fragility among the interpenetrating dimensions of strategy. Whereas the story of ‘why (a nd how) the Allies won’ the Second World War is a tale of the successful search for sufficient overall strategic effectiveness through Allied strengths (e.g. total resources, strategy-making organisation, maritime geography) to compensate for Allied weaknesses (e.g. lack of unity of command, relatively poor tactical skills in many areas), so the story of ‘why (and how) Germany lost’ must be a tale of the failure of fungibility. 47 Germany’s areas of relative weakness (e.g. competence of political command, the effect of ideology on the scale of mobilisable assets, systematic errors over intelligence, military-procurement malpractices) proved decisively disabling, notwithstanding the undoubted elements of relative strength which might have overcome the weaknesses. These examples illustrate the argument that strategy and war are phenomena whose dynamic structure is always characterised by a struggle on the part of each belligerent to find and exploit offsets for areas of relative disadvantage. The course and outcome of every conflict yields evidence of success and of failure in this endeavour. 6. Cases of possible RMAs can be presented to illustrate my thesis. I will explain how and why those particular historical RMAs occurred and matured as they did. In addition, I will show what those cases tell us about the nature and character of war and strategy. For reasons of personal interest and expertise, I have chosen as case studies the alleged RMAs effected (i) in the wars of the French Revolution and (First Napoleonic) Empire; (ii) in the First World War; and (iii) by nuclear weapons. 7. RMA theory can be neither correct nor inco rrect; necessarily the theory is keyed to contestable definitions of the concept. A decade of debate about RMA has produced powerful arguments both in praise and in cr iticism. On balance, however, albeit largely serendipitously, the great RMA debate of the 1990s served the course of strategic enlightenment. It is important to reject RMA argument of an existentialist kind. RMAs do not exist ‘out there’, as it were in strategi c nature, just waiting to be discovered by the intrepid explorer-theorist. It is misleadi ng to reason, as does Jeffrey R.Cooper in a 1994 tour de force, that Revolutions, moreover, possess a [sic] interim dynamic different from evolutionary development. Revolutions are a recognition th at conditions have changed and represent a legitimation of innovation and change, and a call to push at the boundaries. 48 The difference between innovation that is just innovation and innovation that becomes revolution is not as clear as Cooper suggests. A point that is closely parallel is that the difference between arms competition and arms race tends to be a distinction without significant difference. While, intuitively, one can believe with Cooper that RMAs have some objective existence, even that they can be made purposefully by military revolutionaries, the historical evidence tends to insist upon recognition of continuities which undermine faith in RMA theory. 49 The great RMA debate has yielded only modest wisdom, let alone knowledge and understanding of so-called RMAs, partly b ecause of the contestability of possible evidence. But that debate has flushed out old but abiding truths and arguments about strategy, technology, and war, long overdue for renewed public airing. Specifically, as the body of this book reveals, largely inadvertently the RMA debate • triggered a renewal of attention to, and appreciation of, the structure and dynamic functioning of strategy and war; • compelled rigorous examination of the role of technology as a c ontributor to military and strategic effectiveness; • triggered newly explicit appreciation of the role and importance of purposeful compensation among the dimensions of strategy and war; • highlighted the necessity for car eful historical scholarship as the evidential base for useful theory. These are not trivial accomplishments. In point of fact, they comprise the rationale for this enquiry. The connected points stated above comprise the logical spinal column of the book; holistically approached, they are the argument. HISTORY AND SOCIAL SCIENCE Theorists are prone to take their ideas too seriously, while social scientists as theorists are apt to compound that peril by adding an unmerited devotion to their most favoured methodologies. Of course, ideas and methods matter. Indeed, it is because they matter so much that we need to be relaxed in our approach to them lest the comfort of their fit with the selected data-as-evidence takes second pl ace to an ill-judged procrustean standard of professionalism in research. 50 As a strategic theorist and soci al scientist, and because this book is an exercise in the application of stra tegic ideas according to a clear notion of how social science proceeds, I w ill open with three caveats in th e form of eloquent quotations from both sides of the Atlantic. From Britain, Alex Danchev warns that ‘[p]aradigms are not politics. They are merely the pets and playthings of political scientists.’ 