

THE UNIVERSITY OF HULL

The Temporal Dimension:

How is time important in the conduct of strategy?

Being a Thesis submitted for the degree of Doctor of Philosophy in
the University of Hull

by

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January 2018

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Acknowledgements

The completion of this work owes thanks to a number of people who have given help and support over the last few years, and I hope I have not omitted anyone from the following list.

Firstly I would like to thank the staff at the University of Hull, particularly David Lonsdale, my supervisor and mentor, for his inspiration, support, and faith in my ability to complete this work. My thanks also go to Chris Martin, for his assistance over the years.

I am also indebted to friends and colleagues for their assistance along the way, namely, and in no particular order, Luke and Ella Crickwood, Adam and Charlotte Curtis, Tristan Johns, Nicholas Chapman, Jeff Cohen, Mark Lewis, Viktorya Fedorchak, David Downing, Guy Edwards, Ryan Lord, and Katarzyna Koltun.

Thanks also to the James Reckitt Charitable Trust for their financial contribution.

Finally and importantly, my thanks go to my parents for their support during my academic studies, and their belief in my ability.

Introduction

‘The importance of time and timing is stamped on every page of modern strategy.

But this is a dimension of strategy that is often neglected in the works on theory.’¹

– Colin Gray

Introduction

Time is intrinsic to our existence and permeates all actions and activities, from work to socialising, festivals, and growing food; even our philosophical comprehensions of ourselves, in respect to past and future, ancestors and possible descendants, and our sense of mortality, are informed by, or dependent upon, our understanding and organisation of time. In war and strategy however, time takes on a priority rarely experienced in peace-time outside of emergency situations, for here it can make the difference between victory and defeat, life and death - often for large numbers of people, and perhaps including the very society itself. One may even speculate counterfactually that history and political geography would be quite different had actions been otherwise in respect to time: Consider for example whether, had Alexander not charged at the decisive moment at Gaugamela, whether the battle could have been won, and in turn, whether the victorious Achaemenid empire would have endured? Would Napoleon have been victorious in Russia, had his army finished their campaign before exposure to the Russian winter? Could earlier involvement of the Anglo-French allies have decisively checked Hitler’s expansionism? We may only muse as to how history would have differed, however it is clear that consideration of time makes strategic sense.

¹ C. S. Gray, *Modern Strategy* (Oxford: Oxford University Press, 1999), 172

This thesis thus maintains that time is a significant, though complex, ‘dimension’ of strategy, which can be pivotal to performance and results at multiple levels of war. Nevertheless according to the noted strategist Colin S. Gray, with whose words this work opened, ‘time’ itself has not received as much in-depth discussion in the literature of strategic theory as it perhaps merits; at least in part because, according to Gray, it is *so* obvious a factor that it is often neglected.² As the review of literature below shall illustrate, this statement is broadly correct. Scholars have usually approached specific temporal issues of strategic activity in part, but have not discussed the temporal dimension of strategy itself comprehensively in forms which compare to their work on other strategic ‘dimensions’, for example on logistics,³ geography and climates,⁴ or intelligence,⁵ and there is not the dedicated work on the temporal phenomena as may be found in other disciplines.⁶ With that in mind, the original contribution of this work is an attempt to redress some of this apparent dearth by expanding the understanding of the nature of time and its relevant aspects for strategic thought and practice, via a systematic, interdisciplinary approach to the subject. For this purpose, the primary research question for this work is: How is time important in the conduct of strategy?

² Gray, *Modern Strategy*, 42, 172; C. S. Gray, *Fighting Talk: Forty maxims on War, Peace and Strategy* (Washington: Potomac Books Inc., 2009), 70

³ T. M. Kane, *Military Logistics and Strategic Performance* (London: Frank Cass, 2001); M. van Creveld, *Supplying War: Logistics from Wallenstein to Patton*, 2nd edition (Cambridge: Cambridge University Press, 2004)

⁴ H. A. Winters, et al, *Battling the Elements: Weather and Terrain in the Conduct of War* (Baltimore, MD: John Hopkins University Press, 1998); P. J. Woolley, *Geography and Japan's Strategic Choice: From Seclusion to Internationalization* (Dulles, VA: Potomac Books, Inc., 2005)

⁵ M. Herman, *Intelligence Power in Peace and War* (Cambridge: Cambridge University Press, 2009)

⁶ For example; B. Adam, *Time & Social Theory*, paperback edition (Cambridge: Polity Press, 1994); J. Hassard, (ed.) *The Sociology of Time* (London: The Macmillan Press Ltd., 1990), or N. Thrift, *Introduction To Time-Geography: Concepts and Techniques in Modern Geography No. 13* (Norwich; Geo abstracts, 1977); T. Hägerstrand, 'Time Geography; focus on the corporeality of man, society and environment' in J. Aida (ed.), *The Science and Praxis of Complexity* (Tokyo: UN University Press, 1984)

Our objectives require that we undertake a comprehensive approach to the temporal phenomenon in order to attempt an answer, and this engenders further *sub-questions* concerning time in strategy: What is the nature, or character, of time in strategy? Is it a dimension in which to operate, or a resource to be harnessed? How may time be ‘used’ effectively to achieve strategic objectives? Is it possible, as theorists such as Ajay Singh⁷ have claimed, to wage ‘time warfare’? Additionally, we must consider how time interacts with other factors in influencing decision-making and outcomes.

To answer these questions we draw on work from other disciplines in the sciences and humanities, alongside examination of the existing strategic literature relating to time to develop an understanding of time’s complex nature in strategy, thus allowing the development of a ‘theory of strategic time’ which conceptualises relevant aspects of the temporal phenomenon in strategic behaviour and decision-making. This theory we shall then consider in light of studies of historical cases, which provide insight into how time has been important, and understood and used by strategists, in past conflicts. This allows the theory to be informed by insights from empirical example.

⁷ A. Singh, ‘Time: the New Dimension in War’, *Joint Force Quarterly*, 10 (Winter 1995)

Literature

Time is not a subject easily approached by any scholar, for there is much to consider about what we mean by ‘time’, and how we define it as the object of our study. Time has been the subject of thought in many fields; indeed, when reviewing the body of material present on time in its representations and understandings throughout human thought, there is nigh-infinite choice about where to start; one could consider Aristotle, St Augustine, Kant or Einstein,⁸ to name some of the more recognisable commentators on the matter. As these names indicate, time is not the province of any one discipline, but permeates many and in ways variously understood. However, despite the large body of work on time in many fields, the opening claim from Gray that time has not received the same attention in strategic studies remains conspicuous, and forms part of the rationale for this work and the exploration at the heart of this review. At this juncture we thus briefly outline some time concepts in other fields to provide some background to our inquiry and help position it within the context of the wider world of inter-disciplinary thoughts on time. This assists our understanding of what time is in other fields, and so helps our understanding of what it may be in ours, though this is more fully explored in Chapter Two.

In *Physica*, the Ancient philosopher Aristotle discussed time as the movement of the ‘now’ through a temporal dimension,⁹ and connected it to ‘change’ and ‘movement’, being the sun in the sky or even thoughts in the mind; both showing a

⁸ Aristotle, *Physics- Book VIII*. Translated from Greek by D. W. Graham. 2nd edition (Oxford: Clarendon Press. 1999); St. Augustine cited in J. Cohen, ‘Time in Psychology’ in J. Zeman (ed.), *Time in Science and Philosophy: An International Study of some Current Problems* (New York: Elsevier Science Ltd., 1971); I. Kant, ‘Dissertation on the Form and Principles of the Sensible and Intelligible World’ in I. Kant & J. Handyside, (Trans.) *Kant’s Inaugural Dissertation* (Chicago: The Open Court Publishing Company, 1929); A. Einstein *Relativity; The Special and General Theory, a Popular Exposition*. Translated from German by R.W. Lawson. 15th /University Paperbacks Edition (London: Methuen & Co Ltd., 1960)

⁹ Aristotle, *Physics- Book VIII*, 3 (251b 10-28)

passage of time via some form of change or movement/motion,¹⁰ substituting a clock. Yet Aristotle's notion of time was not absolute, but based on subjective 'now' as a reference point.¹¹ Centuries later Leibniz followed Aristotle's ideas on time as movement¹² and maintained movement as the driving force of time and relative to change.¹³ Immanuel Kant likewise maintained a change *and* time nexus¹⁴ but also explained possible differences in realities between different times, and used this to refute Leibniz's basis of time *as* change. In Kantian thought time is subjective, a thing understood only in the mind and used as a schema to comprehend the world.¹⁵ This philosophical outline illustrates that ways of thinking about time may differ over time, and between different cultures; as strategy is a human activity we must consider the possibility that not all humans will have the same understanding of time, which could subsequently influence how they use time as a strategic tool.

Conversely, in physics, Sir Isaac Newton's concept of reality was based on absolutes in mathematical space and time, which passes at a constant rate regardless of its recording, or relations amongst movements and changes;¹⁶ 'Newtonian time' is constant despite relative frames of reference, i.e. a person on earth would experience the same time as that of someone in space.¹⁷ However, understandings of time in physics have also changed, from the Newtonian concept of absolute time in an absolute universe to Einsteinian relativity, of non-absolute time, dependent upon

¹⁰ B. C. van Frassen, *An Introduction to the Philosophy of Time and Space*, (New York: Random House, 1970), 18-19

¹¹ D. W. Graham, 'Commentary' in Aristotle, *Physics- Book VIII*, 47

¹² N. Jolley (ed.) *The Cambridge Companion to Leibniz* (Cambridge: Cambridge University Press, 1995), 184; N. Rescher, *The Philosophy of Leibniz* (New Jersey: Prentice-Hall Inc., 1967), 99

¹³ Relational to other points in time, and non-absolute compared to Newton's concept of absolute time.

¹⁴ I. Kant, 'Dissertation', 59

¹⁵ L. R. Heath, *The Concept of Time* (Chicago: University of Chicago Press, 1936), 115; Kant, 'Dissertation', 59

¹⁶ Heath, *Concept of Time*, 87-88, 90

¹⁷ H. C. Ohanian, *Special Relativity: A Modern Introduction* (Lakeville, MN: Physics Curriculum & Instruction Inc., 2001), 5-6

relative frames of reference:¹⁸ As the speed of light is a universal law of physics and thus unchangeable regardless of position, we may understand that time is relative to one's reference frame and not absolute.¹⁹ In these theories two reference points suffer from time dilation; different passages of time due to either the motion of one reference point relative to another, as in special relativity, or due to the effects of gravity as in general relativity.²⁰ These distortions of time are due to the four-dimensional nature of 'space-time.'²¹ Physics has general importance to all our lives and activities, as it explains how the world physically works, yet discussions of the cosmic and atomic in this physicist's sense of time can mislead the strategists' quest for appropriate time concepts.

In the field of biology concepts of time are mostly concerned with natural biological cycles; birth, life, death, generations, and seasonal cycles,²² or on the great scales of evolutionary change.²³ This is a necessarily simplified view, based on what is observable and relevant to biology. It is difficult to imagine how another, admittedly perhaps more philosophically sensitive, concept of time would be relevant to biologists whose experience and discipline essentially mandates a concept of

¹⁸ Adam, *Time and Social Theory*, 56; L. Susskind, *Lecture 1 of Modern Physics: Special Relativity* at Stanford University, Stanford, CA, United States (April 2008); Ohanian, *Special Relativity*, 1-5

¹⁹ Susskind, *Lecture 1, Special Relativity*. There may be considerable explanation needed to explain inertial and non-inertial reference frames, along with many of the other scientific terms: The Stanford lectures by Professor Susskind and Ohanian's *Special Relativity: A Modern Introduction*, have been invaluable and somewhat more accessible to the layman than Einstein's own work.

²⁰ Ohanian, *Special Relativity*, 81-84

²¹ Einstein, *Relativity*, 55-60; Perimeter Institute of Theoretical Physics, Perimeter Inspirations, GPS Relativity Guide (2010). Available online: https://www.perimeterinstitute.ca/images/perimeter_inspirations/GPS/gps_relativity_guide.pdf, [Accessed 13/4/2014]

²² H. Kalmus, 'Biological Time Scales' in J. Zeman, (ed.) *Time in Science and Philosophy: An International Study of Some Current Problems* (New York: Elsevier Science Ltd, 1971), 147; Adam, *Time and Social Theory*, 72

²³ Heath, *Concept of Time*, 122

irreversible linearity and direction of time, yet also contains these essential life cycles.²⁴

For the student of psychology, time is inherently the subject of the mind, and subject to perception contrasted to observable time as measured by clocks. According to Cohen it involves not just how people formulate those constructs of time, but also how people perceive time differently based on different situations, for example people feeling time passes more quickly or more slowly compared to recorded time.²⁵ Ernst Mach sought to separate the time observable by physicists with the time experienced in the mind, declaring ‘the time of the physicist does not coincide with the system of time sensations.’²⁶ Mach conducted experiments in which participants estimated how much time passed between two points, both when the participant was experiencing no stimulation and when they were under controlled sensory stimulation.²⁷ Such psychological experiments can also assess how long it takes for participants to make yes/no decisions.²⁸ Psychological study of time also encompasses psychological perception of time in relation to the past, present and future.²⁹ Psychological time therefore has relevance to our warfare as it deals with perceptions of time in human beings in given situations subject to stimuli, like stress. This includes strategic decision makers down to tactical commanders, but may also

²⁴ Heath, *Concept of Time*, 123; Kalmus, ‘Biological Time Scales’, 147

²⁵ J. Cohen, ‘Time in Psychology’ in Zeman (ed.) *Time in Science and Philosophy*, 153

²⁶ E. Mach, *The Analysis of Sensations and the Relation of the Physical to the Psychical*. Translated from German by C. M. Williams. Revision of the Fifth and First German Editions (London: The Open Court Company, 1914), 348

²⁷ From experiments subsequent to those of Mach, psychologists have derived understandings of such observable phenomena as the Tau (τ) and Kappa (κ) effects, in which sensory time estimations are different to recorded clock time. The τ effect was first discovered with experiments of tactile experience when participants judge two intervals of contact in different places at separate times. The experiment can also be done by discerning time over a set distance when walking and running. The κ effect is observable when participants judge durations of two parts of a journey at different speeds, distances and durations. Cohen, ‘Time in Psychology’, 157 & Mach, *Analysis of Sensations*, 258-261

²⁸ Cohen, ‘Time in Psychology’, 157

²⁹ *Ibid.*, 153-4

have application in how strategists interpret the past, present and future, and their emotive and psychological position within the three.

Sociology, with its emphasis on societal and personal interaction gives us interesting insight of how humans deal with time; how natural time cycles are dealt with and even defied using technological progress, and how time is commodified, recorded and measured for societal coordination.³⁰ It has also been able to provide insights into how people perceive time and space together, conceptually compressing them in the sociological field of 'time-geography' developed by geographers like Thrift and Hägerstrand.³¹

The sociologist Gurvitch identified eight types of social time³² and, additionally, gendered time theories conceptualised by feminist sociologists also exist.³³ Although Sociological foci are on the likely experiences of people and societies, which cannot return to previous moments,³⁴ Sociology also accounts for a cyclical day-to-day time of performing routine tasks, such as doing jobs repeatedly,³⁵ contrasted to the broader horizon in which far-reaching goals are thought of.³⁶ Conversely there can be conceptions of self-time, such as time seeming to be unimportant when conducting an engrossing task.³⁷ Explanations of how uses of time have changed over the development of societies, including with the assistance of technologies, has

³⁰ Adam, *Time and Social Theory*, 9, 104–126, 137 ; M. Holmes, 'Politicizing Time: The Temporal Issues for Second-Wave Feminists' in G. Crow & S. Heath (eds.) *Social Conceptions of Time; Structure and Process in Work and Everyday Life* (Basingstoke: Palgrave Macmillan, 2002), 41

³¹ J. May & N. Thrift 'Introduction' in J. May & N. Thrift (eds.) *TimeSpace: Geographies of Temporality*, London: Routledge, 2001), 7; Thrift, *Time Geography*

³² G. Gurvitch, 'Varieties of Social Time' in J. Hassard (ed.) *The Sociology of Time* (Basingstoke: The Macmillan Press Ltd., 1990), 70-72

³³ Holmes, 'Politicizing Time', 38-52

³⁴ *Ibid.*, 169

³⁵ R. Deem & S. Hillyard 'Making Time for Management: The Careers and Lives of Manager-Academics in UK Universities' in G. Crow, & S. Heath (eds.) *Social Conceptions of Time*, 128

³⁶ D. Chaplin, 'Time for Life: Time for Being and Becoming' in *Ibid.*, 216

³⁷ J. D. Lewis & A. J. Weigart, 'The Structures and Meaning of Social Time' in J. Hassard (ed.) *The Sociology of Time*, 81

great relevance for how time is perceived in strategy as the conduct of policy and conflict are human and societal activities, subordinate to mankind's changing harnessing of time in different ways.

Time in Strategic Literature:

Colin Gray, perhaps the most eminent writer on strategic subjects in our own time, provides some of the impetus of this work in his declaration that '[T]ime as a dimension [in strategy] is rarely discussed in any depth. Rather it is simply noted, and then the author rapidly moves on to more tractable matters.'³⁸ That is largely the case, though Gray himself notes a couple of exceptions, (particularly John Boyd), that *have* approached the subject.³⁹ In his own corpus, Gray regards time as one of his 17 identified 'dimensions' of strategy; a conceptual taxonomy of all the aspects of, and influences upon, strategic activity.⁴⁰

Time he regards as obviously affecting all levels of strategy, from administration and budgetary cycles to battlefield decision-making,⁴¹ and stresses its inflexibility: A strategist's time, once used, is gone forever and he has no time machine to recapture it - deficiencies in time cannot be remedied.⁴² Gray also notes that time is often understood in connection to physical space, an important concept we discuss later in the work, as well as the subject of duration, which we discuss in chapter six.

However, whereas Gray provides an excellent starting point for the discussion of

³⁸ Gray, *Fighting Talk*, 70

³⁹ Gray, *Modern Strategy*, 42, 172

⁴⁰ *Ibid.*, 42

⁴¹ *Ibid.*

⁴² *Ibid.*, 16, 24, 42-43, 172, Gray, *Fighting Talk*, 70-71

time *qua* time in strategy he has, restrained by scope and space, not provided a detailed corrective to the lack of discussion he identifies.

Ajay Singh theorises that time has become the ‘new dimension in war’;⁴³ a realm to be conquered by military means like cyberspace, the air and submarine environments.⁴⁴ He contends technology has allowed time itself to become a fourth dimension;⁴⁵ the *t* axis, in which to exercise power that will overlay the other dimensions of war. ‘Although time has always been a factor in war, technology has never [until now] been at a stage where it could play an independent and dominant role in shaping conflicts,’⁴⁶ what Singh considers ‘time warfare’, achieved by ‘contracting’ time through speed in ‘Information-Decision-Action (IDA) cycles,’ so that one’s command thinks and performs faster than the enemy, or slowing those of the enemy to make asymmetries and advantages within time.⁴⁷

Some may notice similarities between Singh’s concept and John Boyd’s OODA Loop,⁴⁸ a theory which has been used to understand strategy at all levels of war (and elsewhere).⁴⁹ However, Boyd’s theory is often over-simplified and interpreted as meaning merely mechanically completing the cycle faster will achieve victory.⁵⁰ Boyd did not write a book encompassing his ideas, and his work is principally

⁴³ Singh, ‘New Dimension’, 56-61

⁴⁴ Ibid., 57-58

⁴⁵ E. Jardine, ‘Why Time Works Against a Counterinsurgency’, *Journal of Military and Strategic Studies*, 11, 4 (2009), 1

⁴⁶ Singh, ‘New Dimension’, 59

⁴⁷ Ibid.

⁴⁸ O-O-D-A: Observation-Oriented-Decision-Action Loop.

⁴⁹ Gray, *Modern Strategy*, 91; A. Bosquet, *The Scientific Way of Warfare; Order and Chaos on the Battlefields of Modernity* (London: HURST Publishers Ltd., 2009), 188; J. Boyd, ‘Organic Design for Command and Control’, Briefing – May 1987

⁵⁰ R. Coram, *Boyd: The Fighter Pilot who Changed the Art of War*, Back Bay Paperback Edition (New York: Back Bay Books/Little, Brown and Company, 2004), 264; F. P. B. Osinga, *Science, Strategy and War, the strategic theory of John Boyd* (Abingdon: Routledge, 2007), 5-6, 334-335. Both simple and complex forms of the OODA Loop can be seen in Chapter Three.

contained in notes and briefings⁵¹ which are notoriously difficult to understand without his accompanying narrative;⁵² thus we are somewhat reliant on interpreters such as Osinga, and critics like Hasik and Mets,⁵³ for an insight into Boyd's theories. Nevertheless, according to Hughes, Boyd's ideas have become influential in modern doctrine as a 'cult of speed', with many items in the defence community focusing on a simple interpretation of Boyd's concepts in prioritising speed.⁵⁴ Certainly a focus on speed may be observed in doctrinal work; for example the US Marine Corps (heavily influenced by Boyd),⁵⁵ states in MCDP1 that 'speed provides security. It is a prerequisite for manoeuvre and ...surprise... necessary in order to concentrate superior strength at the decisive time and place.'⁵⁶ 'Speed is rapidity of action.....Speed over time is tempo, the consistent ability to operate quickly,'⁵⁷ and emphasises tempo as a weapon,⁵⁸ an opinion shared by the US Navy in the 1994 edition of NDP1,⁵⁹ which also emphasised speed of response.⁶⁰ The US Army's, FM 100-5 asserts the 'ability to respond quickly and decisively.... is fundamental to...doctrine...',⁶¹ whilst the USAF mentions speed's advantages repeatedly

⁵¹ Gray, *Modern Strategy*, 9; D. Ford, *A Vision So Noble; John Boyd, the OODA Loop and America's War on Terror* (Durham, NH: Warbird Books, 2010), 16

⁵² J. Hasik, 'Beyond The Briefing: Theoretical and Practical Problems in the Works and Legacy of John Boyd', *Contemporary Security Policy*, 34, 3 (Nov. 2013), 592 ; L. Freedman, *Strategy: A History* (New York: Oxford University Press, 1994), 196

⁵³ Osinga, *Science, Strategy and War*; Hasik, 'Beyond The Briefing'; D. Mets, 'Boydmania', *Air and Space Power Journal*, 18, 3 (2004)

⁵⁴ T. Hughes, 'The Cult of the Quick', *Aerospace Power Journal*, 15, 4 (Winter 2001), 58; Airpower commentators especially, stress the centrality of speed to the capabilities of their service. Singh, 'New Dimension', 56-61; J. A. Warden, 'Strategy and Airpower', *Air and Space Power Journal*, 25, 1 (Spring 2011), 64

⁵⁵ The Marine Corps, rather than the Air Force, took to Boyd's thoughts readily, adopting an interpretation of his theories by William S. Lind into its doctrinal documents. R. Polk, 'A Critique of Boyd Theory – Is It Relevant to the Army?', Monograph (School of Advanced Military Studies: Fort Leavenworth, KA, 1999), 8; Bousquet, 'Scientific Way', 187

⁵⁶ (US) Marine Corps Doctrinal Publication (MCDP) 1, *Warfighting* (June 1997), 41

⁵⁷ *Ibid.*, 40

⁵⁸ *Ibid.*, 38 & 40

⁵⁹ (US) Naval Doctrine Publication (NDP) 1, *Naval Warfare* (March 1994), 40-41. However, in the 2010 edition of *Naval Warfare* emphasis on speed is reduced and 'tempo' noticeable by its absence.

⁶⁰ *Ibid.*, 26,

⁶¹ (US) Army Field Manual (FM) 100-5, *Operations* (April 1995), 1

throughout *Air Force Basic Doctrine* (2000).⁶² The 2001 Quadrennial Defense Review,⁶³ the Joint Chiefs of Staff in their journal, and other papers (including the 2001 white paper, *Rapid Decisive Operations* which aimed to define all joint operations), further emphasise speed and tempo as key elements of US doctrine.⁶⁴ Since the commencement of operations in Iraq and Afghanistan, however, a number of these doctrinal papers have been revised and, although maintaining many of the points on tempo and the benefits of speed, have softened the emphasis on speed a little.⁶⁵ For our inquiry into popular concepts of time in strategy this nevertheless illustrates recent defence community opinion on speed and how time has been conceptualised and incorporated into US doctrine, whilst Hughes offers a valuable critique for understanding it.⁶⁶

Another recent contributor to time in strategy is Brigadier Richard Simpkin. In *Race to the Swift* (1985)⁶⁷ Simpkin discusses ‘Manoeuvre Theory’, a concept of disabling the enemy by quick movement and positioning in space. Simpkin’s emphasis is on the need for speed and timeliness in exploiting chance opportunities, so as to win the

⁶² Hughes ‘Cult of the Quick’, 58. The USAF stays loyal to the theme in the 2011 Doctrinal document as well; (US) Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine, Organisation and Command* (October 2011), 16

⁶³ (US) Quadrennial Defense Review, (Washington, D.C.: Government Printing Office, September, 2001), 2

⁶⁴ Hughes, ‘Cult of the Quick’, 59; Singh ‘New Dimension’, 56-61; E. T. Bohnemann, ‘Rapid, Decisive Operations: The Execution of Operational Art’, Monograph (School of Advanced Military Studies: Fort Leavenworth, KA, 1999), 9; A. J. Echevarria, ‘Rapid Decisive Operations: An Assumptions-Based Critique’ Monograph (Strategic Studies Institute: November 2001); (US) Joint Forces Command, J9 Joint Futures Lab, ‘A Concept For Rapid, Decisive Operations’ RDO White Paper Ver. 2., ii; (US) Joint Chiefs of Staff Joint Publication 3-0, *Doctrine for Joint Operations* (September 2001), iii-11

⁶⁵ (US) Joint Chiefs of Staff Joint Publication 3-0, *Joint Operations* (September 2006), iv-16; (US) Army Field Manual FM 3-24/MCWP 3-33.5, *Counterinsurgency* (December 2006), 1:6; (US) Naval Doctrine Publication (NDP) 1, *Naval Warfare*, (March 2010) is worth mentioning due to its contrast with the 1994 edition in discussion of tempo and speed. The USMC has also taken a more considered approach to speed and tempo; MCDP 1-0 *Marine Corps Operations* (August, 2011), 3:30-3:31

⁶⁶ See also Echevarria, ‘Rapid Decisive Operations’

⁶⁷ R. Simpkin, *Race to the Swift: Thoughts on 21st Century Warfare*, (London: Brassey’s Defence Publishers Ltd., 1985

battle of wills or take the enemy by surprise.⁶⁸ To this end he focuses on speed in relation to mass, mobility, momentum, velocity and tempo,⁶⁹ as ‘force multipliers’⁷⁰ which interact to produce advantages to the manoeuvre force. Simpkin also discusses the use of surprise to gain time advantages over the enemy, denying them the ability to respond and maintaining a high tempo of manoeuvre.⁷¹

In the last phase of writing this research Jan Hanska’s intriguing thesis was published and brought to our attention, however timescales have unfortunately given little opportunity to reflect upon and refer to this work to the degree we may wish. Nevertheless it is worth noting that Hanska’s *Times of War and War over Time* examines the role of time and timing in operational art and its conceptualisation in strategic theory at this level⁷² across the historical ‘ages’ of war as identified by Alvin Toffler: Agrarian, industrial and the modern, ‘informational’ age. Time is important in all these ages, and at different levels (tactical, operational, strategic) of war but, according to Hanska, the particulars of conceptualisation and use have varied between them, with each ‘age’ having its own specific approach to time;⁷³ for example, a relaxed approach in the agrarian age and a focus on speed and mobility in the industrial one. The third, informational age, he argues, demands strategists synthesise the time concepts and uses seen in the previous two ages as ‘flexitime’, because belligerents incapable of utilising speeds as paramount industrial powers can adopt time-concepts from the ‘agricultural age’, employing

⁶⁸ Simpkin, *Race to the Swift*, 22

⁶⁹ Ibid., 21, 79

⁷⁰ ‘Any activity or equipment which increases the combat effectiveness of a military grouping without actually increasing its firepower’ – R. Bowyer, *Dictionary of Military Terms*, 3rd Edition (London: A & C Black, 2007), 100

⁷¹ Simpkin, *Race to the Swift*, 112-115

⁷² J. Hanska, ‘Times of war and war over time: the roles time and timing play in operational art and its development according to the texts of renowned theorists and practitioners’ (Helsinki: National Defence University, Series 1: Research Publications No.12, 2017)

⁷³ Ibid., 317-319

delay to exploit time ‘asymmetries’,⁷⁴ a theme which we discuss in Chapter Six.

Hanska also conceptualises time as a resource which may be ‘won’ or ‘lost’, or even ‘robbed’ from or ‘given to’ the enemy,⁷⁵ and (similarly to our own ideas developed independently in this thesis, and expanded on in Chapters Two and Three) highlights that time in war is necessarily defined through a condition of ‘relativity’ between belligerents.⁷⁶

Classical Texts

When approaching any strategic work it is necessary to examine classical scholarship on the subject. Each scholar may rate different works higher than others, but some are generally considered the pinnacle: In strategy they are Carl von Clausewitz’s treatise, *Vom Krieg (On War)*,⁷⁷ and Sun Tzu’s (or Sunzi)⁷⁸ collected maxims in the *Bingfa (The Art of War)*. Indeed, Gray has argued that these two theorists, alongside the work of the ancient Athenian historian Thucydides, have discussed between them, more-or-less, almost-all there is to say on the subjects of war and strategy.⁷⁹ We return to Thucydides, as a historian, in greater depth in Chapter Four, but here find it necessary only to comment that, as a great historian rather than a strategic theorist, he does not, at least directly, present conceptual points on time in strategy, and so is not within this review’s purview, constrained as it is by space and time. In his stead we favour another theorist who can be

⁷⁴ Hanska, ‘Times of war’, 10, 318-319, 323

⁷⁵ Ibid., 141, 224, 250, 295)

⁷⁶ Ibid., 319

⁷⁷ C. von Clausewitz, *On War*. Translated from German/edited by P. Paret & M. Howard. Paperback edition (Princeton: Princeton University Press, 1989)

⁷⁸ It is uncertain whether Sun Tzu was a single person. Sun – zi, literally Master/Sir Sun, from the phonetic Chinese ‘*Sun Tzu Bingfa*’ (Sun Tzu’s the Art of War). The ‘*Bingfa*’ itself is based on 13 surviving chapters of what is thought to have been an 82 chapter work. T. Cleary, ‘Translators Preface’ in Sun Tzu, *The Art of War: Complete Texts and Commentaries*. Translated from Chinese by T. Cleary (Boston: Shambala Publications Inc., 2003), 4; L. Paquette, ‘Strategy and Time in Clausewitz’s *On War* and in Sun Tzu’s *The Art of War*’, *Comparative Strategy*, 10 (1999), 44

⁷⁹ Gray, *Fighting Talk*, 58–60

considered one of the classic writers of strategic thought,⁸⁰ Antoine Henri De Jomini.⁸¹ We also note some of the ‘lesser’ classic theorists who have focused upon irregular conflict and highlighted its particular temporal features.

Sun Tzu

Sun Tzu’s *Art of War* is certainly the better known and it has been creatively adapted to ideas in business and sport.⁸² Sun Tzu does not give precise advice on time as such, though does discuss the values of speed and momentum (with precision).⁸³ Sun Tzu also emphasised the duration of war, deeming it inadvisable to engage in protracted hostilities, which creates discord and saps the resources of the state; the good strategist was thus swift in victory.⁸⁴ This has been attributed by commentators like Handel in *Masters of War*, to cultural influences upon Sun Tzu, which demanded casualty and cost avoidance for the harmony of the state.⁸⁵ Sun Tzu’s discussion on the ease of victories is also time-dependent; he maintains it is best to attack whilst the enemy still plans,⁸⁶ and that it is inadvisable to become involved in long sieges.⁸⁷

In ‘Strategy and Time’ Laure Paquette directly considers time in strategic theory via interpreting Sun Tzu’s, and Clausewitz’s work, contrasting the disparate cultural settings of the two (Ancient China and late-Enlightenment Prussia) and how this

⁸⁰ See D. J. Lonsdale, *The Nature of War in the Information Age: Clausewitzian Future* (London: Frank Cass, 2004), 20, and Chapter One

⁸¹ Baron de Jomini, *The Art of War*. Translated from French by G. H. Mendell & W. P. Craighill (Radford, VA: Wilder Publications, 2008)

⁸² G. Michaelson, *The Art of War for Managers; 50 Strategic Rules* (Avon, MA: Adams Media, 2001); J. Lynch & H. A. Chungliang, *The Way of the Champion: Lessons from 's the Art of War and Other Tao Wisdom for Sports & Life* (North Clarendon, VT: Tuttle Publishing, 2006)

⁸³ Sun Tzu (Cleary), *Art of War*, 96, 100-102, 161

⁸⁴ *Ibid.*, 59

⁸⁵ M. I. Handel, *Masters of War: Classical Strategic Thought*, 3rd edition (Oxford: Frank Cass Publishers, 2001) 137-138

⁸⁶ Sun Tzu (Cleary), *Art of War*, 58, 66, 71

⁸⁷ *Ibid.*, 71-75

likely contributed to their perceptions of the nature of time and how it could be understood for strategic purposes.⁸⁸ Paquette analyses the length of conceptual time units in the two theorists' writings, perceptions of continuity and homogeneity of those units, the 'direction' of time, its linearity or circularity, and whether they considered time as distinct from space.⁸⁹ Where they differ, Paquette argues, disagreements between the two in their considerations of time in strategic activity follows:⁹⁰ As Sun Tzu understood time in grand, epochal cycles for example, he thus advocated longer periods of decision and thought to win battle conceptually by careful calculation of all factors before battle, to know who will win and lose in advance.⁹¹ According to Paquette, Sun Tzu also understood time and space as integrated due to his discussions of the role of terrain,⁹² as well as the weather and seasonal cycles in the conduct of campaigns and battles and speed of forces and timing of opportunities.⁹³ Sun Tzu, she maintains, conceptualised time, as speed, as an important resource for achieving the desired quick victory, through momentum.⁹⁴ Paquette also highlights Sun Tzu's promotion of surprise, necessarily a time-centric phenomenon, to confound the enemy,⁹⁵ at odds with Clausewitz, who Paquette maintains believed surprise and uncertainty to be more hindrances to the practitioner than beneficial utilities.⁹⁶

⁸⁸ Paquette, 'Strategy and Time', 37-51

⁸⁹ Ibid., 39

⁹⁰ Ibid., 37-51

⁹¹ Sun Tzu (Cleary), *Art of War*, 56; Paquette, 'Strategy and Time', 47

⁹² Paquette, 'Strategy and Time', 45-47

⁹³ Ibid., 43-47

⁹⁴ Ibid., 51

⁹⁵ Sun Tzu, *Art of War* (Cleary), 99

⁹⁶ Paquette, 'Strategy and Time', 47

However, Paquette's analysis draws upon the work of the sociologist Gurvitch in comprehending time,⁹⁷ which is not easily obtained, and can be overly esoteric to the reader unfamiliar with Gurvitch and his concepts of 'time types'. For example, how 'continuity in time is discrete', and what that means. Thus, whilst Paquette's article directly addresses time in two bodies of strategic thought, it does not intuitively assist the development of concepts of strategic time directly, as much as it examines (no less importantly) the socio-cultural context of the two most notable theorists and their work (Sun Tzu and Clausewitz). Nevertheless, Paquette's observations must be born in mind when extracting time concepts from either theorist's writings, as discussed in Chapter Three.

Clausewitz

Although incomplete on its publication in 1832, a year after his death, Carl von Clausewitz's philosophical treatise on the nature of war, *On War*, is still widely regarded one of the greatest works on war-related subjects of all time.⁹⁸ According to the great post-war theorist Bernard Brodie, it remains unsurpassed in depth and scope, and unequalled in its enduring importance.⁹⁹ Yet, like Boyd's work, Clausewitz is not always fully understood and is sometimes misrepresented.¹⁰⁰ Like Sun Tzu, Clausewitz did not often directly discuss time qua time in either *On War* or his earlier and shorter work *Principles of War*,¹⁰¹ though aspects of the nature of time in war and strategy come to the fore throughout his work and are also discussed by commentators such as Michael Handel, Paquette (as above) and Harold Nelson,

⁹⁷ Ibid., 40 and notes

⁹⁸ P. Paret, 'The Genesis of 'On War' in C. von Clausewitz, *On War*, 24-25; Gray, *Fighting Talk*, 58-61

⁹⁹ B. Brodie 'The continuing Relevance of On War' in Clausewitz, *On War*, 50 - 52

¹⁰⁰ T. Waldman, *War, Clausewitz and the Trinity* (Farnham: Ashgate Publishing Ltd., 2013), 1

¹⁰¹ C. von Clausewitz, *Principles of War*. Translated from German by H. Gatzke. Reprint of 1942 edition (New York: Dover Publications Inc., 2003)

who's discussion of space and time in *On War* highlights time as a major, if not-often recognised, background theme of Clausewitz's thought.¹⁰² It is unnecessary to appraise all Clausewitz's discussions of temporal-related matters here at length, and the main themes are covered in greater depth in Chapter Three. Nevertheless, we may note some major features here.

Clausewitz most clearly discusses time in its relationship to space; indeed it is integral to his discussions of punctuality of movement¹⁰³ and the application of force at decisive places and moments,¹⁰⁴ which is essential to his argument that the military genius is the commander who can *quickly* interpret their military situation and decide how to improve it or exploit temporary opportunity by such action.¹⁰⁵ As Nelson points out (again discussed in Chapter Three), this indicates an intuitive grasp on Clausewitz's behalf, of a conceptual interrelation of space and time in warfare.¹⁰⁶ This is also connected to his idea of friction; the capacity of unknown, unexpected, and chance events and conditions to disrupt and slow even the simplest of movements and operations, wasting dwindling, precious time.¹⁰⁷ Furthermore, Nelson highlights that Clausewitz saw the occasional value in a 'slower' pace of operations, in which commanders can modify plans and correct mistakes.¹⁰⁸

Another interrelated theme connected to time in *On War* and highlighted by Nelson, stems from Clausewitz's concept of war as a struggle (see Chapter One), which means that 'available' usable time in war is a product of interaction between

¹⁰² H. Nelson, 'Space and Time in *On War*' in M. Handel (ed.), *Clausewitz and Modern Strategy* (Abingdon: Frank Cass, 1986) 132, 138

¹⁰³ Clausewitz, *On War*, 314

¹⁰⁴ *Ibid.*, 196-7, 205, 240, 244

¹⁰⁵ *Ibid.*, 102

¹⁰⁶ Nelson, 'Space & Time', 142-3

¹⁰⁷ Paquette, 'Strategy and Time', 43, 56-57; Clausewitz, *On War*, 119, 238, 314; see also Handel, *Masters of War*, 155-156

¹⁰⁸ Nelson, 'Space & Time', 139

belligerents, giving time a ‘relative’ character in conflict.¹⁰⁹ This aspect is significant and we explore it more fully in Chapters Two and Three. Similarly, Clausewitz recognised the bias time shows to the defender, who benefits from delay, whilst the attacker suffers from inactivity and loss of time.¹¹⁰ To avoid the effects of torpor he must seek decisive battle by concentrating forces in space (reliant on concentrating them in time),¹¹¹ before the arrival of what Clausewitz termed the ‘culminating point’ of the advance.¹¹² After this point the energies of the attacker begin to wane and the defender’s advantage increases; driving the need to decipher the best timing to switch from defence to attack.¹¹³

In some contrast to Nelson, Paquette’s analysis, maintains that Clausewitz considered time and space as essentially discrete phenomena. Paquette also argues that, as a Westerner influenced by Kant and the German Enlightenment, Clausewitz’s view of time was linear and intrinsically urgent, with each moment requiring immediate computation before the next obstacle or surprise arrived, reducing options available to the commander and demanding *quick* decision-making and haste.¹¹⁴ Paquette maintains that with this approach to time, Clausewitz regarded the future negatively, as a domain of risk, surprise and uncertainty, a significant theme in Clausewitz’s theories (see Chapter One), which led him to disregard the potential value of surprise as a weapon, unlike Sun Tzu,¹¹⁵ and conceptually place it within his idea of friction.

¹⁰⁹ Nelson, ‘Space & Time’, 141; See also Chapter Three

¹¹⁰ Ibid., 138-139, 141

¹¹¹ Ibid., 143

¹¹² Ibid., 141

¹¹³ Ibid.

¹¹⁴ Paquette, ‘Strategy and Time’, 41-42

¹¹⁵ Ibid., 43, 56-57

Other scholars have attended to Clausewitzian ideas which also have temporal relevance; for example Clausewitz's identification of chance and uncertainty as major, unavoidable, features of war which restrict predictions, has been examined by Beyerchen¹¹⁶ and Herbig.¹¹⁷ Echevarria's *Clausewitz and Contemporary War*¹¹⁸ is another good example, which explores Clausewitz's ideas, including the concentration of forces in space and time,¹¹⁹ friction, which slows movements and progress,¹²⁰ and surprise (a product of uncertainty, the nature of time as a struggle, and time's linearity leading to unpredictability) as being more central to Clausewitz's ideas on concentration at decisive points¹²¹ than Paquette argues.

Thus, whilst *On War*, does not explicitly seek to establish a theory of time in strategy, it nevertheless provides a detailed, authoritative and well-regarded classical discussion on war's nature (which we employ in the next chapter), and in doing so also occasionally highlights important aspects of time in war and strategy. Such incidences give Clausewitz, above all the classical theorists save perhaps Sun Tzu, the most varied and nuanced treatment of time's numerous aspects. Compared to more modern theorists, such as Boyd and Singh, it is also worth noting that Clausewitz's approach, though diffused throughout *On War*, is broader in examining multiple aspects of time compared to more modern theorists, (such as Singh, who focus on but a few aspects i.e. Speed and rival time) .

¹¹⁶ A. D. Beyerchen, 'Clausewitz, Nonlinearity and the Unpredictability of War', *International Security*, 17, 3 (Winter 1992), 70-71; Bosquet, *The Scientific Way*

¹¹⁷ K. L. Herbig, 'Chance and Uncertainty in *On War*' in M. I. Handel (ed.), *Clausewitz and Modern Strategy* (Abingdon: Frank Cass, 1986)

¹¹⁸ A. J. Echevarria, *Clausewitz & Contemporary War*, paperback edition (Oxford: Oxford University Press, 2013)

¹¹⁹ *Ibid.*, 154-5, 163

¹²⁰ *Ibid.*, 103-104

¹²¹ *Ibid.*, 165

Additionally, Clausewitz's insights are enhanced by scholars who have refined and analysed his ideas, particularly those which relate to time, either directly or indirectly.

Jomini and the Mahans

Clausewitz's Swiss contemporary, Anton De Jomini, took a geometrical approach to the conduct of war in his 1838 treatise, *Précis de l'art de la guerre* (*Summary of the Art of War; 'Summary'*), explaining certain principles of movement¹²² based on lines of manoeuvre and operations.¹²³ These concepts of lines chiefly related to the movement of armed forces upon objectives in space and time, perhaps slowed by difficult terrain or obstacles.¹²⁴ The most well-known of these principles expressed by Jomini are the 'interior' and 'exterior' lines; an interior line, being shorter than the exterior, can be traversed more quickly, thus the commander on the interior line of movement can move their forces more quickly. These considerations are essential in Jominian theories of manoeuvre,¹²⁵ and are discussed in greater detail in Chapter Three. Jomini, like Clausewitz, also stressed the importance of timing attacks on the weak point of the enemy's force, and in bringing the mass of one's own forces together to attack that point at the right time, and the use of *coup-d'oeil* to assess this.¹²⁶ Jomini tends to focus on the tactical and operational levels of war, but does also consider the timing at the strategic level, like Clausewitz and Sun Tzu.

¹²² Jomini, *Art of War*, 52

¹²³ Ibid., 75, 96

¹²⁴ Ibid., 72, 76, 98

¹²⁵ Ibid., 77, 99

¹²⁶ Ibid., 52, 94; Handel, *Masters of War*, 269

Clausewitz and Jomini also influenced later writers such as the Americans Dennis Mahan, who employed Jomini's principles in his own mid-19th Century work,¹²⁷ and his son, the seapower theorist Alfred Mahan.¹²⁸ The latter's *The Influence of Sea Power Upon History* (1890) examined geographical and spatial factors partly in relation to time:¹²⁹ regarding travel between mutually supporting forces,¹³⁰ the importance of concentrating force at decisive moments,¹³¹ and distance in terms of movement over time.¹³² Alfred Mahan also identified the importance of time in the building and maintenance of strategic strength, specifically sea power, which takes time to develop,¹³³ and the use of naval forces to delay a decision favourable to the enemy whilst 'buying' time to build one's strength and reserves.¹³⁴ Indeed, the sheer scale of the physical geography and time inherent to seapower discussion affords Alfred Mahan scope of higher levels of strategy.¹³⁵ Despite this, we do not see fundamental differences between the Mahans, Jomini or Clausewitz in approaching time as such. All three understood time in relation to space and speed, translating into issues of mutual support and bringing forces to bear on the enemy at decisive times, though Mahan did also consider the importance of seapower in gaining time and delaying the enemy, and fleet-building. All three considered surprise of limited

¹²⁷ D. H. Mahan, *Advanced-Guard, Outpost, And Detachment of Troops: With the Essential Principles of Strategy and Grand Tactics*, 2nd edition (New York: John Wiley Walker Street, 1863 – Modern Reprint)

¹²⁸ G. Till, *Sea Power – A guide for the Twenty-First Century* (Abingdon: Frank Cass Publishing, 2008), 31; Brodie, 'Continuing Relevance of On War', 53

¹²¹ A. T. Mahan, *The Influence of Sea Power Upon History 1660-1783* (New York: Dover Publications Inc., 1987), 8 29-30, 35

¹³⁰ *Ibid.*, 29-30, 35

¹³¹ *Ibid.*, 12

¹³² *Ibid.*, 35

¹³³ *Ibid.*, 76-77

¹³⁴ *Ibid.*, 49

¹³⁵ J. T. Sumida, *Inventing Grand Strategy and Teaching Command; The Classic Works of Alfred Thayer Mahan Reconsidered* [eBook] (Washington: Woodrow Wilson Centre Press, 1997)

utility,¹³⁶ perhaps due to perceptions of the future in western thought as Paquette suggests.¹³⁷

Small Wars

Counterinsurgency/insurgency theorists have discussed time with some clarity; Gray has highlighted how insurgents/guerrillas actively employ delay and avoid destruction to keep themselves ‘in the game’ whilst undermining their enemy’s political will to continue the fight.¹³⁸ Writing from the counterinsurgent position at the turn of the 20th Century, Major Charles Callwell, warned ‘Protracted campaigns are...to be avoided as far as possible...’¹³⁹ and advocated swift resolution and effort to control territory, and deprive the insurgent of time.¹⁴⁰ T.E. Lawrence, who waged guerrilla war against the Ottomans in the First World War, explained that he had employed ‘...speed and time, not hitting power.Final victory seemed certain, if the war lasted long enough for us to work it out.’¹⁴¹ His German contemporary, Paul von Lettow-Vorbeck, wrote in his *Reminiscences* on similar methods in East

¹³⁶ Handel, *Masters of War*, 216

¹³⁷ Paquette, ‘Strategy and Time’, 46-47

¹³⁸ Gray discusses this in *Fighting Talk*, 71-72, and *Modern Strategy*, 172, though it features in many works on counterinsurgency conflicts including J. Kiras, ‘Current irregular warfare’ in D. Jordan et al, *Understanding Modern Warfare* (Cambridge: Cambridge University Press, 2008), 344-368; J. Kiras, ‘Irregular Warfare: Terrorism and Insurgency’ in J. Baylis et al, *Strategy in the Contemporary World; an Introduction to Strategic Studies*, 2nd edition (Oxford: Oxford University Press, 2007), 173-194; D. Galula, *Counterinsurgency Warfare*, 2nd edition (Westport, CT: Praeger Security International, 2006); C. E. Callwell, *Small Wars; Their Principles & Practice*, New Watchmaker Edition (Milton Keynes: Watchmaker Publishing 2010), 73-74; T. X. Hammes, *The Sling and The Stone – On War in the 21st Century* (St Paul, MN: Zenith Press, 2006); T. E. Lawrence, ‘Evolution of a Revolt’ *Army Quarterly*, 1, (1920), 55-56; Mao Tse-Tung, *On Guerrilla Warfare*. Translated from Chinese by S Griffith. BN Edition (Middletown, RI: BN Publishing, 2007), 96; Chen-Ya Tien, ‘The Military Thought of Mao Zedong’ in Chen-Ya Tien *Chinese Military Theory: Ancient and Modern*, (New York: Mosaic Press, 1992); Jardine, ‘Why Time Works Against a Counterinsurgency’

¹³⁹ Callwell, *Small Wars*, 76, 108-109, 142-3,

¹⁴⁰ *Ibid.*, 73-74

¹⁴¹ T. E. Lawrence, *Seven Pillars of Wisdom*, Penguin Modern Classics Edition (Harmondsworth: Penguin Books Ltd., 1976), 202

Africa:¹⁴² both advocated time as a weapon in conjunction with swift minor raids and attacks to attrite the enemy.

This point was particularly noted by Mao Zedong, who described his campaign against the Japanese as ‘tactical speed in a war strategically protracted.’¹⁴³ Japan’s limitations in men, resources and materiel meant her interest was for a short war, and so the Chinese guerrillas would naturally benefit from delay.¹⁴⁴ According to Mao, the vastness of China (a spatial factor) aided in this regard, as the Japanese could not progress into it quickly and their forces were spread out, unable to support one another quickly¹⁴⁵ (a matter of time and space) against locally superior guerrillas (concentration in time and space); ‘We can prolong this struggle and make...it protracted...only by...lightning-like tactical decisions;...employing our manpower in....concentrations and dispersions.’¹⁴⁶ As such, the same regards for time, space and concentrations of force in conventional conflict are relevant for the guerrilla.

Like Clausewitz, Mao also advocated on the correct timing of shifting offensive and defensive stances; adding a period of ‘stalemate’ between the two.¹⁴⁷ This slower transition describes the evolution of guerrilla groups into conventional forces via three phases of activity; guerrilla action, consolidation and conventional offensive.¹⁴⁸ Thus guerrillas must be skilled in both realising the decisive point in time when one may transition from one phase to another. Writing in response to the

¹⁴² P. E. von Lettow-Vorbeck, *My Reminiscences of East Africa*, Forgotten Books reprint, (London: Hurst & Blackett Ltd/Forgotten Books, reprint date unknown), 18–19; H. Strachan, *The First World War in Africa* (Oxford: Oxford University Press, 2004), 95; Lawrence, ‘Evolution of a Revolt’, 12

¹⁴³ Mao Tse-Tung, *Guerrilla Warfare*, 96-97

¹⁴⁴ Chen-Ya Tien, *Chinese Military Theory*, 23 -237

¹⁴⁵ *Ibid.*, 46, 107

¹⁴⁶ *Ibid.*, 98 also succinctly expressed in the Maoist maxim; ‘our strategy is to ‘pit one against ten’ and our tactics are ‘pit ten against one’; Chen-Ya Tien, *Chinese Military Theory*, 238, 240

¹⁴⁷ Handel, *Masters of War*, 191-193

¹⁴⁸ Mao Tse-Tung, *Guerrilla Warfare*, 108-114 and Chen-Ya Tien, *Chinese Military Theory*, 243-244

kind of insurgencies which followed Mao's path in the mid-20th Century, Galula, a French veteran of Indochina,¹⁴⁹ noted on the length of insurgencies due to the initial capability of the insurgent, and their move toward strength, as well as the slow response of the counterinsurgent government.¹⁵⁰

Studies of irregular warfare therefore examine, with little novelty, many of the factors relating to time that are understood in the theory of regular war; space, time, and the decisive moment. However, like Sun Tzu, insurgency theory also particularly emphasises duration in conflict, though recommend, for the guerrilla, delay as the key to victory, and the Confucian concerns of Sun Tzu for a short conflict are neglected. This is a useful point of view for understanding the uses of time as duration at the strategic level of war.

Conclusions of the Review

We can see from this review of the literature that although there has been discussion of temporal factors in strategy, Gray's statement - that time is generally a neglected subject in strategic theory - remains broadly true; theorists have emphasised particular aspects of time befitting their theories and objectives rather than time itself. For example, Boyd's discussion of creative adaptability has obvious temporal features, whilst the insurgency theorists such as Mao and Lawrence discuss the uses of delay and rapidity at different levels of war. However these are just a few of the aspects of time in strategy. Classic writers of strategic theory, such as Sunzi and Clausewitz have, as we have seen, discussed time more than is perhaps often realised (as highlighted by Nelson and Paquette), or at least by discussion of matters

¹⁴⁹J. A. Nagl, 'Foreword' in Galula, *Counterinsurgency Warfare*, vii

¹⁵⁰ Galula, *Counterinsurgency Warfare*, 6, 21

underpinned by time. However, apart from Singh (and now Hanska), there remains a general lack of specific discussion of time in strategy as such, and also a disconnection with the literature on the subject in other disciplines. This is partly due to the arcane and questionable relevance of time-related subjects in much of the non-strategic literature, but also due to the fact that time is not often considered as much more than something to be accepted as ‘background’. We can therefore identify some room for a more comprehensive discussion of time in strategy, and opportunity to bring diffuse discussions of time’s various relevant aspects, such as its relationship to space, delay, etc. together into a coherent discussion of the role of the temporal phenomena in strategy.

Methodology

As noted previously it is thus the general aim of this work to make an effort in providing this comprehensive discussion through useful insights on the temporal dimension, as it pertains to strategy. To clarify and focus the broad aim of the work, bring these subjects coherently together, usefully examine and evaluate the phenomena of strategy and time together, and draw useful conclusions, we ask the primary research question, again as mentioned above, ‘How is time important in the conduct of Strategy?’ To help answer the primary query, we identify relevant sub-questions and minor aims for discussion as ‘stepping stones’: What is the nature or character of time in strategy? Does it function as a dimension in which to operate strategically, a particular aspect of strategy, or a resource which can be ‘used’ or ‘managed’? As such, how may it be employed for advantage? How does it ‘interact’ with other factors, such as technological change or geography? And, is it even possible to wage ‘time warfare’ as some have contended?

It would be beyond our intent here to establish the *extent* to which time is important, and whether it is *the primary factor* influencing all others. This would likely be impossible to prove, requiring an unworkable measure of importance of one particular dimension. As Clausewitz and Gray have pointed out, the various ‘dimensions’ or ‘elements’ of strategy are intricately interconnected and the relative importance of each depends upon particular context; time is but one part of strategy and ‘will always be relevant in principle to a case....but the...relative significance must be ever variable from instance to instance...’¹⁵¹ Thus we explore of *the ways* in which time is an important factor in strategic activity, including the operational and tactical levels of war. With these aims and sub-questions established, we may turn to the intended methods of doing so; the approach and course the study shall take, along with the intellectual hazards, challenges and limitations anticipated in the process.

Theoretical Nature of the Subject

The research question and aims of contributing strategic theoretical points, along with the abstract and theoretical nature of the fields in question (**time, strategy** and their relationship) go some way in determining practical constraints and relative methods for this work. Strategy is a practical discipline, but *understood* virtually¹⁵² in a way not incomparable to how we understand temporal phenomena in an abstract and philosophical manner, albeit applied to practical activities. As such, our line of enquiry is principally theoretical. We elect an approach that employs both deductive and inductive methods, beginning with a discussion on theories of the nature of war and strategy as a foundation from which to approach time in a relevant manner. It

¹⁵¹ Gray, *Modern Strategy*, 24

¹⁵² Gray, *Fighting Talk*, 48

then examines theories of time from various disciplines to begin the process of theory-building, and proceeds to examine major classical and key recent works of strategic theory that have, albeit in relatively limited ways, approached temporal issues. This requires a collation of relevant theories of time in other disciplines, as well as leading theories of time in the body of strategic theory, providing a theoretical foundation for the work and a source of reference for further inquiries and discussions into time related thought in strategy. Together this inductively establishes theories of time in strategy, which is then illustrated and deductively ‘tested’ through employment of historical information to observe and analyse informative case studies.

From this confluence of historical and theoretical examinations, the study develops theoretical concepts of time in strategy which should bear the hallmarks of sound theory; a coherent group of basic concepts, propositions and principles, details of cause and effect relationships, and a logical and coherent structure.¹⁵³ Specifically this work is a piece of strategic or ‘military’ theory; a ‘critical and systematic reflection on war and warfare... primarily concerned with the nature and character of war as well as the successful conduct of war.’¹⁵⁴ As such it should clarify confused ideas and distinguish between important and unimportant concepts, so that they can be readily understood by the reader, and address the question for the benefit of the scholar.¹⁵⁵ Sound and useful theory is not merely a series of ideas, it is the concentrated *result* of ideas which gives a clearer understanding of the facets of the question at hand, and forms a framework for comprehending matters generally,

¹⁵³ M. Vego, ‘On Military Theory’, *Joint Force Quarterly*, Issue, 62 (3rd Quarter 2011), 65

¹⁵⁴ J. Angstrom & J. J. Widen, *Contemporary Military Theory; The Dynamics of War* (London: Routledge, 2015), 7

¹⁵⁵ See Clausewitz, *On War*, 132; R. P. Pellegrini, *The Links Between Science, Philosophy, and Military Science: Understanding the Past, Implications for the Future* (Maxwell AFB, AL: Air University Press, 1997), 26

allowing extrapolation and application to similar conditions.¹⁵⁶ In short, it is the product of generalisations built on observable facts.¹⁵⁷

In this regard strategic theory has use as a predictive tool, though actual determinism is likely impossible, owing to the inherent uncertainties of conflict.¹⁵⁸ Nevertheless, theory serves as a framework of insights for thought that saves having to ‘reinvent the wheel’ of ideas when it is necessary to consider the subject. However strategy is also a practical discipline for guidance of the policymaker or commander,¹⁵⁹ and thus is best evaluated in practice.¹⁶⁰ This work aspires to both practical *and* theoretical use; aiding the practitioner’s considerations of time in strategy, as well as establishing improved knowledge and understanding of the subject.¹⁶¹ By following these guidelines we should arrive at a model(s) or ‘theory’ that is understandable, coherent and practically relevant for understanding time in strategy.

Case Studies

Necessarily we must therefore look to examples of strategy in practice to inform the development of our theory. Current conflicts could provide examples, however security sensitivity often denies the researcher access to recent data on strategic activity, let alone planned and ongoing operations. It is also quite dangerous and bureaucratically difficult to observe conflicts first hand, which would also incur considerable expense of time and money. More easily obtainable, and in greater abundance, are established records of history and analysis of them, which illustrate

¹⁵⁶ See Angstrom & Widen, *Contemporary Military Theory*, 5, 7-9

¹⁵⁷ K. F. Punch, *Introduction to Social Research* (London: SAGE Publications, 2003), 18

¹⁵⁸ See Chapter One, also Clausewitz, *On War*, 85; Bousquet, *Scientific Way*, 196–198

¹⁵⁹ Gray, *Modern Strategy*, 54, 122; B. Brodie, *War and Politics* (New York: Macmillan Publishing Co., 1973), 452-453; B. Brodie, ‘Strategy as a Science’, *World Politics*, 1 (1949), 476-488

¹⁶⁰ J. Wallach, *The Dogma of the Battle of Annihilation* (Westport, CT: Greenwood Press, 1986), 4

¹⁶¹ Angstrom & Widen, *Contemporary Military Theory*, 8-9

strategic behaviour in a great variety of situations from which theory may be derived.¹⁶² This necessitates engaging in two related fields; strategic theory as discussed above, and military history. The two are similar yet distinct; as we have seen, military theory transcends the descriptive to identify and extract useful yet generalised conclusions. Military history on the other hand generally seeks detailed knowledge of particular incidents to tell the story of the past, with less consideration to generalised principals for future activity, yet still draws deductions of events.¹⁶³

It is military history that provides the factual foundations for the generalisations that military theory develops.¹⁶⁴ Many theorists have employed historical examples to illustrate their ideas because they provide the reader with empirical evidence that clarify or explain the aspect of the theory under discussion.¹⁶⁵ According to Clausewitz, there are four uses of military history in strategic studies: explaining ideas, examples of application, supporting the possibility of an idea, and the development of doctrine.¹⁶⁶ We may add, after Vego, that it also makes theory less ‘barren and lifeless’ by adding some of the interesting saga of historical narrative.¹⁶⁷ This work thus employs historical examples as case studies, not just to explain and illustrate the concepts proffered, but to also as George and Bennet point out, to test and develop theories:¹⁶⁸ in this work the initial deductive part establishes core elements of a theory of time in strategy, followed by a selection of case study chapters to provide a more inductive ‘testing’ and development of the theoretical points.

¹⁶² Angstrom & Widen, *Contemporary Military Theory*, 5

¹⁶³ Vego, ‘On Military Theory’, 64

¹⁶⁴ Ibid., 63

¹⁶⁵ Ibid.; A brief sample: Clausewitz, *On War*, 445; Jomini, *Art of War*, 126

¹⁶⁶ H. Strachan, *Carl von Clausewitz's On War; A Biography* (New York: Grove Press, 2007) , 97

¹⁶⁷ Vego ‘On Military Theory’, 63

¹⁶⁸ A. George & A. Bennet, *Case Studies and Theory Development in the Social Sciences* (Cambridge, MA: MIT Press, 2005), 19

With a compartmentalised case study approach, we can attempt a rational and ordered analysis of the subject by theme, rather than a meandering narrative. This methodology also benefits from certain strengths of the case study approach that are lacking in alternative models, such as quantitative or statistical methods: Whilst those methods may be suitable to things easily measured, there are few effective, constant yard-sticks for calculating the various complex elements of strategy, how they are important and how they interact. Although there are many such elements the aim of this research is to focus on the ways time can be important in strategy and how it is approached by combatants. In this regard the use of time is the main variable under study, yet it is possible that this can be affected by other, ‘intervening’ variables, such as technological change or geographic space, and some of these relationships are examined in the case studies.

Case studies are particularly useful in this regard as they yield detailed, qualitative information about complex and hard-to-measure variables when dealing with multifaceted phenomena, as well as the complex contexts surrounding those variables.¹⁶⁹ The level of detailed inquiry inherent to this methodology allows the researcher to more accurately test their hypothesis in case examples, and also naturally encounter and explore unexpected elements, allowing them to consider alternative explanations of causation.¹⁷⁰ This gives us latitude for detail in comprehending not only the ways time is important in strategic activity, how it can function and be used, but also highlights other elements, and how they influence activity and outcomes, allowing us to discern between correlation and causation.

¹⁶⁹ George & Bennet, *Case Studies and Theory Development*, 19-23; See also Chapter One for discussion of the dimensions of war and why war and strategy are complex subjects.

¹⁷⁰ Ibid.

When selecting cases for such a methodological approach, consideration must be given to the issue of potential ‘selection bias’, wherein the cases are ‘cherry picked’ to support the arguments presented, whilst contrary cases may be omitted.¹⁷¹

However, the case studies used in this work are selected because they provide a fertile historical ground in which to illustrate and test the theories developed whilst also being sufficiently diverse between strategic contexts to allow for some generalisation of the concepts. Whilst other/different cases could have been selected (potentially at random) they could have been so dense and obtuse for our purposes that they would have had little utility, being unable to show any generalizability of the theories contended, making that a risky method when time and space are limited. In that vein it would be quite impractical for a work of this size and scope to include an extensive number of contrary examples wherein every aspect of each theoretical concept can be equally questioned,. We have therefore sought to provide a selection of the ‘more likely’ and average cases of certain kinds to demonstrate a level of generalizable applicability of the novel theoretical concepts here presented. This allows for some control of the diversity in comparable cases per chapter, thus avoiding the introduction of too many variables which would undermine the validity and purpose of the work. Follow-up research could then be designed to pursue a wider and more diverse range of cases for testing, including additional ‘more likely’ and some ‘less likely’ to further test the validity of the theoretical base.¹⁷²

Nevertheless, the use of two cases per chapter with a great variety in contextual variability across the strategic dimensions (e.g. historical era, geography, relative power, political composition, technology, etc.) and each addressing multiple

¹⁷¹ George & Bennet, *Case Studies and Theory Development*, 19-23

¹⁷² Ibid.

identified aspects of time in strategy, allows a variety that underlines the common application of the theoretical concepts. With this range of time, location and type of conflict, i.e., the broad domain of different strategic contexts, we can illustrate the general applicability of the theoretical concepts developed in the first three chapters. However, the generalisations based upon these conclusions are cautious. Whilst we maintain a descriptive theory of time in strategy is important, we cannot contend it to be a panacea for strategic success.

The first case-study chapter (Chapter IV) observes the temporal pressures on strategic decision-making that arise when it comes to the issue of *when* to go to war; Spartan concerns prior to the Peloponnesian War with Athens, and German strategic considerations before the Great War of 1914-1918. The use of what could be regarded as two preventive conflicts brings the issue of timing (when is best to go to war) to the fore in stark relief due to the inherent motivations for such conflicts. However, that is not to say that other (i.e. non-preventive) conflicts are without the same issues of temporal consideration, only that here they are most bold. Furthermore, whilst the Peloponnesian War may be considered an archetypal preventive conflict, the 1914-1918 Great War's status in that regard is still debated. Nevertheless, the separation of over 2,000 years and great variation in strategic context between the two cases contrasted to the presence of a 'preventive logic', again points to the generalizability of the temporal concepts to other conflicts. In the second case-study chapter, discussing tactical and operational command to effectively employ force in time and space, we see enduring themes as well as differentiation between two cases which, although closer together in time, the American Civil War and the Western Front, are very different in their characters, which highlights the universality of the central operational and tactical, points about

time discussed within the chapter. The third case pairing; of the vast, mostly-conventionally-fought Second World War with the limited, often-asymmetric conflict in Vietnam, again shows commonalities of temporal matters and thus the wide applicability of the concepts of strategic time (in this chapter, duration of conflict) despite great difference in strategic context.

Other cases could have been chosen for these subjects, for example the First Gulf War, the Korean War or the Seven Years War, however the ultimate selection for organisation had to be made somewhere and this selection provides a sufficiently broad and interesting variety of well-established cases which are well supported by historical work. This avoids the necessity of writing extensively on military history and assuming the role of the historian, to leave greater time and effort to focus upon the theoretical aspects.

Readers may also note a level of common and convergent themes despite differing foci in each of the case study chapters; the Peloponnesian War was a very long conflict which saw Athens exhausted; likewise Germany was ultimately attrited to defeat in the Great War, as was the Confederacy in the American Civil War; Hitler was compelled to make his bid for world domination in the late 1930s due to competing temporal pressures and the United States employed unprecedented capacity for manoeuvrability of airborne forces in Vietnam.

Historiographical Issues

A case study methodology may employ primary and/or secondary sources of historical record: primary sources are contemporary accounts written during-or not long after-an event, including documents written from immediate perspectives such as letters, diaries, memoires, records, and even battle reports. Although useful for particular details and some first-hand insight, such sources are generally ‘narrow’ in focus and limited to immediate considerations of an individual, thus lacking the scope, ‘distance’ of time for historical detachment, and qualified analysis of quality *secondary sources*; those which establish and develop new research through analysis, examination and critique of primary material: i.e. the bulk of *history* qua the work of historians. Although where necessary some primary sources are employed in the case-studies, the nature of the thesis as one of general strategic theory concerning the temporal dimension which employs military history cases - rather than a work of military *history* itself- determines that secondary sources are herein favoured as more pertinent to the our objectives: The secondary sources employed provide appropriate levels of historical detail and expert historical analysis, without need to take on the specialist role of the military historian and analyse a mass of primary material in order to illustrate and ‘test’ our theoretical models.

This work also employs certain sources with elements of primary source material written by protagonist non-historians, some of whom were strategists; Churchill’s work on the Second World War, Lawrence’s *Seven Pillars of Wisdom*, Mao’s work on Guerrilla warfare, Thucydides’ account of the Peloponnesian War and reporter Stanley Kernow’s treatise on the Vietnam conflict, for axmple, all contain elements

of personal experience and memoir. However, we primarily employ them as intended; as historical or strategic discussion and/or analysis, or as theoretical works i.e. as 'secondary' sources.

The selection of all sources employed is made available through modern library systems and the internet (through orders or online repositories), which have made military history far more easily available than in previous times. Nevertheless the task of selecting and employing historical sources still brings potential errors and pitfalls and we must be aware of matters of objectivity in historiography: As the historian E.H. Carr wrote, historians 'will normally condemn [the work of their predecessors]...as inadequate or one-sided or misleading, or....rendered...irrelevant by later evidence.'¹⁷³ Most sources contain some element of unavoidable bias, even professional works, and we must bear this in mind as well as potential deliberate distortions which can impair the meaning or emphasis of evidence arrayed within a source or the source as a whole.¹⁷⁴ Additionally we must be alert to the fragmentation of the discipline across various schools of ideological thought such as Marxist, structuralist, and other '-ist' approaches to historical causality and explanation, which bring competing narratives to even the most settled historical events.¹⁷⁵

The age of a source can provide additional traps: Recent historical events may be subject to security restrictions limiting the availability of details, and may also be too recent to examine in the objective light older records receive¹⁷⁶ due to researcher or

¹⁷³ E. H. Carr, *What Is History?* 2nd edition (London: Penguin Books, 1987), 120

¹⁷⁴ See George & Bennet, *Case Studies and Theory Development* 95-96, 99-105; Carr, *What Is History?* 17-25

¹⁷⁵ R. Spalding & C. Parker, *Historiography; an introduction* (Manchester: Manchester University Press, 2007), 32, 43, 46, 108, 115;

¹⁷⁶ Vego, 'On Military Theory', 63

author bias. However, the further back in history one delves, the less available reliable sources may be and the more clouded and less detailed an event can become.

‘What remains in the end, more or less at random, are large masses and isolated features, which are thereby given undue weight....the further back one goes, the less useful military history becomes, growing poorer and barer at the same time.’¹⁷⁷

Despite this, even ancient history, if properly approached can provide us with relevant information for theory development.¹⁷⁸

We therefore must critically consider a source’s credibility, biases, age, and the context in which they were formed by vetting them for integrity and ensuring they are reputable.¹⁷⁹ It is also beneficial when employing methods that utilise history, to use multiple sources of information (especially if they are primary sources) for a given event, to gain a wider view of matters from different angles and so help reduce errors and biases where possible.¹⁸⁰ This is another advantage in our use of quality secondary sources, in that much of that skilled task is already done by professional historians. Indeed, the secondary sources here used are selected on their peer-acknowledged quality as the foremost and seminal works in the relevant disciplines, and consist mainly of published articles and volumes by professional historians and analysts. Where primary sources have been used they have been selected for their relevance and importance; for example, a clear statement of intent by a key strategic decision-maker. Owing to the preference for secondary sources and the nature of this research, this work employs primary sources via published readers and collections

¹⁷⁷ Clausewitz, *On War*, 173

¹⁷⁸ Vego, ‘On Military Theory’, 63

¹⁷⁹ Ibid., 263; J. Jaccard & J. Jacomb, *Theory Construction and Model Building Skills* (New York: The Guilford Press, 2010), 261

¹⁸⁰ Vego, ‘On Military Theory’, 63

available through libraries and online archives, rather than the more time-intensive use of major national archives.

Conceptual Issues

Other obstructions to research arise when dealing with such a complex, philosophical, concept as time. Being a denizen of a specific time and place (the United Kingdom of the early Twenty First Century), the researcher is subject to the facts presented by Paquette: Our concepts of time and understanding of all things relating to it, are inherently a product of the pervading philosophies and culture of our time and place; the paradigm of time around us.¹⁸¹ An apology for, or attempt to defy, this fact seems unnecessary, however we can accept and be aware that it is inescapable and will influence the formulation and interpretation of ideas on time and strategy, and even our interpretations of time-concepts from remote times and places. As people from different cultures have different conceptions of time,¹⁸² so too do individuals from varied academic backgrounds hold working concepts of time subjective to their field of study: this is amply demonstrated in the survey of time in different disciplines examined in the Literature Review which provided the wider academic landscape on time, and allows us to fit ‘time in strategy’ into its relative socket.

However it is not in the interest of the strategist to become too concerned with deep discourse on the nature of time or how time works in advanced physics, or in other disciplines which yield little use for the field of strategic studies. This is because

¹⁸¹ Paquette, ‘Strategy and Time’, 37-51 Other interesting examples of this include Melanesian understandings of time based on the growing of Yams which is devoid of time flowing, end and beginning, whilst in the Sioux language there are no equivalent words for lateness or time; R. Scaglione, ‘Yam Cycles and Timeless Time in Melanesia’, *Ethnology*, 38, 3 (Summer 1999), 211 and Hughes, ‘Cult of the Quick’, 68

¹⁸² Paquette, ‘Strategy and Time’, 37 and Reyna, ‘Metaphysics of Time’, 227, 228, 234-235

strategy is a practical, if still frequently philosophical, discipline largely concerned with using ‘force and the threat of force for the ends of policy’¹⁸³ and generating thought on that subject. Otherwise this would become a thesis on time in physics or metaphysical philosophy, or some other field, and so we must extract what we can from these subjects that which is useful and adaptable to strategy, but avoiding and jettisoning non-useful discussions. This is undertaken in the theoretical chapter(s), which re-examine and critically appraise the use of time in different fields and applies them, where necessary, to strategy.

Translation Issues

In using any sources there will be issues concerning language and understanding. Few researchers in the field of strategy would have the linguistic ability to read the original texts of such a diverse authorship as Aristotle, Einstein and Sun Tzu, and therefore this work is naturally reliant on translated volumes and English language works. In an attempt to mitigate this reliance the English editions were selected on their recognition in academia and other endorsements. Nevertheless multiple translations of some works exist and are considered more or less equal; this can cause altercations in interpretations of meaning. For example, in Cleary’s translation of Sun Tzu’s *The Art of War* a passage reads ‘The weather means the seasons’,¹⁸⁴ in Griffith’s translation this becomes ‘By weather I mean the interaction of natural forces; the effects of winter’s cold and summer’s heat and the conduct of military operations in accordance with the seasons’,¹⁸⁵ and so such potential differences must be taken into consideration. Cleary’s work is used here for the most part because of

¹⁸³ Gray, *Fighting Talk*, 48

¹⁸⁴ Sun Tzu (Cleary), *The Art of War*, 43

¹⁸⁵ Sun Tzu, *The Art of War*. Translated from Chinese by S. Griffith (Oxford: Oxford University Press, 1963), 64

the researcher's familiarity with Cleary's translations of Eastern texts, but where possible and relevant the Griffith translation is referred to also and this is noted. It would seem pedantic, however, to use more than a few translations. The Paret and Handel translation of Clausewitz' *On War* is the standard work in academia, used in Nelson's work on time and space in *On War*,¹⁸⁶ and Handel's *Masters of War*, amongst others.¹⁸⁷

Despite the quality of these translations, any translated work relies on the translator's interpretation, so we may automatically miss the true meaning the author sought to impart; it has been said that reading a translated work is like eating food chewed by someone else.¹⁸⁸ This is an insurmountable problem given the gulf in language and time between the authors of certain texts and ourselves, and our dependence on translations. That is to say nothing of the problems of turning an idea in the mind of the author into the written word to begin with, reducing our certainty even further. To some extent there is a necessary amount of faith required, in translators and the capability of the authors to explain their thoughts, and any helpful interpreters and commentators who have already trodden the path as best they can. In line with our objectives of assessment this work must also evaluate those commentators and interpreters.

Definitions and Terms

When embarking on the utilisation and exploration of concepts from many disciplines as this work does, it is important to be clear with the use of any terms which may not be shared between disciplines or which may have different meanings

¹⁸⁶ Nelson, 'Space and Time', 148

¹⁸⁷ Handel, *Masters of War*, 456

¹⁸⁸ Fung-Yu Lan cited in Paquette, 'Strategy and Time', 43

in inter and even intra-disciplinary study. Such definitions and uses of terms may vary even amongst scholars in like fields.¹⁸⁹ Time especially is considered in different ways within different fields of science and the arts, and this is explored in some detail in the second chapter to explain and gain familiarity with the subject. We define the core concepts of the other side of our study, ‘war and strategy’, in the first main chapter.

Structure: Chapter Plans

With this chapter encompassing the introductory elements, including literature review, methodology and so on, the following three chapters of the main body proper set out the store of current theory on time and warfare:

The first chapter examines the nature of war and key aspects of strategy; what they are and what influences them, with particular regard to their difficulties. This provides us with a foundation on which to build an understanding of the phenomenon of time in strategy.

The second chapter approaches relevant theories of time across a number of disciplines to determine what time is and how it is best understood for the purposes of strategy and of this research more specifically. This provides an understanding of the two fields independently, and provides a ‘framework’ for approaching the aims of the research. It also lays initial groundwork in the construction of theory, by analysing relevant ideas which can be translated to the strategic discipline. The result is a selection of general ‘rules’ or observations of time’s intrinsic nature which are vital to considerations of time in strategy.

¹⁸⁹ Jaccard & Jacomby, *Model Building Skills*, 78

Time and strategy are examined together in Chapter Three, which discusses existing strategic theories that focus on time in differing ways, from decision cycles and ‘OODA loops’ to manouverist theories of momentum. It also contains an examination of how time is approach in the great classic texts of strategic theory. These disparate theories and concepts are in turn critically evaluated in relation to the framework established in the preceding chapters to shape a more concise, informed treatment of time in strategic theory which can be harnessed towards our aim. The result of this is a selection of relevant understandings of time in the context of the strategic discipline to form a ‘theory of time in strategy’ or ‘theory of strategic time’, which can then be ‘tested’ in the case studies that form the second part of the thesis.

The second part of the thesis begins with Chapter Four, the first of the historical examinations, with studies of The Peloponnesian War (431 – 404 BC) and The First World War (1914 – 1918). This chapter opens with a discussion on the interrelated factors that contribute towards the most opportune, or favourable, conditions for ‘when to war’, followed by a detailed exploration of the timing of each conflict, within the context of the political and strategic aims of the polity at the time. The chapter concludes with an assessment on whether the opportune moment was taken or missed and discusses the importance of time as a determining factor in decision making.

Chapter Five continues the historical cases by studying the importance of timing in battle, both at an operational and tactical level, to achieve action at the decisive moment. To this end the chapter employs examples from the Eastern Theatre of the American Civil War (1861 – 1865) and Western Front of The First World War

(1914 – 1918.) The chapter discusses the difficulties encountered by commanders in both discerning and exploiting decisive moments, and examines how time is used/or wasted in operational and tactical decision making.

Chapter Six looks at the duration of war itself; how interpretations of duration influence behaviour and how it may be contracted or protracted by belligerents to their advantage. The chapter uses case studies of The Second World War (1939 – 1944) and Western involvement in Vietnam (1954 – 1973). The ensuing discussion aims to establish whether it is possible to ‘use’ time as duration, as a weapon.

Chapter Seven concludes the work, evaluating the principles and observations of time established in the theoretical chapters, against the practical uses of time discussed in the case studies and draws conclusions regarding the use of time in strategy.

Conclusion of Methodology

This methodology section has explored many of the obstacles faced in the research of the topics in question, time and strategy. It has also examined how those problems may be dealt with via the correct employment of certain methods; critical reading and appraisal of the literature and the appreciation of any flaws in the sources, for example, as well as more broadly explaining the processes and methods of the research, along with the planned structure of the chapters.

I: War and Strategy: An Uncertain Climate

Once one rolls the iron dice of war one is in the realm of chance

– Colin S. Gray¹⁹⁰

‘How the Marine Corps proposes to accomplish this mission is the product of our understanding of the nature and the theory of war and must be the guiding force behind our preparation for war’

- US Marine Corps Doctrine Publication 1 ‘Warfighting,’¹⁹¹

Introduction

Before we begin to examine the strategic thought that has directly addressed the role of time in war, it is necessary for us to consider the distinct subjects of time and strategy separately. This is so that our use of these terms, and the concepts they describe, are clear and aid us in establishing the conceptual framework with which we shall examine time in strategic activity. The discussion of these subjects by themselves may also reveal additional useful ideas and conceptual tools which can inform our study. We begin with this chapter concerning the more familiar territory of war and strategy, with the aim of gaining a clear understanding of the context of war in which time, the subject of the next chapter, will be considered throughout this work. Specifically we start with a discussion of war’s nature, which strategy must deal with. Although no theoretical description can ever fully suffice in delineating war’s full complexities, difficulties and horrors, we have recourse to examine it here; as the opening quote from US Marine Corps doctrine points out, one’s approach to

¹⁹⁰ Gray, *Fighting Talk*, 19

¹⁹¹ (MCDP) 1, *Warfighting*, 71

strategy is reflective of one's understanding of war's nature.¹⁹² As strategy is a practical discipline, not purely theoretical,¹⁹³ this is as surely true for students of strategic theory as it is for practicing strategists, and so we are better served in understanding strategy when equipped with a foundational comprehension of war's nature in reality. Our discussion of war's nature also helps distinguish 'strategy,' as we discuss it here, from 'strategy' in the sense of 'business strategy' or the profusion of other uses of the term which have become common since the middle of the last century, and which have made the term somewhat pedestrian and distanced from its origins in the military sphere.¹⁹⁴

To understand the nature of war as the foundation of our enquiry of strategy we employ established theory on the subject. Whereas time has been discussed by scholars in many fields, from philosophy to the sciences, the study of war and strategy has largely been the preserve of a relative few; strategic theorists, historians and practitioners seeking to comprehend and record strategy, or compile their views on best practice.¹⁹⁵ Among them a mere handful may be considered as the creators of 'great works of classical strategic thought':¹⁹⁶ Sun Tzu's *The Art of War* and Carl von Clausewitz's *On War* are both identified as classic strategic texts by Michael I. Handel,¹⁹⁷ Colin S. Gray and David J. Lonsdale; with Thucydides' *The Peloponnesian War* and Antoine Henri Jomini's *the Art of War*, as possible additions.¹⁹⁸ Of these four influential texts, *On War* stands out for containing Clausewitz's complex description of the nature of war which defines current

¹⁹² Echevarria, *Clausewitz & Contemporary War*, 58

¹⁹³ Gray, *Modern Strategy*, 122; Brodie, *War and Politics*, 452-3

¹⁹⁴ e.g. M. McKeown, *The Strategy Book*, 2nd edition (Harlow: FT Publishing International, 2015); Freedman, *Strategy*, xii-xiii

¹⁹⁵ Freedman, *Strategy*; M. van Creveld, *The Art of War: War and Military Thought* (London: Cassel & Co., 2000)

¹⁹⁶ Lonsdale, *Clausewitzian Future*, 20

¹⁹⁷ Handel, *Masters of War*, 1

¹⁹⁸ Gray, *Fighting Talk*, 58-61; Lonsdale, *Clausewitzian Future*, 20 See Literature Review

academic and practical debate on the subject.¹⁹⁹ Our examination of war's nature therefore employs a Clausewitzian approach based on *On War* with commentary and critique upon it from other scholars. We choose *On War* due to its high status in the corpus of great strategic works and the brilliance of its assessment of war's nature. Furthermore, the employing of a solid piece of theory of war's nature means we do not have to spend time and pages 'reinventing the wheel' of theory,²⁰⁰ and 'start afresh each time sorting out the material and plowing through it, but will find it ready to hand and in good order.'²⁰¹ Having reflected on Clausewitz and his description of the nature of war the chapter then examines a suitable definition of strategy that reflects war's nature. This is followed by a more in-depth discussion of strategy's own nature, purpose and logic, addressed primarily through the difficulties in its conduct, by employing the Clausewitzian concept of 'friction'.

Clausewitz

Carl von Clausewitz's (1780-1831) theory of the nature of war is largely a product of the intellectual and military climate of 18th Century Prussia. This era was defined by the philosophical movement of the Age of Reason that employed scientific enquiry to understand the physical and social world, including the conduct of war, and led to radical changes across Europe culminating in the German Enlightenment (the *aufklärung*) and the French Revolution. The overturning of political and social structures, and the vast expansion of state power through the binding concept of the *nation* allowed France to draw upon unprecedentedly vast and well organised resources, the *levee en masse*, with which to protect and further the revolution. The

¹⁹⁹ Echevarria, *Clausewitz*, 2, 8, 61 ; Lonsdale, *Clausewitzian Future*, 21; Strachan, *Clausewitz's On War*, 1-7

²⁰⁰ Creveld, *Art of War*, 114

²⁰¹ Clausewitz, *On War*, 141

new, 'total' warfare that could be practiced by Revolutionary France was a radical departure from the necessarily limited conflicts of the 18th Century, and posed a conceptual, as well as military, challenge to the enemies of France.²⁰²

To comprehend these new conditions Clausewitz (a career soldier from the age of 12) and his mentor Gerhard von Scharnhorst, formally approached the subject of war in a manner befitting the era; through rational and empirical enquiry²⁰³ similar to studying natural phenomena. However, they vigorously opposed the prevailing Enlightenment influence on military theory as espoused by Loyd, Saxe, and especially von Bülow, that treated the conduct of war as a kind of science that could employ formal principles, and even precise geometry, to remove the uncertainty and chaos of war and bring it under realm of reason.²⁰⁴ In opposition to such theories, which had been so confounded by the revolutionary armies and their great captain Napoleon, Clausewitz's experience as a soldier led him to believe, like Scharnhorst and Berenhorst, that uncertainty could not be eliminated; in reality war was far too chaotic and influenced by irrational forces such as the human spirit, but it could be coped with by the commander if war's true nature was understood.²⁰⁵ Thus, whilst war's conduct could *not* be an exact science executed through formulaic principles, Scharnhorst and Clausewitz maintained that war *could* be empirically examined to obtain objective knowledge and theories about its nature and constituent elements, discerned and developed through logical methods.²⁰⁶

²⁰² H. Strachan, *European Armies and the Conduct of War* (London: Unwin Hyman Ltd., 1983), 38-44; B. D. Watts, *Clausewitzian Friction and Future War*, Revised Edition (Washington: National Defence University, 2004), 10; T. Waldman, *Trinity*, 21

²⁰³ Strachan, *Clausewitz's On War*, 36, 40; Watts, *Clausewitzian Friction*, 10-13, Waldman, *Trinity*, 24

²⁰⁴ Watts, *Clausewitzian Friction*, 14; Waldman, *Trinity*, 21-25 ; Freedman, *Strategy*, xii, 72-5, Strachan, *Clausewitz's On War*, 41.

²⁰⁵ Watts, *Clausewitzian Friction*, 15; Waldman, *Trinity*, 23, 25-26

²⁰⁶ Waldman, *Trinity*, 29-30; Echevarria, *Clausewitz*, 3, 25-26

As awkward and constrained as any explanation of war on the page must be, Clausewitz, an experienced philosopher-in-uniform, provided the most comprehensive and complete explanation that we can hope for.²⁰⁷ Influenced by Scharnhorst, Clausewitz employed ideas of the Enlightenment, such as Montesque's structure in presentation, his employment of a comparative dualism similar to Kantian and Hegelian dialectics, and the language of Newtonian science, to *explain* war's basic elements rather than *prescribe action* as Saxe, von Bülow etc. had. His result, *On War* provides a comprehensive, unsurpassed examination of war's fundamental nature and how this differs from other phenomena, both in the abstract and in reality; the natural laws and regulations which define this nature; its component parts and their interactions; and its purpose.²⁰⁸ In many respects *On War* is the maturation, the apogee in fact, of the Enlightenment's rationalistic influence on military theory.²⁰⁹ But, with its rejection of formalistic principles, its dualism between rationality and non-rational human elements, and its acceptance of uncertainty and chaos, *On War* is also a synthesis with Romanticism, and transcends the Enlightenment's scientific optimism.²¹⁰

²⁰⁷ Lonsdale, *Clausewitzian Future*, 40

²⁰⁸ Vego, 'Military Theory', 60; Freedman, *Strategy*, 86; Echevarria, *Clausewitz*, 3 – 5, 21; Strachan, *Clausewitz's On War*, 40-41, 68, 88-89, 90- 93; Waldman, *Trinity*, 29-30; Watts, *Clausewitzian Friction*, 14-15; Crevelde, *Art of War*, 114-5

²⁰⁹ Strachan, *Clausewitz's On War*, 89

²¹⁰ Waldman, *Trinity*, 20; M. I. Handel, 'Introduction' in Handel (ed.), *Clausewitz and Modern Strategy*, 6; Crevelde, *Art of War*, 114.

The Nature of War

Clausewitz begins his definitive concept of the nature of war by stripping the activity to its most basic essence: fighting, a duel, a 'zweikampf' ('two-struggle'), and he employs the analogy of two wrestlers, each using their physical force 'to compel the other to do his will.'²¹¹ It is a violent clash of wills²¹² which together create the *interactive* situation that is war's essence.²¹³ In the realm of pure abstraction such a struggle is an isolated, spontaneous act, an 'absolute war' which functions only by its inherent laws and aims; two forces each trying to subdue the will of each other and render them incapable of defiance.²¹⁴ This naturally tends towards extremes of violence as an expression of force, in an infinite, escalatory cycle with the only aim being total subjugation of the foe and there being no limits upon that aim.²¹⁵ This makes Clausewitz's approach somewhat 'combat-centric'; he understood violence, or at least the threat of it, was the means of war, rather than the geometry and manoeuvre emphasised by previous theorists.²¹⁶ However, Clausewitz determined that in reality this struggle would become subject to the limitations and conditions of the material world, dependent on forces external to itself which would calibrate its course and provide its *raison d'être*.²¹⁷

In translating this abstract struggle to war as it is in reality, Clausewitz identified three interacting elements (or forces) extrinsic to this essence, which act upon it, and together constitute a 'remarkable trinity', distinguishable yet part of real war's

²¹¹ Clausewitz, *On War*, 75; Echevarria, *Clausewitz*, 63

²¹² Clausewitz, *On War*, 76

²¹³ The importance and meaning of this is discussed again later in this chapter. Echevarria, *Clausewitz*, 63

²¹⁴ Clausewitz, *On War*, 75, 78-80

²¹⁵ Ibid. 75, 76 – 77; Echevarria, *Clausewitz*, 40, 64-65

²¹⁶ Echevarria, *Clausewitz*, 6; Strachan, *European Armies*, 8-22

²¹⁷ Clausewitz, *On War*, 75, 78 – 80; Echevarria, *Clausewitz*, 64, 66-68

nature as a whole;²¹⁸ ‘...primordial violence, hatred, and enmity, which are to be regarded as a blind natural force; of the play of chance and probability within which the creative spirit is free to roam; and of [war’s] element of subordination, as an instrument of policy, which makes it subject to reason alone.’²¹⁹ Condensed; ‘policy, emotion [and] chance.’²²⁰ Chief among these influencing forces upon war is the political aim or ‘policy’ which gives war its meaning and purpose, and regulates its aim and effort;²²¹ hence, the famous Clausewitzian aphorism²²² that ‘War is merely the continuation of policy by other means.’²²³ This Trinity is also associated with a secondary or ‘sub’ trinity that connects each force to a social domain that it *mostly* concerns; Passion mostly with ‘the people’, Reason or Policy mostly with ‘the government’, and finally Chance mostly with ‘the military’,²²⁴ - the domain most likely to deal directly in the climate of uncertainty that prevails in war.