51 Next, consider the sceptical American voice of Ralph Peters: Anyone who doubts that we have entered a pos trevolutionary order need only consider the popularity of seminars and publications devoted to the Re volution in Military affairs, or RMA—irrefutable indicators that any truly revolutionary activity is over. The drag-on debates about whether there has been or is an RMA, what it portends, and how it differs from the ‘military-technical revolution’ are frivolous and irrelevant. The endless symposiums, studies, and articles are popular because they promise a home to those intellectually dispossessed by the end of the Cold War. 52 The third caveat, this time borrowed gratefully from British historian Jeremy Black, is scarcely less subversive of intellectual confidence in the RMA debate than are the other two. Black writes as a specialist on eighteenth-century warfare who is troubled by the way in which periods are labelled and dis tinguished. He argues persuasively that, If themes of change and continuity ar e to be addressed in studying 1560–1660 and 17921815, then it is crucially necessary to consid er ancien régime warfare, as claims of change are often made for 1560–1660 and 1792–1815 in the context of misleading assumptions about the stagnation, indecisive ness, and conservatism of ancien régime warfare. 53 Black is leading up to a punch-line: ‘if the emphasis is rather on a more dynamic, fluid or plastic ancien régime or early modern period, then it is less necessary to focus on change or the causes of change in the late-eighteenth-century.’ Or, with generically the same argument, it is less necessary to focus on change in 191718 or in the 1990s. The RMA postulate has to imply preceding and postdating periods of contrasting relative stasis. That necessary implication of relative immobility, while serving usefully to highlight the antecedent and succeeding periods of change (RMAs), also is likely to bias resear ch towards its over-registration. After all, if RMAs can be viewed as isolated peaks on the plain, truly as nonlinear events, then they all but invite extraordinary explanation. To expand upon Black’s point, whatever the virtue of the value-charged labelling of eras, strategic historians and theorists readily may find themselves analytically captive to unduly organising concepts. Words as tools can become words as master. For example, habitu al reference to a particular passage of strategic historical experience as ‘ the Military Revolution’, or ‘ the Napoleonic revolution’, prejudges much of what is in need of explanation and justification. In the RMA debate of the 1990s, both hist orians and social scientists were guilty of galloping to the sound of the guns of intellectual combat (not to mention financial support), without first examining carefully whether or not this or that scholarly battle was worth fighting. Just as we speak in prose whether or not we do so with self-conscious purpose, so RMAs can be effected whether or not the revolutionaries know what, or how much, they are doing. It is unsound to claim either that ‘[i]nitiation of a revolution requires revolutionaries’, 54 except in a necessary and ta utological—though pa radoxically still important 55 —sense, or that there needs to be ‘ recognition of a revolution in the making’. 56 Indeed, RMA theory of all kinds necessarily is hostage to the sense in the use of the concept of revolution. 57 We are in a realm of social construction that must appeal to history for empirical support at the level only of plausibility, not certainty. As usually is the case when scholars ply their trade, simple, even commonsensical understanding of RMA in the very early 1990s soon evolved into a complex hierarchy of conceptual possibilities. The RMA concept evolved from offering one size to fit all potential historical episodes to being an adjustable t ool. No less useful an analytical tool is Occam’s razor. In the spirit of Occam, while recognising the merit in some differentiation among RMAs of distinguishable scale and pervas iveness, I elect to settle for simple RMA as the preferred term of art. Other acrony ms in the RMA family are introduced, but—to marry Occam and Clausewitz 58 —the culminating point of victory in RMA theorising is soon passed. I think it unlikely that this text will contribute too serious ly to the incidence of acronym deficiency syndrome. This book and its central thread of argument has to be an exercise in applied history for the purposes of social science. Perennial difficulties with endeavour s such as this are either for the social scientist to grasp enough of the pertinent history so as to be armed adequately to support theory or for the historian to risk affronting a professional aversion to bold transhistorical theorisation. Th e dangers for each skill group are real but distinctive. The bold social scientific theorist, if fortunate, may map the contours of facts well enough, while occasionally walking into a tree of error through lack of really local knowledge. With luck, or care perhaps, the trees encounter ed through such ignorance will not matter for the grand theory advanced. One should presume, however, that the trees so encountered do matter. When historians differ, the strategic theorist is reminded appropriately of the probable fragility of the evidential basis to the bold idea. 59 The RMA debate of the 1990s had many c ontributors to its provenance. Moreover, judgements as to who, or what, influenced whom, and when, are as problematical as by and large they are unimportant. For every unique, though rarely incontestable, strategic moment for every postulated RMA leader, th ere must be preceding enabling conditions which cumulatively have to be both necessary and sufficient . Similarly, there will be a period subsequent to that magical strategic moment when the RMA in question matures to its culminating point of relative (strategic) advantage. 60 For example, did the nuclear RMA switch on with the first test in the desert of New Mexico on 16 July 1945? With the military demonstrations against Hiroshima and Nagasaki on 6 and 9 August? With the making of this RMA by the US Strategic Air Command (SAC) and by US war planners in the late 1940s? 61 Or was the magic moment only reach ed in the first half of the 1950s, with the mature accommodation of nuclear-armed forces in policy and strategy and the emergence of a condition of mutual nuclear deterrence? 62 If there was a strategic moment for the information-keyed RMA of the 1990s, it was the largely unexpected and in essence, t hough not in detail, unarguable success achieved by the Instant Thunder air campaign ag ainst Iraq of 16 January–22 February 1991. 63 Alternative, earlier events which might be ca nvassed as the strategic moment include the destruction of the Israeli destroyer Eilat by an SS-N-2 (Styx) missile in October 1967, the destruction of the Paul Doumer and Thanh Hoa bridges in North Vietnam by TV-optical and laser guided bombs respectively on 27 April and 13 May 1972, 64 and the sinking of HMS Sheffield by an Argentinian Exocet air-to-sea missile on 4 May 1982. Each of these dramatic events was significant, but they are be tter viewed as harbingers, as straws in the wind, than as the true Bastille Day for an RMA allegedly misdated to the 1990s. As noted above, a problem endemic to an RMA perspective upon strategic history is its research preference for the dramatic, its bias to wards clear periodisation—after all, a revolution should clearly register a change of state, 65 and its siren call to indulge teleology. This last point means that adherence to an RMA perspective is likely to prejudice the scholar against crediting significant change prio r to a selected ‘strategic moment’. If one postulates a revolutionary period or episode, the inexorable consequence has to be the consignment of preceding events or behaviour s to the category of only modest relative significance at most. By defin ition, the events and behaviour s that precede the revolution must have failed to achieve nonlinear change. It follows that an RMA perspective of any persuasion has to yield a consistent bias to research. This bias is not necessarily fatal to sound scholarship, but after the manner of a car whose steering persistently pulls to left or right, the researcher/driver is unlikely permanen tly to turn in an entirely safe performance in navigation. To be fair to RMA advocates, the problem of teleology is one that social scientists, and even some historians, notice as a peril to which the latter are especially vulnerable. The RMA concept all but invites exaggera tion of the scale and scope of change introduced by the alleged revolutionary discontinuity. Surprisingly, perhaps, incontestable historical fact s can prove even more seductiv e than speculative intellectual constructions (e.g. the hypothesised Napole onic and nuclear revolutions in warfare). Historians have understandable difficulty a voiding the malpractice of explaining causes in terms of outcomes, forgetting that history’s unique outcomes (say, war in August 1914) are not uniquely possible. Thus, studies of 1900–14, or 1933–39, often are decorated with a subtitle inadvertently rev ealing of an undue hinds ight, ‘the road to war’. 66 It is encouraging for a social scientist such as myself to find a historian sensitive to this déformation professionelle . For an excellent example, in his politically incorrect revisionist study of the American Civil War, Gary W. Gallagher claims: All too aware that the Confederacy failed in its bid for independence, many historians have worked backward from Appomattox to explain that failure. They argue that the Confederacy lacked sufficient will to win the war, never developed a strong collective national identity, and pursued a flawed military strategy that wasted precious manpower. Often lost is the fact that a majority of white southerners steadfastly supported their nascent republic, and that Confederate arms more than once almost persuaded the North that the price of subduing the rebe llious states w ould be too high. 67 He explains further: Preoccupation with fissures within the wartime South arises from an understandable tendency to work backward from the war’s outcome in search of explanations for Confederate failure. Historians begin with the fact that the North triumphed. 68 What makes the fashionable theory of a lack of national will in the Confederacy so compelling is, of course, the fact of defeat in April 1865 (strictly, only the surrender on 9 April by Robert E.Lee’s Army of Northern Virginia, which was taken generally to mean the defeat of the Confederate St ates). When the course of strategic history is explained in terms of its outcomes, the role of contingency is apt to be an early victim of neglect. Those historians who succumb to the ‘road to…’ syndrome need to remember that human affairs are notably, though certainly not wholly, nonlinear. THE MAKING OF A GREAT DEBATE My attitude towards RMA is that, as befits an intellectual construct, it is more or less useful rather than true or false. In point of fact, the RMA postulate can be useful even when it is not empirically persuasive. For example: the RMA postulate of a moment or a period witnessing a radical change of state— say the alleged early modern European and Napoleonic RMAs—promotes careful study of the process of change in the periods preceding, even long preceding, those purportedl y revolutionary eras. The result is that proponents of the RMA idea unintentionally spur research into innovations in periods of supposedly (by RMA definition) non-revolutionary change. 