²¹⁸ Freedman, *Strategy*, 87; Echevarria, *Clausewitz*, 69; Strachan, *Clausewitz’s On War*, 178; C. Bassford, ‘The Strange Persistence of Trinitarian Warfare’ *International Security and War; Politics and Grand Strategy in the 21st Century* (New York: Nova Science Publishers, 2011), 45

²¹⁹ Clausewitz, *On War*, 89

²²⁰ D. Lonsdale, ‘Strategy’ in D. Jordan, et al. (eds.) *Understanding Modern Warfare* (Cambridge: Cambridge University Press, 2008), 32

²²¹ Clausewitz, *On War*, 80- 8, 605 - 610

²²² Freedman, *Strategy*, 86

²²³ The Howard and Paret translation gives Policy, but the German word *Politik* could easily be Politics, depending on context. In chapter 8 of the same volume, Clausewitz describes war as the continuation of politics. This seems like a semantic matter but is important in understanding war’s nature. Succinctly put, Clausewitz determined that war is a continuation of politics *and* policy: ‘war as a continuation of politics’ fits Clausewitz’s description of war as a political interaction (see Clausewitz, Book 8); a continuation of the politics between two groups with violence, and ‘war is a continuation of policy’ in that it is instrumental to the group(s) employing it within that interaction. Clausewitz, *On War*, 87, 605; Waldman, *Trinity*, 91; Freedman, *Strategy*, 86

²²⁴ Waldman, *Trinity*, 7; Clausewitz, *On War*, 89

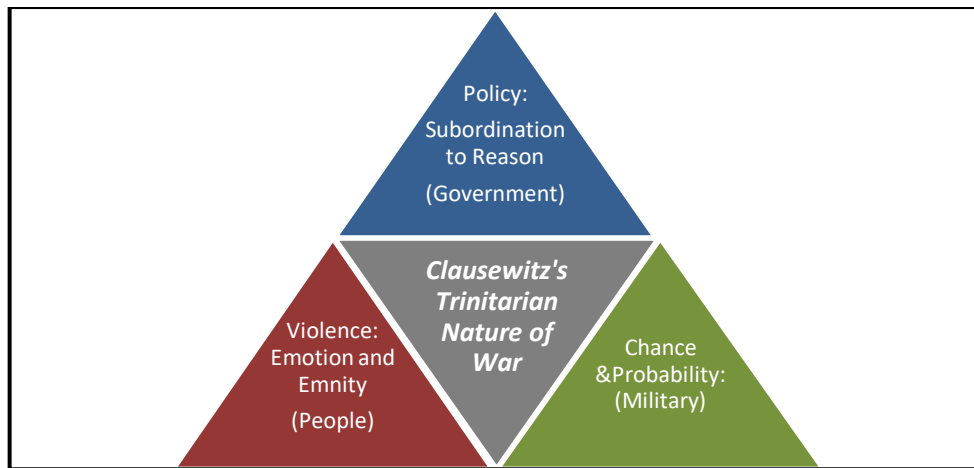


Figure 1: Clausewitz's Trinitarian nature of war with the 'realms' of society

Clausewitz's Trinity is perhaps best understood and visualised as '...three interactive points of attraction that are simultaneously pulling the object in different directions and forming complex interactions with each other...' ²²⁵ (see fig. 2), a system which Clausewitz described as being like a pendulum influenced by three magnets ²²⁶ referencing an apparatus now used to demonstrate aspects of chaos theory. These three forces interact to give each war its particular character. Pushing Clausewitz's analogy further, Beyerchen describes the varying character of war as similar to the pattern which a pendulum forms in the experiment; the pendulum will never repeat the same pattern, owing to the minute differences in air and force every time it is swung across the three poles. In Clausewitz's model, war is similarly quite uncertain and never repeats in detail owing to the varying interactions of these three forces, the sensitivity to wider contexts, and to minute variations. ²²⁷

²²⁵ Beyerchen, 'Clausewitz', 70-71; Bosquet, *Scientific Way*, 6 – 7

²²⁶ Clausewitz, *On War*, 89

²²⁷ Beyerchen, 'Clausewitz', 71–72; Bosquet, *Scientific Way*, 198; Gray, *Fighting Talk*, 38

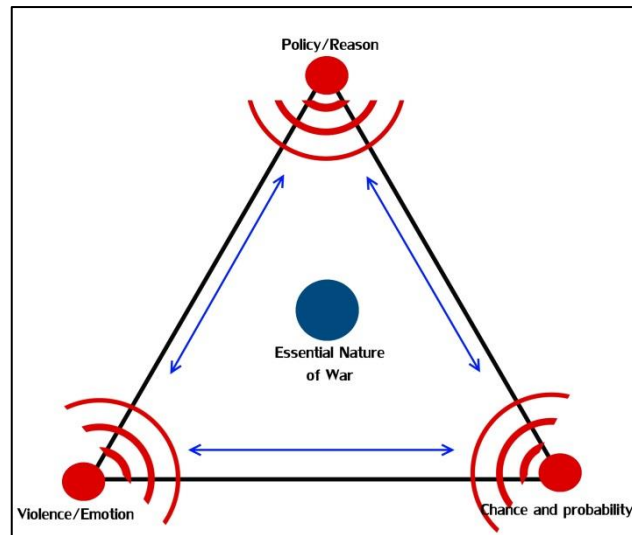


Figure 2: Diagram illustrating the Trinitarian nature of war as three forces operating upon the abstract object, following Clausewitz's description.²²⁸

In each conflict these forces interact differently, varying the character of that conflict, as do specific details of time and place. Wars are still, however, a product of their contexts;²²⁹ the who, what, when, why and how, which are quite observable to us when we contrast different conflicts. The Second Gulf War, for example, is very different in its place, time, combatants, technology, culture, conduct, etc. to, say, the Peloponnesian war and both are different again to The First World War. Despite this variation in contextual differences however, war is not an original phenomenon in each specific case²³⁰ (otherwise the term 'war' itself would be useless in describing specific activity). Clausewitz sought to examine and define war as a specific phenomenon, possessing a universal nature that is present in the above examples, and all others.²³¹ The universality of this model opens up to the strategist all of history's various and diverse conflicts for studying war, making military history something of a 'time machine' for the student of strategy to examine war. To explain this distinction between the nature of war and the character of

²²⁸ See also Beyerchen, 'Clausewitz', 70-71

²²⁹ Gray, *Fighting Talk*, 3

²³⁰ Vego, 'Military Theory', 60-61

²³¹ Lonsdale, 'Strategy', 32-36; Clausewitz, *On War*, 89

diverse wars more simply, let us turn to an automotive analogy: a car is composed of many aspects but all cars share the same basic fundamentals whether they are a Model-T Ford, a Lamborghini supercar, or the NASA Lunar Rover. All remain in essence *cars* with drivers, engines, gears and wheels etc. despite their very different circumstances; their nature, and indeed their purpose of conveyance, has not altered but their *character* has. Therefore, despite changes in strategic contexts and the different variations of the interactions of the trinity, resulting in varying characters of war, the actual fundamental nature of war has remained the same. To summarise, Clausewitz's defines war as an interactive, political activity, executed through the means of violence, influenced by a constant trinity of three variable forces (emotion, chance and policy aims), and varying across time and place in its character, but enduring in this essential nature.

Non-Trinitarian War

Whilst theoretically universal in its application, Clausewitz's description of the Nature of War is not universally accepted; there are challengers to the Clausewitzian model which we should examine to better understand our use of it. Van Creveld described this model as 'either obsolete or wrong',²³² limited to conventional modern western states, and thus not suitable to many, perhaps most conflicts throughout history.²³³ Van Creveld advances an alternative 'non-Clausewitzian', 'nontrinitarian', explanation of war in which war has no universal nature, and is primarily cultural or social, rather than political; a direct challenge to the Clausewitzian 'charter' that war is a political act, an extension of political

²³² M. van Creveld, *The Transformation of War* (New York: The Free Press, 1991), ix, 191; Freedman, *Strategy*, 86

²³³ Creveld, *Transformation*, 52, 125

interaction.²³⁴ Van Creveld (rightly) states that it is social communities of all kinds, not just modern, Westphalian states, which have waged war. Instead these have been tribes, religious groups, feudal sub-communities, clans, terrorist organisations, private dominions and imperia, or collectives of peoples (such as ‘the Lacadaemonians’, rather than a corporate state entity, e.g. ‘Sparta’). Not being modern states these groups do not have the tri-partite distinctions of society (between government, army, and people) that van Creveld identifies in Clausewitz’s Trinity, or see all three of these groups involved in war.²³⁵ The Masai of East Africa use the word *Moran* interchangeably for warrior and young man, for example, indicating this conflation of the army and the people; among the Masai this distinction did not exist.²³⁶

In the conflicts waged by such groups van Creveld states that ‘political, social, economic and religious motives were hopelessly entangled,’²³⁷ and that ‘politics’ as we would recognise it, was indistinct from military, social, religious and legal considerations before the early modern age.²³⁸ For example, the Greeks of antiquity waged warfare that was quite ritualised, with rites held throughout the battle,²³⁹ perhaps indicating a cultural activity, rather than strategic activity for political gain, with aims and reasons which may seem unpractical or irrational to modern western societies, where concepts such as honour and glory do not have the same appeal.²⁴⁰ Van Creveld states that warriors, especially in tribal groups, fight for their own aims

²³⁴ Creveld, *Transformation*, 191; Echevarria, *Clausewitz*, 57

²³⁵ Creveld, *Transformation*, 49–50, 52, 54–56

²³⁶ Creveld, *Transformation*, 56; C. Peers, *The African Wars: Warriors and Soldiers of the Colonial Campaigns* (Barnsley: Pen & Sword Military, 2010), 155

²³⁷ Creveld, *Transformation*, 50

²³⁸ *Ibid.* 52–55

²³⁹ M. van Creveld, *The Culture of War* (Stroud: Spellmount, 2009), 96; W. G. Runciman, ‘Greek Hoplites, Warrior Culture, and Indirect Bias’, *The Journal of the Royal Anthropological Institute*, 4, 4 (Dec., 1998), 733

²⁴⁰ Runciman, ‘Greek Hoplites’, 733, 747

and as a way of life, to gain prestige and wealth, and not for the ‘state’ or its aims ‘they... fight *only* to the extent that they experience war....as an end’²⁴¹ a social or ritual activity for its own sake, rather than as a military means to a political objective: It would be absurd, van Creveld says, for people to die for a political cause, something or someone other than themselves.²⁴²

However, van Creveld’s theory of non-trinitarian war and criticisms of *On War* may be built on unsure foundations. His focus on the words policy and politics is unnecessarily historically narrow, it is not just modern states that engage in behaviour we can consider politics:²⁴³ the activities of governing a country, area, or we may add, group, the relations between polities, and the activities of gaining and using power within a group.²⁴⁴ Despite their non-Westphalian form, such polities like the ancient Greeks or African tribal groups practiced war with aims we can still regard as political, whether it was the acquisition of livestock or other resources necessary to the polity, enforcing treaties and tribute, instilling fear in would-be foes, proving strength of the group, or neutralising threats.²⁴⁵ The warfare of the Zulu and Masai could be devastatingly efficient towards such aims.²⁴⁶ In such an environment of low order and frequent conflicts and raids, can we truly assign a cultural reason, rather than pragmatic strategic necessity, in developing an ‘age set’ system like the *moran* (Masai) or *ibutho* (Zulu)?²⁴⁷ Even ritualised warfare has its political rationale; the few material and human resources available naturally mean

²⁴¹ Creveld, *Transformation*, 191

²⁴² *Ibid.*, 56, 191

²⁴³ Waldman, *Trinity*, 84; Lonsdale, *Clausewitzian Future*, 25

²⁴⁴ Definitions of politics: M. Waite, (ed.) *Paperback Oxford English Dictionary* 7th Edition (Oxford: Oxford University Press, 2012), 555

²⁴⁵ A. Gat, ‘The Pattern of Fighting in Simple, Small-Scale, Prestate Societies’ *Journal of Anthropological Research*, 55, 4 (Winter, 1999), 574

²⁴⁶ With the possible exception of the Masai’s more ritualised conflict with the Kikuyu, see Peers, *African Wars*, 30–34, 154–5

²⁴⁷ Peers, *African Wars*, 31, 157

that violence is of a limited scale and heavily regulated by convention, for the value of one life in a small community of thousands is relatively higher than in an industrialised society of tens of millions.

Waldman challenges van Creveld's logic on three points; firstly it rests on the notion that individuals will not die for anything other than their own gain, yet death in war is a *risk* not a *certainty* and the risk may be worth taking. Secondly Waldman considers that van Creveld underestimates the will of individuals to fight for their kith and kin; humans are after all social animals with group-identity and so may fight for the polity (be it tribe, group or state) not purely for their own immediate good. Lastly, Waldman points out that the aims of an individual involved in conflict may be distinct and different to the reasons of the society as a whole that is engaged in war.²⁴⁸ Indeed, the very presence of that individual in conflict is necessarily determined by the aims of the polity.

Furthermore, as Bassford puts it 'Clausewitz's actual Trinitarian concept bears little resemblance... to the concept van Creveld claims to be refuting.'²⁴⁹ Instead, van Creveld conflates the actual Trinity that Clausewitz describes with a 'secondary trinity' composed of societal elements with which the primary Trinity is only *mainly* concerned; passions with the people, reason with the government, and the play of probabilities with the armed forces.²⁵⁰ Van Creveld is not the first to make this interpretation; it seems to have originated with Summers and continued with van

²⁴⁸ Waldman, *Trinity*, 85-86

²⁴⁹ Bassford, 'Trinitarian Warfare', 45

²⁵⁰ Clausewitz, *On War*, 89; Waldman, *Trinity*, 7, 84-85, 151-155 169; Strachan, *Clausewitz's On War*, 179

Crevelld, Kaldor, Keegan and others.²⁵¹ The secondary trinity is a useful illustrative device, but does not demand a strict correlation to the main one and it is not difficult to think of analogues that fit non-western state groups²⁵²

The idea that war is a social activity was not radical to Clausewitz, human behaviour and the social interactions of human beings underlies his thoughts on war, and he recognised that war is a social activity waged collectively.²⁵³ We may say that politics, and thus war, is inherently human and social in so far that it is the organisation of societies and the interactions of such social entities concerning power. Van Crevelld's counter to Clausewitz's politically focused model seems based on ironically narrow definitions of 'politics' and 'social', and his criticism is already accounted for within Clausewitz's theory. As such van Crevelld provides an interesting alternative to Clausewitz's model of war's nature but it does not undermine or displace Clausewitz's theories, which remain relevant to our comprehension of war's nature and thus the foundation of this thesis.

What is Strategy?

We have explored war's essential nature here to give us a basic understanding of the phenomenon which is integral to strategy is and defines the environment in which it is conducted in practice. As a discipline strategy has its theoretical side, for example Clausewitz's treatise on war's nature and elements, or the prescriptive writings of von Bülow, but as that theory seeks to reflect and inform the conduct of war in reality, it is not purely theoretical, but also a practical discipline that applies theory to action.¹ Yet even in practice strategy is not a simple concept to grasp and requires

²⁵¹ Strachan, *Clausewitz's On War*, 5-7; Villacres, E.J & C. Bassford 'Reclaiming the Clausewitzian Trinity' *Parameters* (Autumn 1995), 11-16 ; D. Jablonksy, 'US Military Doctrine and the Revolution in Military Affairs' *Parameters* (Autumn 1994), 18-36; Waldman, *Trinity*, 6-7, 166 – 169

²⁵² Waldman, *Trinity*, 84-85, 151-155, 168-169

²⁵³ *Ibid.*, 7, 9

some explanation. Much of the difficulty in this regard stems from the fact that strategy is a highly abstract, virtual activity with no material form and difficult to visualise.²⁵⁴ Additionally, and perhaps as a result of this, there is no universally agreed-upon definition of strategy which describes the subject and yet limits its field, even within the military sphere. There is, as mentioned above, a great profusion of the use of the word ‘strategy’ in realms well beyond its specifically military origins²⁵⁵ but this does not help us with clearing up what the concept means. The term ‘strategy’ arose from Enlightenment optimism in studying war as a scientific endeavour, although the term’s origins may date to the classical and Byzantine Greek concept of ‘*stratēgike episteme*’ (General’s Knowledge).²⁵⁶ The origin of the activity, the roots of strategic thought and action, are lost in the mists of time but probably date back to the moment our pre-human ancestors engaged in and *planned* group violence, used deception, and formed coalitions, perhaps as chimps do today.²⁵⁷

Here, we are necessarily shifting our focus to strategy in the practical, military,²⁵⁸ sense and require a descriptive definition specific to that sphere, reflective of war’s nature. Clausewitz defines strategy in practice as ‘the use of engagements for the object of the war’²⁵⁹ and Gray as ‘the use that is made of force and the threat of force for the ends of policy.’²⁶⁰ Both definitions continue the Clausewitzian axiom that war is a political activity - the continuation of policy, and both reference the use of military engagement (or force), reminding us that war is an essentially violent

²⁵⁴ Gray, *Fighting Talk*, 48

²⁵⁵ Freedman, *Strategy*, x - xii

²⁵⁶ E. N. Luttwak, *Strategy: The Logic of War and Peace* (Cambridge: Harvard University Press, 1987), 267

²⁵⁷ Freedman, *Strategy*, 4-9; Creveld, *Art of War*, 14- 18

²⁵⁸ Here we use military to describe the warmaking assets of a society; this includes ‘naval’ as well as ‘military’ in its traditional manner, pertaining to the army.

²⁵⁹ Clausewitz, *On War*, 128

²⁶⁰ Gray, *Fighting Talk*, 48, 54

activity. However, Gray's definition takes strategy away from the war to apply to the military instrument more generally, including in peace time. Gray also distinguishes between 'grand strategy' which deals with the use of all of a 'security community's' resources towards policy objectives, and the particular form of strategy concerned with the military instrument, referred to simply as 'strategy'.²⁶¹ This is not to say grand strategy is unimportant, but we are focusing specifically on strategy in the military context and the unique aspects of the military instrument which it employs.²⁶² Returning to the nature of war Freedman invokes Clausewitz's discussion of war as a struggle and reminds us that strategy is not just a plan of sequenced events but 'is required when others might frustrate one's plans because they have different and possibly opposing interests and concerns.'²⁶³ The definition which best considers this interaction, as well as the instrumentality of force in support of policy, is Lonsdale's: 'the process that translates military power into policy effect [against an intelligent foe]'.²⁶⁴ But, like Gray, we recognise that the threat of force is also within the realm of strategy.

Function: The Bridge

As we have seen, war is a political activity and this provides strategy with its particular function; to act as a regulator in the relationship between the aims of policy direction and the means of military force,²⁶⁵ illustrated in Gray's metaphor of strategy as a 'bridge'.²⁶⁶ This 'strategy bridge', is a two-way system which, if well maintained, enables 'constant dialogue between strategic performance and policy

²⁶¹ C. S. Gray, *The Strategy Bridge: Theory for Practice* (Oxford: Oxford University Press, 2010), 28 – 29; Gray, *Fighting Talk*, 48

²⁶² Gray, *Fighting Talk*, 48, 52

²⁶³ Freedman, *Strategy*, xi

²⁶⁴ T. Kane & D. J. Lonsdale, *Understanding Contemporary Strategy* (Abingdon: Routledge, 2012), 13

²⁶⁵ Clausewitz, *On War*, 90 – 99

²⁶⁶ Lonsdale, 'Strategy', 22; Gray, *Fighting Talk*, 48

demand.²⁶⁷ The strategist's role is therefore to translate the requirements of each side of the bridge back and forth, to establish useful strategy and discern 'what kind of military threat or action, on what scale, should generate the strategic effect necessary to achieve political objectives.'²⁶⁸ The resulting strategy is the product of negotiation between the ends of policy and the means of the military instrument. This is not static however, as the demands of policy and the fortunes of war alter as the strategic situation unfolds, altering the preferences of policy and the military.²⁶⁹ In theory this function ensures that policy does not ask of the military instrument things which it cannot do, and that the military's tactical and operational activities are controlled and united in a common purpose by strategy that is useful towards the objective, rather than being wasteful or counterproductive.²⁷⁰ Strategy is thus not just the art of using military force for the attainment of policy goals; it also determines realistic standards of its implementation and success across the levels of war.

The 'levels of war' in this regard refers to a conceptual hierarchy (Fig. 3) of interacting realms which together make-up strategic activity: Strategy in this hierarchy specifically refers to the establishment of goals and conditions for military force, (the bridge) as discussed above. Tactics is the level of individual engagements between military forces, including their deployment and interactions with each other and the enemy. The operational/campaign level describes the arrangement and planning of tactical engagements towards strategically useful ends, and the realm above tactics wherein manoeuvre and logistics decide when, how and where battle is

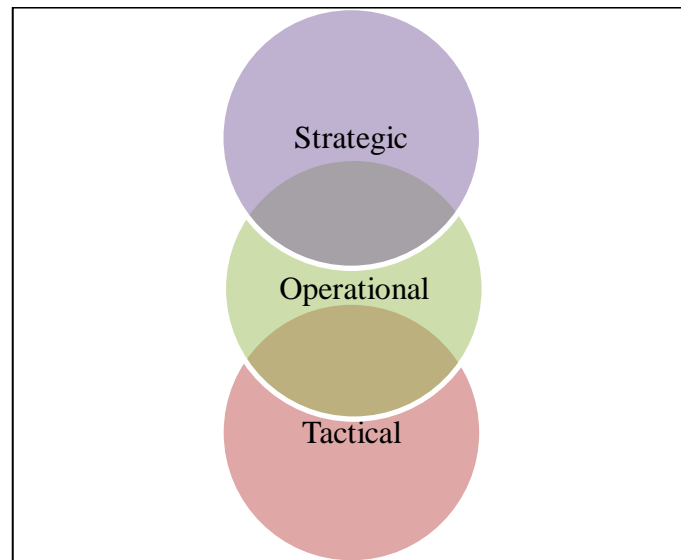
²⁶⁷ Gray, *Modern Strategy*, 23

²⁶⁸ Gray, *Fighting Talk*, 51

²⁶⁹ Gray, *Fighting Talk*, 48, 51-52, 54-57; Beyerchen, 'Clausewitz', 71; M. I. Handel, 'Clausewitz In The Age of Technology' in Handel (ed.), *Clausewitz and Modern Strategy*, 78

²⁷⁰ Gray, *Fighting Talk*, 50-51

commenced to support of favourable tactical conditions.²⁷¹ These ‘levels’ are often displayed as in the diagram but they are all a part of strategic activity and are all ‘bridged’ to policy: Without strategic direction, tactics and operations can be brilliant yet ultimately useless, whilst the battlefield is ultimately the court in which strategy is decided.²⁷²



(Figure 3: The Levels of Strategy/War as represented in MCDP1²⁷³)

In practice this function of the bridge across these levels is not without its difficulties, despite the simple presentation of it and the levels of strategy; in reality everything in war is very difficult.²⁷⁴ Strategy, being a virtual behaviour as we have explained, and not well understood in military or political worlds, means there is a potential dearth of strategists, and those there are may be a source of triumph or a vessel of defeat.²⁷⁵ They may fail to formulate adequate strategy, lack the particular ability to communicate between military instrument and government, or misapply

²⁷¹ (MCDP) 1, *Warfighting*, 21-22; Lonsdale, ‘Strategy’, 25-27

²⁷² Gray, *Modern Strategy*, 21-23; Gray, *Fighting Talk*, 51-57

²⁷³ (US) (MCDP) 1, *Warfighting*, 21

²⁷⁴ Clausewitz, *On War*, 119

²⁷⁵ Gray, *Fighting Talk*, 48 – 49, 50; Gray, *Strategy Bridge*, 51, 58, 66

military solutions to the strategic situation as was illustrated in Vietnam, where tactical and operational competence were undermined by the disconnect between the implemented military strategy and the character of war faced by US forces.²⁷⁶

Dimensions of Strategy

In addition to the levels of strategy and its function we may identify strategy as a multifaceted activity consisting of many ‘broad, pervasive, and interpenetrating dimensions’²⁷⁷ that ‘embrace every aspect of war preparation and warmaking.’²⁷⁸ Clausewitz identified five such ‘elements’; the moral, physical, statistical, geographical and mathematical,²⁷⁹ and Howard described the logistical, operational, social, and technological *dimensions* of strategy.²⁸⁰ Meanwhile Gray describes no fewer than 17 dimensions across three categories; People and Politics (people, societies, culture, politics, ethics); Preparation for War (economics and logistics, organisation, military administration, information and intelligence, military theory and doctrine, technology); and War Proper (military operations, command, geography, friction, the adversary and *time*).²⁸¹ We favour Gray’s organisation here primarily because he specifically identifies time as a dimension and, despite his reasonable assertion that there is no ‘master’ dimension, he considers people, politics and time could be contenders,²⁸² thus providing much of the inspiration for this work. However, this treatment of time as a ‘dimension of strategy’ should not be confused with the fact that time is one of the four *dimensions* of reality (alongside

²⁷⁶ Gray, *Fighting Talk*, 56; B. L. Montgomery, *The Art of Leadership* (Barnsley: Pen and Sword Military, 2009), 50-51; E. A. Cohen, *Supreme Command: Soldiers, Statesmen, and Leadership in Wartime*, 2nd edition (New York: Anchor Books, Random House Inc., 2003), 173- 175, 207

²⁷⁷ Gray, *Modern Strategy*, 23,24

²⁷⁸ Gray, *Fighting Talk*, 52

²⁷⁹ Clausewitz, *On War*, 183

²⁸⁰ M. Howard, ‘The Forgotten Dimensions of Strategy’, *Foreign Affairs*, 57, 5 (Summer 1979), 975-86.

²⁸¹ Gray, *Fighting Talk*, 52

²⁸² Gray, *Modern Strategy*, 16, 42; Gray, *Fighting Talk*, 70-73

the three dimensions of space) as understood by philosophers and physicists²⁸³ and discussed in the next chapter .

These systems of organisation are devised to allow the theorist to better identify and explain the important aspects of strategy, but the exact number of them is secondary as each method of categorization deals with the same amount of elements; that is, every aspect of strategy. It is also important to note that although these elements or aspects can be identified they are not entirely distinct, and influence one another as aspects of the whole of strategy.²⁸⁴ Much like war's essential nature, this fundamental set of dimensions in strategy (regardless of specific taxonomical arrangement) is universal throughout strategic activity as they pertain to its fundamental essence.²⁸⁵ Although no dimension or element is categorically greater than others, the relative importance of each dimension fluctuates between, and within conflicts, and whilst compensations in one realm may prove useful enough to offset weakness in others, a major weakness in any of them could undermine the entire strategic enterprise.²⁸⁶

Discussion of these dimensions helps us to identify strategy's multifaceted essence, but also indicates why it is difficult and complex; this vast array of variable dimensions creates even more numerable unforeseeable effects.²⁸⁷ It is beyond mortal ability to calculate the quantities or discern the qualities such a great range of dimensions, let alone their complex interactions with each other, or the results of

²⁸³ Aristotle, *Physics- Book VIII*, 3 (251b 10 – 28) ; Einstein, *Relativity*, 55-60

²⁸⁴ Gray, *Modern Strategy*, 24-25

²⁸⁵ Ibid. 16

²⁸⁶ Clausewitz, *On War*, 119, 183; Gray, *Modern Strategy*, 26

²⁸⁷ Gray, *Modern Strategy*, 16-17 ; Gray, *Fighting Talk* , 52, 74

these interactions. This renders the world in which the strategist operates a complex and uncertain one; unsolvable, irreducible and intricate.²⁸⁸

Failures upon the bridge and the intricate complexity of strategy are but two of the potential sources of difficulty when strategy is conducted in practice where the climate of war provides many additional frustrations. To complete our discussion of strategy we therefore now move from abstractions of strategy's ideal function and its many theoretical aspects and return to war's nature in practice, where difficulties in execution are revealed and demonstrate aspects of strategy's conduct beyond neat definitions. We have already outlined war's nature according to Clausewitz, as a violent, political struggle which is influenced by three forces; chance, emotion and rationality, the interplay of which makes war in reality an uncertain and variable activity. Based on his experience of war as something more difficult than previous theories had indicated, and the ideas of his mentor Scharnhorst, Clausewitz described elements stemming from war's nature and the harsh conditions of reality that impede the conduct of strategy: ²⁸⁹ (physical exertion, the uncertainty of intelligence, 'friction' - or chance -, and danger.)²⁹⁰ Together these elements 'coalesce to form the atmosphere of war, and turn it into a medium that impedes activity',²⁹¹ which Clausewitz compared to movement in water and, borrowing from Newtonian physics, conceptually developed into 'general friction.'²⁹²

Clausewitz discussed 'friction' in two senses which has led scholars to identify two forms; firstly 'general friction', which describes the whole pervasive medium, the

²⁸⁸ T. Waldman, 'Shadows of Uncertainty; Clausewitz's Timeless Analysis of Chance in War' *Defence Studies*, 10, 3 (2009), 344-345

²⁸⁹ Strachan, *Clausewitz's On War*, 15; Watts, *Clausewitzian Friction*, 9-15

²⁹⁰ Clausewitz, *On War*, 104, 106, 122, Watts, *Clausewitzian Friction*, 17 21-22; Lonsdale, *Clausewitzian Future*, 28, 35

²⁹¹ Clausewitz, *On War*, 122

²⁹² Watts, *Clausewitzian Friction*, 22; Clausewitz, *On War*, 122

total synergetic multitude of difficulty-causing elements, which gives real war its innate resistance to strategic conduct and separates war on paper from war in reality.²⁹³ Secondly: ‘incidental’ or ‘narrow’ friction; a constituent of the taxonomy of general friction alongside chance, danger etc.²⁹⁴ Barry Watts identifies three additional elements of general friction discussed by Clausewitz in *On War*; ‘physical and political limits to the use of military force’, ‘unpredictability stemming from interaction with the enemy’ and ‘disconnect between ends and means in war.’²⁹⁵ Our discussion of the difficulties of the function of the strategy bridge has already highlighted the physical and political limits of force, as well as potential disconnect between ends and means. We now attend to some other discernible elements of ‘General Friction’ identified by Clausewitz and Clausewitzian scholars, though it must be made clear that they interact, magnify and compound one another to create the frictious climate of war.²⁹⁶

Chance

Clausewitz was at pains to avoid underestimating the role of chance which, he maintained, was bound up with war more than any other activity.²⁹⁷ However, he did not define chance clearly compared to his other concepts, leaving it open to interpretation.²⁹⁸ Bosquet describes chance in *On War* is the blanket term for uncertainty,²⁹⁹ whilst Herbig discerns a distinction between the two.³⁰⁰ Herbig’s approach seems the most logical for our purposes, after all good luck (Chance)

²⁹³ Watts, *Clausewitzian Friction*, 78, 108; Luttwak, *Strategy*, 12; Echevarria, *Clausewitz*, 103.

²⁹⁴ Watts, *Clausewitzian Friction*, 18-20; Echevarria, *Clausewitz*, 107

²⁹⁵ Watts, *Clausewitzian Friction*, 21

²⁹⁶ Echevarria, *Clausewitz*, 107

²⁹⁷ Clausewitz, *On War*, 85

²⁹⁸ Beyerchen, ‘Clausewitz’, 73 Bosquet, *Scientific Way*, 196 – 200; Echevarria, *Clausewitz*, 71–72

²⁹⁹ Bosquet, *Scientific Way*, 198

³⁰⁰ Herbig, ‘Chance and Uncertainty’, 104-106

rarely brings about the feeling of uncertainty and not all uncertainty is the product of chance events, although chance assuredly builds uncertainty into strategy.³⁰¹ The element of chance in general friction is examined by Beyerchen in three forms (originally identified as forms of chance by the mathematician Henri Poincaré); firstly as stochastic chaos and the play of probabilities; secondly as the amplification of micro-effects, and finally as a product of analytical blindness; all three create uncertainty.³⁰²

The first form of chance, stochastic chaos and the play of probability is the purest form of chance identified by Clausewitz. He likened it to a game of cards in which chance (the fortunes of the cards one is dealt in successive hands) are played out almost at random.³⁰³ Such freak misfortunes range from bad weather, to human misunderstandings, to hardware failures, and whatever else mercurial Tyche³⁰⁴ may throw for the strategist.³⁰⁵ However, Clausewitz's employment of the card analogy is in fact an allusion to war's complexity beyond mere odds. A coin toss or other simple game of chance would suit the play of chance by itself, but the use of the card game comparison demands the consideration of not just probability but also the psychology of the other players, alongside risk.³⁰⁶ In such an environment beholden to chance he stresses that the commander is free to exercise their creativity; where one commander may be paralysed by uncertainty imposed by chance, another may enthuse at it as a world of possibilities to exercise their genius.³⁰⁷ Although luck and guesswork play their part on both good and bad fortunes for the commander, it is

³⁰¹ Herbig, 'Chance and Uncertainty', 96, 104, 106

³⁰² Beyerchen, 'Clausewitz', 77-79 Bosquet, *Scientific Way*, 198, Watts, *Clausewitzian Friction*, 67

³⁰³ Echevarria, *Clausewitz*, 72

³⁰⁴ Tyche, or Fortuna in the Roman World was the Greek goddess of luck, both good and bad.

³⁰⁵ Clausewitz, *On War*, 199-120

³⁰⁶ Beyerchen, 'Clausewitz', 77; Echevarria, *Clausewitz*, 72

³⁰⁷ Waldman, 'Shadows of Uncertainty', 360

their strength of character, ‘iron willpower’, that overcomes uncertainty when encountering misfortune and exploits opportunity.³⁰⁸

The second form of chance discussed concerns non-linear sciences which, beginning with Edward Lorenz’s experiments in modelling the weather in the 1960s, have examined the importance of the difference between theoretical absolutes and reality in numerous disciplines³⁰⁹ including war and Clausewitzian chance and friction.³¹⁰ With his emphasis on the difference between war in theory and war in reality, Clausewitz would no doubt approve of the rise of such a paradigm. In this form of chance, which is inherent to any undertaking, ‘microcauses’ (which we may be quite unaware of initially) have a knock-on or ‘amplified’ effect.³¹¹ This is perhaps best understood using the example of Rube-Goldberg mechanisms, which begin with a simple cause – say a domino falling, which in turn hits some other object, which falls onto another, and so on, until the effect is repeated across time and space to yield potentially much larger repercussions from that initial event concerning the domino. A clearer example of the phenomena may be the difference between 1/7 and 1.1/ 7 when modelling on computers. The more decimals included, i.e., the more precise the information, the more accurate and repeatable the experiment. In reality, total knowledge to the ‘nth’ decimal point is impossible. Instead, the sensitivity to the slightest change means that a system can appear to repeat itself through a number of iterations and then ‘all-of-a-sudden’ take up behaviour radically different.³¹² In the unobservable background that slight difference of conditions would eventually

³⁰⁸ Herbig, ‘Chance and Uncertainty’ 97–99, Clausewitz, *On War*, 85, 119–121; Waldman, ‘Shadows of Uncertainty’, 335, 360

³⁰⁹ J. Gleick, *Chaos: Making a New Science* (London: Abacus, 1987), 35–50, 193–194, 298–299, 316

³¹⁰ Beyerchen, ‘Clausewitz’; Bosquet, *Scientific Way*, 196–199; Watts, *Clausewitzian Friction*, 67–78

³¹¹ Beyerchen, ‘Clausewitz’, 78; Waldman, *Trinity*, 122

³¹² Gleick, *Chaos*, 18–23

amplify out to the greatly different results which, in Lorenz's simulated weather, could be the difference between a slight breeze and a hurricane.

In nonlinear systems, where sensitivity to initial or developing conditions is apparent, the interaction of feedback amplifies the results of those sensitivities, incorporating unpredictability into the system itself.³¹³ The interactions within armies and between adversaries, coupled with chance inherent in war, continue to provide developing conditions to which the system is highly sensitive, introducing fresh 'microcauses' which also can produce unexpected 'macroeffects.'³¹⁴ The common term for sensitivity-to-initial-conditions is 'the butterfly effect' (historians may be familiar with this concept as 'Cleopatra's nose')³¹⁵ and has been known in folk-law for years as a military fable:³¹⁶ 'For want of a nail, the shoe was lost; For want of a shoe, the horse was lost; For want of a horse, the rider was lost; For want of a rider, the battle was lost; For want of a battle, the Kingdom was lost!'³¹⁷ The point is not that there is no causality, but that causation can often be so infinitesimal as to be effectively hidden and thus when the when the result arrives, it is completely unexpected.

This leads to the third form of chance; the analytical blindness inherent in human limitation, owing to what Watt's terms the 'spatial-temporal dispersion of information in the external environment.'³¹⁸ It is discernible in Clausewitz's analogy of each war as a new uncharted sea with many reefs below the surface which must

³¹³ Watts, 'Clausewitzian Friction', 68, 76 ; Beyerchen, 'Clausewitz', 69

³¹⁴ Beyerchen, 'Clausewitz', 79

³¹⁵ Waldman, *Trinity*, 113, E. H. Carr, *What is History?* 2nd edition (London: Penguin Books, 1987), 98-99

³¹⁶ Gleick, *Chaos*, 23

³¹⁷ Ibid.

³¹⁸ Watts, 'Clausewitzian Friction', 76

be navigated in the dark.³¹⁹ Here chance events or ‘ill luck’ at least *seem* to arise when the link between events is unknown; a product of the earthly constraints of knowledge and the human penchant for examining events as discrete pieces rather than taking a holistic view of the context – seeing the trees rather than the proverbial wood.³²⁰ ‘But in war...all parts of the whole are interconnected and thus the effects produced however small their cause, must influence all subsequent military operations and modify their final outcome to some degree...’³²¹ We have no choice but to accept the constraint; millions of micro-causes producing macro-effects make it impossible to count, let alone know the initial conditions or subsequent impacts upon them. Our minds and even the greatest computers would find this an impossible task and so we regard much of the connected events as ‘chance’.³²² The problem for the strategist is therefore that it cannot be known in advance which shoe and which nail will be critical,³²³ or how critical and in what way. The three functions of chance illustrate that even with a perfect comprehension of initial conditions the future would retain a very high degree of unpredictability, whilst exact knowledge of current context is impossible due to the restrictions of mortal intelligence.

‘Incidental Friction’, in the ‘Narrow Sense’

Although Echevarria discusses chance and ‘incidental friction’ as the same phenomena,³²⁴ we have elected Watts’ distinction between the two, to more closely deal with chance and not ‘equate this source of [general] friction with chance in the sense of the unforeseeable accidents, the play of good luck and bad, that runs

³¹⁹ Clausewitz, *On War*, 120

³²⁰ Bosquet, *Scientific Way*, 199; Waldman, *Trinity*, 112

³²¹ Clausewitz, *On War*, 158

³²² Beyerchen, ‘Clausewitz’, 78

³²³ *Ibid.*, 77

³²⁴ Echevarria, *Clausewitz*, 107

throughout the tapestry of war... ...[which] seems quite distinct from friction in the narrow sense.’³²⁵ Watts describes Clausewitz’s ‘friction in the narrow sense’ as ‘the internal resistance to effective action stemming from the interactions between the many men and machines making up one’s own forces.’³²⁶ The view corresponds to Clausewitz’s discussion of ‘the military machine – the army and everything related to it.....seems easy to manage. But ... none of its components is of one piece: each part is composed of individuals, every one of whom retains his potential for friction. the least important of whom may...delay things or somehow make them go wrong. [Danger and exertion further] aggravate the problem....’³²⁷ This is friction in the sense of sand in a machine’s workings and, although never completely solvable, may be reduced (smoothing the interactions between the components) by increasing ‘tacit knowledge’ (e.g. training) or initiative to deal with friction, in those components.³²⁸ Here we can see there are obvious overlaps with the discussions of chance (especially micro-causes), uncertainty and complexity above, both in terms of friction in the narrow sense of interacting working components and as sources of ‘general friction.’

To illustrate these occurrences: Much of friction’s elements of complexity, chance and uncertainty are not limited to armed conflict and are observable elsewhere in human experience.³²⁹ In Luttwak’s example; a family trip to the beach is waylaid by calls of nature, unsynchronised family-groups in automobiles, and unexpectedly failing engines.³³⁰ When increasing the scale from a simple family jaunt to the

³²⁵ Watts, ‘*Clausewitzian Friction*’, 19

³²⁶ Ibid. ; Clausewitz, *On War*, 119-120

³²⁷ Clausewitz, *On War*, 119

³²⁸ Watts, ‘*Clausewitzian Friction*’, 48

³²⁹ Echevarria, *Clausewitz*, 107

³³⁰ Luttwak, *Strategy*, 11 - 13

beach to the movement of fleets and armies the friction does not dissipate. Instead it intensifies logistical and command-and-control pressures, along with opportunities for friction that are inherent qualities of mass and scale (adding more components).³³¹ This friction *amplifies* all the more with complex undertakings in which efficiency is highly dependent on coordination. The greater this reliance on co-ordination between assets, the more likely a deficiency in one of them will impact on the rest.³³² '[S]uccess is not simply due to general causes. Particular factors can often be decisive – details only known to those who were on the spot... while issues can be decided by chances and incidents so minute as to figure in histories simply as anecdotes.'³³³

In addition to this form of friction, the execution of strategy is frustrated by systemic friction stemming from higher levels of society: As modern states are made up of numerous components, be they governments, armed forces, and individuals such as political leaders, parties, and civil service departments, their numerous interactions produces a systemic friction inherent in all complex groups which causes uncertainty. The functioning and efficiency of these societies, especially in war time, is dependent on the relationships between those disparate components as a holistic entity, the state for example, with the aim of a unified objective.³³⁴ However, this may be undermined by officious departmental chiefs furthering their own creeds above others by monopolising resources and efforts, perhaps even at the expense of general strategic efficiency.³³⁵ When working together even for the same ends, different military components are want to (or perhaps only can) do things their 'own

³³¹ Creveld, *Transformation*, 105; Luttwak, *Strategy*, 12-13; Gray, *Fighting Talk*, 74-75

³³² Creveld, *Transformation*, 103, 107; Luttwak, *Strategy*, 13

³³³ Clausewitz, *On War*, 595

³³⁴ Luttwak, *Strategy*, 7-17; Strachan, *Clausewitz's On War*, 164-167,

³³⁵ Creveld, *Transformation of War*, 45; Gray, *Strategy Bridge*, 56; Luttwak, *Strategy*, 78-79;

way' a source of '*internal friction*, generated by the growing specialization and compartmentation of the military'³³⁶ and other government departments.

Uncertainty of information

Whilst uncertainty pervades the other difficulties discussed here it would be ill-considered to forget Clausewitz's specific discussion of uncertainty in intelligence.³³⁷ The Prussian theorist has been interpreted as particularly sceptical of intelligence,³³⁸ whilst intelligence collection and distribution is seen at the heart of success in modern warfare's ongoing 'intelligence' led 'revolution'.³³⁹ However, intelligence is still visited by chance, complexity, friction and even basic human error: "intelligence failures are not only inevitable, they are natural."³⁴⁰ Intelligence is a subjective matter open to distortion via interpretation, assumptions and preconceptions.³⁴¹ Still further information arrives at different times so as to give the wider picture a distorted meaning.³⁴² Information depending on the method of acquisition may also be unsuited or limited, perhaps missing salient facts or open to misinterpretation.

With the proliferation of mass intelligence gathering, and large agencies of many analysts, information now can appear as 'noise' rather than a dearth of accurate intelligence; again we encounter the 'Information Overload' which mires the

³³⁶ Handel, 'Age of Technology', 77-78

³³⁷ Echevarria, *Clausewitz*, 105

³³⁸ V. Rosello, 'Clausewitz's Contempt for Intelligence' *Parameters*, 21, 1 (Spring 1991), 103-114; D. Kahn, 'Clausewitz and Intelligence' in Handel (ed.) *Clausewitz and Modern Strategy*, 117-125; Waldman, 'Shadows of Uncertainty', 348

³³⁹ J. Ferris, 'Netcentric Warfare, C4ISR and Information Operations' in L. V. Scott & P. Jackson (eds.), *Understanding Intelligence in the Twenty-First Century* (London: Routledge, 2004), 54 – 59; Waldman, 'Shadows of Uncertainty', 350

³⁴⁰ Richard Betts cited in P. Gill & M. Phythian, *Intelligence in an Insecure World* (Cambridge: Polity Press, 2006), 104

³⁴¹ Herman, *Intelligence Power*, 223; Richard Betts cited in Gill & Phythian, *Intelligence*, 104-105; Kahn, 'Clausewitz and Intelligence', 122; Waldman, 'Shadows of Uncertainty', 347

³⁴² Echevarria, *Clausewitz*, 106

strategist with so much detail that it takes considerable time and effort to sift through it to find what is actually still useful, or ever was.³⁴³ So it is not just that the strategist is dealing with variable rates of exchange, over complex and interacting phenomena, but that even attempts to accurately acquire and understand the data which informs that process has the potential to lead one astray.

Danger

War, is a violent activity, highly dangerous with a substantial risk of death or injury. The psychological impact of this risk on individual combatants, magnified by the chaotic and confusing conditions of battle, is considerable and impairs the cognitive abilities of the participants, providing further friction.³⁴⁴ Motivating troops to risk their lives for the cause, or ascertaining how they deal with success and failure, is by no means a predictable exercise; such motivations and psychological elements are dependent on the mercurial aspects of human psychology such as morale and fear, which can only be managed by other intangibles like leadership. As a complex special talent, or force of character, leadership is no certain value either, and may vary considerably across an officer corps or generation of political leaders.³⁴⁵ The danger inherent to the climate of war thus brings with it more friction stemming from uncertainties in emotion and character which can only be rectified by further incalculable, uncertain characteristics of the combatants themselves.

³⁴³ Luttwak, *Strategy*, 128–129

³⁴⁴ Clausewitz, *On War*, 113–114; Watts, *Clausewitzian Friction*, 19

³⁴⁵ Luttwak, *Strategy*, 18; Montgomery, *Art of Leadership*, 51, 233; Cohen, *Supreme Command*, 173 – 175; Clausewitz, *On War*, 112, 119

The Logic of Strategy

At this point we have seen that it is possible for a strategic endeavour to suffer of its own accord through friction, even without an enemy. However, the prime external source of friction is glaringly obvious; as General George Pickett of the Army of Northern Virginia put it, when asked to sum up the reasons for Confederate defeat in the American Civil War ‘I’ve always thought the Yankees had something to do with it.’³⁴⁶ Strategy in reality has to deal with the enemy, an intelligent foe; the interaction that Clausewitz identified in his examination of war’s nature as a violent *clash* of wills, which we reflected in our discussion of strategy above. Indeed, Clausewitz defined war, and thus strategy, by this ‘zweikampf’ or ‘two-struggle’, represented by two combatants (often wrestlers or duellists).³⁴⁷ It is specifically *not* a unilateral activity, a science or art as the Enlightenment theorists maintained, as it is not ‘directed at inanimate matter, as is the case with the mechanical arts.... in war, the will is directed at an animate object that reacts.’³⁴⁸ As Echevarria brilliantly encapsulated it, it is ‘not the action of the saber, but that of the crossed sabers that makes up war.’³⁴⁹ This struggle is fundamental to war’s nature and thus strategy, giving it much of its inherent difficulty, along with its logic.

As described by Luttwak this essential and pervasive ‘paradoxical logic’ of strategy, distinguishes it from the rest of human activity. In normal life logic is linear, determined by efficiency; in strategy however this is entirely undermined by the condition of violent competition in which an intelligent enemy is using their own

³⁴⁶ J. M. McPherson ‘American Victory, American Defeat’ in G. S. Borit (ed.), *Why the Confederacy Lost* (New York: Oxford University Press. 1992), 19

³⁴⁷ Clausewitz, *On War*, 75-77; Echevarria, *Clausewitz*, 62-63

³⁴⁸ Clausewitz, *On War*, 149

³⁴⁹ Echevarria, *Clausewitz*, 63

strength and cunning to subvert one's own efforts and enact their own.³⁵⁰ In strategy the common-sense criteria of what is most efficient, such as the shorter route over the longer, the clarity of daylight over the confusion of night, carefully planned activities over rough improvisation, is potentially self-defeating as these things are logical and therefore can be anticipated and frustrated by the enemy; the unexpected and nonsensical on the other-hand cannot. To illustrate this, Luttwak uses a simple hypothetical choice common in war; a force may either move towards its objective on a paved, direct road or a narrow, unpaved, indirect one, passing through difficult ground or enduring other hazards and so arrive in a place the enemy feels is secure and left poorly guarded. Outside of war, the obvious choice would be the good road, however, in the context of war, the advantages of surprise may be gained by not taking the obvious route; *the bad road might be a good route, precisely because it is a bad road.*³⁵¹ In strategy therefore, the unusual, unexpected, paradoxical action becomes a valid course of action precisely because it is not common-sense.³⁵² In the words of Moltke the Elder; '[O]f the three courses that the enemy can take normally he selects the fourth.'³⁵³ The tendency to 'select the fourth course' stems from the universal desire to surprise, to be unpredictable to the enemy.³⁵⁴

The 'bad' and unexpected course brings with it the inherent issues of increased friction that make it a potential option; lack of efficiency and loss of time, an increase in complexity of plans, bad terrain, and so on. Additionally, the plan to undertake this unexpected course may require subterfuge and complex planning to confuse the enemy. This further increases the difficulty and potential for failure

³⁵⁰ Luttwak, *Strategy*, 2-4

³⁵¹ Gray, *Strategy Bridge*, 35; Luttwak, *Strategy*, 15

³⁵² Luttwak, *Strategy*, 3

³⁵³ von Moltke (the elder) cited in Creveld, *Transformation*, 110

³⁵⁴ Waldman, 'Shadows of Uncertainty', 347

brought about through internal friction, which swells with size and complexity as addressed above.³⁵⁵ Such paradoxical actions, carried out by both sides with the resulting uncertainty for each other, obviously compound the problems of predictability.

In addition to the paradoxical logic, the interactive nature of strategy as a clash of wills brings forth two related distinguishable sources of structural difficulty which, although interwoven with the paradoxical logic of strategy, may be assessed separately. Firstly, and somewhat mathematically, interactivity in itself breeds uncertainty. Clausewitz's explanation of war's interaction is vital and clear, and so is the uncertainty which results from it: '[M]ilitary action... must expect positive reactions, and the process of interaction that results. ...the very nature of that interaction is bound to make it unpredictable.'³⁵⁶ The two foes try to outmanoeuvre and keep ahead of one another, acting and reacting to the changes made by one another to their shared situation, thus each is reacting to a new, altered condition and by their action, creating a new condition which the enemy in turn must deal with. As the variables change they in turn make new variables because they are sensitively dependent on the initial conditions, or those introduced by the efforts of either belligerent. Examining mathematical models of combat as force-ratio models, Dewar, Gillogly and Juncosa draw similarities between the interactions of two opponents and nonlinear, iterative feedback systems.³⁵⁷ Thus we can identify the

³⁵⁵ Luttwak, *Strategy*, 14; Crevelld, *Transformation*, 103, 107

³⁵⁶ Clausewitz, *On War*, 139

³⁵⁷ J. A. Dewar, et al. "Non-Monotonicity, Chaos and Combat Models," *Military Operations Research*, 2, 2 (1996), vi.

essential struggle in war as a nonlinear process or ‘positive’ or ‘iterative’ interaction which is structurally unpredictable in the long term.³⁵⁸

Secondly, Clausewitz’s concept of war as a violent clash of wills raises the question of the resolution of those same wills; this is also featured in Clausewitz’s Trinitarian model of war’s nature in which popular passions (or emotions) are one of the key forces that influence war’s nature. Will and passions (usually, but not exclusively those of the people) are beholden to moral and psychological influences which may prove significant, even decisive³⁵⁹ but which are also intangible and potentially irrational³⁶⁰ and thus, highly uncertain. Thus the strategist attempts translation of real military action into strategic effect on the enemy with an exchange rate of force to psychological and moral effects that are highly uncertain and erratic, with much opportunity for unexpected results.³⁶¹ As with the impact of danger on the moral of individual combatants, the emotions of the society’s people (the source of the will in democratic states at least) must be bolstered and manipulated by other intangible characteristics of the government, like leadership.

Conclusion: Uncertain Climate

By way of some conclusion to this exploration of war and strategy we may define strategy as inherently difficult, complex and uncertain. This difficulty primarily issues from the hellacious climate of general friction which strategy must confront in real war, and the nature of war itself, described by Clausewitz as a violent, social-political struggle against a designing enemy, under the influences of the trinitarian forces of passion, policy and chance. The result is, as Lonsdale puts it ‘...a vision of

³⁵⁸ Watts, *Clausewitzian Friction*, 77

³⁵⁹ Clausewitz, *On War*, 136–139; Beyerchen, ‘Clausewitz’, 77

³⁶⁰ Strachan, *Clausewitz’s On War*, 179

³⁶¹ Gray, *Fighting Talk*, 40–41, 51

war that is uncertain, violent, and ultimately a human activity at both the physical and psychological levels.’³⁶² Perhaps above all, when the strategist conducts their art, they do so in a climate of war that is defined by uncertainty.³⁶³ As we have discussed, uncertainty of information and intelligence is a distinct element of general friction identified by Clausewitz and Watts,³⁶⁴ but our discussion of war’s nature and climate has indicated that a ‘general uncertainty’ arises at every level and in every aspect of war.³⁶⁵ The problems of internal friction, the limitations of gathering and analysing information, the complex and non-linear interactions of the struggle at the heart of war, to say nothing of the role of chance, incidental friction, and the potentially large repercussions of minor failures in a vast complex undertaking, all generate considerable uncertainty for the strategist attempting to shape and translate the military reality before them into a useful product for the aims of policy. Indeed, Clausewitz was perhaps understating when he said that “[w]ar is the realm of uncertainty; three quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty.”³⁶⁶ The pervasiveness of uncertainty may, as he warned, prove to be impossible to eradicate, in spite of the best wishes of strategists before and since Clausewitz to conduct strategy as a science. The vastly complex, reciprocal struggle, influenced by so many interacting factors, that is the nature of war, certainly seems to suggest that uncertainty is indelible.

It is possible that the agency of the strategist has been given short shrift here; for it is their function to make decisions based upon available knowledge of the situation and plan strategy based on the likelihood of success in such an uncertain climate. Based

³⁶² Lonsdale, *Clausewitzian Future*, 28

³⁶³ Ibid. ; Gray, *Fighting Talk*, 38

³⁶⁴ Watts, *Clausewitzian Friction*, 18-20, 76 -77

³⁶⁵ Beyerchen, ‘Clausewitz’, 74

³⁶⁶ Clausewitz, *On War*, 101

on a bleak view of strategy in the environment of war as so difficult and uncertain an activity, such a task may seem almost Sisyphean. All is not lost however; mindful of this inherent uncertainty one can still make some use of the predictive role of the strategist.³⁶⁷ They are like the *potamologist* looking around and down the river they are studying, and may be able to make a good judgement as to the look of the river upstream, but they cannot truly know for certain. Bereft of a ‘crystal ball’ the strategist must rely on their wits, experience, and knowledge of historical incidents of best practice, to form educated guesses and sound judgements. This allows for interpretation of current and historical activity and situations, leading to a grasp of, at least, the *most likely* events; as Clausewitz put it ‘From the enemy’s character, from his institutions, the state of his affairs and his general situation, each side, using laws of probability, forms an estimate of its opponents likely course and acts accordingly.’³⁶⁸ The record of history shows practicing strategists who were not merely successful due to their enemy’s inability to cope with such a climate, but were successful due to their own mastery of strategy within such a brutal environment. In such chaotic conditions Clausewitz esteemed the skill and talent of the commander, like a skilled poker player using judgement and perception, or *genius* to win, not just probability (the cards they have been dealt from the shuffled pack).

The purpose of this chapter has been to establish conceptual clarity concerning war and strategy, as our understandings of these subjects necessarily informs the way we consider time in relation to them, and thus our development of a theory of *strategic time*. By employing the Clausewitzian model of war’s nature and description of its

³⁶⁷ Brodie, *War & Politics*, 35

³⁶⁸ Clausewitz, *On War*, 80

climate, it has clarified the twin phenomena of war and strategy for our discussion. Based upon this exploration we have also sought and ultimately found and developed, a concept of strategy's role as specifically a military activity (as opposed to 'strategy' in business etc.), and some knowledge of the inherent difficulties and complexities which impede its conduct.

Importantly, the fact that war and strategy are practical, political activities, conducted by human beings and societies, determines that any concepts of time we wish to employ for the objects of strategic study, theory and practice, should reflect this; rather than an approach to time which is, though scientifically accurate, less applicable to strategic considerations, as discussed in the next chapter. This includes a recognition that, as wars vary due to contextual factors such as location, culture and era, they likely take with them temporal conceptualisations and approaches to time 'strategic time', which are the products of strategic, socio-cultural and political, contexts. Additionally we may note at this juncture that any strategic time concept must reflect the natures of war and strategy described above; complex, multifaceted, and chiefly uncertain undertakings, defined by struggle against a designing enemy, making its future possibilities difficult to predict; a temporal implication. With the foundational concepts of war and strategy established, and some preliminary thoughts on time in strategy and the forming of a theory of strategic time, the work now proceeds to discuss theories of time in some depth, so that it can be clearly understood and resolved to fit in the conceptual framework of strategic theory.

II: Theories of Time: Time is Relative, but is that Relevant?

What do I measure, when I say either indefinitely this is a longer time than that or, definitely, this is double that? It is in thee, my mind, that I measure times.

– St. Augustine³⁶⁹

Time flies like an arrow... fruit flies like a banana.

- Anthony G. Oettinger³⁷⁰

What is Time?

In the previous chapter we examined the role of strategy within the nature and climate of war to provide a conceptual foundation of strategy in practice, within which to position our treatment of time in strategic theory. Naturally, if we are to examine the role that time plays in strategic activities we must also understand the phenomena of time itself, and examine its governing laws and aspects, so that we can comprehend time for our purpose of establishing strategically useful concepts of time. The purpose of this chapter, then, is to gain this comprehension, and begins by asking an ancient question; what is time? The answer to this question however is not so simple, and varies greatly depending on to whom it is directed as, unlike in the previous chapter where we were able to employ Clausewitz's seminal discussion of the nature of war, we can rely on no such advantage in examining time, for there is no equivalently concise and informative text for the study of time's nature.

Instead, as noted in the review of the literature, time has been examined by scholars across various disciplines, with correspondingly diverse foci and requirements for

³⁶⁹ St. Augustine cited in Cohen, 'Time in Psychology', 155

³⁷⁰ A. G. Oettinger cited in F. J. Crosson (ed.), *Human and Artificial Intelligence* (New York: Meredith Corporation, 1970), 15, also often attributed to Groucho Marx.

their study, that produce time concepts which, although useful to their own domain, may not necessarily be so useful to our own:³⁷¹ ‘The mathematician, the philosopher, the physicist, the logician, the theologian, attempts to translate the psychological description of time into the language of his art.’³⁷² As it is this work’s *raison d’être* (and the purpose of this chapter specifically) to develop time concepts applicable to strategy, in other words to ‘translate the description of time into the language of our art’, we examine a number of influential theories from the sciences and humanities concerning time’s nature and aspects, to identify relevant concepts for our own subject. Alongside this we establish specific laws, or ‘rules’ of time, fit for strategy, adapted from different time concepts to give initial shape to a notion of ‘strategic time.’ However, the exploration of such a broad subject is not straightforward as there is no single, correct arrangement of the various facets of such a vast phenomenon, thus the format adopted in this section of the work is necessarily arbitrary and somewhat non-linear in its treatment of the numerous aspects of time that we wish to consider. Similarly, the constraints of the chapter and the purpose of this work mean that certain complex theories are rendered in a simplified manner, and some interesting, yet non-essential elements do not warrant inclusion.

Nevertheless, our desire to comprehend this intangible phenomenon means that, for the sake of some completeness and opportunities of diverse approaches, we consider a broad range of concepts which may appear counterintuitive and strange. We certainly all ‘know’ things about time; it would be hard for us to function if we did not. We know that the past has gone and is unchangeable, and the future is yet to be,

³⁷¹ Gurvitch, ‘The Problem of Time’, 42

³⁷² Reyna, ‘Metaphysics of Time’, 228

we know that time ‘flies’, and we can ‘waste’ time, or we can ‘save’ time, or even ‘make’ time, but how do we think about time at a more advanced level of thought than our day-to-day intuitions? What do we know of its nature, and are such considerations relevant to how we think of time in strategic theory? To examine these questions we consider various aspects of time which, for the purpose of organisation, will be executed in two parts; the first considering philosophy and physics; the second examining the relevance of social time.

Philosophy and Physics

The Philosophy of Time

Understanding time can be difficult; we cannot see it, smell it, or feel it, but we know it exists³⁷³ and that it passes, for we experience it with our memory and our thoughts of order and the world, much as St Augustine explained. Heraclitus, writing during the early 5th Century BC, considered time as a continuous, eternal flow of change like a river; ‘You cannot step twice into the same river:’³⁷⁴ once passed along the flow of time, moments, like waters, cannot be re-visited.

Aristotle contended that time ‘... either does not exist at all or barely, and in an obscure way. One part of it has been and is not, while the other is going to be, and is not yet...’³⁷⁵ He, contended that time was, as Heraclitus considered, connected to change because change is measured by time and time is measured by change or motion.³⁷⁶ He reasoned the present moment ‘moves’ through a kind of metaphysical ‘dimension’ of time, wherein the present moment is the boundary between past and

³⁷³ M. Kaku, (Prod.) & P. Oxley, (Dir.) Episode 1: ‘Daytime’, *Time*, (BBC4, 2006)

³⁷⁴ Heraclitus via Socrates cited in Plato, ‘Cratylus’, *Plato in Twelve Volumes Vol. 12*. Translated from Greek by H. N. Fowler (Cambridge: Harvard University Press, 1921), 402A

³⁷⁵ Aristotle, from *Physica* cited in Heath, *Concept of Time*, 56

³⁷⁶ Aristotle, *Physics- Book VIII*, 220b, 14-15; B. C. van Frassen, *An Introduction to the Philosophy of Time and Space* (New York: Random House, 1970) , 18 - 19

future.³⁷⁷ Time was thus not absolute, but relative to the present as a moving point of reference.³⁷⁸ St. Augustine considered, like Aristotle, that change and movement were essential to time's nature, but in more subjective terms; the past had ceased to exist and the future yet to exist, therefore of the three parts of time only the present existed, and existed only because it was differentiated in the mind of observers in the present by either 'becoming' the past or 'coming from' an as-yet non-existent future.³⁷⁹

Enlightenment thinkers Newton and Leibniz discussed whether it was a thing itself or merely the order of other objects (i.e., events or changes): Leibniz, like Augustine, held that time was a limited human comprehension of God's creation.³⁸⁰ Following Aristotle, he also maintained time was a sequence of indivisible moments; 'monads'³⁸¹ and deduced it was dependent on cause-and-effect relationships of monads - of 'before' and 'after' which gave time order and meaning via sequence.³⁸² There could be no time before, after, or without change – a time in which nothing happens, if time could stand still it, is not time.³⁸³

Immanuel Kant stated that change and time were linked³⁸⁴ but maintained possible differences in realities between different moments, refuting Aristotle and Leibniz claims that time *is* change: 'A and not A are not incompatible unless they are judged of the same thing together [temporally concurrent] but when they are judged of a

³⁷⁷ Aristotle, *Physics – Book VIII*, 251b, 10 – 28 and 219b, 1

³⁷⁸ D. W. Graham 'Commentary' in Aristotle, *Physics- Book – VIII*, 47; Heath, *Concept of Time*, 59

³⁷⁹ H. Hausheer, 'St. Augustine's Conception of Time', *The Philosophical Review*, 46, 5 (Sep. 1937), 503

³⁸⁰ Heath, *Concept of Time*, 104-105

³⁸¹ R. McRae, 'The theory of knowledge' in N. Jolley (ed.), *The Cambridge Companion to Leibniz* (Cambridge: Cambridge University Press, 1995), 184; Rescher, *Philosophy of Leibniz*, 99

³⁸² Frassen, *Philosophy of Time and Space*, 18–19; Jolley, *Companion to Leibniz*, 184; Rescher, *Philosophy of Leibniz*, 99; Heath, *Concept of Time*, 40

³⁸³ Frassen, *Philosophy of Time and Space*, 28–29; Rescher, *Philosophy of Leibniz*, 93, 100

³⁸⁴ Kant, 'Sensible and Intelligible World', 59

thing successively, [temporally separate] they may both belong to it. Hence the possibility of changes is thinkable only in time; time is not thinkable through changes, but vice versa.’³⁸⁵ i.e. change is observed via time, but time is not change or movement itself.³⁸⁶ Kantian theory holds that time is subjective, understood only in the mind as a schema to comprehend reality;³⁸⁷ the later Phenomologist School, continued in a similar vein.³⁸⁸

In the 20th Century, McTaggart theorised that time must exist in one of two forms; A or B series. B series time describes the relationship between events (conceptualised ‘in time’) e.g. Alexander died before Napoleon. There is no tense of past, future or present, merely the relation between events (like Leibniz’s sequential progression.) In A series however, contexts of past, present and future matter due to subjective observation: Alexander and Napoleon died in the past, we will die in the future, and we experience the present, which moves closer to that moment and away from the two conquerors. ‘B time’ struggles to explain change, as it represents time merely as a row of events; useful for physics, whilst ‘A time’ prevails in social science considerations, although both are necessary to comprehend history and time.³⁸⁹

³⁸⁵ Kant, ‘Sensible and Intelligible World’; I. Kant, ‘Inaugural Lecture’ cited in Frassen, *Philosophy of Time and Space*, 37 - 38 An example of this is that of a ball which is green one day and red on the following day. That the ball is red today doesn’t mean it was not green yesterday. Similarly for an ice-cube which melts over night into a pool of water. These statuses (colour and state of matter) are contrary but not contradictory due to temporal separateness. Nor are further changes ruled out by the status at the present, but something cannot be red and green all over at the same point in time.

³⁸⁶ Kant cited in Frassen, *Philosophy of Time and Space*, 37–38; Kant, ‘Dissertation’, 59

³⁸⁷ Heath, *Concept of Time*, 115: Kant, ‘Dissertation’, 59

³⁸⁸ E. Hoffman, *Time* (London: Profile Books, 2011), 65-66,

³⁸⁹ Adam, *Time and Social Theory*, 20-21

Newtonian Physics

Enlightenment scientists formally considered space and time in ways more fundamental to modern science than ancient metaphysicians. Their investigations began chiefly in astronomy, and culminated with Newton's *Philosophiae Naturalis Principia Mathematica* (1687).³⁹⁰ In *Principia*, Newton established two concepts; absolute space, and absolute time which, in contrast to the considerations of philosophers, exists objectively and passes regardless of observation or movement and changes.³⁹¹ Nothing influences this absolute time, it stems from its own nature and flows at an even rate throughout all of space, regardless of physical location.³⁹² Absolute time, t , would be equal to time prime (t^1); one's own point in space.³⁹³ However 'Newtonian time'³⁹⁴ is symmetrical; any change will, with the right force, move in the same manner backwards, as in the laws that describe motion are invariant and work in either direction - time does not alter them as it is only relevant in terms of duration; This means that there is no particular direction of time at large. Past, present or future do not matter and the universe's events just happen to travel in one temporal direction. By following the stages of motion and change which led to a condition, and undoing them through a direct reversal of forces, one arrives at exactly the same point one 'began' (say, the conditions of yesterday, or last week). In a purely Newtonian universe such things as reverse time are possible; e.g. pies unbake themselves, and such events are considered to be *as likely* as what actually happens.³⁹⁵

³⁹⁰ S. Hawking, *A Brief History of Time; From the Big Bang to Black Holes* (London: Bantam Press. 1988), 4

³⁹¹ Heath, *Concept of Time*, 87–88, 90; Hawking, *Brief History of Time*, 7, 18

³⁹² Heath, *Concept of Time*, 87–88, 90

³⁹³ Ohanian, *Special Relativity*, 5–6

³⁹⁴ Based on Newton's Second Law of $F=ma$: Force = Mass \times Acceleration

³⁹⁵ Adam, *Time and Social Theory*, 51

The Enlightenment scientists also maintained that the forces and conditions of all matter could be measured and determined, and therefore predicted; e.g. the position and speeds of the sun calculated in the 1770s could be used to determine its position and speeds for any time at all. The Marquis De Laplace proposed this applied not just to astronomical bodies but to everything in nature, including humans and their behaviour; if all conditions are knowable in one instance, he reasoned, then laws can be discerned to predict where they will be in the future at any given point,³⁹⁶ building fatalism and absolute certainty into time.

Einsteinian Physics

Understandings of time in physics have changed since Newton's concepts of absolute time and reality, to ones of non-absolute, asymmetrical time, defined by relative frames of reference. Firstly, the work of Albert Einstein and Henri Poincaré in the early Twentieth Century demonstrated that time is not an absolute constant, but *relative* to one's position, influenced by speed of motion through space, and the gravitational pull of astronomical bodies, such as our planet or the sun. This is due to a fusion of space and time in a four-dimensional 'space-time' reality.³⁹⁷

Einstein's Special Theory of Relativity maintains that the only absolutes of the universe are the laws of Newtonian motion (physics works the same no matter where one is) and the speed of light (the fastest thing in the universe, with invariant speed)³⁹⁸ which have been demonstrated as being the case, and demand that time, rather than light or physics, 'slows down' or 'speeds up' depending on one's speed of

³⁹⁶ Hawking, *Brief History of Time*, 53

³⁹⁷ Susskind, *Lecture 1 of Modern Physics*; Ohanian, *Special Relativity*, 1-5, 20-21; Einstein, *Relativity*, 55-60

³⁹⁸ Hawking, *Brief History of Time*, 20

motion through space and thus is not absolute.³⁹⁹ As the speed of light is absolute, and finite ⁴⁰⁰ cause and effect, as well as the observation of any change, are naturally restrained; nothing is faster than light therefore no cause can be effected faster than the time it takes light to travel between causation and effect.

Einstein's theory of General Relativity on the other hand, describes how gravity influences time due to the four dimensional nature of reality (three spatial dimensions, one time dimension) in which space and time are linked and affect one another, a concept termed 'space-time' which is 'curved' in four dimensions around high-gravity bodies within it; e.g. time in black holes slows to the point where even light cannot escape.⁴⁰¹

This can be expressed with Global Positioning System (GPS) satellites. GPS satellites carry highly-accurate atomic clocks.⁴⁰² The satellite travels at 14,000km per hour subjecting it to special relativity; great speed slows down time, so time aboard the satellite (measured by the clock) slows by seven nanoseconds, relative to time on earth.⁴⁰³ But the satellite is also subject to general relativity; gravity alters time, so the clock aboard the satellite, away from the gravity of earth, records a quicker passage of time,⁴⁰⁴ gaining forty-five nanoseconds a day.⁴⁰⁵ The smallest error of a millionth of a second could cause positioning to be out by a fifth of a mile⁴⁰⁶ so to

³⁹⁹ Ibid., 21-22, 33; P. Davies, 'That Mysterious Flow' *Scientific American*, 23, 4 (Autumn 2014) , 10; Susskind, *Lecture 1 of Modern Physics*; Ohanian, *Special Relativity*, 81-84

⁴⁰⁰ As theorised by Maxwell see Hawking, *Brief History of Time*, 19-20, 24

⁴⁰¹ Hawking, *Brief History of Time*, 21, 49, 61

⁴⁰² Ohanian, *Special Relativity*, 33

⁴⁰³ Perimeter Institute, GPS Relativity Guide

⁴⁰⁴ E. Borel, *Space and Time* (London: Blackie & Son Ltd., 1926) , 24

⁴⁰⁵ Perimeter Institute, GPS Relativity Guide

⁴⁰⁶ G. Stix, 'Real Time', *Scientific American*, 23, 4 (Autumn 2014) , 7

calculate for the temporal dilations of velocity and gravity the clocks are set ‘fast’ by 38 nanoseconds.⁴⁰⁷

Thermodynamics

Where Einsteinian relativity overturned Newtonian concepts of absolute time, the symmetry and directionality of time in classical physics is replaced by thermodynamics. Unlike the Enlightenment’s clockwork universe, the Industrial Revolution embraced the laws of combustion – irreversible changes of matter and a view of the universe as a reservoir of finite energy.⁴⁰⁸ Whereas, technically speaking, classical mechanics allows time to move in both directions, forwards and backwards like clockwork, we know via practical experience that time is unidirectional; pies do not un-bake into their ingredients, like a film being played backwards. This ‘arrow of time’ we observe is informed by Clausius and Kelvin’s laws of Thermodynamics.⁴⁰⁹ The First Law states that energy is finite but never created or destroyed only transformed from one state to another (ie. the energy in coal into heat).

However, transformation itself is not finite due to the Second Law, which states that all phenomena in the universe have the tendency to decompose; the state of energy which composes them will spontaneously and inevitably tend to disorder and the energy will disperse, losing its composition and ‘usefulness.’ Entropy is the quantity of this disorder in a given system, which increases as time goes on. It is possible to create order again, but this requires expending usable energy. In isolated systems

⁴⁰⁷ Perimeter Institute, GPS Relativity Guide

⁴⁰⁸ Prigogine & Stengers, cited in Adams, *Time and Social Theory*, 61

⁴⁰⁹ Kaku & Oxley, ‘Daytime’

where no new ordering energy is injected entropy therefore increases toward a total entropic state.

This is due to probability; without external ordering, the state of energy will *likely* remain disordered,⁴¹⁰ e.g. it is improbable that milk dispersed into tea will go from a mixed-up state back into the ordered condition of black tea and a separate quantity of milk. In fact it would be incredibly difficult to re-order it in such a fashion as the combination of milk and tea is very complex and it is simply ‘easier’ for energy to exist in a disordered state.⁴¹¹

With every transformation there is ‘dissipation’ – the loss of useful energy to entropy by the very conversion.⁴¹² Useful energy becomes Achilles to entropy’s tortoise, never being quite able to catch up. This entropic element of the universe, Hawking explains, gives time, as a dimension of that universe, its directionality. For organisms this gives us our ‘psychological arrow of time’ and our understanding of temporality; why we remember the past and not the future, with entropy acting as a directional clock for our universe. If the laws of science were put in reverse by God, and entropy, of its own accord became *spontaneous ordering* rather than disordering, we would necessarily remember the future, not the past, and the two would switch.⁴¹³

This directionality and change led Prigogine to propose that, rather than considering time and space in terms of coordinates as Newtonian science would, that time instead be reconceptualised as an operator, *T*, similar to historical time; an ‘expanding’ factor that describes the age of a physical system - how much entropy

⁴¹⁰M. Gell-Mann, *The Quark and the Jaguar: Adventures in the Simple and the Complex*, 2nd Edition (London: Abacus, 1995), 221- 223

⁴¹¹ Gell-Mann, *The Quark and the Jaguar*, 218

⁴¹² B. K. Ridley, *Time, Space and Things*, 3rd edition (Cambridge: Cambridge University Press, 1995), 67

⁴¹³ Hawking, *Brief History of Time*, 147-148

and change it has undergone.⁴¹⁴ This approach to conceptualising time returns some of the earlier philosophical discussions to physics; the role of history and the future in a system, irrelevant in Newtonian physics, have been proven by thermodynamics to matter as change and time have innate direction; mere sequencing of events (a'la B-time) is insufficient to describe reality.

Quantum Physics

At atomic scales of matter time functions strangely; even more so than in Relativity. In quantum physics the linear order of sequenced events, and thus causality, breaks down,⁴¹⁵ undermining Newtonian mechanics of motion. Particles and their relationships, instantaneously exist and disappear, forming interactions that depend neither on time or space, leaving a fragmented view of time that 'stops' and 'starts.'⁴¹⁶ Even the particles in quantum physics seem to exist in multiple probable places and forms at once, in ways that are inherently unpredictable. Werner Heisenberg identified the phenomena termed the 'uncertainty principle'; when determining the position of a particle to predict its movement, the velocity of the particle is disturbed. The more accurate this is determined, the more interrupted the velocity becomes. As the particle's movement (velocity) and position cannot both be verified at once, they are considered to exist in a 'quantum state':⁴¹⁷ This principle undermines Laplace's deterministic concept of science, because the present state of the universe can never be precisely measured,⁴¹⁸ echoing the mathematical theories

⁴¹⁴ Adam, *Time and Social Theory*, 65

⁴¹⁵ IBID., 59; J. Hilgevoord, 'Time in Quantum Mechanics', *American Journal of Physics*, 70, 3, (March 2002), 301

⁴¹⁶ M. Kaku (Prod.) & P. Oxley (Dir.) Episode 4: 'Cosmic Time', *Time* BBC 4, (26 February 2006)

⁴¹⁷ Gell-Mann, *Quark and the Jaguar*, 134-139

⁴¹⁸ Hawking, *Brief History of Time*, 55

of chaos which we examined in the previous chapter concerning Clausewitzian friction.⁴¹⁹

Analysis: Relevance and Relativity

Obviously many of these scientific and engineering concepts are vital to the technical conduct of war, but we often distinguish between how something works and how it is *used*. The actual *use* of satellites in strategic undertakings for example is subordinate to a ‘practical ignorance’; the average human end-user of a satellite, be it the driver of a GPS equipped car or a USAF signaller, does not necessarily *need* to know general and special relativity to make use of the satellite for the task they are conducting. Instead our common thoughts on time remain conceptually separate from these scientific aspects of time; they are more terrestrial and mundane with little thought to time’s nature at extremes of scale, if at all. These scales and thermodynamics have limited conceptual applicability to human disciplines, because they do not *obviously* impact human use and thought of time.⁴²⁰ as one anthropologist puts it ‘We don’t think of Stephen Hawking’s theories as we go about our daily lives.’⁴²¹ Or we may add, ‘their strategic lives’. The extremes of scale at which many laws of physical time operate, may lead us rightly to question if they are relevant to the conduct of strategy, when human experience dwells between these extremes in the human ‘meso-scale’, yet engages neither.⁴²²

Our previous discussion of strategy concluded that, in addition to being difficult and uncertain, strategy and war are inherently human. Human beings, in their warmaking

⁴¹⁹ See Chapter one, also Gleick, *Chaos*

⁴²⁰ Adam, *Time and Social Theory*, 56; Gurvitch, ‘Problem of Time’, 42, 117, 169

⁴²¹ Birth, cited in M. DiChristina et al. ‘Clocking Cultures’ *Scientific American: A Matter of Time*, 23, 4 (Autumn 2014), 49

⁴²² T. Hägerstrand, cited in ‘Fundamental Issues in Model Building’ in A. Karlqvist et al., (eds.) *Dynamic Allocation of Urban Space* (Farnborough: Saxon House, 1975), 5-6

as in their daily lives, do not generally consider more complex physical theories when organising their days, meetings, and movement of formations: Even important military operations ‘work’ in the same ‘relevant’ human time frame as a commuter catching a bus; both exist within the meso-scale of physical time and are subordinate to the same ‘flow’: Humans compose societies and their strategic institutions, and so those societies and institutions relate to the human experience. The strategist, and strategic theory, must therefore be intentionally biased to relevant time scales of the human experience, ignoring the scientifically accurate nature of time in physics at non-relevant scales. This gives us a general, if somewhat obvious foundational principle for consideration of time in strategy; *the rule of relevancy* - time concepts in strategy must deal with time in the human scale of experience, in which politics and strategy inhabit.

Time’s Arrow

Nevertheless, we may identify observations of time in strategy that stem from, and can be represented, using physical and metaphysical concepts. Firstly we can say with some confidence that time in strategy or ‘strategic time’ is linear with an unalterable past, irreversible change, and unknowable future,⁴²³ which establishes the Rule of *Time’s Arrow*. This can be represented in the diagram of Minkowski space-time (Fig. 4) with time as a unidirectional, linear ‘arrow of time’⁴²⁴ piercing the hyperspace (a 2D compression of 3D space), and representing the present moment ‘moving up’ (like Aristotle’s idea of the present moving through time): all below the

⁴²³ Gray, *Fighting Talk*, 115

⁴²⁴The term ‘arrow of time’ was first conceived by astrologer Sir Arthur Eddington, and although Minkowski diagrams vary in their depiction of the arrow, our figure follows the one used by Professor Hawking. H. Price, ‘Time’s Arrow and Eddington’s Challenge’ (presentation delivered at Séminaire Poincaré XV; *Le Temps* – December 2010), 115; L. Brillouin, ‘The Arrow of Time’ in J. Zeman (ed.), *Time in Science and Philosophy: an International Study of some Current Problems* (London: Elsevier Publishing Company, 1971), 109; Einstein, *Relativity*, 55–60; Hawking, *Brief History of Time*, 26

plane is the past and all above it, the future. The plane of the present moves ‘up’ along the temporal axis into the future and the previous position of the ‘present’ surface becomes the past. Observers cannot influence past events as they are behind them on the arrow of time, whilst future events are unknowable until the surface of the present meets them; they become observable at the present-surface moves along the arrow.

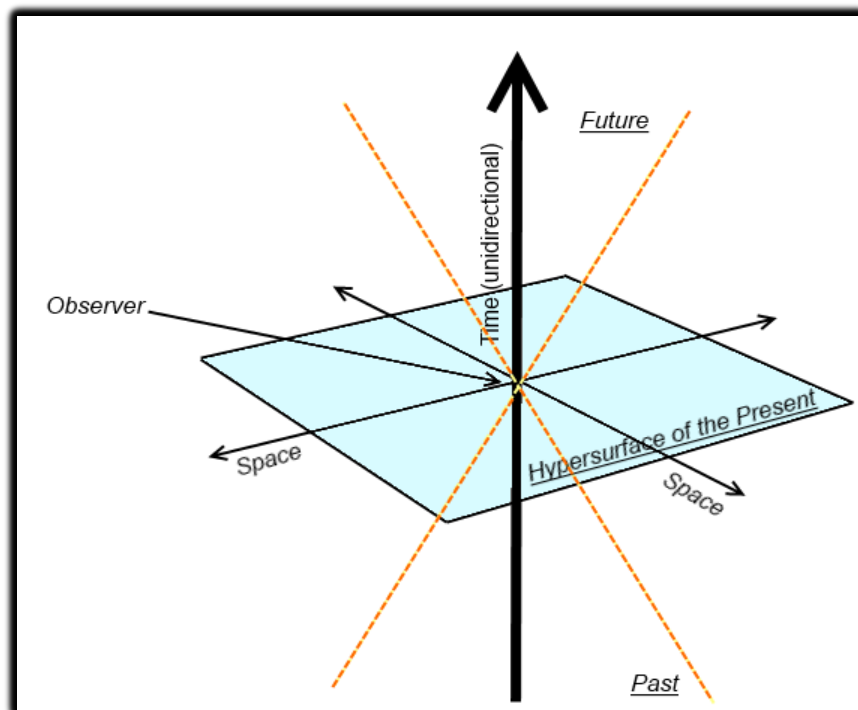


Figure 4: A modified Minkowski diagram showing time and space in the theory of Special Relativity with a unidirectional ‘arrow of time’ and light cones

This rule is important in two main ways:

Firstly it builds in a demanding element to time which makes it the least forgiving dimension of strategy.⁴²⁵ We cannot change past events in strategy, thus we have to accept things ‘as they are’ – the cards we are dealt as well as those which we deal; for once dealt, there is no reshuffle. This is at odds with a Newtonian concept which would suggest that if, in the future, changes were applied in an opposite direction,

⁴²⁵ Gray, *Fighting Talk*, 70

past events could literally be undone and the situation would revert to its previous state. A more thermodynamic consideration of time, accepting entropy, makes it clear that to 'reset' things in a strategic sense requires considerably more effort by the strategic actor than the initial change; 'Poor performance on every other dimension of strategy can, in principle, be corrected and improved...time lost is gone forever. In peacetime, exercises and game scenarios are played out many times, in history however, there is only one chance to use the stream of time.' ⁴²⁶

Secondly, *Times Arrow* means that uncertainty is built into time and our use of it, losing Laplacian determinism to uncertainty from complexity and chaos.⁴²⁷ This aspect of *Time's Arrow* is best pictured similarly to Heraclitus' river; 'If an observer attempted to picture 'time' in his mind, he would see something like a river flowing toward and on past him. What is behind him is the past. What is immediately around him is the present...one cannot see very far upstream because of a waterfall, the waterfall symbolising the barrier to knowing the future'⁴²⁸ (Fig.5). One cannot influence the events that have swept past, and it is hard to envisage what lies ahead, beyond the cataract, making it difficult to influence the future.

⁴²⁶ Gray, *Fighting Talk*, 70

⁴²⁷ See Chapter One

⁴²⁸ Little-Bear cited in Paquette, 'Strategy and Time', 42

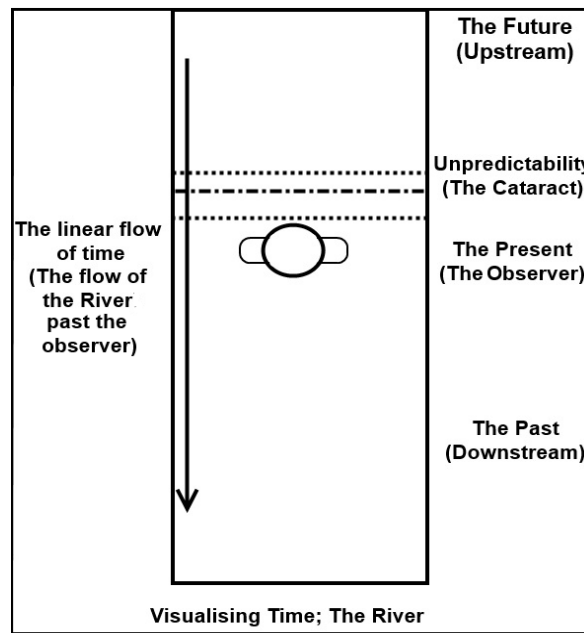


Figure 5: The River of Time, as described by Little-Bear.⁴²⁹

For the strategist uncertainty could lead to doubt and inaction, however, the practicing strategist must, despite the unpredictability of war's nature (and of reality itself), make some move to prediction and undertake, or advise, actions in ways that will influence future events favourably for their policymakers; in effect, minimise uncertainty.⁴³⁰ To deal with the cataract successfully, Gray and Howard advise that strategists must observe trends and probability in strategic history, but this must be done carefully.⁴³¹ As Speller points out, "History does not provide a....reliable and uncontested guide.... Just because something worked in the past does not mean that it will do so in future."⁴³² Indeed, the paradoxical logic of war would suggest it will not work in future, precisely because it did work in the past. The strategist must, therefore, exceed the potamologist's job of studying the river, and make informed and wise judgements based on likely flows of events beyond a cataract of

⁴²⁹ Little-Bear cited in Paquette, 'Strategy and Time', 42

⁴³⁰ Gray, *Fighting Talk*, 156

⁴³¹ Gray, *Fighting Talk*, 147-156 ; M. Howard, 'The Use and Abuse of Military History', *Royal United Services Institution Journal*, 107, 625 (1962), 4-5, 7- 8

⁴³² I. Speller, 'The use and abuse of history by the military', Liverpool, Desmond Tutu Centre for War and Peace Studies at Liverpool Hope University (2011); Howard, 'The Use and Abuse of Military History'

uncertainty, based on interpretations of what lies behind him.⁴³³ This presents us our ‘rule’ of the *Cataract*; a term which appropriately describes both a waterfall and a visual impairment. We cannot truly see past this ‘cataract’ ahead of us into the future, but can at best extrapolate from known conditions and historical events, but there is no certainty, the unexpected still remains.

The orange triangles in the Minowsky diagram represent ‘light cones’, illustrating how distal events are unknowable until information (light) reaches the observer. The finite speed of light causes some delay between event and the observation of it, proportional to the distance. The speed of light is invariant and therefore, it is impossible to consciously influence events more quickly.⁴³⁴ In the human scale a similar principle is observed; we cannot consciously influence events without knowing that they happened. Conscious cause and effect in strategy without intelligence that something has occurred is similarly difficult. In the complex interaction of war, intelligence conforms to this basic fact. However, we can adjust our information ‘cones’; widening them (often with the aid of technology) so that more information is known at an earlier time, potentially allowing us to influence them.

Time and Space

In physics, space and time are conceptually collapsed as ‘space-time’ wherein time is a dimension alongside the three conventional dimensions of space (**x,y,z** spatial axis) a **t** coordinate (axis) for time.⁴³⁵ Due to difficulty in drawing a four-

⁴³³ Gray, *Fighting Talk*, 72-73, 131-133, 142-145, 151, 155-157

⁴³⁴ Hawking, *Brief History of Time*, 21 - 29

⁴³⁵ Einstein, *Relativity*, 55 - 60

dimensional shape,⁴³⁶ 3D space is compressed into two dimensions, as in Figure 6 below. Unlike the other three dimensions, through which movement is possible in any direction, time is unidirectional as our rule of linearity explains: This is a simple but important distinction which underpins causality and entropy.⁴³⁷ Relativity may deal with scales of time and space beyond our everyday, strategic practice, but we often conceptualise time and space together in daily life; mentally ‘collapsing’ them when working out speed over distance or travelling to different places e.g. a five minute walk to the cinema or an hour by car to the next city. Thus we can still use space-time concepts to understand how time can be perceived as a dimension that works with spatial considerations and vice versa, not as intended in the subject of relativity, but in strategic thought and human scales: ‘Einstein’s formulation of a fundamentally fused space-time is one of the few post-Newtonian ideas that have been adapted by social scientists for their own purposes.’⁴³⁸

Path-modelling used by social scientists demonstrate this relationship and visualise a person’s movements in space *and* time⁴³⁹ based on the simple fact that it takes time to physically move in space, whether between a house and a cinema, or two capital cities.⁴⁴⁰ ‘[S]pace can either be measured metrically [distance] or temporally (“drive

⁴³⁶ Hawking, *Brief History of Time*, 24

⁴³⁷ Davies, ‘That Mysterious Flow’, 10

⁴³⁸ Adam, *Time and Social Theory*, 56

⁴³⁹ Ibid.; Thrift, *Time Geography*; M. Kraak, The Space-Time Cube Revisited From A Geovisualisation Perspective’ presentation given at the 21st International Cartographic Conference (ICC) *Cartographic Renaissance* (Durban, South Africa, August 2003); Mei-Po Kwan and L. Jiyeong, ‘Geovisualization of Human Activity Patterns Using 3D GIS: A Time-Geographic Approach’, in M. F. Goodchild & D. G. Janelle (eds.), *Spatially Integrated Social Science: Examples in Best Practice* (Oxford: Oxford University Press, 2003); H. Yu, ‘Spatio-temporal GIS design for exploring interactions of human activities.’ *Cartography and Geographic Information Science*. Volume 33 (January 1, 2006); Thrift, *Time Geography*

⁴⁴⁰ Thrift, *Time Geography*, 4

time’’).’⁴⁴¹ This illustrates how interlaced the two dimensions are in our every-day lives via a 3D ‘Einsteinian’ cartography; From this we may establish a third rule; *that time and space may be considered together as spacetime*, even outside of astronomic scales.

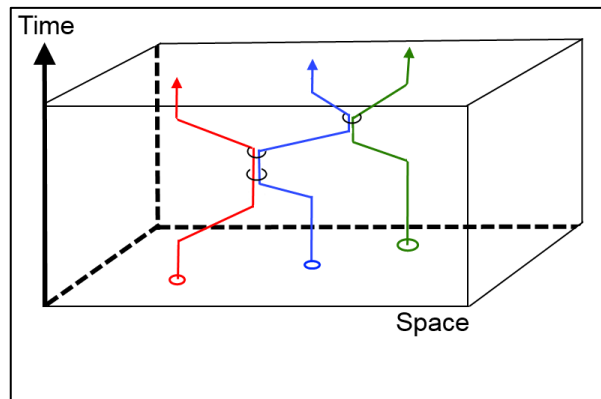


Figure 6: Space-time ‘aquarium’ following Hägerstrand. Wherein, bodies move through time and space: three individuals starting their day at their home, meeting each other, and returning home.⁴⁴²

Emerging from this concept is synchronisation: two or more related activities in time, separated by space. Being in the ‘right’ place at the ‘right’ time is essential to achieving almost anything when the world is regulated by time; turning up late for a meeting is essentially the same ‘type’ of timing error as doing so for battle, albeit of presumably less severity. In war it takes considerable planning to ensure rendezvous will be arrived at by each element upon which the plan is contingent. When two army corps for example, separated by many miles, move to engage an enemy force at the same time they must synchronise in support of each other; relying on a concept of fused space-time. This may seem straight forward but can harbour difficulty in the conduct of even simple plans of movement due to friction.⁴⁴³

⁴⁴¹ A. Neumann, ‘Thematic Navigation in Space and Time; Interdependencies of Spatial, Temporal and Thematic Navigation for Cartographic Visualisation’, paper presented at the SVG Open Conference (Enschede, NL, 2005)

⁴⁴² See Thrift, *Time Geography*, 2-7

⁴⁴³ See Chapter One

Concurrent Time and Relativity

Due to the *arrow of time* and the constraints of the human mesoscale in spacetime, time for the strategist is practically absolute and Newtonian; generally lacking the characteristics of relativity, as established above. Thus, time is experienced by all of us equally (both have 24 hours in a day, for example) and in conflict, both sides experience the same events at the same time and in the same order, and act, think and react within this ‘Newtonian’ absolute time. This is demonstrably true of engagements in which events are observable immediately (unless obscured). Historically, however, command above the tactical level of war suffered delay in communication, affecting capability, due to the speed constraint of communication over distance. As a result their experience of events was not concurrent, but disordered and ‘dilated’. This has radically reduced with modern communications technology where it is now possible for the highest commanders to observe operations in ‘real-time’ thousands of miles away, and instantly issue orders.⁴⁴⁴

Notwithstanding this, the reciprocal and competitive nature of war introduces an alternative, and perhaps more important, ‘relativity’ to strategy, though different to Einstein’s.

This ‘relative time’ in war does not dispute the practically absolute time established above, but perhaps relegates it to secondary importance behind a ‘type’ of time defined by the comparative abilities of belligerents to think and execute actions at different speeds. Martial artist⁴⁴⁵ Guy Windsor succinctly explains this in fencing:

⁴⁴⁴ L. A. Caldwell, ‘Obama on bin Laden raid: "longest 40 minutes of my life"' CBS NEWS (September 24, 2012, 4: 17 PM) <http://www.cbsnews.com/news/obama-on-bin-laden-raid-longest-40-minutes-of-my-life/> [accessed 14:41 20/01/2014]

⁴⁴⁵ Strategic theory has long drawn parallels with martial arts; Clausewitz made use of the analogy of two wrestlers whilst the strategist and swordsman Miyamoto Musashi treated strategy and individual martial arts as different scales of the same basic struggle. M. Musashi, *The Book of Five Rings*.

‘Just as distance is only partly a matter of feet and inches, so timing is only partly about seconds.... In fencing terms, **time is always relative** to your and your opponent’s actions. [Emphasis added]’⁴⁴⁶ In war, as in swordplay, combatants work against each other in time as well as space; they must respond to events instigated by their enemy, many of which are of vital importance. These are not phenomena of the passage of time itself: Instead, potentially decisive events are defined by *what belligerents do in time*, which creates a ‘relative time’ between them.

To use an analogy: in a time-trial between two cars both perform to the same ideal lap time, thus time for them is absolute, measurable by the external ‘shared’ clock set for the trial. However in a race the driver only has to be faster than their opponent, so time has become *relative*, dependent on each individual’s speed. It is not sufficient to be ‘fast’, but to be ‘faster’. In this context, what matters most to success is how fast they are at acting and responding *comparatively*. The strategic theorists, John Boyd and Ajay Singh, similarly described how a combatant may gain and use greater speeds of assessment and response to gain advantage: For example, two combat aircraft will have a relative time between them due to their design differences and the abilities of their pilots.⁴⁴⁷ The competitors are also subject to ‘absolute time’ however, should one of the aircraft be especially designed for fighting at night, its effectiveness increases from dusk (an external factor, but related to the shared ‘absolute’ clock), altering relative capability. The same applies to any other unit in conflict; it is relative abilities of time-use as well as external, absolute time factors which contribute to the outcome. This establishes our fourth ‘rule’ of

Translated from Japanese by V. Harris (London: Allison & Busby Ltd., 1974), 27–28; Clausewitz, *On War*, 75

⁴⁴⁶ G. Windsor, *The Swordsman’s Companion*, 2nd Edition (Helsinki: The School of European Swordsmanship 2013), 54

⁴⁴⁷ Osinga, *Science, Strategy and War*, 23–24, 184–186

strategic time which differentiates two types of time in strategy; the practical, absolute ‘clock’ time which all actors experience concurrently, and the second, yet equally important ‘relative time’ or ‘rival time’, established by the relative abilities of two competitors and their direct interaction, rather than conforming to external demands of ‘clock’ time.

Social Time

As explained via our foundational rule, strategic activity is generally conducted in the mesoscales of ‘human’ time: So it is perhaps the humanities or ‘social sciences’ which relate most directly to strategic considerations. Social theorists, such as Barbara Adam,⁴⁴⁸ have sought to comprehend human conceptualisation and use of time, and to some extent we now tread a similar path by considering anthropological and sociological observations that may assist understanding of time in strategy. Whilst there are too many concepts of time from these disciplines to fully discuss,⁴⁴⁹ we may attend to two broad, relevant ideas; cyclical and commodified time.