69 As a consequence, we learn more about the warp and woof of the course of strategic history writ large, and arguably revolutionary and other episodes. Serendipity triumphs yet again. Although unenamoured of the RMA concept per se, I am impressed by the use to which it can be put, both deliberately and—more often and more significantly— otherwise, to shine light in dark places . Although several schol ars have ventured insightful comments about, and have ventured some mode st accounting for, the RMA debate of the 1990s, no one yet has sought to overfly the whole terrain of the subject in time and space. 70 Whatever the quality of debate a bout RMA topics, the raising of the RMA flag mobilised a wide variety of pe rspectives and skills, enabled some long antecedent ideas and streams of analysis to play significan tly in a contemporary debate, and generally triggered a nonlinear intellectual and even (probably) policy event. Whether or not the RMA idea is empirically sound, as well as being useful, it is perhaps ironic that there is no room for argument over the discontinuity in strategic discourse effected by the advent of RMA debate in the United States in the early to mid-1990s. While the reality of substantial and varied items of intellectual (and some material and policy) provenance is readily conceded, between 1991 and 1995 RMA moved from the wilderness of little recognition to the dizzy status of ‘acronym of choice’ in the US defence community and far beyond. 71 The apparent novelty, as well as the imperial reach of the concept, much assist ed its ready acceptance. The US defence community, indeed the strategic studies community more genera lly, is not known for its historical literacy. 72 The notion of irregularly periodic discontinuities in modes of warfare, which is to say the idea behind RMA, may be ancient history, but it did not seem so to theorists, officials, and commentators in the United States in the 1990s. The modern history of American strategic debate bears some resemblance to the fashion industry. Scholars and institutions su cceed by being fairly bold market leaders. The industry of defence analysis prospers through its ability to attract funding for the study and exposition of new or, mo re usually, refurbished ideas. 73 Just as the world’s fashion houses strive competitively in their s easonal collections or novelty that will sell, so the defence intellectual community in its many institutional forms competes for market share in respect, official access, and cold ha rd cash. As fashion houses need new designs, so defence analysts and strategic theorists need new, or at least new-sounding, ideas. A debate can become an apparently great deba te as much for struct ural sociological as for substantive reasons. No matter how merit-worthy the RMA idea, a country like Britain has too few active strategic theorists, too few publication outlets, and offers too little genuine dialogue between those inside a nd those outside governme nt to catalyse or sustain a great debate. In the United States, in sharp contrast, even a poor idea can threaten to become a serious contender for fa shionable status, largely because of the size of the community of debaters. An idea begins to look serious when dozens of publications and conferences honour it with careful attention. These slightly sceptical comments are not intended as pejorative judgement on RMA theory. They are intended, however, to help explain how it is that a big-sounding notion, a ‘high concept’, can achieve take-off so rapidly. The US defence community provides the critical mass of accessible public interest, money, and theref ore numbers of players, from which great strategic debate can emerge like a comet appearing suddenly above the horizon. 74 The relationship between threat perception and RMA dynamics is too complex for treatment at this early juncture. We shall return to it later, both in specific historical contexts with respect to the case studies, a nd in the concluding chapter. Suffice it to say for now that the real-world catalyst of the RMA debate, the Gulf War of 1991, was waged by the West with a military instrument forged in and for the conduct of the Cold War (and, ultimately, for a third world war). The subsequent decade of American RMA debate was a context unguided by plausibly dominant threats or, consequently, by any higher direction of defence worthy of the honourable label, ‘strategy’. 75 If the nuclear revolution was made during the Second Worl d War (as the Napoleonic and First World War revolutions also were made in conditions of extreme duress), most essentially in response to the scientists’ fears about possible German weaponisation of atomic science, in contrast the ‘threat set’ for the information-led RMA is opaque, contestable, and in no small measure indeterminate. 