Whilst we have established the linear, uni-directionality of time as a central rule, it is quite possible to conceptualise time in terms of cycles of varying length, such as the diurnal 24-hour day which influences the perception of time. Whilst the cyclical movement of the planets gave the Enlightenment thinkers a sense of a predictable ‘clockwork’ universe, natural ‘time cycles’ have been influential upon humans since prehistory; the seasons and lunar phases, for example, as well as biological cycles⁴⁵⁰ including the annual migrations of animals followed by hunter-gatherers, and the growing/harvesting seasons relevant to agriculturalists. In many respects cycles are

⁴⁴⁸ Adam, *Time and Social Theory*

⁴⁴⁹ Adam’s book is a good primer on the subject

⁴⁵⁰ Hoffman, *Time*, 17–25

as natural to human understandings of time as linear progression.⁴⁵¹ For an example, the tribal Abelam people of Melanesia conceive time as a repetitious cycle based on the seasonal growing and harvesting of yams, which have great socio-political and cultural, even mystical, importance to them.⁴⁵² With little significant change over time, social change (history) is often understood in such traditional cultures as small, reversible and repeatable, giving time itself such aspects, as well as a form of ‘timelessness’ through repeated rituals that connect the present to the past.⁴⁵³ Other cultural doctrines, including Ancient Greek pantheism, Buddhism and Hinduism also employ cyclical time concepts, with grand ‘turns’ of repeating epochs; what has been will come again, and history re-iterates.⁴⁵⁴

Unlike the cyclical time of traditional societies such as the Abelam, the Western world, initially informed by a Christian, eschatological temporality, has tended to conceive time in a linear fashion, as we have already discussed and extrapolated from the philosophical and scientific notions above. However, Western, or modern, time is also often conceptualised as something to be shaped, used, and conquered, like physical spatial features.⁴⁵⁵ The West’s interaction with time could be regarded as one of pushing and altering temporal boundaries, particularly as societies become more complex: We extend life through medical progress, work against internal biological clocks to reorder our days outside of diurnal cycles, and use technologies to communicate and travel great distances in contracted periods of time;

⁴⁵¹ K. Wright, ‘Times of Our Lives’, *Scientific American*, 23, 4 (Autumn 2014), 40-41

⁴⁵² Scaglione, ‘Yam Cycles’, 211

⁴⁵³ A. Giddens, *Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis* (Oakland: University of California, 1979), 200; Scaglione, ‘Yam Cycles’, 220-225; Hoffman, *Time*, 122

⁴⁵⁴ S. Carroll, *From Eternity to Here: The Quest for the Ultimate Theory of Time* (London: One World Publications, 2015), 229

⁴⁵⁵ Adam, *Time and Social Theory*, 134

compressing what we can achieve in ever shorter amounts of time to produce a ‘great acceleration’ with which even we struggle cope.⁴⁵⁶ With institutions, permanent structures and contracts, like investment and insurance, designed to shape future conditions in the present, and reduce uncertainty, we even ‘colonise’ the future by scheduling.⁴⁵⁷ Through ‘artefacts’ like clocks and calendars we have developed means of measuring time beyond the natural ‘clocks’ of the heavenly bodies, to the point where the temporal dimension is the most precisely measured natural phenomena we observe.⁴⁵⁸ The GPS system, Longitude and train scheduling are all dependent on accuracies in human-determined clocks, whilst industry beats to standardised rates of efficiency. This meticulousness allows the organisation of events through synchronicity and punctuality, allowing predictability and routine;⁴⁵⁹ the pace of the gears of economics.

So far we have considered time as a kind of physical *dimension*, but these conceptual advances have allowed time in the industrialised west to be conceived as ‘commodified,’⁴⁶⁰ as a *resource*, which we consume when living and which can be traded, allocated and controlled.⁴⁶¹ In this form, time is the lifeblood of the global economy, more vital than fuel and precious metals;⁴⁶² the stock market moves at such rates that it can now only be influenced by ‘computer algorithms, playing war games against each other at speeds measured in milli - or even microseconds.’⁴⁶³

⁴⁵⁶ Hoffman, *Time*, 25, 32- 35 ; R. Colville, *The Great Acceleration: How the World is getting Faster, Faster*, (London: Bloomsbury, 2017), 212 – 213

⁴⁵⁷ Adam, *Time and Social Theory*, 138–142; DiChristina et al., ‘Clocking Cultures’, 49

⁴⁵⁸ Davies, ‘That Mysterious Flow’, 6

⁴⁵⁹ Adam, *Time and Social Theory*, 108-109

⁴⁶⁰ Stix, ‘Real Time’, 5

⁴⁶¹ C. Klein, ‘The Economics of Time as a Resource’ Working Paper Series, Middle Tennessee State University (August 2007), 7; Adam, *Time and Social Theory*, 95-96, 104, 113

⁴⁶² Stix, ‘Real Time’, 5-6; J. Grant, ‘Light speed ahead: how technology is changing trading’, *The Financial Times* (15:02 24/9/2010) Available online: <https://www.ft.com/content/6e0e7b9a-c7ba-11df-8683-00144feab49a> [Accessed 14/4/2014]

⁴⁶³ Colville, *Great Acceleration*, 216

Control of temporal resources have been contested between employers and employees as ‘industrial’ or – and by extension, ‘free’ time, functioning as bargaining medium that translates labour and effort into value across the economy, for example as the quantity ‘man-hours’.⁴⁶⁴ This in turn relies upon the capacity to ‘allocate’ time, and a contract for that use, structuring the as-yet-non-existent future in a specific way; i.e. you *will* undertake agreed-upon allocations of set time (labour) in exchange for a set amount of a valuable, exchangeable commodity (wages). ‘Time is money’ as the saying goes, but the relationship is complex; the fluctuating exchange rate of the resource is determined by supply and demand, as well as the efforts and skills of the individuals or groups ‘selling their time’ – the unemployed have few constraints on their time, and so possess a lot of possible allocation of it in the future, but it is not necessarily valuable, whilst professionals with busy schedules may sell their time at high cost.⁴⁶⁵

Analysis: Human Time

These concepts of cyclical and commodified human time present interesting points for our study which we can employ in the ‘translation of time into our art’. Cyclical time has been a feature of warfare since we have waged it; the diurnal cycle and the paradoxical logic of war make night attacks effective; strategy is routinely subjected to annual or multiannual budgetary and planning cycles;⁴⁶⁶ the historical ‘campaign seasons’ was defined by the interrelated physical and social cycles; conducted at times of year when men were not needed for harvest, supplies were plentiful, and to

⁴⁶⁴ Adam, *Time and Social Theory*, 111-113

⁴⁶⁵ Adam, *Time and Social Theory*, 111-114; K. Starkey, ‘Time and work organisation: a theoretical and empirical analysis’, in M. Young & T. Schuller (eds.), *The Rhythms of Society* (London: Routledge, 1988), 95-99

⁴⁶⁶ Gray, *Modern Strategy*, 42

avoid the troubles of fighting in harsh winters⁴⁶⁷ (or benefit from them.) Military history records episodes where this was ignored at peril: Napoleon's *Grand Armée* and, more recently, the German *Wehrmacht* encountered two costly Russian winters in their respective invasions, which contributed to their operational and, arguably, strategic defeats.⁴⁶⁸

However, these are cycles within time, not 'cyclical time' itself, a concept which, if it is to be useful, requires explanation. The inbuilt uncertainty and variability of time in reality means that time itself is clearly not cyclical, at least, not in a way recognised by science. Particular events or tasks (e.g. rituals, the tax year, an electoral result) may be repeated or 'undone', but they remain subordinate to temporal linearity;⁴⁶⁹ as Adam points out '[R]epetition can be the 'same' only in abstraction, by artificially excluding contexts and effects ...'⁴⁷⁰. Thus notions of cyclical temporality do not concern a literal repeating of time, but analogy and the cliché of 'history repeating itself' can only provide a lower-resolution approach to strategic situations, with events not 'unique manifestations of singular historical moments [but] archetypes of larger historical or mythic patterns'⁴⁷¹ as Hoffman puts it. Abstract social cycles are evident in the world but produce emergent change over time through repetition, comparable to change over time through reproduction and evolution, which Adam describes in terms of a spiral; following a linear direction of

⁴⁶⁷ J. Bradford (ed.), *International Encyclopaedia of Military History* (New York: Routledge, 2006), 58, 777

⁴⁶⁸ Winters et al., *Battling the Elements*, 8, 95, 184–188

⁴⁶⁹ Adam, *Time and Social Theory*, 134–136 ; Giddens, *Central Problems in Social Theory*, 200

⁴⁷⁰ Adam, *Time and Social Theory*, 29

⁴⁷¹ Hoffman, *Time*, 121

change, but revisiting apparently similar points⁴⁷² for example, consider an election cycle or the rise of a continental hegemony.

In this form, applying cyclical abstraction is part of the strategist's role; as mentioned above, they must consider future practice by careful reference to the past. This was the purpose of Clausewitz's historical references, as well as Thucydides' *History of the Peloponnesian War*: as much as things *are* different over time they are similar enough to learn from for the next time a comparable situation arises.⁴⁷³ On a smaller scale, strategic theorists have employed concepts like the 'OODA Loop' and Command and Control systems, which are abstracted cycles.⁴⁷⁴ Our rule of linearity has not been compromised by such conceptualisations, but they do indicate a useful sub-clause; events in time can be cyclic in careful abstraction.

If different socio-cultural polities possess different views of time, however, so must their strategists, who are encultured beings that influence, and are influenced by, what Snyder, Johnston and Gray, *inter alia*, describe (differently) as 'strategic culture' – the philosophical foundation of the society's approach to thinking and practicing strategy.⁴⁷⁵ It follows that if a strategic theorist or practitioner considers time and strategy differently to another, they may consider time *in* strategy differently also, and this may feature in their strategic behaviour. This is the basis

⁴⁷² Adam, *Time and Social Theory*, 87

⁴⁷³ H. W. Nelson, 'Kykloi: Cyclic Theories in ancient Greece', Dissertations and Theses, Paper No. 3266 (Portland State University, 1980), 277–278, 331

⁴⁷⁴ See Chapter Three

⁴⁷⁵ C. S. Gray, 'Out of the Wilderness; Prime Time for Strategic Culture', *Comparative Strategy*, 26, 1 (2007), 5 – 9; S. Poore, 'What Is the Context? A Reply to the Gray-Johnston Debate on Strategic Culture', *Review of International Studies*, 29, 2, (April, 2003)

Paquette's discussion of time in the strategic theories of Sun Tzu and Clausewitz,⁴⁷⁶ though attending to non-millenarian/eschatological concepts. Paquette maintains that Sun Tzu, due to the cultural context of Zhou dynasty China, likely conceived of time in terms epochal-historical cycles,⁴⁷⁷ different to Clausewitz, (an Enlightenment-era, Kantian-influenced, Prussian), who conceived time as linear and consisting of shorter moments;⁴⁷⁸ and that this has significance for interpreting their theories,⁴⁷⁹ which is certainly the case. We return to this contrast in Chapter Three.

Additionally it is worth noting an 'eschatological' or 'millenarian' aspect of linear time in certain ideologies: As Bosquet explains, following a 'regime' of the 'scientific way of warfare', the revolutionary period reflected then-emerging thermodynamic sciences (opposed to the repetitious stability of clockwork), for time's (or rather history's) arrow, appeared to fly to a certain point.⁴⁸⁰ Various 'progressive' ideologies have proclaimed an objective direction to history, at the end of which lay the certain utopia; this most obviously features in the work of Marx and Engels' view on inevitable communist revolution,⁴⁸¹ and millenarianism featured in the Third Reich.⁴⁸² More recently Francis Fukuyama's notion of an 'end of history' centred on liberal democracies holds that history has an eschatological direction.⁴⁸³ This can be attributed to a supposed 'objective state of social development'⁴⁸⁴, that is

⁴⁷⁶ Paquette, 'Strategy and Time', 37–48

⁴⁷⁷ Ibid, 45

⁴⁷⁸ Ibid, 42

⁴⁷⁹ Ibid, 38, 47

⁴⁸⁰ Bosquet, *Scientific Way*, 32

⁴⁸¹ J. Bellamy-Foster, & P. Burkett, 'Classical Marxism and the Second Law of Thermodynamics: Marx/Engels, the Heat Death of the Universe Hypothesis, and the Origins of Ecological Economics.' *Organization & Environment*, 21, 1 (March 2008), 3-5, 7, 9; Carr, *What Is History?*, 136 - 137

⁴⁸² D. Redles, *Hitler's Millennial Reich: Apocalyptic Belief and the Search for Salvation* (New York: New York University Press, 2005), 11- 12

⁴⁸³ F. Fukuyama, 'The End of History?' *The National Interest*, 16 (Summer 1989), 4

⁴⁸⁴ S. Neumann & M. von Hagen, 'Engels and Marx on Revolution, War and the Army in Society', in Paret et al., *Makers of Modern Strategy from Machiavelli to the Nuclear Age* (Princeton, NJ: Princeton University Press, 1986), 275

to say, operating ‘laws’ of history as a system, similar to the same way that physicists may expect the inevitable end of the universe as a product of the system’s development over time,⁴⁸⁵ especially in Marxist thought.⁴⁸⁶ At the time of writing, the Salafist jihadists of Islamic State, among others, have eschatological apocalyptic aspects in their ideologies.⁴⁸⁷ Does a Marxist or jihadi enemy view time in relation to strategy differently to us? This is worth the strategist’s consideration. Ideology and culture influence perceptions of time and strategy, and following the strategic culturalists, quite probably time *in* strategy also, as Paquette maintains. A rule we can derive from this is that the enemy does not necessarily share our notions of time, let alone time in strategy.

The conceptualisation of commodified time can be considered in strategy, again regarding Napoleon’s Grande Armée and the Wehrmacht in Russia (1812 and 1941-1943 respectively); enterprising Russian strategists exploited the vast, unforgiving territory of their European borderlands in the winter season to decisively sap the potency of these would-be conquerors. Both armies were devastated by exposure to the conditions of the Russian winter, but it was the length of exposure which would determine the severity and strain; for example Napoleon’s army to the point of desertion and withdrawal.⁴⁸⁸ Winter is not just a condition, it is a period, defined in months as well as in temperature, the former and the latter combining to decide its severity.⁴⁸⁹ The time in which winter did its damage on Russia’s enemies, and which

⁴⁸⁵ Hawking, *Brief History of Time*, 129–133; Carr, *What is History?*, 136

⁴⁸⁶ See also Bosquet, *Scientific Way*, 78–79

⁴⁸⁷ D. Petit, ‘Eschatology in the ISIS Narrative’, report presented to Graduate School of University of Texas (Austin) (December 2015), 11–20

⁴⁸⁸ Winters et al, *Battling the Elements*, 83–85

⁴⁸⁹ *Ibid.*, 94–95

gave her room to marshal her own forces, was ‘brought’ with another ‘commodity’ that she possessed; space, or ‘strategic depth’.⁴⁹⁰

Much like cyclical time, the conceptualisation of time as a resource is subjective to our social world, an abstract, relative medium,⁴⁹¹ such as ‘labour time’ and ‘free time’ which we ‘sell’ and ‘buy’, and yet time as a ‘resource’, like the ‘dimension’ of time, is special; it is ‘non rival’ in that it cannot be ‘stolen’ or used more of at the expense of another, in the same way that physical resources such as minerals or food can be.⁴⁹² Neither can we mine or harvest more time, or recycle it, or print it like money, or ‘save up’ time but only ‘exchange’ the format of its expenditure; such as foregoing breaks from work to ‘save up’ time off for longer periods of holiday. Instead, we all access time equally and at the same rate of hours in the day, days in the year, etc., but, time’s linearity also means that it ‘runs out’ and ‘flies’ away from us inexorably no matter how we use it, either as individuals or as combatants in conflict – time passes regardless of our actions and the resource ‘runs out’. This facet of the temporal resource concept suggests a necessary frugality; that we have to *spend* and *invest* time wisely or else it is wasted.⁴⁹³ To do this, a creative mind is called for, capable of discerning the costs and risks of courses of action, the results of which lie in the uncertain future beyond the ‘cataract’, and the cost of the chosen course is the gain of alternatives that must be excluded due to time’s linearity.⁴⁹⁴ In other words; time as a finite and withering resource must be filled with (or spent on) the right decisions and useful actions, which can only be decided upon by fine

⁴⁹⁰ Angstrom, & Widen, *Contemporary Military Theory*, 37

⁴⁹¹ Adam, *Time and Social Theory*, 112-113

⁴⁹² Klein, ‘The Economics of Time’, 7

⁴⁹³ Adam, *Time and Social Theory*, 113-114

⁴⁹⁴ Klein, ‘The Economics of Time’, 7, 14

judgement; once spent on one activity it is gone and not available for alternatives which could have been done at that moment.

This links with our previous rule of relative time, and how it is used here in the strategic context. However, rather than workers and employers ‘trading’ time, it involves combatants (like Russia in the previous examples), and time is not bought or sold, or produced, but different relative uses of it can be created; through ‘trades’ with other resources, or by increasing our efficiency of activity within time, through planning and technological progress, thus making some processes or movements quicker and ‘buying’ more relative, abstracted time to ‘spend’ in other areas. In strategy therefore, ‘absolute clock’ time marches on, and the temporal resource ‘runs out’, but the relative time between combatants can be altered, even ‘extended’ by ‘purchasing’ time with other resources.

This conceptualisation of time as a resource may be an abstraction, but it is a useful one in understanding not only man-hours in the global economy, but offers something to the strategist. If time can be understood as a resource, which can be traded, gained and ‘spent’ through manipulations of other resources, then it can be used or potentially even ‘weaponised’, as explored later in our discussion: Our final rule of time for consideration in strategic theory is thus that time can be ‘commodified’ and bartered wisely, or foolishly.

Concluding relevant aspects of time in strategy

As Adam points out, multiple aspects of time exist and our understanding of time incorporates all of these at different times and in different contexts. However, as human beings constitute the relevant strategic institutions, such as governments and armed forces, it is human time and the rules by which we understand it which are most relevant to strategy. This is our pre-theory foundational observation or ‘rule’ of time in strategy; that any approach to time in the discipline must deal only with relevant comprehensions and avoid the arcane and esoteric, no matter how accurate it is to understanding time in other fields. From this stem the following rules:

Firstly, due to the physical ‘Arrow of Time’ aspect, time is a rigidly *linear dimension* in which we can only move forwards, we cannot alter or revisit the past. Because it is linear, time cannot be regained or repeated exactly; only certain experiences may be cyclically repeated, in abstraction, dependent on the level of analysis.

Secondly, there is the ‘*Cataract*’; a term which appropriately describes both a waterfall and a condition limiting one’s sight. We cannot truly see past this cataract ahead of us and into the future to what the river of time holds in store for us; we can at best guess and extrapolate from known conditions and historical events but there is no certainty, the unexpected still remains.

Thirdly, time and space are invariably understood together in terms of movement through space over time, as *space-time*. Synchronisation of efforts in the physical dimensions must take this into consideration as it forms the basis of most activities.

Fourthly, time is both *non-relative* and '*relative*' for strategic actors. All our actions occur in a relevant, practical clock of 24 hours and thus our actions are observed and acted upon with no real relevant dilation of time itself. However, the element of competition in conflict means that absolutes of time become secondary to relative, or comparable, capabilities of the belligerents. The time which becomes important is not the absolute, external time, but the time between them. This makes competitive, 'strategic time' '*rival*.'

The Fifth 'rule' establishes that time can be generally understood as a *potent resource*, but one unlike others. In keeping with our fourth rule of relative/rival time, the resource of time as a tradable commodity exists in a relative sense, as it cannot be harvested or traded in absolute terms. Absolute time dwindles inexorably, but we can carefully manage what we do with our allotted amount and 'spend' it on useful activities. Thus time can, in some senses, be 'bought' and 'spent' in trade, with other 'resources'.

Finally, it should be noted that, whilst we understand time in general and in strategy, in a given way, and prioritise given aspects; the enemy may well not, and so seek to use or prioritise this strategic dimension in unfamiliar or unexpected ways.

III. Theories of Time in Strategy

‘Then it hit me... I can look at air-to-air combat in terms of energy relationships. I can lay out equations. I can do it formally now.’

– Col. John Boyd USAF⁴⁹⁵

‘I’m a Speed King, See me fly’

- Deep Purple, *Speed King*⁴⁹⁶

The previous two chapters explored theories of time and strategy, to provide a foundation for understanding these two phenomena independently. Chapter Two also began the assembly of our conceptual equipment for comprehending time *in* strategy, a theory of ‘strategic time’, through evaluating theories and approaches of time and its aspects from various disciplines, and considering how they can be understood in light of the natures of war and strategy established in the first chapter. It concluded that whilst there are multiple aspects of the temporal phenomena, not all of them are practically relevant to strategy, and ended with a selection of general ‘rules’ which a comprehensive ‘theory of strategic time’ should observe. This chapter undertakes the next stage in developing that theory; building upon those previous discussions by considering the ideas of military theorists who have already made the first steps in ‘translating’ the temporal phenomena into ‘our art’. This informs our conceptual foundation of understanding through appraising and discussing ‘the state of the art’ with greater detail and focus on the specific concepts than was possible in the earlier, general review of strategic literature. This allows us to examine and compare together what steps toward establishing time theory in strategy have been made, evaluate their

⁴⁹⁵ John Boyd cited in Ford, *A Vision So Noble*, 9

⁴⁹⁶ I. Gillan, *Speed King*, ©1970 Deep Purple, 7”

strengths, weaknesses, common observations and divergences. In so doing we may avoid ‘re-inventing the wheel’ of theory, as van Crevald might put it.⁴⁹⁷ Instead, in this chapter we take elements of the best aspects of multiple designs of ‘wheel’, appraised using the conceptual foundations established in the previous chapters (especially Chapter II), and bring them together.

The works approached in this chapter are a mix of classical and modern texts. Firstly it examines the three theorists which stand out as having apparent focus on the subject of time in war and made it central to their theories, beginning with John Boyd, who has notably influenced modern strategic thought on time in strategy and doctrine, leading to what one critic has labelled a ‘cult of speed’ in the Pentagon.⁴⁹⁸ We consider what Boyd’s contribution to time in strategic theory is, how it works, why it has led to this fixation on speed, and whether there is more to his work. We also examine the time-centric strategic theories of Singh and Simpkin who have also assessed time, although differently in their approaches. In the second part of the chapter, we consider approaches to time in the work of the classical theorists of strategy, Sun Tzu, Clausewitz, and Jomini, selected for their status in the main and, in Jomini’s case, as illustrated below, a particular relevance due to his own emphasis on time. The chapter concludes by building on the conceptual base of the ‘rules of time’ established in Chapter two, in light of the evaluation of these strategic theorists, our initial theory of ‘strategic time’, which can be employed and tested in the discussions and analyses of the case studies.

⁴⁹⁷ Crevald, *Art of War*, 114

⁴⁹⁸ Hughes, ‘Cult of the Quick’, 57

Modern Theory

In the Loop

The first theorist that comes to mind when considering time in strategic thought is John Boyd (1927-1997), whose theories have been widely influential upon western military education, command and control (C2) models, and doctrine⁴⁹⁹ His biographer Coram, even proclaims Boyd was the greatest theorist since Sun Tzu and the *only* one to put time at the centre of his theories,⁵⁰⁰ whilst Hammond maintains that Boyd ‘did’ for time what Sun Tzu ‘did’ for space, by emphasising the temporal dimension in his theories.⁵⁰¹ Such acclaim and influence makes Boyd a theorist of note⁵⁰² yet few are aware of the nuance within his ideas.⁵⁰³

Indeed Boyd’s popularity stems from one ‘simple’ concept, influenced by post-war ‘systems theory’; a multidisciplinary school examining logical principles of information flow within complexes of interacting elements (systems – whether mechanical, social, etc.):⁵⁰⁴ The ‘OODA (Observation-Orientation-Decision-Action) Loop’, commonly understood as a ‘decision-cycle’, through which organisations pass in interaction with their environment (Fig. 7.) via Observation, Orientation (making sense of observations), Decision for action based on orientation, and Acting upon decision. The quicker these stages can be cycled the ‘smaller’ the loop

⁴⁹⁹ Freedman, *Strategy*, 199-200; A. Karp & R. Karp, ‘Boyd Void?’ *Contemporary Security Policy*, 34, 3, (Nov, 2013), 581–582; Osinga, *Science, Strategy and War*, 256 ; D. J. Lyle, ‘Looped Back In: We’ve Been Using the Wrong OODA Picture’ *Armed Forces Journal* (Dec. 2011), 32; US MCDP, *Warfighting*, 40–41, 102; Warden, ‘Strategy and Airpower’, 64; Polk, ‘A Critique of Boyd Theory’, 8; Hughes, ‘Cult of the Quick’, 58; Bosquet, *Scientific Way*, 23; Ford, *A Vision So Noble*, 29–30

⁵⁰⁰ Coram, *Boyd*, 445

⁵⁰¹ G. T. Hammond cited in D. S. Fadok, ‘John Boyd and John Warden; Air Power’s Quest for Strategic Paralysis’ Thesis (Maxwell AFB, AL: Air University Press, 1995), 20

⁵⁰² Gray, *Modern Strategy*, 90 – 91; Freedman, *Strategy*, 197

⁵⁰³ Osinga, *Science, Strategy and War*, 3-5; Hasik, ‘Beyond The Briefing’, 585, 594

⁵⁰⁴ Bosquet, *The Scientific Way*, .98-99, 102, 104-105, 115; L. von Bertalanffy, *General System Theory; Foundation, Development Applications* (New York: George Braziller, Inc., 1969), 17, 32 – 34; Gell-Mann, *Quark and the Jaguar*, 20–21, 37–38

becomes; in competitive situations like combat, the organisation with the smaller loop, deciding and acting quicker, wins.⁵⁰⁵

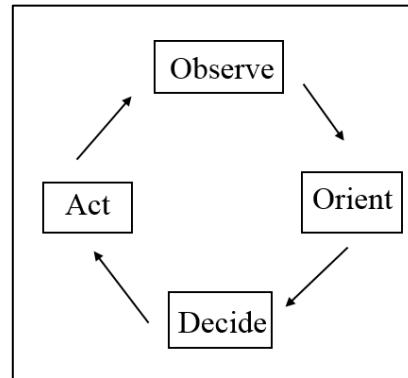


Figure 7: Popular version of OODA loop.⁵⁰⁶

This version of OODA has been understood by scholars such as Brehmer, as a ‘self-steering’ (cybernetic) system of Command and Control (C2), leading to the conclusion that the OODA concept simply promotes swift-decision-making to gain victory.⁵⁰⁷ Cybernetic approaches to war emphasise speed by conceptualising conflict as two systems racing to produce quantifiable success metrics in their environment/the enemy system, the measure of which guides further action to ‘steer’ the system towards pre-set victory conditions; ‘largest, **fastest** [added emphasis], most technologically advanced system will win.’⁵⁰⁸ This is simplistic and such systems are fundamentally unsuited to war’s chaotic, dynamic and uncertain nature;⁵⁰⁹ with limited success metrics, predetermined states and pre-set contingencies, such systems fail to comprehend change. They misinterpret

⁵⁰⁵ Osinga, *Science, Strategy and War*, 235; R. B. Myers, ‘Understanding Transformation’, *Proceedings*, US Naval Institute, 129, 2, (February 2003)

⁵⁰⁶ See Osinga, *Science, Strategy and War*, 2

⁵⁰⁷ B. Brehmer, ‘One Loop to Rule Them All’ in *Proceedings of the 11th International Command and Control Research and Technology Symposium* Washington DC (2006), .5; also Brehmer, ‘The Dynamic OODA Loop’

⁵⁰⁸ J. W. Gibson, *The Perfect War: Techno War in Vietnam*, 2nd edition (New York: The Atlantic Monthly Press, 2000), 21-23

⁵⁰⁹ Gibson’s *The Perfect War* is a detailed exploration of how this approach to war manifested in the US’s campaign in Vietnam. Gibson, *The Perfect War*, 123

unexpected situations and misapply pre-set solutions, mismatching their concepts (and responses) to reality in a widening gyre through successive ‘cycles’ of (mis)interpretation and (mis)action as the system ‘talks to itself.’⁵¹⁰ Understood in cybernetic terms as Brehmer does, the metric in OODA is decision-informed change, which must be produced faster than the enemy is able, and, as Brehmer points out, there is more to gaining victory than rapid decision-making; decisions also have to be correct and action needs to be delivered at the right place and time.⁵¹¹

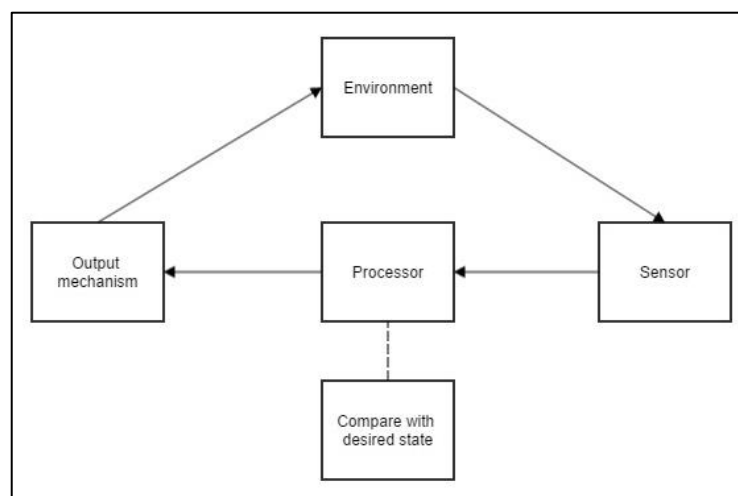


Figure 8: A cybernetic system

However, in its original form as described by Boyd in his briefing ‘The Essence of Winning and Losing’⁵¹² OODA was far more than a cybernetic system through which one speeds as such; rather, according to Osinga and Bosquet, it is better understood as a conceptual Complex Adaptive System (CAS).⁵¹³ CAS develop new comprehensions about their interactions with their environments by trialling competing ideas or ‘mental models’ of the changing situation they aim to adapt to. New information and trialled experience informs which adaptations are favoured or

⁵¹⁰ Bosquet, *The Scientific Way*, 159, 189; Gell-Mann, *Quark and the Jaguar*, 16–17

⁵¹¹ Brehmer, ‘One Loop’, 5

⁵¹² Osinga, *Science, Strategy and War*, 229

⁵¹³ Bosquet, *Scientific Way*, 186, 191- 192 ; Freedman, *Strategy*, 197; Osinga, *Science, Strategy and War*, 232

discarded, and alternatives are assessed to develop better solutions and adaptations.⁵¹⁴ This is far closer to Boyd's concept of an 'evolving, open-ended, far-from equilibrium process of self-organization, emergence and natural selection';⁵¹⁵ a theory for creative adaptivity.⁵¹⁶ Misinterpretation of Boyd's works stems largely from his methods of disseminating his theories in briefings, collectively known as *A Discourse on Winning and Losing*.⁵¹⁷ Nevertheless by examining key ideas within *Discourse* we can appreciate OODA not as the Δ and Ω of Boydian thought but rather a summary and conclusion to Boyd's work.

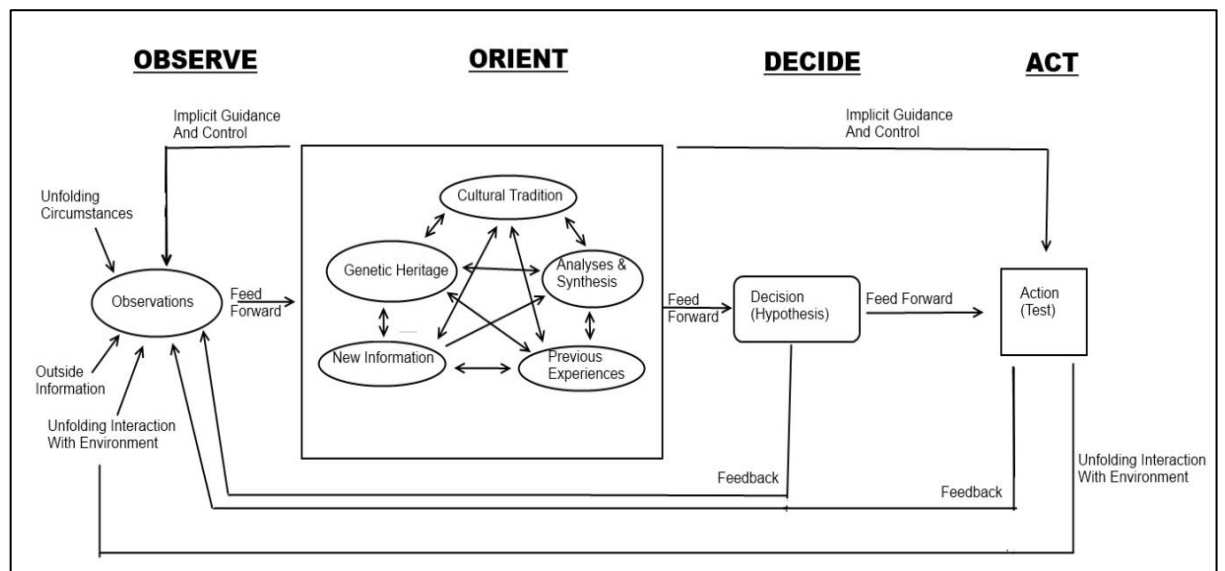


Figure 9: Original OODA loop⁵¹⁸

Disorientation

Boyd's theories originate with his experience as a fighter-pilot in Korea, and later instructor at the USAF Fighter Weapons School, where he earned the handle 'Forty

⁵¹⁴ Gell-Mann, *Quark and the Jaguar*, 16-25

⁵¹⁵ Boyd cited in Osinga, *Science, Strategy and War*, 232

⁵¹⁶ Osinga, *Science, Strategy and War*, 232

⁵¹⁷ or 'The Green Book', referred to hereafter as *A Discourse*

⁵¹⁸ After J. Boyd et al., (eds) 'The essence of winning and losing' briefing (June 1996), Slide 3

Second Boyd' for claiming he could win any simulated combat within forty seconds.⁵¹⁹ His tactical insights were codified in 'Aerial Attack Study', analysing the movements of jet-fighters in combat and how they transitioned from one manoeuvre to another to attain victory.⁵²⁰ Studying engineering at the Georgia Institute of Technology inspired Boyd to understand that these transitions could be represented as energy relations, leading to 'Energy Manoeuvrability' Theory (EMT):⁵²¹ By employing complex equations to assess fighter design features (altitude as potential energy exchangeable for speed/kinetic energy, manoeuvres as energy-consuming actions, engine as energy provider)⁵²² Boyd could evaluate combat performance of craft quantitatively.⁵²³

However, EMT suggested an anomaly: Conventional wisdom and EMT suggested that in the Korean war the Russian MiG-15, with its superior speed, acceleration, high ceiling and tight turning, should have won air-to-air engagements against the American F85 'Sabre' (as flown by Boyd), yet American pilots had dominated.⁵²⁴ Boyd attributed this to American training, hydraulic controls, and the F86 having a large bubble canopy (versus the MIG's restrictive frame-and-muntins arrangement), allowing the Sabre pilot greater situational awareness; to perceive and assess the situation quicker, and thus respond 'earlier'.⁵²⁵ Furthermore, the hydraulic-assisted controls of the Sabre rendered the craft more agile, allowing pilots to alter their manoeuvre more quickly (a 'fast transient') and generate a new situation before the

⁵¹⁹ Coram, *Boyd*, 88

⁵²⁰ Fadok, 'John Boyd and John Warden', 13; J. Boyd, *Aerial Attack Study*, 2nd edition (Nellis AFB, NV: Tactical Air Command, 1964); Ford, *A Vision So Noble*, 8

⁵²¹ Fadok, 'John Boyd and John Warden', 13

⁵²² Ford, *A Vision So Noble*, 9; Osinga, *Science, Strategy and War*, 23

⁵²³ EM was later used in designing the F15 and F16 fighters. Ford, *A Vision So Noble*, 11 Coram, *Boyd*, 240 - 245, 257; Osinga, *Science, Strategy and War*, 22-25;

⁵²⁴ Ford, *A Vision So Noble*, 10-12

⁵²⁵ Osinga, *Science, Strategy and War*, 24-25

MiG pilot could complete their response to the previous one.⁵²⁶ Thus Sabre pilots had more *relative time* to observe, comprehend, conceptually respond, and act. This led Boyd to reject speed as the leading attribute in fighter design, in favour of *Agility*; the craft responding to and influencing dynamic combat faster would outmanoeuvre and defeat the foe.

We represent this visually in Figure 10: ‘A’ is the starting environment. ‘B’ represents effective observation, minimised here for the F86 pilot’s higher situational awareness. ‘C’ is assessment made by the pilots dependent on training and conditioning (here we credit both with an equal competence but this would vary between individuals.) ‘D’ begins manoeuvre, into ‘E’ and completed at ‘F’, the speed of these stages determined by steering and responsiveness of the craft, made easier and quicker by power-assisted controls. The F86 then again reaches ‘A’, with the arrival of the new situation created in the previous iteration of the process, before the MiG has finished manoeuvring, let alone been able to observe the new situation and react (‘A’).

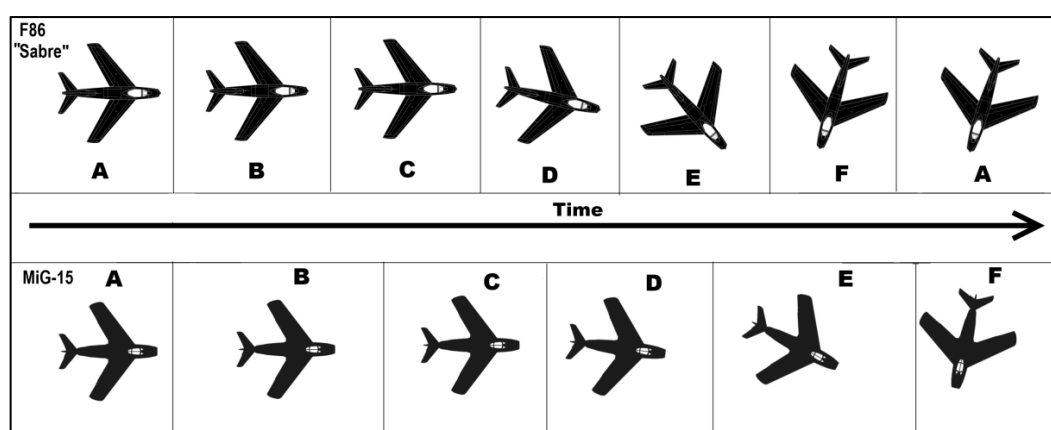


Figure 10: Interpretation of Fast Transients. F86 and MiG15 compared in not-to-scale agility

⁵²⁶ Lacking the power-assisted controls used in western aircraft, aileron manipulation was a feat of strength on the MiG. Fadok, ‘John Boyd and John Warden’, 13

From agility comes *Tempo*; the *rate* of changes: Through successive fast transients (operating at a faster *tempo*) the pilot with superior relative agility repeatedly alters the situation, and the opponent becomes ever-further ‘behind’ in processing and reacting to the altering situation, eventually losing a mental grasp of it and becoming confused and unable to comprehend and anticipate their opponents manoeuvres.⁵²⁷

The aim here is not simply to win a ‘race’, but undermine the enemy’s cognitive ability to understand and adapt to the situation. When up scaling this principle to strategy at large in the briefing *Patterns of Conflict*, Boyd emphasised the roles obfuscation and uncertainty played toward this aim. Ambiguity, rather than speed, is preferable; there is little point in rapid change if the pattern of that change becomes predictable, allowing the enemy to adapt accordingly. Varied tempo and high agility, to create novel change and uncertainty quickly, was operative to disrupt the enemy’s cognition. Boyd also believed uncertainty provided an aspect of menace against the enemy’s psychological and moral makeup;⁵²⁸ a fear of the unknown, which contributes to the miasma of confusion.⁵²⁹ In terms of OODA, Action is guided by continuing Observation-Orientation around the enemy’s deteriorating situation: High-tempo and ambiguous actions, disruption and confusion interfere with the enemy’s Orientation and, quite literally, reduce the relative time available for them to comprehend the changing environment. With Orientation undermined their capacity to recognise new circumstances and anticipate movements are impaired; they lose initiative and resort to reaction.⁵³⁰ In effect this forces the enemy’s conceptual system to become a closed, self-referencing loop (the inherent flaw of

⁵²⁷ Freedman, *Strategy*, 196; F. Osinga, ‘Getting’ A *Discourse on Winning and Losing*: A Primer on Boyd’s ‘Theory of Intellectual Evolution’, *Contemporary Security Policy*, 34, 3, (2013), 607; Osinga, *Science, Strategy and War*, 27-29;

⁵²⁸ Osinga, *Science, Strategy and War*, 185, 236

⁵²⁹ Fadock, ‘John Boyd and John Warden’, 16,47; Freedman, *Strategy*, 196

⁵³⁰ Osinga, *Science, Strategy and War*, 235-237

cybernetics), reliant on obsolete understanding. This overloads the foe's mental and physical capacity to adapt, inducing paralysis

Adaptation

From this Boyd reasoned that 'he who can handle the quickest rate of change survives...';⁵³¹ a principle as true for war in general as in air-to-air combat.⁵³² This was the subject of Boyd's briefing 'Destruction and Creation' (1976), the bedrock of his work which employed a novel selection of diverse concepts from thermodynamics, quantum uncertainty, mathematical logic, epistemological philosophy and more.⁵³³ From this Boyd distilled the conclusion that the strategic actor's conceptual model of the environment can never be complete and holds mismatches with reality. With a static inward orientated model, attempts to comprehend anomalies observed in the changing environment forces observations to fit preconceptions; the system 'talks to itself', and fails to adapt and survive. Thus, the actor's conceptual system should be 'open', continuously importing information with which to dismantle obsolete conceptual schema and shape new ones, better fitted to their observed, changing environments: A constant cycle of 'destruction and creation', of *adaptation*, to avoid disorder, confusion and defeat.⁵³⁴ In a competitive context, the two opponents develop and adapt their schema to observations of the changes the other creates in the environment via their actions.⁵³⁵

⁵³¹ Boyd cited in Ossinga, *Science, Strategy and War*, 27

⁵³² Freedman, *Strategy*, 196; Fadok, 'John Boyd and John Warden', 14

⁵³³ Ossinga, *Science, Strategy and War*, 57-72, 68-69, 84-85 135-137;

⁵³⁴ J. Boyd, 'The Strategic Game of ? and ?' briefing, (1987); see also Freedman, *Strategy*, 197; Fadok, 'John Boyd and John Warden', 14; Ossinga, *Science, Strategy and War*, 57-58, 131, 135-138

⁵³⁵ Ossinga, *Science, Strategy and War*, 131; J. Boyd, 'The Conceptual Spiral' presentation Maxwell AFB, AL (1992) Slide 28; J. Boyd, 'Destruction and Creation' (1976); see also Ossinga, 'Getting', 607-609

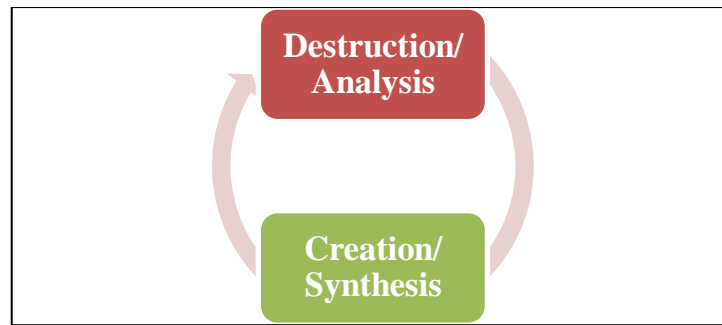


Figure 11: Interpretation of Boyd's dialectic cycle.

Boyd explained this with the analogy of a bicycle, a skier, an outboard motorboat, and toy tank with caterpillar treads. Through 'destruction/analysis' the skis, outboard motor, handle-bars and rubber treads are taken, and through 'creation/synthesis' produce a snowmobile; a metaphor for taking conceptual models apart and putting together new, useful ones.⁵³⁶ '...we must continue the whirl of reorientation... analyses/synthesis over and over... ad infinitum...to comprehend, shape, and adapt to an unfolding, evolving reality that remains uncertain, ever-changing, unpredictable[:]'⁵³⁷ a 'spiral' of concepts which allows the entity in question to constantly adapt to changing environments.⁵³⁸

Destruction-Creation is thus approximate to a conceptual opposite of fast-transients/ambiguity; together they form two parts of OODA as Boyd's part-conclusion to *Discourse*: Mental agility and adaptation is the vital destruction-creation component of the Orientation phase which explicitly differentiates OODA from inward-oriented cybernetics. Hence, '[W]hen Boyd talks about a 'quicker OODA loop' he does not simply mean cycling through the sequence...faster but rather is referring to all the cross-referencing connections that make the OODA into

⁵³⁶ Boyd, 'Strategic Game', 6; see Osinga, *Science, Strategy and War*, 122

⁵³⁷ Boyd, 'Conceptual Spiral', Slides 28-33

⁵³⁸ Ibid.

a complex adaptive system’;⁵³⁹ a concept for organisational adaptation to unforeseen change. This demands accuracy as well as speed of adaptation; without accuracy adaptation is of little use for it merely confounds one’s own mental processes rather than that of the opponents, negating what OODA, correctly interpreted, sought to inflict upon the enemy.⁵⁴⁰

Boyd argued that these principles were observable among ‘manoeuvre’ oriented forces which established simple, clear objectives, and then devolved power of how to obtain them to junior officers, the time constraint of relaying information and receiving orders over distance with a removed command hierarchy were reduced, ‘contracting’ operative OODA cycles of such forces and emphasising their creative adaptability. Theoretically this allowed such forces to maximise advantages in relative time versus the enemy, and more capably concentrate their efforts efficiently at opportune times and places where the enemy was weakest.⁵⁴¹ The pinnacle of strategic theory and practice in Boyd’s estimation, were thus ‘manouverists’ such as Lawrence, Fuller, and chiefly, Sun Tzu, who advocated high-mobility and uncertainty to mentally disrupt the enemy.⁵⁴² This is in opposition to ‘attritionists’ who use strength to destroy the enemy’s strength, expressed (in Boyd’s opinion) by Clausewitz, and the conditions of the Western Front and the Vietnam War.⁵⁴³

⁵³⁹ Bosquet, *Scientific Way*, 189, 195

⁵⁴⁰ Osinga, *Science, Strategy and War*, 235-237; Fadock. ‘John Boyd and John Warden’, 16

⁵⁴¹ Osinga, *Science, Strategy and War*, 146-151, 156 – 158; Ford, *A Vision so Noble*, 31-36

⁵⁴² Ford, *A Vision So Noble*, 31–36

⁵⁴³ Osinga ‘Getting’, 605- 607

Influence

Through briefs to military reformers and public challenge to orthodoxy, Boyd's ideas gained influence in the US Army and US Marine Corps' doctrinal reforms from the early 1980s, mainly as a direct reaction to the techno-centric, attritional paradigm seen in Vietnam. Seizing the initiative, mental and physical agility, and decentralised, yet synchronous, efforts, to confuse and disorient the enemy became leading themes in service publications through the 1990s 'Revolution in Military Affairs'(RMA),⁵⁴⁴ and seemed vindicated by Coalition successes in Gulf War One (1990-91) against, overwhelmed and paralysed Iraqi forces.⁵⁴⁵

Implications

Speed is a central element of Boyd's theories, integral to agility and adaptability, fast-transients and tempo and gaining the initiative, summed up in the OODA concept. Yet we have shown it is also tempered, slowed even, by other key aspects in Boydian thought; cognitive agility and adaptability requires accuracy, not merely speed; tempo, physical agility and speed of change must not simply be quick, but deceptive and uncertain, to generate confusion and menace. We can observe that, at the core of Boyd's theories lies the concept of time as competitive and 'relative' between adversaries; a rival resource to be wisely spent and not frittered away on incorrect interpretations and actions, or the enemy will be able to assume the initiative.⁵⁴⁶ This is still a race; Boyd emphasised the benefit of acting 'within' the enemy's OODA cycle as speed, to generate change quicker than the foe could adapt,

⁵⁴⁴ Osinga, *Science, Strategy and War*, 48 – 50, 245-246; Freedman, *Strategy*, 215 - 218

⁵⁴⁵ G. T. Hammond, *The Mind of War: John Boyd and American Security* (Washington: Smithsonian Institution Press, 2001), 123. 201

⁵⁴⁶ Freedman, *Strategy*, 196

compressing the enemy's relative time in which to cognate and adapt,⁵⁴⁷ but it is a far more complex race that may at first be believed.