76 Actual strategic history, that is to say real strategic behaviour, serves as oxygen to strategic intellectual combat. If strategic behaviour is quiet, so strategic debate becomes ever more enervated as it exhausts its existing event-fuel. The wars of Yugoslavian succession, and especially NATO’s war c onducted against Serbia in 1999, had only minor significance in reanimating RMA de bate. Notwithstanding the ultimate success achieved by NATO with its campaign of aerial coercion, the deeply contested course and conduct of that campaign served usefully to remind people that strategy is a difficult art to practise. 77 Despite the additional oxygen to the RMA debate supplied by the extra-ordinary nastiness in the Balkans in 1999, the great RMA debate—as distingished from the realworld activity to which the debate refers—was fired into life by the Gulf War of 1991, picked up velocity in 1991–94, peaked in 1995–97, and aged with predictable rapidity in 1998–99. There is a natural life-cycle to all great strategic debates, the course of that over RMA included. 78 The dust had barely settled over Kosovo when the US defence community embraced the concep tual successor to RMA, ‘asy mmetric threats’. The realworld evidence of global terrorism made manifest in New York City on 11 September 2001 only served to accelerate the popularity of the idea of ‘asymmetry’ in strategic affairs. The idea of RMA as a grand theory of strategic history may be novel, but the concept of qualitative change in the terms and conditions of warfare has to be as old as perception of its apparent existential reality. Sharp changes in military practice away from traditional methods cannot help but elicit complaint, scepticism, variably enthusiastic endorsement—in short, debate. People did not need a formal theory of RMA in order to know that a favourable discontinuity in re lative military advantage might be achieved through managed change. Some historians today believe that they can identify many past RMAs, all or any of which, if judged worthy of the revolutionary label, would have been effected without benefit of the clergy of gr and theory. In addition to a common lore of strategic experience which bequeaths a ppreciation of the possibility, though not necessarily the desirability, of radical cha nge, defence analysts in the 1980s and 1990s could find some explicit conceptual guidance in a century’s worth of strategic theory. For a leading example, would-be RMA theo rists in the last two decades of the twentieth century could find inspiration in the title of Jean Colin’s 1912 work, The Transformations of War . 79 If Commandant Colin’s analytical tour de force is unduly antiquarian for modern taste, how about the l eading initial theorists fo r the nuclear era? In 1946, three small books of exceptional merit collectively laid down a marker difficult to miss. In The Revolution in Warfare, Basil Liddell Hart advised—in words drafted prior to his knowledge of the atomic bomb—that ‘While the far-reaching effects of a superiority in mechanical forces have not yet been fully grasped, this qualitative evolution in warfare is already being overtaken by developments of an automatic nature [referring particularly to the use of such more or less guided missiles as Germany’s V-1s and V-2s] that foreshadow a revolution in warfare.’ 80 Also in 1946, William Liscum Borden began his treatise, There Will Be No Time: The Revolution in Strategy, with the grim observation that ‘Atomic energy is so revolutionary that its full impact upon strategy may not become evident until after another war, if there is such a war.’ 81 Still in 1946, truly a vintage year for strategic fore-sight, Frederick S.Dunn wrote in The Absolute Weapon: Atomic Power and World Order, that ‘to speak of it [the atomic bomb] as just another weapon was highly misleading. It was a revolutionary development which altered the basic character of war itself.’ 82 This discussion simply illustrates the point that the idea of revolutionary change in war, certainly in warfare, has long been commonplace. If anything, the revolutionary ascription has descended into cliché, as w ith overuse of reference to the ‘nuclear revolution’. Bold and skilful theorists did not need to invent the idea of RMA; in its bare essentials, at least, it has been lying around forever. METHOD AND TRAJECTORY This text is organised to consider and answer a series of discrete, but closely connected, questions. Chapters 2 and 3 provide detailed discussion of the RMA concept, rival RMA theories, and the evolving state of play in RMA debate. Chapter 2 presents critically the leading th eories of RMA (and associated concepts), gathering them for systemic review under the rubric of contested and contestable ‘patterns in history’. The discussion provides ample warning against the siren calls from rival intellectually and intuitively appealing ‘wave theories’ of historical transformation. Chapter 3 develops the basic architecture for the study of RMA. A nine-phase RMA life-cycle is proposed, which should have a universal writ. The analysis identifies an endto-end historical process of RMA, which is likely to lack clear breakpoints, or nonlinear events. Given the central signi ficance of the concept of revol ution to RMA, this chapter continues to expose the difficulties posed by hist orical