From Two to Four Dimensions

Colonel Ajay Singh (IAF) has placed time at the 'centre of his theories' by maintaining time to be a 'new' and 'critical' dimension in warfare which makes possible 'time warfare'.⁵⁴⁸ By 'dimension' here Singh speaks of time as one of the four physical dimensions, rather than a 'dimension of strategy'. This is central to Singh's concept of 'time warfare' which examines how time can be 'used' strategically in the same way that the three spatial dimensions have been considered by previous theorists of land, air, and seapower; in terms of control and dominance.⁵⁴⁹ Singh observes the rise of 'time asymmetries' between historical combatants, produced by technological change, specifically in the fields of firepower and mobility which produce 'premiums' on time and space whilst taking conflict into new physical domains; i.e. the air.⁵⁵⁰ 'Two-dimensional' or surface warfare (land and sea) saw increases in lethality and/or firepower, such as rifled firearms, or increased mobility of horses and later transport technologies which expanded the area of engagement in space.⁵⁵¹ This expansion, Singh argues, produced a corresponding compression of time over space; speed of movement between point A to point B, thus also compressing the time available for information, thought and action, within space.⁵⁵² This compression increased exponentially with the advent of

⁵⁴⁷ Osinga, *Science, Strategy and War*, 141-142

⁵⁴⁸ Singh, 'The New Dimension', 56; A. Singh, 'Time: The Critical Dimension in War' *Air Power Journal*, 2, 2 (Summer 2005), 183

⁵⁴⁹ Singh, 'Critical Dimension', 194- 195, 197

⁵⁵⁰ Singh, 'New Dimension', 56

⁵⁵¹ Singh, 'Critical Dimension', 185-186.

⁵⁵² Singh, 'New Dimension', 56 ; A Singh, 'The Revolution in Military Affairs: 4-Dimensional Warfare', *Strategic Analysis*, 22, 2, (May 1998), 176

powered flight bringing war into the ‘third dimension’⁵⁵³ (vertical space) and with it concepts of controlling that domain as one might land or Sea-Lines of Communication (SLOC.)⁵⁵⁴

The technologies of flight gave airpower unique attributes of speed, geographical range and flexibility in a fluid medium, unlike surface forces which are slowed by the enemy and terrain.⁵⁵⁵ According to Singh, airpower’s uniqueness afforded the creation of ‘major asymmetries in time and space’⁵⁵⁶ that laid the foundation for graduation of war into the ‘fourth dimension’, time,⁵⁵⁷ as the logical development of warfare ‘expanding’ into the air, space and the EM spectrum.⁵⁵⁸ This is demonstrable in recent operations, where communication speed of information over the entire planet, afforded by space-based assets, gives decision-makers as-good-as-real-time observation of the situation, compressing the time needed between thought and action to the length of time it takes to observe the event and issue an order.⁵⁵⁹

Furthermore, Singh argues this compression allows dominance ‘in time’⁵⁶⁰ via asymmetrical performance in the speed of force and communication, fuelling an RMA that promotes the temporal dimension from merely beneficial (via superior mobility and communications) to an *independent and dominant position*, transcending the other (spatial) dimensions to become one of *master importance* in

⁵⁵³ J. Gooch (ed.), *Airpower; Theory and Practice* (London: Frank Cass Publishers, 1995), 1

⁵⁵⁴ G. Douhet, *The Command of the Air*. Translated from Italian by D. Ferrari (New York: Coward McCann, 1942), 15

⁵⁵⁵ Gooch, *Airpower; Theory and Practice*, 17-18; Singh, ‘Critical Dimension’, 186 ;

⁵⁵⁶ Singh, ‘Critical Dimension’, 187

⁵⁵⁷ Singh, ‘New Dimension’, 57

⁵⁵⁸ Ibid. 58 – 59

⁵⁵⁹ G. L. Schulte, ‘Revisiting NATO’s Kosovo Air War; Strategic Lessons for the Era of Austerity’ *Joint Force Quarterly*, 71, (4th quarter 2013), 14; T. Rostow, ‘Targeted Killing of Terrorists’ *Joint Force Quarterly*, 74 (3rd Quarter, 2014), 99; J. P. Terry, ‘The 2011 Libya Operation: War Powers Redefined ?’ *Joint Force Quarterly*, 71 (4th quarter, 2013), 28

⁵⁶⁰ Singh, ‘Critical Dimension’, 189

war.⁵⁶¹ This dimension is shaped by enhanced force mobility and communication speeds which, in Singh's view, reduce the relevance of spatial boundaries (distance and geographical features), but brings forward 'temporal boundaries,' defined by the limits of the decision-making loop and the time-sensitivity of information.⁵⁶² Time-sensitive information may 'multiply force' through its advantages whereas lateness may make the data worthless.⁵⁶³ Specifically targeting the enemy's own 'fourth-dimension' abilities and technologies increases asymmetries, as can the employment of surprise.⁵⁶⁴

IDA

Like Boyd, Singh's theory is summed up as a cycle; the 'Information-Decision-Action (IDA) Cycle, representing the basic element of time in military affairs which all forces work through to effect activity. The Information part is undertaken by information-gathering and generation systems (i.e. sensors), followed by decision and action. The quicker this process, more compressed the time-cycle: More efficient cycles are thus 'smaller' (Fig. 12). The objective of competing in the fourth dimension is therefore to complete the cycle more economically, 'shrinking' the cycle, compared to the enemy's.⁵⁶⁵

⁵⁶¹ Singh, 'New Dimension', 59

⁵⁶² Singh, 'Critical Dimension', 193

⁵⁶³ Singh, 'Critical Dimension', 191

⁵⁶⁴ Ibid, 192; Singh also references Simpkin on the matter, as we have done.

⁵⁶⁵ Singh. 'New Dimension', 57 ; Singh, 'Revolution', 172 – 173

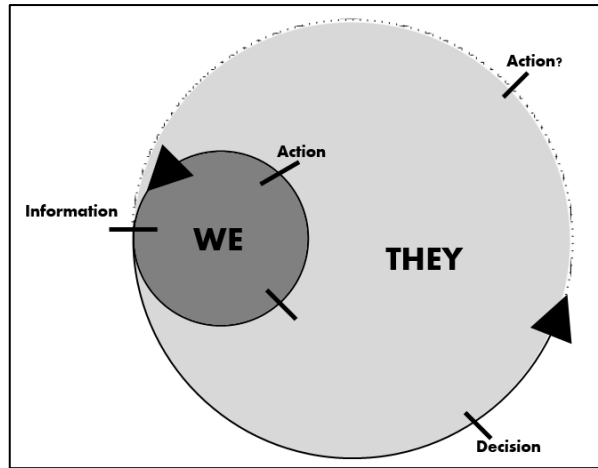


Figure 12: Copy of Singh's IDA Cycles⁵⁶⁶ illustrating two competing cycles in which 'we' have achieved temporal dominance. The Solid line represents 'T-time', the time 'we' take to complete the task; represented in both cycles. The Fragmented line is 'T plus time' – the additional time the enemy needs to complete the same cycle.

A 'task' (such as commanding a force) may take multiple cycles through the IDA phases and multiple revolutions through the same components. Singh described this as a chain, the length of which is determined by the amount of cycles needed, and thus the more time the task occupies (Fig. 13). This demands quality in the action phase to reduce the amount of times the cycle revolves.

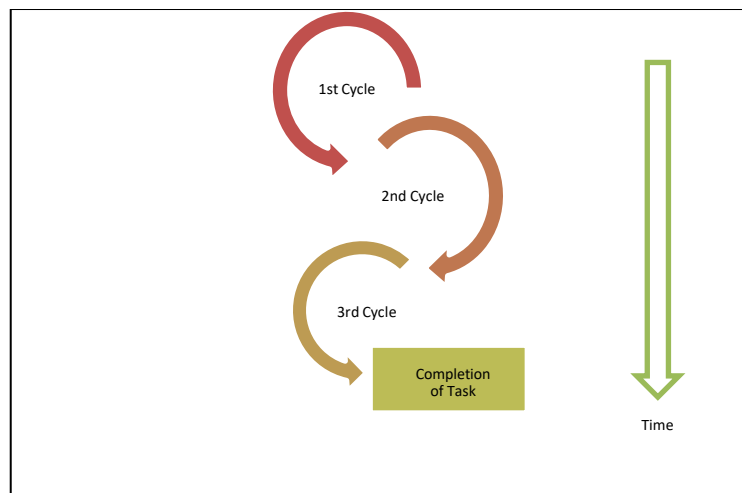


Figure 13: Successive IDA towards completing task, as described by Singh.

⁵⁶⁶ Singh, 'New Dimension', 57

Additionally, Singh describes the components of IDA as subcycles with each functioning like IDA ‘in miniature,’ dependent on the preceding cycle being completed before it may begin; thus the time required for the task is equal to the sum of time required for each subcycle. As a chain, the rule applies; it is only as strong as its weakest link, thus ‘Delays in one segment.... may well be the deciding factor.’⁵⁶⁷ The objective however remains the same; A, reducing the time needed for each component and thus the cycle of a whole, and; B, reducing the number of cycles needed for a task. Both are achieved, according to Singh, by improving the speed of procedures or the technologies involved. If time supremacy is lost, however, it becomes increasingly difficult (as in Boydian thought), to catch back up again, the further one falls behind.⁵⁶⁸

Degrading Awareness

The other side of Singh’s theory of ‘time warfare’ is that one can target the IDA cycles of the enemy, degrading their capacities for task-completion in time. Accepting information as a means not an end,⁵⁶⁹ Singh maintains it may also be a double-edged sword; a major criticism of the Information Warfare ideas was the prospect of ‘Data Overload’⁵⁷⁰ of combatants’ capacities to digest large volumes information, producing congestion and thus time-delays. Although Singh considers the role of time in information positively, believing war’s ‘fog’ of uncertainty can be reduced by information-gathering, he also reasons that ‘the reverse should also be....possible. The battlefield will continue to give opportunities to create fog...for the enemy, and therefore fog and friction will remain, albeit in a more relative sense

⁵⁶⁷ Singh, ‘New Dimension’, 57-60

⁵⁶⁸ Singh, ‘Critical Dimension’, 193-194, 198

⁵⁶⁹ Singh, ‘Critical Dimension’, 194-195

⁵⁷⁰ As previously mentioned, also see R. L DiNardo & D. J. Hughes ‘Some Cautionary Thoughts on Information Warfare’, *Airpower Journal* (Winter 1995), 6

than before,⁵⁷¹ creating uncertainty for the enemy; in Singh's example, the coalition's targeting Iraqi communications systems in Gulf War One, when already having preponderance in such technologies, magnified the coalition's IDA asymmetry.

Singh thus turns the 'Information Warfare' RMA idea on its head and adapts it to his own model: '[W]hat information warfare really entails is degrading, delaying, disrupting information to confuse the enemy and increase its response time'⁵⁷² for relative asymmetries in effective use of time.⁵⁷³ Combatants still seek to reduce the level of *absolute* fog they encounter, but it is the relative fog or friction which is essential;⁵⁷⁴ in the land of the blind the one-eyed man is king. This somewhat echoes Boyd, albeit with a greater emphasis on speed and less on creating confusion. It is also worth noting that these asymmetries in time exist largely as a product of other asymmetries (better technology than the enemy's potentially outmoded equipment, for example) rather than as something generated through the employment of Singh's concepts by themselves.

Time Warfare

To wage 'time warfare' as Singh calls it,⁵⁷⁵ requires one's IDA cycle staying 'inside' the enemy's cycle; to produce and retain asymmetry, and thus dominance in the fourth dimension – thereby supporting strategic activity in other domains. Compressing and improving one's IDA cycles to the bare minimum, and making them more durable to enemy action, are also important, as are degrading the

⁵⁷¹ Singh, 'Critical Dimension', 200

⁵⁷² Ibid., 195

⁵⁷³ Singh, 'Revolution', 177

⁵⁷⁴ Singh, 'Revolution', 178

⁵⁷⁵ Singh, 'Critical Dimension', 197; Singh, 'New Dimension', 61

enemy's IDA by enhancing friction and uncertainty by targeting their capability to conduct useful processes at adequate rates. Contrasted with Boyd's OODA system, which favours the disruption of enemy observe-orient-decision elements, Singh's system can be more easily interpreted to allow for targeting enemy capability to conduct physical processes. For example, a Boydian approach may focus on the command and control capacities of an enemy and seek to degrade them; Singh's approach may additionally include the systems that ease the 'action' part of the cycle.⁵⁷⁶ However there is otherwise little between the two in this regard.

IDA is a simple, scale-free, model, to understand time-sensitivity in competition which in some respects parallels the OODA as it is commonly understood; as a basic feedback system wherein the actor which 'loops' through the three phases at greater relative speed than the enemy has a time advantage of a 'compressed' loop.

However it is important to remember that IDA and OODA are not synonymous; Singh lacks Boyd's extensive discussions of adaptation and transition for one. But also, in Singh's view, OODA 'does not place the right emphasis on hostile capabilities and the time factor in relation to the two loops, 'ours' and 'theirs', which in fact would be...crucial.'⁵⁷⁷ However, Boyd's additional discussions (of competitiveness and confusion to disrupt the enemy OODA) might undermine some of this claim; Boyd's work on complex issues of creation and adaptation, the certainty of knowledge, and so on which make OODA a cognitive system, additionally require it to be understood in relation to Boyd's wider work. Unlike OODA, control in IDA is implicit and nor does it possess the multiple continuous

⁵⁷⁶ Singh, 'Revolution' 177-178

⁵⁷⁷ Singh, 'Critical Dimension', 193

feeds which make OODA a CAS. IDA is a self-contained process, a formula of rival time use focusing on the 'race' itself.

Singh's succinct contributions to time in strategy therefore may not at first seem comparable to Boyd's but they are worth noting: Firstly; Singh explicitly links space and time in his theories. Secondly he maintains time, or rather strategic actions within the time dimension, can be manipulated or even dominated strategically like they are in land, sea and air. Singh's simple, clear model also visually illustrates the rival and relative nature of time in competitive situations, as well as what the relative cycles consist of and how to compress them.

Simpkin

The third modern writer whose work we consider in this chapter is Brigadier Richard Simpkin, whose theories on time are displayed in his treatise on manoeuvre warfare operations and tactics, *Race to the Swift* (1985). Although *Race* avoids extensive discussion of time's various aspects, it addresses those which intersect with what Simpkin terms the 'physics' and 'laws' of manoeuvre theory. The Manouverist approach specifies the avoidance of using direct force unless necessary, preferring to disable the enemy efficiently, through movement and advantageous positioning of force in space, such as on an enemy's flank; by exploiting opportunities arising from the changing military situation, or 'by surprise or, failing this, by speed and aptness of response'.⁵⁷⁸ The capacity for movement and quick exploitation of opportunity are hallmarks of the doctrine, placing speed and timeliness at its core.

⁵⁷⁸ Simpkin, *Race*, xix – xxv, 22, 55

The ‘physics’ of manoeuvre theory necessarily pertain to what we may call the ‘crude calculation’ of time, space, and force. Simpkin focuses especially on time in relation to force as speed, in three forms: *Momentum*, *Velocity* and *Tempo*, which interact with *Mass* (force) to produce advantages to the manoeuvre force.⁵⁷⁹ Furthermore, in Simpkin’s view the interaction of space, time and force serve to distinguish manoeuvre warfare from ‘positional’ or ‘attritional’ warfare methods, which are he regards as conceptually ‘2-dimensional’ (Figure 14, i) concerning only mass and time and leaving ‘no room for dynamic forces. To take account of these, one has to add the third dimension [space]...introducing the idea of change with respect to space as well as to time...’⁵⁸⁰ as in manoeuvre theory, which is a ‘three dimensional’ comprehension⁵⁸¹ (Figure 14, ii), making it, in Simpkin’s view, better suited to comprehending dynamic behaviours of mass in space and time.

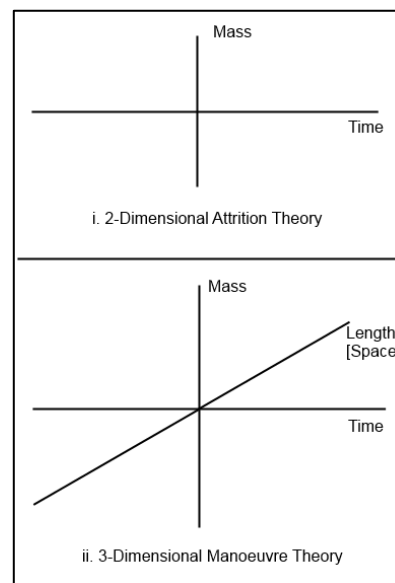


Figure 14: ‘2-dimensional’ and ‘3-dimensional’ approaches, adapted from Simpkin.⁵⁸²

⁵⁷⁹ Ibid., 21, 79

⁵⁸⁰ Simpkin, *Race*, 93 - 94

⁵⁸¹ Ibid., 22

⁵⁸² See Ibid., 94

Mass

Mass is defined by Simpkin as being influenced by various factors of mobility, firepower and survivability, etc, in his attempt quantify the mobility and fighting power of a force (per unit mass, total and usable). Although a complex approach, the value of the exercise lies in highlighting that ‘mass’, or rather, fighting power, is not determined only by physical size but other features intrinsic and extrinsic to the force in question, that ‘multiply’ relative fighting strength and mobility, varying on the task at hand. For example, an objectively fast force, like a mechanised brigade has intrinsic mobility, whereas ground that is easily navigated, like a road, is an extrinsic multiplier to the force’s *mobility*.⁵⁸³ If intelligently manoeuvred a force may prove effective against even a physically larger, more ‘massive’ force, by bringing greater *usable* force to bear at a specific point in space.⁵⁸⁴

Momentum

When applying this idea of *mass* to interactions with time and space to create a three-fold relationship, Simpkin presents a concept of *momentum*, as simply *mass* times *velocity* (See below), similar to its use in physics, to describe three aspects:⁵⁸⁵

1. A force moving quickly, with ‘momentum’, becomes more resistant to change in speed or direction
2. Mobility or ‘physical manoeuvre value’ of a force presents a compliment to its physical fighting power as a mass.⁵⁸⁶

⁵⁸³ Simpkin, *Race*, 114

⁵⁸⁴ *Ibid.*, 80–92

⁵⁸⁵ *Ibid.*, 115

⁵⁸⁶ *Ibid.*, 95

3. Being mass times velocity, momentum also stands for, according to Simpkin, the rate of change of leverage.

Leverage:

In concert with a ‘holding force’, the manoeuvring force seeks to ‘lever’ the foe by moving so that the enemy force lies between themselves as the ‘hammer’ and the holding force as the ‘anvil’; this manoeuvre constrains the movement of the enemy, forcing them to be ‘turned’. The leverage, that is, the power hoping to be exerted on the enemy, is described by Simpkin as dependent on the relative position of the holding force, the mass of the enemy, and the mobile force.⁵⁸⁷

Velocity

Simpkin describes velocity as a relative measure of *speed* and direction between two forces. Rather than his diagrams we use those of Fig. 15, which is clearer. In this case force B seeks to envelope force A; if A and B move in the same direction (i) their relative velocity is lower than if A were static and B were seeking to gain its flank (ii); or if A were moving South, and B were moving North, for example (iii). The higher the relative velocity, also of course influenced by the *speed* at which the moving force moves (defined by their capacity for mobility), Simpkin explains, the shorter the span of time it takes for a force (B in this case) to develop a turning manoeuvre.⁵⁸⁸

⁵⁸⁷ Simpkin, *Race*, 95- 99

⁵⁸⁸ *Ibid.*, 99

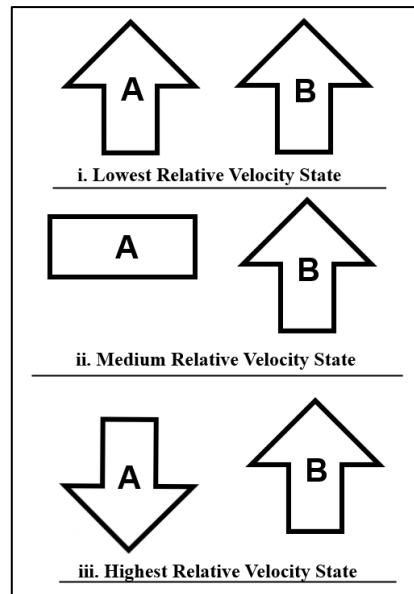


Figure 15: Velocity States, interpreted from Simpkin⁵⁸⁹

Tempo

Related to momentum and velocity is Simpkin's concept of *tempo* adapted from Soviet thought on the subject and described as the operational and tactical 'rate of advance' between the point of contact to the final operational objective 'divided by the time (in days) from the receipt of orders..... to accomplishment or abortion of the mission...'.⁵⁹⁰ suggesting a fundamentally geometric and space-centric idea of tempo as rate of physical manoeuvre, dependent on logistical, information, and combat support;⁵⁹¹ this is not quite the same as we might consider tempo today (the rate of operations within time, as with Boyd), but expectable given Simpkin's focus.

Simpkin also examines the impact of various forms of friction that can affect this 'Tempo', in short; how things such as bad ground and enemy activity can slow down an advance. This is a detailed examination of specific degraders of physical

⁵⁸⁹ Simpkin, *Race*, 99

⁵⁹⁰ Simpkin, *Race*, 107

⁵⁹¹ *Ibid.*, 106

mobility, worth mentioning as a minor expansion on the Clausewitzian principle: 'Bad going' (e.g. rough ground, darkness, etc.); 'mobility denial' (e.g. obstacles, choke-points, enemy action etc); time lost in deployment; and 'stiction' (a portmanteau from engineering which describes the observed delay between rest and movement/ action between two forces working together, during fire and movement in advancing. It accrues exponentially over time and scale. ⁵⁹²

Surprise

As Simpkin explains, manoeuvre warfare seeks to avoid the direct use of force and win by movement, pre-emption and initial surprise.⁵⁹³ It is his discussion of surprise, and the relationship in time it creates between the attacker and the 'surprised' in *Race*, which is perhaps Simpkin's most interesting contribution. It describes how the phases of planning and action take place and how an attacker, with the element of surprise, places themselves in a superior position in relative time, illustrated similarly as in *Race* below (Fig. 16).

⁵⁹² Ibid., 111

⁵⁹³ Simpkin, *Race*, 22

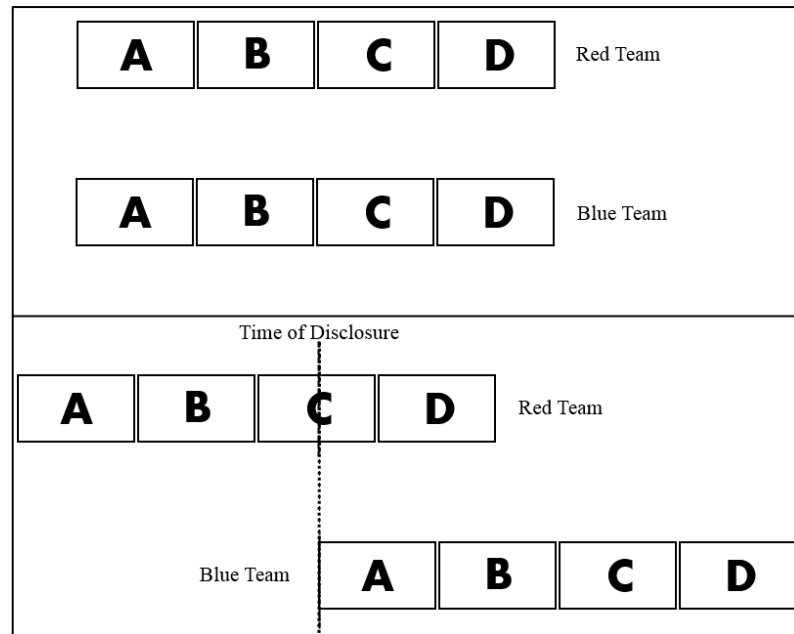


Figure 16: Advantage of Surprise, adapted from Simpkin.⁵⁹⁴

In this slightly modified version, the two bars show the sequences A to D each held by both belligerents (red team and blue team): A - the phase of planning and intelligence acquisition and analysis; B- pre-movement planning and deciding dispositions; C is the movement phase in which the force moves towards the objective, and D is the execution, the deployment, and seizing/defending an objective. In the first example both are evenly spaced, suggesting they begin planning at more or less the same time and keep pace with one another. However, in the second example they are staggered; illustrating a surprise action, say an ambush or raid carried out by 'Red Team.' The diagram shows how Red Team has already completed phases A and B, and is part way through C before 'Blue Team' even has time to begin phase A: The time of disclosure indicates when the enemy becomes aware of the surprise. Blue Team still has to plan, think and manoeuvre, (phases A, B, C) but is doing so on the back foot; Red Team is about to execute their

⁵⁹⁴ Simpkin, *Race*. 183

manoeuvre, leaving little time for Blue team to ‘catch up.’⁵⁹⁵ With the element of surprise the attacker is thus in a superior position *in time*,⁵⁹⁶ regardless of whether they have favourable positioning in physical space, by reducing the time available for the enemy to perform the essential steps to respond. If the time of disclosure can be further stalled, the less time the enemy has. This is comparable, although in linear form, to Singh’s IDA cycle and also chimes with Luttwak’s description of surprise, as not just an advantage among many, like physical superiority or spatial position, but as ‘*the suspension, if only brief, if only partial, of the entire predicament of strategy*. Against a non-reacting enemy, or more realistically, within the limits of time and space of the surprise actually achieved, the conduct of war becomesas simple in.....reality as....in theory.’⁵⁹⁷

Simpkin also assesses how tempo (as he understands it) can be used to restore surprise, specifically, what JFC Fuller termed *material surprise*- the condition wherein the enemy is aware of one’s intent but is materially unable to do anything to prevent it; as opposed to *moral surprise*, wherein the enemy is taken literally unawares. In Simpkin’s estimation, material surprise is fundamental to manoeuvre theory through maintaining high ‘tempos’ of physical advance.⁵⁹⁸

As can be seen, Simpkin takes a somewhat technical approach to warfare. As with Singh, his concern is primarily with speed and disregards much of time’s multifaceted nature; nevertheless he makes interesting points regarding the use of velocity to contract time in executing manoeuvres on the field and in the use of surprise to gain time advantage over the enemy.

⁵⁹⁵ Simpkin, *Race*, 182 – 184

⁵⁹⁶ Ibid. 182- 184

⁵⁹⁷ Luttwak, *Strategy*, 4

⁵⁹⁸ Simpkin, *Race*, 182 - 184

Time and Classical Theory

To add to our discussion of time in strategy we now turn to the three classical theorists employed most extensively in this thesis. Classical theorists remain essential to modern strategic theory and are rarely surpassed in outlining core facets of war and strategy which are with us still, though varied to suit changes in context. Indeed, Gray has argued that Sun Tzu, Clausewitz and the historian Thucydides have between them, more-or-less, covered almost-all there is to say on these subjects, and can be improved upon only on the periphery.⁵⁹⁹ As discussed previously,⁶⁰⁰ we focus on the ideas of the first two and also the theorist Jomini rather than the historian Thucydides, to form a trinity of the chief classical theorists (Sun Tzu, Clausewitz, and Jomini). Although these three do not directly examine time as the foci of their work, the subject features throughout their theories on war and strategy, at times explicitly and others implicitly, but still sufficiently for comment, and also dampen the notion that Boyd has been the *only* theorist to offer valuable insight on time in strategy.

Paquette reminds us that Sun Tzu and Clausewitz (and therefore Jomini, his contemporary) were greatly separated, geographically and temporally, and thus culturally and philosophically; this is important as differences in concepts of time may impinge upon approaches to time in strategy. Paquette argues that this produced in Clausewitz an approach to time in strategy that is more tactically focussed, linear, discrete and distinct from space; whilst Sun Tzu conceptualises time as cyclical and integrated with space.⁶⁰¹ This is important to bear in mind, though whilst it is highly

⁵⁹⁹ Gray, *Fighting Talk*, 58 - 61

⁶⁰⁰ See Chapter One and Literature Review

⁶⁰¹ Paquette, 'Strategy and Time', 37-42

likely that Sun Tzu and Clausewitz understood time differently, we also find in their thoughts (as with Jomini's) complementary discussion on numerous aspects of war and strategy,⁶⁰² including time, sufficient to array them here together.⁶⁰³

Clausewitz, Sun Tzu, Jomini

Clausewitz was discussed at length in Chapter One, and Sun Tzu, the enigmatic author of the 'The *Art of War*', who may have commanded armies for the Wu Kingdom circa 500BC,⁶⁰⁴ needs little introduction. Anton De Jomini (1779 – 1869), like Clausewitz, his literary rival, was unavoidably influenced by Napoleon Bonaparte as the (literally) definitive strategist of their era, albeit from a different side of the field: Jomini served on Napoleon's staff and later became the 19th Century's foremost military celebrity and influential interpreter of Bonaparte's success.⁶⁰⁵ In his 1838 *Summary of the Art of War (Summary)*, Jomini sought to uncover essential 'scientific' principles of strategy, abstracted from his experiences and military history, and array them in a 'system' for the contemporary commander to apply in practice.⁶⁰⁶ *Summary* is thus different to Clausewitz's philosophically deep exploration of war's nature, and is more prescriptive than descriptive in the model of earlier works of the Enlightenment with more geometrical considerations and technical argot of the age: ⁶⁰⁷ Jomini adopted the key concept of Lines of

⁶⁰² Handel, *Masters of War*, 3-4

⁶⁰³ For a wide variety of theorists' thoughts on time at the operational level see J. Hanska, 'Times of War and War over Time: The roles time and timing play in operational art and its development according to the texts of renowned theorists and practitioners', National Defence University, Series 1 Research Publications, No 12, (Helsinki, 2017)

⁶⁰⁴ Freedman, *Strategy*, 44 - 45

⁶⁰⁵ D. Stoker, *The Grand Design: Strategy and the U.S. Civil War* (Oxford: Oxford University Press, 2010), 65; J. Keegan, *The Mask of Command: A Study of Generalship*, 2nd Pimlico edition (London: Random House, 2004), 181 – 192

⁶⁰⁶ C. S. Gray, *War, Peace, and International Relations: An Introduction to Strategic History* (London: Routledge, 2007), 20

⁶⁰⁷ Vego, 'On Military Theory', 61

Operation from Lloyd, for example.⁶⁰⁸ This has drawn criticism as being simplistic, overly-technical and geometric, positivistic, and dated.⁶⁰⁹ Nevertheless Jomini addressed serious considerations of strategy in practice, and has been undeniably influential on Western military thought (even more so than Clausewitz) in the quest for a rationalistic approach to war;⁶¹⁰ many of his observations and ‘principles’ are still generally applicable and widely taught today.⁶¹¹ The fact that Jomini’s ‘Fundamental Principle’ (discussed below) explicitly emphasises aspects of time makes him of particular interest to us.

Space & Time

In the previous chapter we examined the concept of spacetime applied to metaphysics and practical human experience, informing our thoughts of movement, synchronicity and shared space in time to produce a ‘rule of relevance’ that time and space must be considered together in strategy. We also associated the concept with synchronicity; the combination of activities in time which are separated in space. When two separate army corps, for example, advance to one point with the aim of supporting one another they are, roughly speaking, undertaking synchronous action toward a single object. Such an enterprise relies on a concept of fused space-time, even if only understood implicitly, as it employs those dimensional considerations together. This may seem simple but is often difficult in practice.⁶¹² Bonaparte excelled at this kind of manoeuvre, partly thanks to the organisation of his

⁶⁰⁸ Echevarria, *Clausewitz*, 15

⁶⁰⁹ Lonsdale, ‘Strategy’ 47

⁶¹⁰ Creveld, *Transformation*, 112- 113; J. Shy, ‘Jomini’ in P. Paret et al (eds.) *Makers*, 144, 165, 178-180

⁶¹¹ Creveld, *Art of War*, 107; Creveld, *Transformation of War*, 112- 113; Shy, ‘Jomini’, 144, 165, 178-180; Gray, *War*, 20

⁶¹² See Chapter One

army, but also due to his own comprehension of strategy as ‘the art of making use of time and space.’⁶¹³

This approach to time and space is foundational to Jomini’s *Summary* and arguably *On War*, not because it is distinctly Napoleonic, but because it is elementary; as Clausewitz put it ‘...the equation of time and space [underlies] everything else and is, so to speak, the daily bread of strategy.’⁶¹⁴ Such considerations are inherently geometrical, as per the Enlightenment theorists: concerning the properties, sizes, and relative positions of points, armies, lines of march, movement and operation, capacity for mobility, and so on - the physical properties and relations of force regarding *space and time*. Although varied in specifics, these are still essential features of the problems of strategy, as they were when Jomini placed them as the core of Napoleonic warfare.⁶¹⁵ As such one cannot approach the concept of time in respect to strategy, especially in movement, without consideration of space.

Paquette argues that to a late 18th Century European like Clausewitz (and by logical extension Jomini), time and space were discrete dimensions.⁶¹⁶ However, we are inclined to agree with Nelson; ‘One of the durable images of Napoleon captures him....dividers in hand, considering the concentration of his armies and the movements of his foe. The day’s march separating the points of his dividers is a space-time abstraction that he and his pupils had mastered...’⁶¹⁷ including Clausewitz and Jomini. This can be seen in their approach to differentiating tactics, operations and strategy, by orders of space and time and the meaning of this applied

⁶¹³ Bonaparte cited in Freedman, *Strategy*, 77

⁶¹⁴ Clausewitz, *On War*, 196

⁶¹⁵ Shy, ‘Jomini’, 167; Jomini, *Art of War*, 99

⁶¹⁶ Paquette, ‘Strategy and Time’, 42-43

⁶¹⁷ Nelson ‘Space and Time’, 142

to the time available for commanders to make sense of a situation at different levels of war.⁶¹⁸

Force

Alongside time and space (or spacetime) Clausewitz, Jomini, and of course Bonaparte, considered *force* the third vital element or value in what we call here ‘the crude equation’ of strategy.⁶¹⁹ Often termed (and subsequently abstracted as) mass, force describes the armies and units of men and their materiel which practice strategy in its most fundamental condition against other forces (combat)⁶²⁰ by their actions and navigation in space, and thus time.

Bonaparte’s excellence, and advice on military success, revolved around the application of force at the operational level of war in respect to time and space.⁶²¹ This he achieved by employing the relative speed and organisational flexibility of his corps units to quickly move them to points of interest to threaten the enemy, or converge together, ‘concentrating’ their strengths together on the field.⁶²² Corps were large and powerful enough to engage a whole enemy army by themselves until a supporting corps arrived on the field; thus Bonaparte had to know how long these units could endure battle (their strength over time), which determined how far distant they could be from one another to mutually support (spacetime), and thus

⁶¹⁸ See W. Franz ‘Two Letters on Strategy: Clausewitz’ Contribution to the Operational Level of War’ in M. Handel (ed.) *Clausewitz and Modern Strategy*, 172 – 174; also Clausewitz, *On War*, 85, 207, 379; Jomini, *Art of War*, 254

⁶¹⁹ Clausewitz, *On War*, 194, 207; see also Franz, ‘Two Letters on Strategy’, 172–174;

⁶²⁰ Clausewitz, *On War*, 207; Gray, *Modern Strategy*, 38-39

⁶²¹ Freedman, *Strategy*, 77

⁶²² See Chapter Five

how much area could be controlled by the entire army (space): further considerations for the crude equation of force, space and time.⁶²³

Application of force in time and space by itself however, is not sufficient for success in Clausewitz's estimation, even if one had the element of surprise; force has to be sufficiently strong.⁶²⁴ In tactics this is obvious, but Clausewitz chides those under the impression that time was understood in relation to force as it is in Newtonian mechanics (with which Clausewitz was well versed; 'It is assumed....that half the effort or half the total forces could achieve as much in two years as the whole could do in one. This assumption... is entirely wrong. Like everything else... a military operation takes time.but... there is no trace of that.... relationship between time and energyin dynamics.'⁶²⁵

Concentration in Space

With some simplification,⁶²⁶ Jomini outlined the basics of the time-space-force equation as practiced by Napoleon in what he deemed the 'Fundamental Principle of War', in four Maxims:

1. '[T]hrow by strategic movements the mass [or strength] of an army, successively, upon the decisive points of a theatre of war, and also upon the communications of the enemy as much as possible without compromising one's own.
2. [M]anoeuvre to engage fractions of the hostile army with the bulk of one's force [to defeat 'in detail']

⁶²³ Clausewitz, *Principles of War*, 51-2

⁶²⁴ Nelson, 'Space and Time', 141

⁶²⁵ Clausewitz, *On War*, 597

⁶²⁶ Strachan, *European Armies*, 64

3. [In tactics] throw the mass of the forces upon the decisive point...
4. [A]rrange that these masses shall not only be thrown upon the decisive point, but....at the **proper times** and with energy,⁶²⁷ [Emphasis added]

This is summarised for all levels of strategic activity as employing ‘the greatest portion of the means of action at the decisive moment and place.’⁶²⁸ Despite his low regard for geometrical approaches to strategy, Clausewitz promoted the same principle; ‘[t]he best strategy is always to be very strong: first in general and then at the decisive point...there is no higher and simpler law of strategy than...of keeping one’s forces concentrated.’⁶²⁹ In *On War* Clausewitz does not distinguish decisive points in time and space as Jomini does; we infer that this was due to his consideration of the two as necessarily interconnected as above; ‘decisive points’ in spacetime. The principle of concentration describes that a force together is stronger than when spread into disparate pieces, and differential concentration; focused strength or mass at a decisive point (accepting weakness elsewhere).⁶³⁰ This ‘principle’ may seem vague or simplistic but still holds: US Army doctrine manual FM3-0 ‘Operations’ (2011) describes concentration in space and time in a fashion Jomini would have well recognised.⁶³¹

Part two of Jomini’s Fundamental Principle, defeating the enemy in detail, demands manoeuvre for concentration to focus against part of the enemy’s army, to achieve local superiority by concentration. Sun Tzu explained it thus; ‘When you are concentrated into one while the opponent is divided into ten, you are attacking at a

⁶²⁷ Jomini, *Art of War*, 52-53

⁶²⁸ Ibid., 247; also 52–53, 246, 254

⁶²⁹ Clausewitz, *On War*, 204; see 194

⁶³⁰ C. Tuck, ‘Land Warfare’ in D. Jordan et al, *Understanding Modern Warfare* (Cambridge: Cambridge University Press, 2008), 78

⁶³¹ Gray, *War*, 20–21; Strachan, *European Armies*, 1; Tuck, ‘Land Warfare’, 76; US Army Training and Doctrine Command, FM 3-0 Operations, A2 (2011)

concentration of ten to one, so you outnumber the opponent...if you...strike few with many, you....minimize the number...with whom you do battle.’⁶³² Thus even if the enemy’s total force was larger than one’s own, the skilful employment of force in space and time, explained Clausewitz, could obtain ‘relative superiority ...at the decisive point’⁶³³ through local concentration. In time the enemy may concentrate their force, however, and match or surpass one’s local strength, adding an imperative to defeat them in detail before they are may alter the situation.

Interior Lines

Both Jomini and Clausewitz⁶³⁴ employed the concept of ‘interior lines’; simply put this is an exploitation of ‘spacetime’ that allows a force, usually a defender, to concentrate force more swiftly than their opponent at a decisive point. The force using ‘interior lines’ traverses a shorter distance in space, requiring less time, than that on ‘exterior lines’. (Fig. 17)

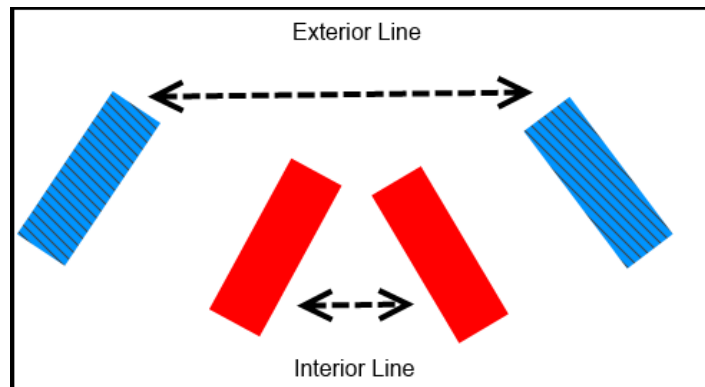


Figure 17: Simple Interior/External Lines Diagram.

⁶³² Sun Tzu, *Art of War* (Cleary), 111

⁶³³ Clausewitz, *On War*, 197

⁶³⁴ E.g. See Jomini, *Art of War* 77; Clausewitz, *On War*, 369

Concentration in time

As well as being concentrated in ‘spacetime’, forces could be considered ‘concentrated in time’ through synchronisation of action, best expressed in the modern manual FM 3-0 as ‘the application of the elements of combat power against multiple decisive points simultaneously [to overwhelm the foe.]’⁶³⁵ The concept is not well discussed by Sun Tzu, or Jomini and Clausewitz, save that it is contrary to concentration in space and therefore cautioned against.⁶³⁶ It has been compared to Clausewitz’s discussion of force ‘Unification in Time’⁶³⁷, however this is distinct; here Clausewitz advocated the simultaneous use of all available forces rather than successive assaults, i.e. to forego a strategic reserve and commit all available force to ‘a single action at a single moment.’⁶³⁸ Clausewitz did loosely discuss a concept of ‘concentration... in terms of time [wherein] the offensive must be launched from every practicable point at once,’⁶³⁹ roughly paralleling the notion expressed above, as well as Clausewitz’s words on the occasional utility of multiple concentric operational offensives if concentration of force in space could not be attained.⁶⁴⁰ But this demands a level of inference which should be carefully considered. Likewise, Jomini discusses a similar, though strictly tactical idea through engaging the enemy with infantry and cavalry from different directions at the same time.⁶⁴¹

⁶³⁵ FM 3-0 Operations, A2 (2011)

⁶³⁶ Clausewitz, *Principles of War*, 48–49

⁶³⁷ For example see R. Beringer et al *Why the South Lost the Civil War* (Georgia: University of Georgia Press, 1991), 141 ; Clausewitz, *On War*, 205–209

⁶³⁸ Clausewitz, *On War*, 209

⁶³⁹ *Ibid.*, 612

⁶⁴⁰ see Clausewitz, *On War*, 619, 634

⁶⁴¹ Jomini, *Art of War*, 232

Decisive Points

With the principle of concentrating at the decisive point and time explained, the question becomes *what, where and when are they?* Jomini commented that, despite the simplicity of his Fundamental Principle, these spacetime points are not easy to discern.⁶⁴² The concept is not clearly defined by Clausewitz, Jomini or Sun Tzu. Gray explains the concept as employed by Clausewitz, (which we logically extend to Jomini and apply to Sun Tzu) as not objective points in time and space, but spacetime localities of relative strength, created (in theory) by the skilful use of the concentration of force:⁶⁴³ i.e. the concentration of force at a *possible* decisive moment and point, develops that point to *become* decisive; the two concepts are bound together. Furthermore, the notion of a decisive point and time is taken by modern strategists to apply across the levels of war and different forms of conflict, including special operations and nuclear war.⁶⁴⁴ As such, they can be almost any point of time and space where the judicious application of force may produce *decision*. What is more, as war is a fluid interaction of competing wills and capabilities, not consisting of a single blow, there are likely *multiple* moments of decision.

In the most basic sense applicable to all levels, Sun Tzu advised '[t]hose who know when to fight and when not to fight are victorious'⁶⁴⁵ - the 'decisive moment' to act or not.⁶⁴⁶ A strategic level example may be an opportunity of relative strength over a rival which makes it a preferable time to go to war. In operations a point of decision would likely be the engagement and the battlefield, as Jomini and Clausewitz often

⁶⁴² Jomini, *Art of War*, 52–53

⁶⁴³ Gray, *Modern Strategy*, 97, 108

⁶⁴⁴ Ibid. 97

⁶⁴⁵ Sun Tzu, *The Art of War* (Cleary), 83

⁶⁴⁶ Paquette, 'Strategy and Time', 46

consider it, or alternatively, a useful position which threatens the enemy or their line of operation or retreat, forcing them to attack to secure themselves, or some other vital objective.⁶⁴⁷ The decisive time may be defined as being before the enemy can secure that point, such as arriving in a good tactical position in advance of the enemy. The same is roughly true in tactics; the point of the enemy's dispositions where they are weakest (or made to be so);⁶⁴⁸ there in principle should the force of decision, be it infantry or fast shock cavalry, be brought to bear. Bonaparte would also concentrate the multiple corps of his army quickly upon the battlefield at the operational decisive point, with one corps often arriving behind or to the flank of an enemy where they were tactically weak and, likely, unprepared. Frederick practiced the same principle with the 'oblique' or turning movement.⁶⁴⁹ Linear tactics as practiced in the time of Napoleon and Frederick demonstrate the principle of concentration at decisive points very well; a line formation is weaker on its narrow flank than its broad front.

Such conditions may be semi-permanent features of enemy dispositions; fleeting opportunities emerge and then are likely to disappear. As Handel points out the successful commander cannot implement his *ideal* plan given war's chaotic and frictionous environment, but they may observe and exploit passing opportunities.⁶⁵⁰ In his less-well-known 'Two Letters on Strategy' Clausewitz considered the need in operations to exploit passing opportunities stemming from the diversity of situations which arise on campaigns.⁶⁵¹ Clausewitz and Jomini, who were both sceptical of the

⁶⁴⁷ Strachan, *European Armies*, 44

⁶⁴⁸ Clausewitz, *On War*, 196-197

⁶⁴⁹ Strachan, *European Armies*, 20; See also Chapter 5.