data that generally are inherently ambiguous vis-à-vis their possible meaning as evidence for theory. Although history is vital for social science, rarely can it resolve the theoretical problems of social scientific theorists. We cannot simply have resort to ‘t he facts’ in order to develop superior RMA theory. Chapters 4 and 5 enrich, complicate, but give meaning to the brew, by developing a theory of strategy that explains RMA phenomena. The organising assumption is that RMA behaviour is, and has to be, strategi c behaviour. Chapter 4 probes strategy’s predictive nature and examines critically the merit in the fashionable argument that because strategy is somewhat nonlinear a nd certainly is the realm of chance par excellence, it is also litera lly chaotically unpredictable in its outcomes. I am not overimpressed by that claim. Chapter 5 proceeds to explain in general terms why and how RMA behaviour has to be strategic behaviour. The chapter then explains how strategy ‘works’—which explains also how RMAs must ‘work’. Chapters 6–8 present and treat three historical studies by the method of focused comparison. While each case (Chapter 6—Napol eonic; Chapter 7—the First World War; Chapter 8—nuclear) is wholly unique in char acteristic detail, a common architecture of theory binds them as examples of RMA subject to a common logic of strategic behaviour. These chapters will show how three particular RMAs worked strategically. Chapter 9 employs the evidence from the case studies in order to develop ideas about compensation among strategy’s dimensions. The guiding ideas in Chapter 9 are that war (and other strategic contests) is a duel, a nd that each belligerent brings distinctive strengths and weaknesses to the struggle. RMA theory addresses the duel by promising a radically favourable discontinuity in military e ffectiveness. My general theory of strategy provides context, and discipline, for RMA prac tice. What does the nature and working of strategy mean for RMA behaviour? That is the question. Chapter 9 also completes the analytical journey by revisiting the tensions between the idea of strategy as purposeful direction and a plan of action, and strategy as a zone of complexity whose dynamic working is both technically and figuratively chaotic in course and outcome. 83 Strategy (and war) is technically ‘chaotic’, in that it does not unfold neatly in a linear fashion. It is figuratively chaotic or ever threatening to become so, b ecause, in the words of Sir Archibald Wavell: War is a muddle; it is bound to be. There ar e so many incalculable accidents in the uncertain business—a turn of the weather that could not be fore-seen, a message gone astray, a leader struck down at the critical moment—that it is very rarely that even the best-laid plans go smoothly. 84 However, as I shall argue, strategy is not a hopeless endeavour in purposeful accomplishment just because it can be ambushed by chance, or by risk s that transpire to be all too real. Such characterisation is structurally unsound. Rather, strategy has to be carried out despite the fact that it exhibits some nonlinearity and can be chaotic. Risk, chance, and uncertainty are not variables extern al to strategy; instead they are endemic to it. Before readers succumb to undue pessimism, they should notice that the consequences of the role of risk upon strategic performance can be offset by two further systemic conditions. The nonlinearity of strategy and war does not translate reliably into net disadvantage. The apparent discontinuities and somewhat unpredictable synergies of strategy in action are as apt to yield disconti nuous benefit as its reverse. The damage that strategy’s complexity and occasionally ch aotic working may wreak upon our designs, in principle at least, must apply no less punitively to our enemies. To be strategically successful one needs only to be better than the foe. One does not need to record anything close to a perfect score on some cosmic assay of absolute strategic excellence. The trajectory of the text begins with conceptualisation and theory in consideration of RMAs and strategy, and proceed s via history to understanding of how, why, and to what result the RMA phenomenon works as strategic behaviour. NOTES 1. In a landmark article, Williamson Murray claims that ‘The term revolution in military affairs (RMA) is a buzzword inside the [Washington] Beltway and among academics interested in defense affairs. As Dennis Showalter noted at a recent conference, “RMA has replaced TQM [total quality management] as the acronym of choice” among members of the Armed Forces’: ‘Thinking About Revolu tions in Military Affairs’, Joint Force Quarterly, 16 (Summer 1997), p. 69 (emphasis in original). 2. Raymond Aron, ‘The Evolution of Modern St rategic Thought’, in Alastair Buchan (ed.), Problems of Modern Strategy (London: Chatto & Windus, 1970), p. 25. 3. On 12 January 1954, US Secretary of State John Foster Dulles triggered a public debate on nuclear deterrence (and limited war) when he revealed in a speech that ‘The basic decision [taken by the Eisenhower administration in 1953] was to depend primarily upon a great capacity to retaliate, instantly, by means and at places of our choosing.’ Secretary of Defense Robert S.McNamara similarl y triggered a lively public debate when on 18 September 1967 he propounded a theory of strategic stability keyed to a particular (action-reaction) theory of arms race dynamics. These sp eeches are reprinted in Philip Bobbitt, Lawrence Freedman, and Gregory F.Treverton (eds), US Nuclear Strategy: A Reader (New York: New York 2 RMA Anatomy: Patterns in History? Anyone can manufacture definitions and coin terms with intriguing acronyms. Nothing as simple as the RMA idea per se, however, has b een at stake in the debate. All debaters could, and by and large did, agree that if the RMA concept is empirically plausible, and if contemporary trends appear to fit the concept well enough, then the 1990s registered a radical change in the character or conduct of war, which is to say that the 1990s registered an RMA. The two qualifying ‘ifs’ are significant caveats. The debate in the 1990s included some, though probably insufficient, argument about the empirical plausibility of the RMA idea itself, the identity and character of the RMA(s) that might be under way, and also the prospective strategic significance of such an RMA. These three topics, though clearly interdependent, nonetheless are distinguishable. This chapter poses and discusses the ques tion ‘what is an RMA?’ Interesting though it is to pursue this enquiry certainly a cast of thousands believed so in the 1990s, readers are warned that an RMA focus to debate is inherently limited and fragile. This book is designed principally to explore what RMA deba te tells us about strategy, war, and the course of strategic history, rather than about RMA itself. Because RMA is merely an intellectual construct, albeit an appealingly imperial one with great explanatory potential, it is not wise to accord it effectively iconic significance. WARNING LABEL There is much to say in praise as well as in criticism both of the RMA hypothesis itself and of the use to which the hypothesis has been put to date. It is useful to flag here some of the more significant grounds for reservation over the merit in the RMA idea. These caveats may be regarded as an effort at in tellectual vaccination against the potential to mislead of an RMA literature and debate th at often—to risk the reification—took its subject and itself too seriously, and which was always on the threshold of loss of perspective. The warning label which these critical comments convey are preemptive cautionary counterpoints to the RMA anatomy as dissected in the balance of this chapter and to the discussion of RMA dynamics in Chapter 3. The issuing of clear warning at this stage largely obviates what otherwise would be a constant need to inject sceptical cautionary notes. First, and hugely foremost, the RMA hypothesis bears what may be an empirically unsound bias in favour of discontinuity in strategic history. To observe that the discontinuity integral to the meaning of revolution in military affairs is simply a concentrated expression of the chaotically non linear nature of strategy and war would be no more than a half-truth, and a perilously misleading half-truth at that. As noted in Chapter 1, there is real value in borrowing complexity theory and the ideas of nonlinearity and chaos from the natural and ma thematical sciences, but that value is rapidly lost if the borrowing is indiscriminate and excessive. 1 Strategic theorists can learn a lesson from the errors of those among their close associates in the fields of international relations theory and history who have borro wed and stolen not wisely but too well from literary ‘critical theory’, and other expressions of the post-modern ethos. 2 Both literary critical theory and complexity/c haos theory serve up at leas t two major kinds of hazards for the unduly credulous strategist. On the one hand, they are both contested bodies of ideas in their own scholarly realm-of-origin. On the other hand, both bodies of theory, especially in the simple (even often simplistic) forms in which they appear in strategic speculation, though potentially sources of important insight, have a distinctly ragged fit with the robust phenomenon of human nastiness that is the domain of strategy. Even when the ideas of comp lexity and chaotic nonlinearity appear well adaptable to strategic experience, the central elevation of discontinuity, in RMA or military transformation, can be allowed inappropriately to prejudge enquiry as to what changed and what did not. Furthermore, such enthronement of discontinuity discourages careful consideration of the histor ical significance of preceding and succeeding periods. This argument should not be read as a bid to inflict lethal damage upon the RMA construct. All intellectual research tools come at a price. RMA is not unique in the fact that it carries some dangerous baggage. The transaction costs of employing the RMA idea include a constant need to make provision for the appreciation of continuities in strategic phenomena, because the RMA concept yiel ds powerful oversteer in the opposite direction. Second, no matter how carefully we speculate about RMA and apply theory to interpret strategic behaviour, there must always be an essential indeterminacy about the subject. I am acutely aware that by so organising this study as to deploy three hypothesised RMAs as case studies (in Chapters 6–8), I may appear summarily to dismiss important philosophical and empirical doubts. Whether or not the selected cases of RMA truly are such, the strategic behaviour that each encompasses assuredly