⁶⁵⁰ Handel, *Masters of War*, 240

⁶⁵¹ Franz, 'Two Letters on Strategy', 193

ability to fully control events,⁶⁵² would likely concur with the more optimistic Sun Tzu that it is advantageous to exploit emergent opportunities; ‘speedily take advantage of it.... be swift as a hare...’⁶⁵³ The principle is accepted in modern doctrine.⁶⁵⁴

Decisive points are not strictly physical; there is a vital psychological aspect to war, largely unaccounted for before Bonaparte (‘The Moral is to the physical as three to one’),⁶⁵⁵ which Clausewitz (and to a lesser extent Jomini)⁶⁵⁶ readily appreciated:⁶⁵⁷ The ‘crude calculation’ of force, time and space, must therefore accept that *an aspect of force’s strength is its psychological or morale condition*. The decisive point and moment are thus not just where and when the enemy is relatively physically vulnerable, but also psychologically.

Coup-D’Oeil

With the decisive point and moment defined the problem then lay, Jomini and Clausewitz recognised, in discerning them through the chaos of battle and the ‘fog of war’. The solution both counselled was talented perception; *coup-d’oeil*,⁶⁵⁸ literally a ‘quick glance’. The concept initially applied to recognising suitable ground for battle, but both Clausewitz and Jomini treat it as intuitive talent for perceiving important elements among the diverse and complex facets of military situations, despite dangers and uncertainties.⁶⁵⁹ Given their appreciation of psychological

⁶⁵² Handel, *Masters of War*, 252- 253

⁶⁵³ Sun Tzu, *The Art of War* (Griffith), 140

⁶⁵⁴ (US) Joint Forces Command, *Commander’s Handbook for Joint Time-Sensitive Targeting* (March 2002), 1

⁶⁵⁵ Napoleon I cited in Freedman, *Strategy*, 77

⁶⁵⁶ Jomini, *Art of War*, 246

⁶⁵⁷ Clausewitz, *On War*, 77 , 136–137

⁶⁵⁸ Clausewitz, *On War*, 578 ; Jomini, *Art of War*, 256

⁶⁵⁹ Jomini, *Art of War*, 154, 157, 256, 261; Clausewitz, *On War*, 102, 585

factors (especially Clausewitz) it is fair to state that *coup d'oeil* extends beyond topography to perceiving intangible aspects which can only really be sensed or inferred, such as the psychological factors of respective armies or judgements of the enemy commander's likely thoughts etc.,⁶⁶⁰ quite in line with Sun Tzu's council on the benefits of perceiving opportunities among physical and non-physical dimensions.⁶⁶¹

For Clausewitz *coup-d'oeil* includes intuitive good judgement of suitable action that will allow the commander to impose their will on the situation;⁶⁶² not passive observation, but a talent for perception and comprehension, upon which effective action is based, not dissimilar to Boyd's later ideas on quick and accurate cognitive orientation. Unlike the discrete OODA phases however, *coup-d'oeil*, as explained by Jomini and Clausewitz, is a more homogenous process. The idea remains one of cognitive speed; Jomini spoke of 'rapid and certain *coup-d'oeil*'⁶⁶³ whilst Clausewitz regarded it as near-instantaneous, saving precious time otherwise spent on assessment.⁶⁶⁴ As Paquette points out, this may limit the possibility of informed consideration of (possibly superior) alternative solutions, as she maintains Sun Tzu emphasises.⁶⁶⁵ However, *coup-d'oeil*, as with Boyd's Orientation, concerns not quickness alone, but also accuracy; Clausewitz identified it as *accurate* identification of the *truth* within the confusing, dynamic situations of war;⁶⁶⁶ *coup-*

⁶⁶⁰ Over half a century after Clausewitz and Jomini, Henderson considered *coup d'oeil* in terms of comprehending the enemy's psychology: How they would interpret and react to unfolding events, as well as perception of moral dynamics. Thucydides, similarly points to the ability of the successful general in capitalising on moments of panic among the enemy. See G. F. R. Henderson, *The Science of War – A Collection of Essays and Lectures 1891 – 1903* (London: Longmans, Green and Co., 1912), 175; Handel, *Masters of War*, 430

⁶⁶¹ Sun Tzu, *Art of War* (Cleary), 43, 85–89, 91, 93–4,

⁶⁶² Clausewitz, *On War*, 578 ; Handel, *Masters of War*, 240

⁶⁶³ Jomini, *Art of War*, 157

⁶⁶⁴ Clausewitz, *On War*, 102; 585

⁶⁶⁵ Paquette, 'Strategy and Time', 43

⁶⁶⁶ Echevarria, *Clausewitz*, 109

d'oeil then, if it is certain, retains viability yet bypasses linear logical deduction. For lesser mortals than the military genius, quick and decisive decision-making was discussed by Sun Tzu and his commentators in reference to courage.⁶⁶⁷ We may thus add judgement to *coup d'oeil* as the talent for *accurately* and *quickly* perceiving conditions among relevant physical and non-physical strategic dimensions present in a military situation (despite the uncertain and frictious climate of war), within which appear decisive times and points.

Surprise

Surprise is interwoven with time's linearity and unpredictability; we cannot predict the unexpected. With respect to the Paradoxical Logic of war it is desirous to maximise and exploit this condition of uncertainty upon the enemy, to attack them in a state of mental unpreparedness; by surprise.⁶⁶⁸ A 'surprise', being a condition of relative weakness in time and/or cognition as we have discussed, therefore may constitute a 'Decisive Point'; this is how Sun Tzu treats it and surprise could be regarded as the fundamental principle of Sun Tzu's thought - Victory is gained by surprise,⁶⁶⁹ brought about by 'unorthodox' actions; 'attack when [or where]⁶⁷⁰ they are unprepared, make your move when they do not expect it.'⁶⁷¹ And at the strategic level; 'the superior militarist strikes while schemes are being laid' (See Chapter Four), as in the *Art of War*.

⁶⁶⁷ Du Mu cited in Sun Tzu, *Art of War* (Cleary), 44

⁶⁶⁸ See Luttwak, *Strategy*, 3 - 7

⁶⁶⁹ Sun Tzu, *Art of War* (Cleary), 99

⁶⁷⁰ Sun Tzu, *Art of War*, (Griffith), 69

⁶⁷¹ Sun Tzu, *Art of War* (Cleary), 55

Paquette has argued that Sun Tzu appreciated surprise as a tool, whereas Clausewitz perceived it as an obstacle:⁶⁷² With the larger armies of Napoleon's time, Jomini and Clausewitz suspected that surprise offensives and operational manoeuvre was considerably more difficult to achieve than previously.⁶⁷³ However, Jomini remained sanguine that opportunities for surprise should be exploited (and opposed) when possible,⁶⁷⁴ and in his 'mirror' *Principles of War*, Clausewitz related the successes of Ferdinand and Frederick, amongst others, in using force at unexpected points and times to create surprise.⁶⁷⁵

Speed and Momentum

A fundamental of surprise is speed, but speed is useful in other forms as well, indeed it is key to concentrating force at the right time and place as performance over time; firstly in the speed of conceptual orientation and comprehension to understand the situation, discern decisive moments and points, and formulate an appropriate next move; secondly as physical speed, which defines much of the physical value of mobility of a force as it navigates space and time, essential to concentration. In expanding on his central Axiom, Jomini remarked that it was necessary to give forces 'the greatest possible mobility...., so as, by their successive employment upon points where it may be important to act... [with] superior force....'⁶⁷⁶ Clausewitz considered it vital, recognising the importance of the 'rapid use of...forces'⁶⁷⁷ in the attack; 'Speed and impetus are its strongest elements and are usually indispensable if

⁶⁷² Paquette, 'Strategy and Time', 43, 45-46

⁶⁷³ Clausewitz, *On War*, 198-199

⁶⁷⁴ Jomini, *Art of War*, 159-160

⁶⁷⁵ Clausewitz, *Principles of War*, 19-20, 47

⁶⁷⁶ Jomini, *Art of War*, 134

⁶⁷⁷ Clausewitz, *On War*, 624

we are to defeat the enemy. Thus theory demands the shortest roads to the goal.’⁶⁷⁸

Both seem to have taken after Bonaparte; “It may be in the future I shall lose a battle, but I shall never lose a minute.”⁶⁷⁹

Sun Tzu even regarded speed as the essential factor of force that allowed it to achieve surprise by taking unexpected routes and attacking where the enemy did not expect,⁶⁸⁰ as well as exploiting opportunity; ‘when the enemy gives you an opening be swift as a hare....’⁶⁸¹ To speed he added precision, like a striking hawk,⁶⁸² once again returning to the importance of force at the right time and place, but also advised on speed in relation to tiring the enemy ‘by flight’; the mobility of a force to extricate itself from being attacked by manoeuvre.⁶⁸³

Related to speed, Sun Tzu and Jomini⁶⁸⁴ also employed the concept of momentum in the offense, the former comparing a fast-moving army to a torrential river sweeping aside boulders.⁶⁸⁵ In physics, momentum describes how the force of an object in motion is increased by its velocity, though for Sun Tzu momentum is more psychological than physical.⁶⁸⁶ Handel compares momentum to the principle of continuity discussed by Clausewitz, which describes the exploitation of effective decision; i.e. quickly building success upon the successes of using force at decisive points, toward victory, and so denying the enemy respite from pressure.⁶⁸⁷

⁶⁷⁸ Ibid.

⁶⁷⁹ Napoleon cited in Simpkin, *Race*, 93.

⁶⁸⁰ Sun Tzu, *Art of War* (Cleary), 161

⁶⁸¹ Sun Tzu, *Art of War* (Griffith), 140; Handel, *Masters of War*, 156

⁶⁸² Sun Tzu, *Art of War* (Cleary), 101

⁶⁸³ Ibid., 53

⁶⁸⁴ Jomini, *Art of War*, 226

⁶⁸⁵ Sun Tzu, *Art of War* (Cleary), 100

⁶⁸⁶ Ibid., 101-103; 96

⁶⁸⁷ Handel, *Masters of War*, 165-175

Slow

Paquette suggests Clausewitz's concern for losing time to the enemy implies a lack of strategic patience compared to Sun Tzu.⁶⁸⁸ Certainly Clausewitz was against wasting time needlessly; '....An unnecessary expenditure of time, every detour is a waste of strength.'⁶⁸⁹ However Nelson argues Clausewitz also appreciated delay and the value of gaining time; by using vanguard actions to delay and slow an enemy force thereby 'regulating' their movement and the tempo of the action, one gains relative time in which to comprehend the situation and plan accordingly, reducing situational uncertainty.⁶⁹⁰ Sun Tzu similarly appreciated moments when slowness rather than potentially rushing something was beneficial, as with arranging forces for good effect,⁶⁹¹ or awaiting the arrival of an enemy over long distance.⁶⁹²

Rival Time

According to Nelson, an important, yet overlooked, contribution of Clausewitz to strategic theory is his consideration of time as a shared, yet rival, resource.⁶⁹³ This is not dissimilar to our discussion in the previous chapter, which asserted that time in practical experience is non-relative in a physical sense, and shared equally as a non-rival resource, yet that it is relative and rival in the context of competition, much like in a race; usable time and advantages come to exist between belligerents, imparting a rival aspect to it. Clausewitz put his appreciation of this thusly; '[b]oth belligerents need time; the question is...which of the two can expect to derive special advantages

⁶⁸⁸ Paquette, 'Strategy and Time', 41–42

⁶⁸⁹ Clausewitz, *On War*, 624

⁶⁹⁰ Nelson, 'Space and Time', 138

⁶⁹¹ Sun Tzu, *Art of War* (Cleary), 74

⁶⁹² *Ibid.*, 127

⁶⁹³ Nelson, 'Space and Time', 138–140

from it in.... light of his...situation.’⁶⁹⁴ This directly stems from the nature of war as a struggle in which any advantage is seized upon; available time is pressured by the designs of the enemy and therefore must always be kept in mind; complex plans which take too long (defined by the enemy’s ability to act and react) must be rejected.⁶⁹⁵ Specifically Clausewitz recognised that the defender benefited from the delay of activity which would decide the conflict against them;⁶⁹⁶ ‘.... Any omission of attack – whether from bad judgement, fear, or indolence – accrues to the defender’s benefit...’⁶⁹⁷ as the attacker would approach the Culminating Point.

Culminating Point

The concept of the Culminating Point is related to Clausewitz’s notion of Continuation, and pertains to the best moment when a transition should occur from defence to offense or vice versa; ‘the point of culmination will necessarily be reached when the defender must make up his mind and act, when the advantages of waiting have been completely exhausted. There is no infallible means of telling when; a great many conditions ... determine it’⁶⁹⁸ though this point was largely defined by logistical capacity, as the line of operation or communication along which supplies travelled, became distended from its base and the force may well have been degraded by engagements. Thus would the army become less powerful and thus less able to maintain offensive operations;⁶⁹⁹ it would lose its *momentum*. For Clausewitz, therefore, the operational commander on the offense had to discern the point of transition for ‘if one were to go beyond that point, it would not only be a

⁶⁹⁴ Clausewitz *On War*, 597

⁶⁹⁵ Nelson, ‘Space and Time’, 141; Clausewitz, *On War*, 228

⁶⁹⁶ Nelson, ‘Space and Time’, 142

⁶⁹⁷ Clausewitz, *On War*, 357

⁶⁹⁸ *Ibid.*, 383

⁶⁹⁹ Creveld, *Art of War*, 117

useless effort...it would...be a *damaging* one....’⁷⁰⁰ Whilst for the defender the closer to the culminating point the more optimal would be its condition of relative strength, when ‘a sudden powerful transition to the offensive....is the greatest moment.’⁷⁰¹ Yet ‘defensive warfare....does not consist of waiting idly for things to happen. We must wait only if it brings usadvantages.’⁷⁰² Choosing transition at the incorrect time could prove dangerous and costly, either engaging a foe still too strong or waiting too long and so wasting time in which the opponent can consolidate and prepare to counter attack.⁷⁰³ Although as Nelson points out, although Clausewitz explored this concept the most, particularly at the operational level, both Sun Tzu and Jomini instinctively understood it; Sun Tzu concisely expressed that ‘defence is for times of insufficiency, attack is for times of surplus’⁷⁰⁴ whilst Jomini remarked that the ‘....best thing for a [commander] on the defensive is to *know* how to take the offensive at a proper time, and *to take it*.’⁷⁰⁵ This is because although the defence may be stronger and easier, it does not achieve anything in itself, and surrenders initiative to the attacker.

As it relates to relative strengths, it would not be odd to say that the Culminating Point and the attendant concept of Continuation/ Momentum concerns decisive moments, defined by fluctuating relative competences in the dimensions of war. In that regard it is not fundamentally different to any other; a point of time which demands, and may produce, decision. Clausewitz spoke of the principle in relation to a campaign (specifically Napoleon’s march into, and retreat from, Russia),⁷⁰⁶ but

⁷⁰⁰ Clausewitz, *On War*, 183

⁷⁰¹ Ibid., 370; Handel, *Masters of War*, 162-163

⁷⁰² Clausewitz, *Principles of War*, 54

⁷⁰³ Handel, *Masters of War*, 189-190

⁷⁰⁴ Sun Tzu, *Art of War* (Cleary), 90

⁷⁰⁵ Jomini, *Art of War*, 140 & 142

⁷⁰⁶ Handel, *Masters of War*, 194.

Sun Tzu, Clausewitz and Jomini all speak of the tactical offense-defence relationship as a similar matter of judgement in timing and the principle neatly fits that of the decisive moment at any level.

This has parallels with Clausewitz' argument for maintaining tactical reserves; in battle adversarial units damage one another over time, ergo a fresh reserve used at the proper moment can be decisive, adding sudden strength to the weaker side – however this does no good beyond what Clausewitz termed the 'phase of confusion', after which committing reserves would be too late to make a meaningful difference.⁷⁰⁷ The tactical point of weakness and strength among relative dimensions which defines the best moment to employ reserves thus constitutes another specific 'Decisive Moment'.

Duration

In Sun Tzu's estimation 'The important thing in a military operation is victory, not persistence,'⁷⁰⁸ and he advised strategists execute short conflicts to avoid hardships, exhaustion and societal ruin.⁷⁰⁹ Clausewitz likewise counselled quick, effective conclusion to avoid wasted effort, especially in the offense,⁷¹⁰ but recognised that war does not consist of a single blow,⁷¹¹ and due to the rival/biased aspect of time in war, 'decision can never be reached too soon to suit the winner or delayed long enough to suit the loser.'⁷¹² In that delay the loser may after all be able to reverse their fortune, gaining political support and relative strength as the enemy approaches

⁷⁰⁷ See Clausewitz, *On War*, 205–206

⁷⁰⁸ Sun Tzu, *Art of War* (Cleary), 66

⁷⁰⁹ Ibid., 58–63

⁷¹⁰ Clausewitz, *On War*, 624

⁷¹¹ Ibid., 79

⁷¹² Ibid., 238

and passes the Culminating Point (see above).⁷¹³ Although both Clausewitz and Sun Tzu (and Jomini) believed the best method of quickly concluding war was the decisive concentration of force,⁷¹⁴ Clausewitz also comments on the possibility of a weaker power deliberately prolonging war, so as to wear down the physical capacities and moral will of a militarily stronger foe.⁷¹⁵

Timing War

The theorists also offer thought on when it is advantageous to go to war, discussed more fully in Chapter Four. Jomini declares that ‘one hundred thousand men well employed at the proper time’⁷¹⁶ could shape the fate of a continent, and that the surest way to oppose expansionist rivals was with ‘intervention at the proper time.’⁷¹⁷ Yet beyond this he does not provide much in the way of explaining the idea of strategic time in this sense. Sun Tzu and Clausewitz advise that the strategist must consider conditions of relative strength in areas of performance (analogous to the dimensions previously outlined) among would-be belligerents which influence the suitability of going to war at a given point. As Sun Tzu put it, ‘...measure in terms of five things, use these assessments to make comparisons....the way, the weather, the terrain, the leadership and discipline.’⁷¹⁸ Rooted in the agricultural concerns of ancient societies, Sun Tzu’s advice naturally included the seasonal variations,⁷¹⁹ though this is no anachronism, as Napoleon and the Wehrmacht discovered to their cost in Russia. Clausewitz similarly advised careful consideration of many factors including ‘...our own political aim and that of the enemy....the

⁷¹³ Clausewitz, *On War*, 139

⁷¹⁴ Handel, *Masters of War*, 157–159

⁷¹⁵ Clausewitz, *On War*, 93

⁷¹⁶ Jomini, *Art of War*, 12

⁷¹⁷ *Ibid.*, 15

⁷¹⁸ Sun Tzu, *Art of War* (Cleary), 41

⁷¹⁹ *Ibid.*, 43 - 45

strength and situation of the opposing states....the character and abilities of [their] government and people....the political sympathies of other states...'⁷²⁰ in order to prepare for war and calculate probabilities of success. However, neither expounds upon the subject beyond consideration of relative strengths. Indeed, as there is (usually) no objective time of suitability for war, it is necessarily the case that it is *relative* conditions between belligerents which establish when one time may be better than another for one belligerent or another to engage in war with advantage.

Conclusion: Strategic Time

Chapter two concluded with general observations or 'rules' regarding our understanding of time generally, to form a conceptual foundation of what time is and begin to consider what that might mean within the strategic discipline. To build on that conceptual foundation, this chapter has brought together in consideration the main aspects of time in strategy as they have been discussed by the relevant classical and modern theorists who have ventured to 'translate time' into the 'language of their art'. This informs our understanding of time in strategy, and adds to the conceptual foundation of the thesis, upon which we may attempt a comprehensive, if embryonic, theory of time in strategy or 'strategic time' for discussions and analysis in the following chapters.

As noted above, Gray has argued that the great classical strategic writers may have, between them, covered *almost*-all there is to say on strategy and war, but that there remains room on the periphery for expansion and clarification:⁷²¹ This is the case at least with regard to time as Gray himself has identified, and which we have earlier

⁷²⁰ Clausewitz, *On War*, 585-586

⁷²¹ Gray, *Fighting Talk*, 58 – 61; See also Chapter One

explained and picked up as a major part of our aim in this work.⁷²² Nevertheless, and bearing in mind Paquette's arguments on the importance of cultural context in informing the time-conceptions of the strategic theorist, we may merely note that, among the classical writers here discussed, Clausewitz stands out as having offered the most broad-ranging and nuanced discussions of temporal aspects in strategy. However, Clausewitz alone does not fulfil our aims of coherently identifying the importance and nature of time in strategy and, as Lonsdale points out, Clausewitzian thought can occasionally require 'some reassessment and supplementation.'⁷²³ In this regard Sun Tzu, and Jomini are, in their delineated prescriptions, often clearer on temporal matters than Clausewitz, though the three largely agree in the particulars. With their time-centric theories, Boyd, Singh and Simpkin compliment the classical corpus in this regard. However in the main their work has been, as noted, necessarily narrowly focused upon specific domains or uses of time, and fails to offer a comprehensive approach to time across strategy as a whole. As part of the purpose of theory is the bringing together of concepts and principles into a coherent structure, we may here clarify our observed and reasoned features of the nature, and aspects of, time in strategy; the nucleus of a theory of 'strategic time':

Linearity: Physical time is a unidirectional, linear dimension, and for the most part so is strategic time. This makes strategic time in one sense absolute and inflexible: Situations at all levels of strategy are subject to irreversible and dynamic forces, not least the interactions of the parties involved in the struggle of war. Opportunities that have passed may not be recaptured; spent resources cannot be spent again; mistakes once made may not be easily reverted. Temporal linearity also dictates that the

⁷²² See Introductory Chapter

⁷²³ Lonsdale, *Clausewitzian Future*, 202

strategist cannot ‘see’ past the ‘*cataract*’ and conquer the inherent uncertainties of the future. This imposes unavoidable dilemmas upon the strategist of how, as well as when to act, at the cost of alternatives; at the strategic level, when to go to war; in operations, when to engage the enemy; and in tactics, discerning and exploiting decisive moments on the battlefield. These describe clear ‘temporal boundaries’ of strategic time, in respect to an unchangeable past and uncertain present and future.

Despite its linearity, however, time may be abstracted cyclically in strategy to describe iterative processes of change and action, such as OODA, IDA, and C2 cycles.

Rival time: Despite its linear and absolute aspects, usable strategic time is, almost paradoxically, relative and variable; it is defined by the condition of competition between belligerents and their relative capacities to use their allotted time. To make judicious use of available time and compete, relative mental and physical agility are required. The combatant who makes better use of time, or manages to undermine their enemy’s, may be able to produce potentially decisive temporal advantages, (gaining the initiative), and shape the military situation favourably, with ramifications on the enemy’s mental and physical capacities to comprehend and react. This may be accomplished by creating uncertainty in the enemy’s mind and friction in their undertakings, through speed, tempo and retaining momentum. The element of surprise, though often difficult to achieve, also obtains fleeting and potentially decisive asymmetry in strategic time. Furthermore, the competitive nature of war makes strategic time invariably biased, to favour one side of a conflict or the other, though this depends on their competences in the other strategic dimensions. We have also discussed how time can be variously understood by

different people, even strategists, according to their societal context, and established that the enemy may, on occasion, use time in unfamiliar ways.

Spacetime and force: Strategic time is also frequently understood in relation to space: We conceptually fuse that relationship here as ‘strategic spacetime’. This is especially relevant regarding movement of force; essential in delivering strategic effect. Thus, *time*, *space*, and *force* together provide the fundamental elements of the crude equations of strategy’s basic interactions. However, force does not work mechanically over time; a small force cannot necessarily achieve in a longer time what a large force can in a shorter time.

The effective application of force at points in ‘strategic spacetime’ is frustrated by the enemy and Clausewitzian friction, yet may prove decisive. Decisive points are defined, not by objective features of space or time, but by *relative* conditions between the belligerents and across the situationally relevant strategic dimensions. Concentration of force in strategic spacetime is widely regarded as beneficial for effecting decision at decisive points, but the unification/concentration of *action* in time by synchronicity may also yield effective results. To be able to exploit these decisive points, sufficient mental and physical agility are required to discern and influence them, and these too are relative to the enemy’s own command abilities.

Temporal Resources: Absolute, linear time moves inexorably and cannot be ‘banked’, demanding judicious use of time as a dwindling resource; whether in terms of preparation for war, or decisions made once it is underway. However, the rival nature of strategic time allows the temporal resource to be ‘exchanged’ or ‘converted’ with other resources and efforts, including space and force.

The basic nature of strategic time represented among these identified aspects may function similarly at all levels of strategy; however, different specific contexts within and across those levels may demand different and specific interpretations and employment or interaction with the temporal dimension, for success. The paradoxical logic of strategy even demands that what has worked in a previous context against the enemy might not in the next if they are wise to it.

IV: A Time for War

‘...the superior militarist strikes while schemes are being laid’

- Sun Tzu⁷²⁴

‘Strike whilst the iron is hot’

-Common Idiom

Introduction

Of the many ways in which time influences strategy, perhaps none is more imperative than choosing, where possible, the best moment in which to employ the military instrument and engage the uncertain and violent nature of war. This chapter explores how interpretations of strategic conditions over time influence decision-makers in their considerations of the temporal dimension and the use of the military instrument at specific moments, i.e. when to go to war. It employs conceptualisations of time’s aspects established in the previous discussions, and two case studies; the Spartan strategic calculus prior to the Peloponnesian War of 431-404 BC, and German decision-making and concerns of power states leading to the 1914-1918 Great War.

When to War

As strategy bridges force and political aims, the question of *when* to go to war is largely predicated on the question of whether one *should*; the essential nature of war as violent, uncertain, and difficult should be enough to caution policymakers about

⁷²⁴ Sun Tzu, *The Art of War* (Cleary), 71

the perils and risks of armed conflict. Despite such hazards, war has been a frequent occurrence throughout human history, and generations of scholars have discussed *why* states engage in conflict.⁷²⁵ The ancient Athenian Thucydides provided perhaps the most succinct explanation with his famous triad of ‘Fear, Honour, and Interest’ as broad groupings for the diverse human motivations that bring polities to contesting their disagreements militarily.⁷²⁶ Furthermore, there is little to suggest that the future, although uncertain, will lack new strategic challenges, threats, and even opportunities from political instability and resultant conflict in the Middle East or Africa; clashes of interest between the great powers;⁷²⁷ or some as-yet unforeseen trouble.⁷²⁸

Our concern in this chapter however is not ‘when to go to war’ as a query of the appropriateness of the military instrument in general, as this is decided by many different judgements of value. Although that is vital, we are primarily interested here with asking ‘*when to*’, when the issue of ‘*whether to*’, is effectively resolved. As Vasquez puts it, ‘Once decision-makers decide to go to war, it is in their interest to time the initiation...to their advantage if they can.’⁷²⁹ This is an issue of practical timing, rather than appropriateness of the instrument (although the two are linked); thus, ‘*when is best to go to war?*’ The answer is elementary; ‘*when “the odds” are*

⁷²⁵ C. S. Gray, *Another Bloody Century*, (London: Phoenix, 2006), 86-87; J. J. Weltman, *World Politics and the Evolution of War* (Baltimore: The Johns Hopkins University Press, 1995), 4-19; B. Brodie, *War & Politics*, 276-340; K. Waltz *Realism and International Politics* (New York; Routledge, 2008), 56–69

⁷²⁶ Gray, *Fighting Talk*, 122, 133; Weltman, *World Politics*, 11–13

⁷²⁷ R. Braithwaite, ‘Russia, Ukraine and the West’, *The RUSI Journal*, 159, 2 (2014); S. Lain, ‘The Bear and the Dragon’, *The RUSI Journal*, 16, 1 (2015), 68,69,72-74; J. Hemmings, ‘The Potential for Sino-US Discord in the South China Sea’, *The RUSI Journal*, 156, 2. (2011); G. Till, ‘China, its Navy and the South China Sea,’ *The RUSI Journal*, 141, 2, (1996), 50-51; S. Lucas et al., ‘Syria: Laying the Foundations for a Credible and Sustainable Transition’, *The RUSI Journal*, 161, 3 (2016) 22-24

⁷²⁸ Gray, *Bloody Century*, 55, 56-76

⁷²⁹ J. Vasquez ‘Was the First World War a Preventive War? Concepts, Criteria, and Evidence’ in J. Levy & J. Vasquez, (eds.) *The Outbreak of the First World War: Structure, Politics, and Decision-Making* (Cambridge: Cambridge University Press, 2014), 202

advantageous.’ By ‘odds’ we mean the balance of relative competence between belligerents across relevant strategic dimensions which determine strengths (see chapter one); an advantage in which secures an ‘upper hand’ when, *alea iacta est*, conflict begins. It is those conditions at the commencement, such as they can be judged, that provide the only advanced indication of the likely course of the conflict, toward success or failure, and so demand careful judgement. As Sun Tzu advised; ‘The one with many strategic factors in his favour wins, the one with few...loses. Observing the matter....I can see who will win and who will lose.’⁷³⁰ Similarly, Clausewitz cautioned on the acute need to consider likely conditions of the war to be undertaken and the relative strengths of belligerents in multiple dimensions as indicators of probable strength.⁷³¹

For example one belligerent may have the upper hand by stronger performance across many, or the most relevant, strategic dimensions, relative to their opponent; a large, well equipped military, a galvanised populace, a robust economy and international support for the legitimacy of their cause. This gives them stronger initial odds than an opponent lacking such factors. Conversely, a polity unsuited for war at a particular time, may seek to avoid confrontation whilst improving relative performance, to better their odds. This is not always easy or possible; it may be feasible to improve in only some important areas and this may take time, potentially years or generations, of careful investment of resources; as in the case of developing naval forces.⁷³² The ideal timing of the odds therefore may thus not be ‘now’, or even ‘soon’, if ever. The important aspect in this context is that time, a dimensions of strategy itself, should be considered in its interactions with other dimensions; it is

⁷³⁰ Sun Tzu, *Art of War* (Cleary), 42-45, 56

⁷³¹ See chapter Three; also Clausewitz, *On War* 220, 585-586, 609

⁷³² Till, *Seapower*, 120-121, 137, 140-143

the events and strategic conditions of a given moment, which makes it opportune or ideal for conflict compared to others. Whilst it is no arcane truth that it is beneficial to go to war at a suitable time, discerning that time is, as Clausewitz points out, not simple or easy;⁷³³ it is the difficult calculus of relative performance across the interacting and dynamic dimensions of strategy, assessing relative strengths and opportunities within a shifting context. What is more, varying combinations of dimensions become more relevant at different times to different actors.⁷³⁴

Some dimensional variation over time is rhythmical; societies dependent on seasonal activities placed considerable strategic significance in natural cycles of time; going to war during certain periods placed less burden on resources, and has long had implications on performance in other dimensions of war;⁷³⁵ hence historical ‘campaign seasons’. However the linear nature of time means that many lost opportunities to utilise favourable conditions may never return, and the future makes no guarantee of similar fortuity. Thus, discerning ideal time for action requires not only consideration of the odds as they are ‘now’ but also what they are *likely* to be; requiring prediction, however tentative.

Other strengths may be universally useful, but also mercurial; as an example, popular support for a conflict is often essential, particularly in modern democratic states and those employing mass-mobilisation, to provide willing recruits and sustain a popular war effort. For such polities it is necessary to choose to initiate war at a time when war is justifiable domestically and, perhaps, internationally, which adds legitimacy at home and among allies. The political will for war is somewhat

⁷³³ Clausewitz, *On War* 586

⁷³⁴ J. Levy ‘The Sources of Preventive Logic in German Decision Making in 1914’ in Levy & Vasquez (eds.), *Outbreak*, 146

⁷³⁵ Winters et al, *Battling the Elements*

dependent on the support of the populace in this fashion, at least in popular governments, though embarking upon an unpopular war may undermine political stability even in autocratic regimes.

Proactivity

Related to the idea of going to war at a beneficial time is the issue of *preventive* wars which are engaged, in theory, at favourable times when the balance of power and strategic conditions are considered (still) advantageous, rather than ‘later’ when such advantages are expected to be lost.⁷³⁶ This factor of change over time in relation to the strategic dimensions is essential to their strategic logic, and highlights an obvious form in which temporal rivalry and linearity occur in strategy: Fearful of a future condition in which the balance of power across the dimensions will likely favour a long-term rival, the ‘preventive’ party is motivated toward striking ‘now’ whilst conditions *are* still favourable. Both the case conflicts explored below can be seen as historical examples of this logic.

However, whilst considerations of timing and the balance of strategic dimensions are fundamental to preventive war, it is worth noting here that not all such decisions on timing the initiation of war stem from the preventive logic.⁷³⁷ Wars of opportunity also seek favourable moments but may not stem from concern over long-term shifts in the balance of powers, yet, the calculus of decision in timing (wage war when the odds are favourable) is essentially the same. Nor should preventive conflict be confused with the pre-emptive or ‘anticipatory’ defence, in which the defender ‘strikes first’ to seize the initiative and avoid damage or defeat from an enemy

⁷³⁶ R. W. Tucker, *The Just War: A study in Contemporary American Doctrine* (Baltimore: The Johns Hopkins Press. 1960), 142

⁷³⁷ Vasquez ‘Preventive War?’, 202

presenting an *imminent* threat.⁷³⁸ Anticipatory defensives necessarily respond to short-term awareness of enemy intent⁷³⁹ and thus lack choice in undertaking conflict as they would be attacked anyway in the near-term. Their only choice is whether to initiate with the first blow and avoid or minimize injury by gaining the initiative. By contrast, preventive war is a policy that employs long-term intelligence assessment and prediction of far-reaching strategic trends, and allows for decision making over years or even decades which in theory provides a period of choice in whether to go to war,⁷⁴⁰ as well as more obviously *when*. As such, preventive actions, and pre-emption, encounter qualms of legitimacy in the contemporary international order where conflict, especially its initiation, is taboo.⁷⁴¹

Nevertheless, preventive conflict may be no less appealing, or even defensive, an option when a serious threat seems to grow; particularly when measured against the risks of inaction.⁷⁴² It may even be considered a responsible course, averting some likely future menace. The development of the ‘Bush Doctrine’ following the 2001 Al-Qaeda attacks on the United States is a notable recent example of this logic. The doctrine blended preventive and pre-emptive war in response to a belief that would-be foes could now more quickly launch surprise attacks on the US.⁷⁴³ In effect, this contracted the length of time ‘rendering the difference between pre-emption and

⁷³⁸ Tucker, *Just War*, 142

⁷³⁹ R. Kumar, ‘Iraq War 2003 and the Issue of Pre-emptive and Preventive Self-defence: Implications for the United Nations’ *India Quarterly*, 70, 2 (2014), 125

⁷⁴⁰ Council on Foreign Relations, *The Bush Administration's Doctrine of Pre-emption (and Prevention): When, How, Where?* (February 2004), Available online: <http://www.cfr.org/world/bush-administrations-doctrine-preemption-prevention-/p6799> (Accessed 29/7/2016)

⁷⁴¹ Tucker, *Just War*, 98–119, 144; United Nations, Articles 2, 50, 51, Charter of the United Nations 1 UNTS XVI (San Francisco 1945), 3 & 10

⁷⁴² Council on Foreign Relations, *The Bush Administration's Doctrine*; R. Delahunty & J. Yoo, ‘The ‘Bush Doctrine’: Can Preventive War Be Justified?’ *Harvard Journal of Law & Public Policy*, 32, 3 (Summer 2009), 844; Tucker, *Just War*, 106

⁷⁴³ R. K. Betts, ‘Striking First: A History of Thankfully Lost Opportunities’, *Ethics & International Affairs*, 17, 1 (2003), 19–21

prevention moot.’⁷⁴⁴ The 2003 invasion of Iraq was, ostensibly in part, undertaken within this proactive logic.⁷⁴⁵

Regardless, both pre-emption and prevention have the same aim of avoiding a worse situation in the future through proactivity, before a threat fully materialises. The benefits are somewhat obvious; fighting whilst one has a general preponderance relative to the enemy, or at least some opportunity, is better than fighting at another time. One may even garner the benefits of a measure of strategic material surprise; finding the enemy unprepared and so minimizing risk and uncertainty.⁷⁴⁶ The efficacy of this is obviously not a new insight, evidenced by the first case in this chapter; likewise the opening quote from Sun Tzu, which comes from an extract in which the master advises striking ‘early’ whilst the enemy still plans,⁷⁴⁷ often interpreted as a proactive measure;⁷⁴⁸ his commentator Du You compares it to an ancient axiom - ‘those who are good at getting rid of trouble are those who take care of it before it arises; those who are good at overcoming opponents are those who win before there is form.’⁷⁴⁹ Jomini likewise advocated the proper use of war at a proper time, to check the development of possible future trouble.⁷⁵⁰ There is little technically different here in terms of time and proactivity, to President Bush’s 2002 declaration that the US ‘must take the battle to the enemy, disrupt his plans, and confront the worst threats before they emerge.’⁷⁵¹

⁷⁴⁴ Council on Foreign Relations, *The Bush Administration's Doctrine*

⁷⁴⁵ ‘The Iraq Inquiry’, *The Report of the Iraq Inquiry* Vol. 6 (Cabinet Office. 2016), 579

⁷⁴⁶ Angstrom & Widen *Contemporary Military Theory*, 53

⁷⁴⁷ Sun Tzu, *Art of War* (Cleary), 73

⁷⁴⁸ Both Cleary and Griffith give this phrase in the context of the benefits of proactivity: see Sun Tzu, *Art of War* (Cleary), 71; Sun Tzu, *Art of War* (Griffith), 77

⁷⁴⁹ Du You cited in Sun Tzu, *Art of War* (Cleary), 71

⁷⁵⁰ Jomini, *Art of War*, 12-15

⁷⁵¹ G. W. Bush, *Graduation Speech at West Point* (speech, United States Military Academy, NY, 1/6/2002) Available online: <https://georgewbush-whitehouse.archives.gov/news/releases/2002/06/20020601-3.html>

This brief discussion of proactive, preventive conflict merely highlights that the balance of power across the dimensions, which may change over time does not just indicate the most advantageous moment for embarking upon conflict, but can fuel the motivation for it. In both circumstances, of preventive and non-preventive conflicts, the classical theory advises to act (if and where necessary) by striking when one has an advantage. We now examine the importance of this in practice with reference to two quite different conflicts; The Peloponnesian War of 431-404 BC, and The First World War of 1914-1918 AD. There is some discussion to be had on the extent to which either case is a preventive conflict, but we can identify in each case the logic of prevention as the most obvious discussion of ‘when to go to war’ and find that great gulf of time between them highlights the enduring importance of time’s interaction with the other strategic dimensions when considering employing the military instrument.

The Peloponnesian War

The first case in this discussion on the role of time in conflict-initiation focuses on the decision-making of the Spartan city-state in the years preceding the Peloponnesian War (431 – 404 BC). Specifically we examine how the Spartans perceived the rise of Athenian power as an imminent threat, leading to a policy of preventive war. To this end we may carefully employ Thucydides’ (circa 460 – 405 BC)⁷⁵² *History of the Peloponnesian War*, and commentaries:⁷⁵³ Thucydides explores the context of preceding events, motivations and conduct of the conflict, as well as what he termed ‘the Truest Cause’ - his motivating triad of *Fear*, *Honour* and *Interest*, under the pressures of strategic change over time, and how this influenced

⁷⁵² G. Cawkwell, *Thucydides and the Peloponnesian War* (London: Routledge. 1997), 1

⁷⁵³ R. D. Luginbill, *Thucydides on War and National Character* (2nd edition (Boulder: Westview Press, 2015), 20 – 21, 28 ; D. Kagan, *Thucydides; The Reinvention of History*, (New York; Penguin Group, 2009), 234; Gray, *Fighting Talk*, 60; Gray, *Modern Strategy*, 81; Freedman, *Strategy*, 30–32

Sparta, Athens, and their allies on the matters of why, and when, to go to war. It must be noted that, apart from the comments of satirist like Aristophanes,⁷⁵⁴ no primary historical accounts, save Thucydides', exists for many of the events during and preceding the war.⁷⁵⁵ This can make *History* difficult to corroborate as a source and we must be wary of its biases, discrepancies, omissions and contradictions.⁷⁵⁶

Nevertheless, Thucydides' position places him well as a source, but his subjectivity must also be considered: Thucydides was a high-ranking Athenian, with opportunity to attend debates in the *agora* and possessed access to documents and connections throughout Greece to aid his inquiries.⁷⁵⁷ As a commander in Thrace during the war he fought until being exiled for a defeat in battle, where-after he was free for the next twenty years of the war, to travel, network, and cultivate a detached position.⁷⁵⁸ His account was well regarded among contemporaries and is still esteemed above other early historians for its careful historical methodology, passion for truth, and empirical reasoning; a product of the Athenian enlightenment.⁷⁵⁹ Unlike Herodotus, Thucydides placed little stock in oracles or divine causation of events,⁷⁶⁰ and focused on human psychology and power as motivators of history, what today we may call 'realist' approaches to international relations.⁷⁶¹ Nor did Thucydides

⁷⁵⁴ V. Kotini, 'Aristophanes' Response to the Peloponnesian War and the Defeat of the Comic Hero' *Alif: Journal of Comparative Poetics* No. 30 (2010), 134-149

⁷⁵⁵ Gray, *Fighting Talk*, 59

⁷⁵⁶ Cawkwell, *Thucydides*, 2, 11-16

⁷⁵⁷ Kagan, *Thucydides*, 7, 225; Cawkwell, *Thucydides*, 8

⁷⁵⁸ Cawkwell, *Thucydides*, 9

⁷⁵⁹ Kagan, *Thucydides*, 7-9, 223-225, 228-229; Freedman, *Strategy*, 30; Weltman, *World Politics*, 1; Cawkwell, *Thucydides*, 8-10

⁷⁶⁰ Herodotus, *The Histories*, revised edition. Translated from Greek by A. de Sélincourt (London: Penguin, 1972), 74, 344, 479, 495, 507, 568; Freedman, *Strategy*, 30; Thucydides, *History of the Peloponnesian War*. Translated from Greek by R. Warner (London: Penguin 1972), 46-49; Kagan, *Thucydides*, 14, 227-229

⁷⁶¹ Freedman, *Strategy*, 31-32

‘merely’ record events but, like Clausewitz,⁷⁶² he inquired into fundamental and universal lessons of strategic cause and effect that transcended time and place.⁷⁶³

Also like Clausewitz, Thucydides did not complete his work, and it ends seven years prior to Spartan victory. The conclusion and aftermath are covered in *Hellenica* by Xenophon who apparently felt little need to correct *History*.⁷⁶⁴ Additionally, Herodotus provides corroborating accounts of the earlier events following Mycale.⁷⁶⁵

Rise of an Empire

In 479 BC the Hellenic allies halted the westward expansion of the Achaemenid Empire at the battles of Platea and Mykale,⁷⁶⁶ a turning point which induced a retraction of the empire, thereby easing the chief external threat to the Greek world. The nucleus of the alliance was a league of Sparta and her allies and dependents around the Peloponnesus, formed in the 6th Century BC.⁷⁶⁷ However, as the Greek counter-attack advanced to Byzantium and the Hellespont, the allies came to reject Spartan leadership, and the Spartans, becoming weary of conflict, reduced their role in the campaign. This conferred upon Athens (not part of the Spartan league) leadership of the Hellenic crusade, as it pushed into the Aegean and Asia Minor, evicting the Achaemenids from Hellenic states there, bringing them under Athenian influence. Led by Athens these states were incorporated at Delos into the ‘Delian

⁷⁶² Both men were learned, aristocratic officers who came of age on the eve of terrible conflicts which defined their lives as practitioners, writers and philosophers of war; likewise both did so towards the end of Enlightenment periods. Both were effectively exiled from their homes and dedicated their energies to explaining events they had witnessed, in many cases first hand, through philosophical reflections and history.

⁷⁶³ V.D. Hanson, *A War Like No Other; How the Athenians and Spartans Fought the Peloponnesian War* (New York: Random House, 2005), 7-8; Luginbill, *Thucydides on War*, 10, 16- 17, 19 ; Thucydides, *History*, 45- 48

⁷⁶⁴ Kagan, *Thucydides*, 5

⁷⁶⁵ Herodotus, *Histories*, 589 - 603

⁷⁶⁶ Herodotus, *Histories*, 582, 588, 590, 593, 597

⁷⁶⁷ D. Kagan, *The Peloponnesian War* (London: Harper Perennial, 2003), 3, 5-7

League’, which came to greatly favour Athens as the Achaemenid Wars wound down:⁷⁶⁸ as it was easier for dependent members to provide money rather than ships, Athens could use contributions to expand her own navy, increasing her trade and power throughout the Aegean. She rapidly became wealthy and mighty, establishing quasi-autonomous allies and dependent vassals in a de-facto Athenian Empire built around Athenian seapower which came to rival Sparta’s League (See fig. 18)⁷⁶⁹



Figure 18: Map of Hellas 432 BC⁷⁷⁰

The ascendancy of Athens and her effectiveness against the Achemenids caused concern among the Peloponnesians, and Sparta despatched envoys to oppose the rebuilding of Athens’ defensive walls towards the end of the war; ostensibly so that the Achaemenids would be denied a fortress should they return, but in reality a

⁷⁶⁸ Herodotus, *Histories*, 539, 595–599, 600–603; Thucydides, *History* 87, 91–92; Kagan, *The Peloponnesian War*, 8–12

⁷⁶⁹ Thucydides, *History*, 93; Hanson, *A War Like No Other* 11–14; Bagnall, *The Peloponnesian War; Athens, Sparta and the Struggle for Greece* (London, Pimlico. 2004) 113, 117

⁷⁷⁰ Based on open-source cartography

likely attempt to keep Athens vulnerable to Sparta's large army. The Athenians detained Spartan observers and delayed their response, buying time until their walls were sufficiently robust before declaring that they were capable of determining their own defence. The Spartans did not formally contest the issue, regarding the Athenians as respectable allies in the main, though some became 'aggrieved.'⁷⁷¹ Again in 475 BC a nascent anti-Athenian faction forming among the Spartan ephors (magistrates) argued for destruction of Athens's Delian League and taking control of the seas from Athens, but no action was taken:⁷⁷² Athens was still a Spartan ally, if not a Peloponnesian League member, and the war with the Achaemenids continued in the east. The Spartans were also as acutely wary of war's inherent risks as they were famously fatalistic, and veered away from conflict unless absolutely necessary,⁷⁷³ which it was evidently not deemed in 475.