occurred and is well worthy of investigation for our purpos es. French Revolutionary and Napoleonic warfare happened and was important, whethe r or not one approves of the idea of a ‘Napoleonic RMA’. A label is only a label; the contents of the can are unaffected by their tagging. My second caveat is intended to warn readers against the nominalist fallacy. If we have a name for it, and if that name passes into common currency, then ‘it’ assumes some quality of reality. Virtually all discussion of RMA, including this one, encourages acceptance not only of the concept its elf, but also of particular hypothesised historical RMAs to which frequent reference is made. There is an almost insidious commonsense plausibility about the RMA hy pothesis which can disarm potential sceptics, especially when the acronym is widely favoured in everyday usage. Andrew W.Marshall, the godfather of the American RMA debate in the 1990s, was eminently plausible when he told the Senate Armed Services Committee on 5 May 1995 that The term ‘revolution’ is not meant to insist that the change will be rapid—indeed past revolutions have unfol ded over a period of decades—but only that the change will be profound, that the new methods of warfare w ill be far more powerful than the old. 3 Marshall is not, indeed cannot be, demonstrably correct, but he is certainly persuasive. However, grounds for scepticism lurk both about his recognition that ‘revolution’, to be such, need not happen speedily, and in his citing of the necessary truth that revolutionary change has to be profound . The trouble is that a distinctly non-speedy process of profound change might plausibly simply be regarded as the course of history much as usual. Is all profound change revolutionary? If we relax the temporal requirement for revolution, then surely change can hardly help but be profound? A final quibble is the thought that ‘new methods of warfare’ may be judged revolutionary with reference to an absolute standard of unilateral effort, but how can that be a sensible approach for such a systemically bilateral (-plus) activity as war? Net assessment is inescapable, as Marshall, above all people, knows. 4 Investment in an RMA cannot itself guarantee that ‘the new methods of warfare will be far more powerful than the old’. Strategic effect, which is, or should be, Marshall’s meaning of power, can only be assessed in adversarial relation to the effect generated by the enemy. The complexity systemic to the nature of strategy and war limits the potency practicable for an RMA. The temporary outcomes possible through the dynamic, including nonlinear chaotic, character of strategy and war, are always likely to be governed and reduced by the enduring complex structure of the subject. This is an expression only of probability, not certainty, and is always liable to particular exceptions. A focus on, say, German, or whomever’s, RMA leadership, has major potential to mislead theorists into neglecting both the complex structure of strategy, and the central persisting importance of conflict’s adversarial essence. 5 Third, RMA is one of those mega-concepts which in the word processors of careful scholars can be a valuable tool of strategic analysis, but which in the word processors of others can encourage misleading reductionism. As acronymic shorthand, RMA is difficult to better. However, the convenience of the hyper-terse economy of RMA usage encourages a neglect born of familiarity . This ‘acronym of choice’ in the 1990s, 6 because of its popularity, fuelled an existential assumption born of the nominalist fallacy, and oversimple analyses born of reification. Thus far, RMA has been deployed here in the spirit of a collective noun, referring generically to possible or actual radical changes in the character of warfare. But the price pa id for apparently sharpedged clarity in communication includes the possible encouragement of a grossly oversimplified view of the phenomena at issue. In general usage RMA is a compound term, a house with several rooms. This third caveat is the point that all but universal reference to ‘ the RMA debate’, or to ‘ the RMA’, though harmless as informal communication among experts, can convey to those less expert the idea of a single kind of event and process. Observers of RMA debate could fail to notice that an important stake in the debate is decision on just what it is that is worth debating as RMA experience. By partial analogy, strategic commentators have to remember that in goodly measure limited war—and all wars are more or less limited—is waged both according to, and in violent c ontention over, particular limits. Careless contemporary references to ‘the RMA’ afte r a decade of intense debate illustrate the power of a handy acronym to fuel unrecognised reductionism. Fourth, notwithstanding the popularity of social conservatism in the United States, and the lingering bitter aftertaste of a half-century of conflict with the heirs of the Bolshevik revolution (actually coup) of 1917, the idea of revolution remains a positive one for most Americans. 7 RMA, especially when explicitly nationally branded as ‘the American RMA’, enters the lists of US public debate with overwhelmingly positive cultural vibrations. 8 RMA sounds new, forward-looking, hi-tech, ruthlessly pragmatic, and, overall, hugely American. 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