Nevertheless, Spartan concerns grew as Athens' flourished and the Delian League became an Athenian Empire by consolidating and establishing colonies.⁷⁷⁴ This also startled Delian members and led to disputes with Athens' demands for contributions to the collective treasury, with subsequent rebellions by Naxos, Thasos and others in the 470s and 60s.⁷⁷⁵ Indicating their growing concern, the Spartans secretly pledged to support the Thassians in 465 by invading Attica. However, the Spartans could not act upon their intent due to an earthquake in the Peloponnese and a subsequent revolt of the slave caste of Helots upon which Spartan society depended; a far-more pressing concern. Sparta called upon her war-time allies for assistance, and Athens,

⁷⁷¹ Thucydides, *History*, 88-92; Bagnall, *The Peloponnesian War*, 113

⁷⁷² Kagan, *Peloponnesian War*, 13-14

⁷⁷³ Luginbill, *Thucydides*, 181-187

⁷⁷⁴ J.F. Lazenby *The Peloponnesian War; A military Study* (London, Routledge 2004), 16-21

⁷⁷⁵ N. Bagnall, *The Peloponnesian War, Athens, Sparta and the Struggle for Greece* (London, Pimlico. 2004)113, 117-119

having suppressed Thasos, provided troops to assist Sparta. Fearful of the potential political influence a large, democratic Athenian army could have in the oligarchic, conservative Peloponnesus, Sparta dismissed the Athenians; after all, what if Athens chose to support the *Helots*, or ‘liberate’ the Peloponnese, as it had the Aegean?⁷⁷⁶ The dismissal insulted Athens, terminally undermining Athenian-Spartan relations and encouraging Athens to leave the war-time alliance in favour of Sparta’s rival, Argos.⁷⁷⁷

Following this, circa 461, Megara, a small town in Northern Attica, sought to defect from the Peloponnesian League and gain Athenian support for their conflict with neighbouring Corinth (a member of the League).⁷⁷⁸ The Athenians assented; Megara commanded strategically useful mountain passes between Attica and the Isthmus of Corinth as well as access to the Corinthian and Saronic Gulfs; in Athenian hands this would secure Attica from attack, but could be dangerous under enemy control. The alliance sparked conflict with Corinth, who enlisted her ally Sparta to her aid.⁷⁷⁹ This ‘First’ Peloponnesian War lasted fifteen exhausting years, until 446 when Megara betrayed Athens, allowing Spartan forces to enter Attica. Despite probable victory however, the Spartan army did not engage in battle and instead returned home apparently content with terms offered by the Athenians. Nor did they return to Attica later, ostensibly relinquishing opportunity to deliver the curbing of Athens still desired by the Anti-Athenian ephors: The majority of Spartans were still not sufficiently concerned about the rise of Athens to continue war to the destruction of

⁷⁷⁶ Thucydides, *History*, 93-95, 102-103; Hanson, *A War Like No Other*, 13-14, 19, 23-24; N. Bagnall, *The Peloponnesian War*, 118

⁷⁷⁷ Kagan, *Thucydides*, 42-43;

⁷⁷⁸ Bagnall, *The Peloponnesian War*, 10

⁷⁷⁹ Kagan, *Thucydides* 43-44

the Delian League.⁷⁸⁰ In light of this the Spartan commanders likely recognised that, with Athens already conciliatory and Megara regained (allowing access to Attica)⁷⁸¹, the high costs of battle against Athens would not yield sufficient additional strategic gains.⁷⁸² For their failure to conclude the campaign decisively, they were, however, later punished. Nevertheless, a compromise, the ‘Thirty Years Peace’, concluded months later, on terms likely similar to those offered by the Athenians: Athens relinquished claims to already-lost possessions on mainland Hellas, but gained de-facto recognition for her imperial status, dividing the Hellenic world into two spheres of influence- Athens in the Aegean and Sparta upon the mainland.⁷⁸³

Towards War

If the Spartans were content with the terms of the Peace, subsequent events underscored the maturing strength of Athens and encouraged the Spartans toward a preventive rationale: By recognising the bipolarity of Hellas and Athens’ stature, the concessional Peace effectively gave Athens time, and licence, to consolidate her empire.⁷⁸⁴ This proved a point of contention within the League in 439, when Samos, a substantial sea-power and Delian state, sought to rebel against Athenian’ rule, with Persian support. In turn this triggered rebellion in Byzantium and a move towards defection in Lesbos yet, without Peloponnesian support, Athens would surely quell the renegades. Despite terms of the Peace which allowed Sparta and Athens to police their respective spheres, the Spartans proposed the motion of attacking Athens. This required the Corinthian fleet, as war with Athens could likely contain a maritime

⁷⁸⁰ Cawkwell, *Thucydides*, 23

⁷⁸¹ Lazenby *The Peloponnesian War*, 19

⁷⁸² D. Kagan, *The Outbreak of the Peloponnesian War* (New York: Cornell University Press, 1969), 125-126

⁷⁸³ Kagan, *Outbreak*, 12; Thucydides, *History*, 101, 137 ; Kagan, *Thucydides*, 45-46

⁷⁸⁴ Cawkwell, *Thucydides*, 23; Kagan, *Outbreak*, 126-127

component; however the Corinthians, adhering to the Peace, voted against and the Peloponnesians ultimately refrained.⁷⁸⁵ Athens duly defeated Samos and added the powerful Samian fleet to her own, enhancing Athenian power to the point where only Sparta could challenge her.⁷⁸⁶

In 435, war erupted between Corinth and Corcyra (a Corinthian island-colony but unaligned) over competing interests in Epidamnus. The Corcyraeans possessed the second-largest fleet in Hellas behind Athens⁷⁸⁷ and were victorious in 433, becoming masters of the Ionian Sea, forcing a stalemate. However Corinth prepared to counterattack by renovating their fleet and enlisting junior allies, including Megara, prompting Corcyra to seek Athenian help. Arguing that a war between Athens and Sparta was inevitable, they pledged to support Athens in future conflict, and indeed could offer much; Corcyra commands the northern Ionian and the route to Italy, and flanks the Peloponnese, whilst a combined Athenian-Corcyrean fleet would be nigh-invincible. Athens assented to alliance, both to gain these advantages and deny them to the Peloponnesians; if Corinth captured the Corcyrean fleet she would pose a serious threat to Athenian sea-power.⁷⁸⁸ Although not at war, Athenian ships were involved with the Battle of Sybota which was ended by the arrival of an Athenian fleet, deterring a Corinthian landing on Corcyra and establishing a stand-off.⁷⁸⁹ Corinth, unable to challenge Athens and Corcyra alone, appealed to Sparta for aid.⁷⁹⁰

⁷⁸⁵ Cawkwell, *Thucydides*, 37; Kagan, *Peloponnesian War*, 23-24

⁷⁸⁶ Cawkwell, *Thucydides*, 23

⁷⁸⁷ Lazenby *The Peloponnesian War*, 17

⁷⁸⁸ Bagnall, N. *The Peloponnesian War*, 125

⁷⁸⁹ Thucydides, *History*, 49- 55, 62, 67 ; Cawkwell, *Thucydides*, 21 – 22; Bagnall, N. *The Peloponnesian War*, 124-126

⁷⁹⁰ Kagan, *Peloponnesian War*, 36

Tensions rose further when Athens, cautious of another war with the Peloponnesians, ordered Potidaea (A Delian affiliate but a Corinthian colony) to pull down her walls and provide hostages. The Potidaeans rebelled and appealed to Corinth and Sparta for help, which was secretly promised by the Spartan ephors in the event of Athenian attack.⁷⁹¹ However, when Athens besieged Potidaea in 432, the Spartans did not move; the pledge had not been authorised by the king or assembly. In the same year, Athens also decreed a trade embargo on Megara, ostensibly over encroachments to her borders and the harbouring of escaped slaves, but likely to dissuade Megara and others from joining Corinth in the developing crises and forcing Sparta's hand against Athens.⁷⁹²

The Truest Cause

With so many grievances with Athens the Spartan allies, led by Corinth, addressed the Spartan assembly in July 432, demanding a reckoning. The Corinthians argued that Sparta had neglected her allies and allowed Athens to become powerful, disruptive and predatory upon them. They warned that if Spartan inaction continued, Athens would become even stronger, undermining and splintering the League,⁷⁹³ with members aligning with Athens or Argos; at the very least, the implication was that Corinth may gain control of the League. The anti-Athenian ephors took a similar view and demanded Sparta support Corinth, disregard arbitration, and prevent Athens growing mightier yet. Doubtlessly they felt confident in victory based on the previous war, when Spartans had entered Attica and the Athenians had quickly offered terms; the Peloponnesian army was still a peerless force and, with Boeotian

⁷⁹¹ Thucydides, *History*, 69–69; Lazenby *The Peloponnesian War*, 25

⁷⁹² Kagan, *Peloponnesian War*, 39 – 40, 54; Bagnall, N. *The Peloponnesian War* 124-126

⁷⁹³ Bagnall, N. *The Peloponnesian War* 128

allies, thrice the size of Athens'.⁷⁹⁴ However, not all Spartans were so sanguine. King Archidamus recognised that more time (2-3 years) would be needed to prepare for war, for Athens had become powerful, incredibly wealthy, and would be resilient to traditional Hellenic land-warfare methods;⁷⁹⁵ the Athenians could take a 'new strategic direction', by withdrawing behind their walls and drawing upon their empire's sea-trade and financial resources, so that even invading Attica would accomplish little.⁷⁹⁶ To win, the Spartans would instead need to 'delay' war, furnishing the necessary time with which to acquire ships, finances and allies; by which time, he hoped, Athens may be more pliable anyway and war could be avoided.⁷⁹⁷

Whilst their influence can be questioned, the Corinthians had nevertheless accurately explained the underlying concerns that would influence the eventual Spartan shift from their previous caution and embarking upon conflict – what Thucydides termed 'The Truest Cause' of the war: Whereas both Sparta and Athens now individually eclipsed any other power in Hellas, Athens' trajectory had been steeper and more noticeable, especially with coups like gaining the Samian fleet and the budding alliance with Corcyra, it showed little sign of plateauing in 432. At such a rate, and licenced by Spartan inactivity, Athens would become an unsurmountable menace to the League. Upon the League rested the foundations of Spartan security in the Peloponnesus and the oligarchic, slave-based martial-society it protected, as well as

⁷⁹⁴ Kagan, *Peloponnesian War*, 39–40, 42–44, 59; Hanson, *A War Like No Other*, 22; Thucydides, *History*, 75–77, 86

⁷⁹⁵ The Hellenes traditionally fought with two lines, 'phalanxes' of massed heavy infantry – Hoplites. If an army was defeated, the countryside of its polity was open to plundering and submission quickly followed. Hanson, *A War Like No Other*, 24

⁷⁹⁶ Bagnall, *The Peloponnesian War*, 113

⁷⁹⁷ Hanson, *A War Like No Other*, 22–29; Thucydides, *History*, 83 – 85; Cawkwell, *Thucydides*, 37; see also Lazenby *The Peloponnesian War* 2–4, 31

Spartan honour; the society's self-perception as a hegemon and Sparta's credibility as an ally.⁷⁹⁸ Thus the Spartans determined that Athens had violated the Peace (providing them with legal justification), effectively voting for war, followed by a similar motion of the League in August.⁷⁹⁹

Athens lies approximately 170 miles overland from Sparta, through mountainous terrain; this would allow a Peloponnesian army to arrive in Attica, via Megara, within two weeks at most.⁸⁰⁰ Yet the Spartans did not immediately invade, effectively stalling the initiation of the war, and instead issued a series of ultimatums over several months, which demanded Athens repeal the 'Megarian Decree.' When these failed and Athens insisted on arbitration (as per the terms of the Peace) Sparta issued a final ultimatum, in effect demanding dissolution of the Athenian Empire,⁸⁰¹ revealing their true motivation; the termination of the Athenian threat.

Although some Athenians sought appeasement, the statesman Pericles galvanised them to defiance. Athens could not afford to supplicate herself to Spartan constraints upon her independence and empire, the sources of her wealth, strength, and security.⁸⁰² This would make Athens vulnerable in what many considered to be an approaching almost *inevitable* war with the Peloponnesians.⁸⁰³ If the Athenians acquiesced now, Pericles claimed, Sparta would see this as weakness and make ever-

⁷⁹⁸ Thucydides, *History*, 87; Kagan, *Peloponnesian War*, 46; See also a robust defence of Thucydides' explanation by Lazenby, Lazenby *The Peloponnesian War* 16, 21-30

⁷⁹⁹ Kagan, *Peloponnesian War*, 42- 46; Thucydides, *History*, 74-77, 83-84; Cawkwell, *Thucydides*, 23

⁸⁰⁰ J. Ober, cited in V. Hanson, *Hoplites: The Classical Greek Battle Experience* (New York: Routledge, 1993) 173-191 and J. P. Holoka, 'Marathon and the Myth of the Same Day March' *Greek, Roman and Byzantine Studies*, 38, 4 (Winter 1997), 344-345

⁸⁰¹ Kagan, *Thucydides*, 69- 71; see also Hanson, *A War Like No Other*, 12-14; Lazenby *The Peloponnesian War*, 27- 29

⁸⁰² Luginbill, *Thucydides*, 168-173, 363

⁸⁰³ *Ibid.* 364-366

greater demands, treating Athens like a vassal and ruin her. If Athens stood firm, Sparta would have to either deal with Athens as the equal she was, accept arbitration, and cease interference in Athenian policy; or there would be war, which Pericles understandably had the confidence to risk, given Athenian power.⁸⁰⁴ Contrary to Archidamus' arguments of what war would entail, the Spartans reverted to type; as Hanson puts it 'when in doubt "invade Attica."'⁸⁰⁵ However, they only did this after the Boeotians had made their own incursions into Athenian territory in March 431 BC, but as the King had predicted, the invasion was of limited value: Athens' power and resilience behind the Long Walls meant war would be long, bitter and exhausting, ultimately only ending in 404 BC when Sparta was able to sever Athens' connection to her Empire by naval blockade using ships funded by Persian loans, (the Spartan war-chest being quickly exhausted early in the war.) More than Sparta's own efforts perhaps, acute errors by Athens, (including a catastrophic expedition to Sicily in 415 BC) did more to produce final Spartan victory, which left both exhausted and the Delian league destroyed.⁸⁰⁶

Time: Initiating the Peloponnesian War

As discussed in the introduction, the optimum time to initiate war is when sufficient relative advantages in relevant strategic dimensions make victory most likely and easiest. For the Spartans this factored into their motivation for war; their decline in power relative to Athens' ascendancy engendered their principle fears. As the Corinthians described, further decline coupled with inaction would weaken the Peloponnesian alliances securing Sparta's position, security and domestic order.

⁸⁰⁴ Thucydides, *History*, 119-121; also Lazenby *The Peloponnesian War*, 29

⁸⁰⁵ Hanson, *A War Like No Other*, 25

⁸⁰⁶ Hanson, *A War Like No Other*, 310-312; Bagnall, *The Peloponnesian War* 306-309

⁸⁰⁷Compelled by Thucydides' ever-present ternion of *Fear*, *Honour* and *Interest*, the Spartans eventually overcame their deep-rooted caution and strategic inertia, and resolved to go to war; as such the conflict presents an archetypal illustration of preventive logic in strategic decision-making, as well as the competing pressures within that matrix.

432 BC was not necessarily the optimal time for Sparta to engage their democratic rival in war. Despite arguments from anti-Athenian ephors since the end of the Achaemenid War, unheeded until the crises approaching 432 BC, Sparta did not seize several opportunities to curtail Athens. Had Sparta dismantled the Delian League before it concentrated into the Athenian Empire, or decisively dealt with Athens in the First Peloponnesian War rather than accepting peace, the Spartans may have been able to restrict the rise of Athens and proactively neutralise the threat present in 432 BC. Yet it is difficult to say with any certainty, and all too easy to speculate in hindsight, whether war could have been avoided or Spartan victory more easily acquired, had they acted with such forethought.

The operative question for the Spartans by 432 BC was therefore; how many additional years could be tolerated before Athens became too strong to contest militarily? In general that time had already passed; Athens had invested her time and efforts wisely, surpassing Sparta in many respects by acquiring allies like Corcyra, greatly expanding her fleet, and building defences. Conversely, Sparta had failed to spend her time preparing for the likely conditions of war with Athens, and had been complacently content with her armies and older methods of warfare. That time could not be regained, but its maluses could perhaps be moderated by delay to gain time to

⁸⁰⁷ Hanson, *A War Like No Other*, 14-17

employ in developing the necessary strengths to defeat Athens: As Achidamus had argued, and would ultimately be proven somewhat correct decades later, Sparta would need to build and fund a fleet to win the war. However it is questionable as to whether Sparta should, or could, have ignored the situation developing in 432 BC; failure to act could see Corinth humiliated or defeated, or become emboldened to usurp or desert the League, potentially leaving Sparta without her powerful maritime ally. Furthermore, it is difficult to say whether Sparta could adequately narrow the gap in relevant dimensions (acquiring ships, crews and funds) within the three years that Achidamus suggested; meanwhile, Athens could only profit from further delay, by consolidating the Corcyrean alliance and increasing revenue.

Whether conflict was all-but inevitable (as many Hellenes came to believe, a not-uncommon view into our own times)⁸⁰⁸ is a secondary consideration. ‘Fears do not have to be exact to be compelling’.⁸⁰⁹ The Spartans were sufficiently fearful of ‘tomorrow’s Athens’ and the risks it proffered to be compelled to overcome their characteristic caution of war’s uncertainties, to accept the lesser risk of war with ‘today’s Athens’ whilst the balance of power still appeared reasonably favourable. It was clear that a reckoning could no-longer be postponed; Sparta was ‘running out’ of time as opportunity faded.

In choosing war the Spartans evaluated their strengths as optimal in the short-term: Sparta’s strength lay in the vast, professional Spartan army (supplemented by Boeotia), whilst Corinth supplied a competent naval force. With Megara an ally the Peloponnesians also had open and swift access to Attica, unlike the beginning of the previous war. Nevertheless the Spartans still delayed invasion, arriving in Attica too

⁸⁰⁸ E.g. Bagnall, *The Peloponnesian War*, 124

⁸⁰⁹ Cawkwell, *Thucydides*, 25

late to disrupt the harvest and giving the Athenians time to gather citizens and provisions behind their walls: The Spartans thus lost at least some initial opportunity to impair Athens' war-effort. Even so, since the last war the 'Long Walls of Athens' connected the city to the port of Pireaus, allowing Athens to endure a siege indefinitely, provided the navy protected the lines of communication across the empire.⁸¹⁰ As the Spartans were incapable of effectively besieging Athens, their previous reluctance to curb her by preventing completion of the walls (as the ephors had advocated), or destroying the Long Walls in their previous conflict, proved to be an error which aided Athens'. These opportunities, once passed, could not be easily regained.

Despite lost opportunities, delays, and unpreparedness the Spartans nevertheless won the second Peloponnesian War, compensating for their irretrievable errors in time and preparedness through great expense of blood and treasure (assisted by poor Athenian wartime decisions) in a war lasting nearly 30 years: The starting conditions of a conflict may indicate likely outcomes, but war is uncertain business and only the contest itself can ultimately decide the result.

As a resource,⁸¹¹ time may be invested well or squandered; The Spartans may have regretted, as the Corinthians admonished, their failure to wisely spend the decades following the Achaemenid Wars to retain their position within the balance of power by being more proactive in their dealing with Athens. By contrast, Athens had been dynamic and ambitious, investing time into a splendid maritime empire that, like the city it supported, was quite shielded from traditional Spartan power; whereas Sparta had failed to prepare fleets and finances to deal with these developments. Confident

⁸¹⁰ Hanson, *A War Like No Other*, 26-27

⁸¹¹ See Chapter 2

in their land-power, yet ever-cautious of the uncertainties of war, the Spartans had failed either to fully recognise their relative decline or to seize opportunities to curb Athens until very late, and paid dearly for it, almost losing the war; it is quite possible that the crises leading into 432 was the final opportunity of a reasonable chance of Spartan victory. Time's linearity ensured the Spartans could not regain lost opportunities and, having failed to act at optimal moments of their relative strength, were subsequently presented with dwindling opportunities to secure an amicable version of the future by preventive war. Eventually motivated by their fears and buoyed by misapprehension of the likely character of war, the hawkish ephors embarked upon precipitant conflict without adequate naval forces, funds, or allies, and denied themselves more time to gain them with relative ease. Without accurate knowledge of the future beyond the cataract, the Spartans could not know what their strategic future held and only had the evidence of their past and present to determine that Athens would prove ascendant whilst they declined. This uncertainty, leading to comprehensible fear, drove them to preventive war whilst conditions were still favourable.

The Great War

The second case-study in this chapter considers perceptions of time in German strategic decision-making prior to the Great War of 1914-1918. Sometimes perceived as a historical aberration, the war is in truth little different to other great-power conflicts, arising from the triune of motivations of Fear, *Honour* and *Interest* in ways which would be familiar to Thucydides; concerns of power and decline over time, fears and ambitions, as well as the intent to fight a seemingly inevitable conflict whilst favourable terms were still present. Here we discuss the extent to

which German leadership was influenced by time's interaction with multiple strategic dimensions during the period before the war, and examine whether Germany could, or should, have instigated a preventive war at other times of greater opportunity.

Germany

The main elements of change which define this strategic context lie, like the Peloponnesian War, in the fortunes of empires: Since the 1815 defeat of Napoleon relative peace and limited conflict was regulated by the informal 'Concert System' of balancing coalitions and deterrence.⁸¹² However, as this system and the taboo of great-power conflict (with attendant fears of domestic revolution) waned through the mid-century, war again became a possible practical policy.⁸¹³ Under the astute Chancellor Otto von Bismarck, Prussia exploited the shift to revise the Concert System; initially by establishing dominance throughout Germany in the early-1860s, through novel methods of military organisation and technologies such as rifles and railways.⁸¹⁴ With decisive campaigns against Denmark (1864), Austria (1866) and France (1870-1), Prussia was unobstructed in unifying Germany in 1871.⁸¹⁵ This meteoric rise of Germany, its revisionist impact on European power and its location (between rivals France, Austria and the Russian Empire) raised the prospect of further conflict once more, despite Bismarck's emphasis on diplomacy via

⁸¹² M. Rendall, 'Defensive Realism and the Concert of Europe', *Review of International Studies*, 32, 3 (2006), 531-534, 538-540 ; Weltman, *World Politics*, 47-8; B. L. Slantchev, 'Territory and Commitment: The Concert of Europe as Self-Enforcing Equilibrium'. *Security Studies*, 14, 4. (2005), 567 – 569, 596

⁸¹³ P. Kennedy, *The Rise and Fall of The Great Powers* (London: Fontana Press, 1989), 214–227, 234–235; H. Strachan, *European Armies*, 72

⁸¹⁴ Kennedy, *Great Powers*, 236; Strachan, *European Armies*, 98-103, 112-136

⁸¹⁵ Weltman, *World Politics*, 68–70; G. Sheffield, *Forgotten Victory: The First World War: Myths and Realities*, 2nd edition. (London: Review – Headline, 2002), 58

declarations of friendship with Russia and Austria-Hungary in 1873, and later alliances with Austria-Hungary (1879) and Italy (1882).⁸¹⁶

Nevertheless *preventive war*, a ‘tradition’ in Prussian-German strategic thought since Frederick the Great,⁸¹⁷ was repeatedly considered: In 1875 a resurgent and potentially vengeful France caused elements of the German General Staff to advocate such action, and Bismarck was content to use the *threat* of preventive war. However the chancellor and Kaiser Wilhelm I ultimately considered it unnecessary and risky, potentially drawing Britain and Russia into coalition with France.⁸¹⁸ By the latter 1880s, further bouts of French nationalist and *revanchist* sentiment, alongside a build-up of military capability and continued border tensions, again provoked concerns of imminent French attack. France alone was not a great problem, but with its strengthening relationship with Russia⁸¹⁹ and alongside rising Slavic nationalism and improving Russian military capability, there appeared on the horizon an apparent long-term serious threat to Germany and her Austrian ally. A faction of political and military figures, including Generals Moltke (the Elder) and Waldersee, renewed calls for preventive war; against France in 1886/7, and Russia in 1887/8. Those powers, they maintained, would surely attack and divide Germany the moment they were strong enough to do so, thus Germany must strike whilst she possessed short-term military advantages. Again however, Bismarck and Wilhelm I,

⁸¹⁶ G. Martel, *The Origins of the First World War*, 3rd edition (Harlow: Pearson Education Ltd., 2003), 10–12, 14–16

⁸¹⁷ W. Mulligan ‘Restraints on Preventive War Before 1914’, in Levy & Vasquez (eds.), *Outbreak*, 130; W. Mulligan *The Origins of the First World War*, 2nd Edition. (Cambridge: Cambridge University Press. 2017), 125

⁸¹⁸ Mulligan ‘Restraints’ 120–123;

⁸¹⁹ The Alliance with Russia quickly became a cornerstone of French strategy; see J. Levy ‘Preferences Constraints, and Choices’ in July 1914 in S. Miller et. al. (eds.) *Military Strategy and the Origins of the First World War* (Revised Edition. Princeton: Princeton University Press. 1991), 233–234 and J. Joll *The Origins of the First World War* (Harlow, Longman Group Limited. 1984) 99–103

cautious of the uncertainties of conflict and opposed to preventive action, avoided war.⁸²⁰

Under Wilhelm II (Cr. 1888) a more aggressively aspirational ‘New Course’ of German foreign policy of ‘*Weltpolitik*’ was pursued to establish Germany a *global* power befitting her growing strength.⁸²¹ By 1900, massive industrial growth, an expanding population, and technological advancement established Germany as the strongest economy in Europe, and militarily mightier than France and Austria, even consciously rivalling Britain’s world-power status.⁸²² Yet, this rise and adoption of stark realpolitik rigidified the forming coalitions; in 1891 Russia formalised an ‘entente’ with France in response to Germany’s rise and Wilhelm’s prioritising of the Austrian alliance and Balkan interests.⁸²³ Britain too had become wary of Germany as a potential European hegemon and rival global power, whilst the Kaiserreich’s proximity to the low-countries posed a dire potential threat to the British Isles.⁸²⁴ German naval expansion, championed by Admiral Tirpitz and the Kaiser, was an additional threat in British perception, engendering an intense naval rivalry from 1889,⁸²⁵ and even leading to fears in Berlin of a British preventive

⁸²⁰ Mulligan ‘Restraints’, 124-128; W. L. Langer, *European Alliances and Alignments 1871 – 1890*, 2nd edition (New York: Alfred Knopf, 1950), 371-379, 444

⁸²¹ F. Fischer, *Germany’s Aims in the First World War* (New York: W.W Norton & Company Inc. 1967), 7-10, 11-19, 20-27; see also I. Geiss ‘Origins of the First World War’ in H.W. Koch (ed.) *The Origins of the First World War; Great Power Rivalry and German War Aims*, 2nd Edition. (London; Macmillan. 1984), 50-62

⁸²² Fischer, *Germany’s Aims*, 11-13; P. Kennedy *The Rise of Anglo-German Antagonism 1860 – 1914* (London; The Ashfield Press, 1996), 291 – 294, 464; Kennedy, *Great Powers*, 240 – 241

⁸²³ Martel, *Origins of WWI*, 19; Fischer, *Germany’s Aims*, 22

⁸²⁴ G. Miller, *The Millstone: British Naval Policy in the Mediterranean, 1900-14, the Commitment to France and British Intervention in the War* (Hull: Hull University Press, 1999), 63 – 65; A. Macmillan, ‘Strategic culture and national ways in warfare: The British case’, *The RUSI Journal*, 140, 5, (1995), 35; J. Gooch ‘The Weary Titan’ in W. Murray et al. (eds.), *The Making of Strategy; Rulers, States and War* (Cambridge: Cambridge University Press, 2007), 281

⁸²⁵ Joll. *Origins*, 60-67; see also Till, *Seapower*, 184; and S.M. Lynn-Jones ‘Détente and Deterrence: Anglo-German Relations, 1911-1914’ in Miller et. al. (eds.) *Military Strategy* 165-194

action against Germany.⁸²⁶ Britain entered her own agreements with France (1904) and Russia (1907).⁸²⁷

Russia

Russia came to occupy a particular position within Berlin's preventive logic even by 1887,⁸²⁸ but the Franco-Russian entente propelled it to the forefront, and from 1892 Alfred von Schlieffen, Chief of the Imperial German General Staff, warned of the inevitability of a two-front war with both France and Russia, advocating the need to quickly defeat France with an almost pre-emptive strike whilst maintaining an eastern defensive against Russia: the germ of what would become the 'Schlieffen-Moltke Plan',⁸²⁹ as a solution to the growing sense of strategic encirclement in Berlin, compared by Wilhelm to the situation prior to the Seven Years War.⁸³⁰

Opportunity seemed to knock in 1904 when, at the other end of Eurasia, Japan initiated preventive war against Russia to check Russian expansion into Manchuria.⁸³¹ The war concluded in 1905 after embarrassing and costly Russian defeats on land and sea.⁸³² Defeat amplified economic weaknesses of the relatively backward Russian state - late to industrialisation -⁸³³ and the privations of war exacerbated acute internal problems; leading to uprisings, assassinations and strikes

⁸²⁶ Mulligan, 'Restraints' 130-132, See also Fischer, *Germany's Aims* 8-9, 21, 25

⁸²⁷ Mulligan, *Origins*, 42-43

⁸²⁸ Mulligan, 'Restraints', 125 – 128

⁸²⁹ Martel, *Origins of WWI*, 19

⁸³⁰ Mulligan, *Origins*, 58

⁸³¹ J. F. C. Fuller, *The Conduct of War 1789 – 1961* (Boston: Da Capo Press, 1992), 140

⁸³² T. Haruo, 'Approaching Total War' in D. Wolff et al. (eds.), *The Russo-Japanese War in Global Perspective: World War Zero vol. 2* (Leiden, NE: Brill, 2007), 196; J. Black, *Naval Power: A History of Warfare and the Sea from 1500* (New York: Palgrave Macmillan, 2009), 142

⁸³³ Kennedy, *Great Powers*, 220 -228

which crippled Russia.⁸³⁴ Thus when Franco-German dispute over influence in Morocco prompted another war crisis in early 1905, Schlieffen considered the moment prime for Germany to wage a preventive war of her own against France whilst Russian hands were tied.⁸³⁵ However Russia's turmoil frightened the Kaiser with the potential for German domestic unrest, and the Franco-British entente of the previous year presented a strong deterrent. Britain was still regarded as too strong to contest (especially at sea), and would be so for some time. Yet, Britain was also perceived to be in relative decline compared to Germany's ascension; time was on Germany's side, and so a strategy of patience and avoiding general war until Germany was even stronger, could be pursued.⁸³⁶

However, whilst Germany's power was rising relative to Britain's, she would soon plateau; meanwhile Russia was developing her vast natural resources and human potential (Russia's population in 1900 was around 135.6 million eclipsing Germany's 56 million, and growing.) By 1900 Russia surpassed France and Austria in metallurgical production and manufacturing, whilst her burgeoning industry grew an average 5% since 1860, and diversified into electronics, chemicals, improved resource refinement and other modern industries. In 1900 it was expected Russia would be the sixth largest trading, and fourth largest industrial, economy by 1914.⁸³⁷ This growth supported the largest army in Europe (see table 1)⁸³⁸ and defeat to Japan in 1905 spurred military modernisation programs from 1906 to 1912, with an

⁸³⁴ Haruo, 'Total War', 193; B. Menning, 'Mukden to Tannenberg: Defeat to Defeat, 1905-1917', in F. Kagan & R Higham (eds.), *The Military History of Tsarist Russia* (New York: Palgrave, 2002), 204 – 205; Fuller, *Conduct of War*, 141-142; Kennedy, *Great Powers*, 325

⁸³⁵ G. P. Groß, 'There Was a Schlieffen Plan: New Sources on the History of German Military Planning', *War in History*, Vol. 15 (2008), 424

⁸³⁶ B. Tessman et al. 'The Missing Link between System Structure and State Behaviour', University of Georgia working paper, 33

⁸³⁷ Figures are from Kennedy, *Great Powers*, 255-257, 299 – 301, 354

⁸³⁸ H. Strachan, *The First World War* (London: Pocket Books, 2006), 14

additional ‘Great Programme’ announced in 1913 to complete in 1917.⁸³⁹ As St Petersburg reoriented its strategic focus to Eastern Europe and the Balkans, it would come to clash with Austria-Hungary,⁸⁴⁰ Germany’s main ally, in 1908 and 1912. As these events unfolded and Berlin continued to support Vienna, Russian reformers came to recognise that their reforms should create ‘a Russian army equal to the German army’⁸⁴¹; the greater potential threat. A formal general staff was established in 1905, to coordinate planning and military education, and later reforms encompassed pay and conditions, military education and training for regulars and reservists, and an improved officer corps. Military districts and formation dispositions were reconfigured to enhance strategic depth and concentration of force. Improved mobilisation plans amplified this might, along with infrastructure projects which expanded the rail network to 46,000 miles from 1892 to 1914, increasing the speeds of troop deployment.⁸⁴² As Joll points out, this alarmed Berlin but reassured the French government, now quite reliant on their Russian ally.⁸⁴³

Table 1: Standing armed forces personnel of Continental Powers 1900 - 1914⁸⁴⁴

	1900	1910	1914
Russia	1,162,000	1,285,000	1,352,000
France	715,000	769,000	910,000
Germany	524,000	694,000	891,000
Austria-Hungary	385,000	425,000	444,000

⁸³⁹ Menning, ‘Muckden to Tannenberg’, 206

⁸⁴⁰ J. Levy, ‘Preferences’, 232; Fischer, *Germany’s Aims*, 19, 22

⁸⁴¹ Sukhomlinov cited in Menning, ‘Muckden to Tannenberg’, 215

⁸⁴² Menning, ‘Muckden to Tannenberg’, 208 – 217; J. Terraine, *White Heat: The New Warfare 1914 – 18*, (London: Sidgwick & Jackson, 1982), 24 – 25; Strachan, *European Armies*, 127-9

⁸⁴³ Joll, *Origins*, 69-71

⁸⁴⁴ Kennedy, *Great Powers*, 261

Austria-Hungary

After the 1905 defeat in the east, St Petersburg refocused attention to the Balkans; seen as a more vital sphere of Russian influence,⁸⁴⁵ and their traditional arena of competition with Austria-Hungary for influence among the states emerging from Ottoman decline. The Dual Monarchy was by then a mere regional player, and the establishment of Slav nation-states, especially Serbia, a Russian dependent, challenged the multinational empire's authority over its Slavic population. A strong Balkan policy was deemed essential to reverse her fortunes: Hötendorf, chief of the Austrian general staff, believed that successful campaigns were essential to revitalising the empire's unity and regional influence, and considered war with Serbia an eventual certainty.⁸⁴⁶ The apparent weakness of Russia following 1905 presented an opportunity for resurgence; in 1908 Vienna declared the annexation of Bosnia-Herzegovina, prompting a diplomatic crisis with Serbia and Russia. The German-Austrian Alliance insured the venture; Russian growth and strength was still somewhat masked by the 1905 defeat and German leadership was content to support Vienna unconditionally, estimating that Russia was still too weak, haunted by the 'spectre of revolution' and internal crises, to risk war. After a tense period Russia (and Serbia) humiliatingly backed down.⁸⁴⁷

For many this was an opportunity wasted: Hötendorf sought successful, preventive conflict with Serbia (and even potentially Russia) to improve Austria's Balkan position⁸⁴⁸ whilst many senior German military and civil figures including Generals

⁸⁴⁵ Menning, 'Muckden to Tannenberg', 212

⁸⁴⁶ Martel, *Origins of WWI*, 62 – 63; Strachan, *First World War*, Pocket Books Edition. (London; Simon & Schuster. 2006), 10 – 11; See also Levy 'Preferences', 229-231

⁸⁴⁷ Mulligan, *Origins*, 68-69; Menning, 'Muckden to Tannenberg', 212; W. C. Wohlforth, 'The Perception of Power: Russia in the Pre-1914 Balance', *World Politics*, 39, 3 (April 1987), 361-2

⁸⁴⁸ Wohlforth, 'Perception of Power', 363; Fischer, *Germany's Aims*, 33-34

von Der Goltz, Lyncker, and Schlieffen's successor, Moltke (the Younger) wished to settle the problem presented by the Franco-Russian alliance based on the view that war with Russia was inevitable and therefore had to be fought under conditions of German military superiority.⁸⁴⁹

Planning

The preference for conflict sooner-rather-than-later was amplified by German strategic planning: Under Schlieffen, and then Moltke after 1906, the general staff considered how to deal with a likely protracted and exhausting war on two fronts. The resultant 'Schlieffen-Moltke Plan' (more a guiding concept) aimed to avoid the problem by employing German advantages of quick mobilisation, deployment and fast, offensive action: The main force would pivot on Alsace-Lorraine through Belgium to rapidly flank and defeat France within six weeks, before turning east to face the slower-to-mobilise Russian army, held in place by a smaller force alongside Austrian allies.⁸⁵⁰ The concept was ambitious in expected numbers and speeds of movement, as well as inconsiderate of the consequences of invading neutral states,⁸⁵¹ but its key virtues of rapidity were also declining; in 1905 Schlieffen could disregard Russian offensive ability, but ever-increasing Russian mobilisation speeds and reforms after 1908, and Russian war plans (to aid France by attacking East Prussia in the event of war), meant Moltke would have to deploy more troops east instead of the western offensive. This necessarily framed strategic success in terms of relative speeds of deployments and operations, but also emphasised the diminishing advantage: The plan would have to be enacted *before* Russian

⁸⁴⁹ A. Mombauer, *Helmuth von Moltke and the Origins of the First World War* (Cambridge: Cambridge University Press, 2001), 110-114;

⁸⁵⁰ Joll, *Origins*, 82-83; See also Strachan, *European Armies*, 130 – 133 ; Mulligan, *Origins*, 96-99

⁸⁵¹ For example, invading the low-countries could, Schlieffen accepted, provoke Britain. Joll, *Origins*, 83-84

mobilisation speed, as well as its military strength more generally, decisively improved,⁸⁵² later increasing the likely acceptance of risking general war whilst the plan was still viable.⁸⁵³



Figure 19: European alliances and railways 1914

Delay

Whilst a near-term war was therefore preferable, it could be ‘too-soon’; other conditions would need to be present as the then-Foreign-Minister Tschirschky had indicated in 1907; The Kaiser and Chancellor would have to support such a conflict and it ‘...would have to be brought about in such a way that one would have [favourable] public opinion in Germany....Russia would have to be paralysed by Austria... because Moltke said that we would need our entire army against France and England and would...need to have our backs covered.’⁸⁵⁴ Despite the alliance, Vienna was not considered likely to support Germany outside of Austrian-related

⁸⁵² Levy, ‘Preventive Logic’, 146; Mombaur, *Moltke*, 101-105; Terraine *White Heat*, 46-47; also, M. Trachtenberg ‘The Meaning of Mobilization in 1914’ in Miller et. al. (eds.) *Military Strategy* 196

⁸⁵³ A. Anievas ‘1914 in world historical perspective: The “uneven” and “combined” origins of World War 1’, *European Journal of International Relations*, 19, 4 (2012), 739; Joll, *Origins*, 88

⁸⁵⁴ H. V. Tschirschky, cited in Mombaur, *Moltke*, 108

issues; a Balkan crisis would therefore be preferable, to insure Austrian involvement and relieve some pressure on the German army, whilst a legitimate reason would be needed to guarantee public support. The Kaiser, notoriously indecisive, was another matter altogether. Alongside these considerations, the *Deutsches Heer* would need to be expanded to maintain the effectiveness of the Schlieffen-Moltke Plan.⁸⁵⁵

Although Russian power was not well rated in 1909, her growing economic and military potential would become apparent, prompting German strategic reassessment. In late 1911, War Minister Heeringen communicated his, and Moltke's, growing concerns to Chancellor Bethmann-Hollweg: Although Germany was militarily equal to the sum of would-be foes in Moltke's estimation; relative decline would sap her ability to deter, making it preferable to fight war sooner. The War Department's army expansion bill later that month specifically identified massive Russian military investments as a need to expand the *Deutsches Heer*, which had been side-lined in funding in favour of the navy, owing to naval competition with Britain. The Chancellor came to agree, particularly following an eye-opening visit to Russia in early 1912, which, despite convincing him of Russia's peaceful intentions in the short term, impressed upon him that country's great potential in resources, industry and manpower, and emphasised the need for Germany to 'catch up' with military expansions.⁸⁵⁶

Later that same year, Russia would flex her recovering strength and determination in the first Balkan War (1912 – 1913) by deploying troops to her Galician border; deterring Vienna's interference whilst supporting the creation of a friendly Balkan

⁸⁵⁵ Mombaur *Moltke*, 106 - 108

⁸⁵⁶ D. Copeland, 'International relations theory and the three great puzzles of the First World War', in Levy & Vasquez (eds.), *Outbreak*, 173; S. Williamson, 'German perceptions of the triple entente after 1911: Their mounting apprehensions reconsidered', *Foreign Policy Analysis*, Vol. 7 (2011), 206, 210

League, thus undermining Vienna and Berlin's own interests in the region. The situation would intensify into the threat of Austro-Russian war as both sides undertook prolonged mobilisation.⁸⁵⁷ Germany could ill-afford Austrian defeat, indeed the fate of the two empires was significantly entwined as can be seen in Bethmann-Hollweg's address to the Reichstag in November, promising Germany's support; 'If Austria has to fight for its position as a Great Power, regardless of the cause, then we must stand at her side so as not to have to fight alone at a later stage with a weakened Austria beside us...' ⁸⁵⁸ However this was not unconditional; Berlin was anxious to avoid war, despite Russian power being rated still poor.⁸⁵⁹ Rather, Moltke and Bethmann-Hollweg advised their Austrian counterparts to adopt a 'waiting attitude' until 'a prospect, even if only a distant one, opens up of settling the conflict in conditions essentially more favourable to us.'⁸⁶⁰ The same sentiment would be expressed in June 1913 in response to an apparent opportunity for Austria during the splitting of the Balkan League and war between Greece, Serbia and Bulgaria.⁸⁶¹

The reasoning of this policy may be observed in the so-called 'War Council' convened, by the Kaiser on the 8th of December, 1912, to discuss the Balkan conflict and possibility of general war.⁸⁶² The conference is significant in indicating German strategic perception:

Chiefly all agreed with the Kaiser that Austria must deal with Serbia soon, but accepted this would lead to general war via Russia, and thus Germany and France; a

⁸⁵⁷ Williamson, 'German perceptions', 209; Wohlforth, 'Perception of Power', 378

⁸⁵⁸ Bethmann-Hollweg, speech in the Bundesratsausschuss für die Auswärtigen Angelegenheiten, 28 Nov. 1912, Generallandesarchiv Karlsruhe, 233/34815.

⁸⁵⁹ Wohlforth, 'Perception of Power', 361

⁸⁶⁰ Copeland, 'International relations theory', 178- 179

⁸⁶¹ *Ibid.*, 180

⁸⁶² Bethmann-Hollweg was not present but would express similar views elsewhere.

European war. This would require the support of Balkan allies then being diplomatically courted, particularly Bulgaria- a member of the Balkan League but anxious to escape ties with Russia.⁸⁶³ 'If these powers ally themselves with Austria [to fight Russia], it will free us up to throw our full weight behind a war against France'⁸⁶⁴ - an essential feature of military planning.

Secondly, Moltke declared his belief that such a great power war was 'unavoidable and the sooner the better [:]'⁸⁶⁵ according to Moltke, Germany had to wage *preventive war* whilst she retained the military advantage; with limited financial resources, delay would see further relative military decline compared to Russia's reforms.⁸⁶⁶ War with Russia and the Slavic states, often couched in Social-Darwinist racial terms, was regarded as an eventual inevitability by Moltke, Bethmann-Hollweg, Müller, and the Kaiser, by extension necessitating war with France and, quite likely, Britain (which could not tolerate a potential defeat of France and, with it, German European hegemony).⁸⁶⁷

Thirdly there prevailed a consensus on the need for popular support for war against Russia, and the need to portray Russia as the aggressor in such a conflict.⁸⁶⁸ Wilhelm instructed the secretary of state 'to work toward this end',⁸⁶⁹ and a popular army league and army press department were established in the following year.⁸⁷⁰

⁸⁶³ Mombaur, *Moltke*, 152

⁸⁶⁴ From the diary of Adm. G. A. von Müller (December 8, 1912). Bundesarchiv-Militärarchiv, Freiburg [BArch N 159/4 Fol. 169-171].

⁸⁶⁵ Moltke cited in Copeland, 'International relations theory', 174

⁸⁶⁶ Wholworth, 'Perception of Power', 361; Geiss 'Origins', 72

⁸⁶⁷ Fischer, *Germany's Aims*, 32-33, Copeland, 'International relations theory', 175; Mombaur, *Moltke*, 152 – 153, 165 – 167; see also Geiss, 'Origins', 74

⁸⁶⁸ Fischer, *Germany's Aims*, 34-35; Geiss, Origins, 74

⁸⁶⁹ Müller [BArch N 159/4 Fol. 169-171].

⁸⁷⁰ Mombaur, *Moltke*, 150

That Britain could not remain neutral in the event of European war had been clarified the previous week, and the Kaiser suggested the navy prepare, accepting the possibility of world war, although admirals Tirpitz and Heeringen lobbied for a delay of one or two years in which to ready the fleet and complete naval infrastructure projects.⁸⁷¹ Likely British involvement, to maintain the balance of power on the continent, was not in itself newsworthy in Berlin,⁸⁷² but highlights a vital layer of Germany's deteriorating strategic situation as it placed the tightening entente powers on three of Germany's flanks; Russia in the east, France to the west, and Britain in the North Sea (and, effectively, the Low Countries) as opposed to Germany's only major ally, the crumbling Austria-Hungary to the south. This exacerbated the sense of strategic encirclement in Berlin, amplifying the apparent inevitability of looming conflict and the need to settle the matter whilst conditions were favourable.⁸⁷³ Finally, General Heeringen⁸⁷⁴ also required time for processing the large army expansions declared earlier in the spring,⁸⁷⁵ and further army expansion bills considered in light of Russian mobilisation.⁸⁷⁶ The popular league and press department would generate public support for such bills.

Understandably scholars have argued that the conference contained the planning of preventive conflict resulting in the 1914-1918 Great War, either for defensive or disruptively offensive purposes,⁸⁷⁷ though the issues of time and power remain the

⁸⁷¹ Müller [BArch N 159/4 Fol. 169-171]; Copeland, 'International relations theory', 174 – 177

⁸⁷² Copeland, 'International relations theory', 175

⁸⁷³ Williamson, 'German perceptions', 205 – 206; Anievas, '1914', 742; Fischer, *Germany's Aims*, 25, 29-33, 38; Joll. *Origins*, 62

⁸⁷⁴ Admiral August von Heeringen and General Josias von Heeringen were brothers.

⁸⁷⁵ Copeland, 'International relations theory', 175

⁸⁷⁶ Mombaur, *Moltke*, 136

⁸⁷⁷ Fischer is perhaps the most well-known proponent of the 'German war' thesis; F. Fischer *Germany's Aims in the First World War* (New York: W.W Norton & Company Inc. 1967); see also Martel, *Origins of WWI*

same regardless.⁸⁷⁸ The requirements, the likely players, the stage, even the time (one to two years) were all accepted or discussed as likely. The preventive war thesis,⁸⁷⁹ as with many aspects of the war, is contentious and other historians and theorists offer competing explanations.⁸⁸⁰ However, as Copeland points out, no-one disagreed with key points; of inevitability, the need to gain public support, or the certainty of Russian involvement in the Balkans, and British involvement in a European war.⁸⁸¹

The Balkan War would ultimately not mature into general conflict, but the 1912 council nevertheless evidences a reappraisal of German strategic perception since the more patient strategy of 1904;⁸⁸² the general shift was one to a bleaker prognosis of power-relations, of long-term decline, the inevitability of war, and the corresponding benefits of 'sooner the better,' illustrating the main temporal pressure; 'Time, once seen as Germany's great ally, now seemed to favour the opposing coalition.'⁸⁸³ However, indicating the problems of competing temporal pressures, the council also raised serious concerns and considerations of Germany's immediate readiness for great-power war, and delay (more time) was believed necessary to achieve the conditions of military, naval, public and diplomatic readiness believed sufficient. This illustrates the exchange of time with other resources, but also, significantly, indicates that quality of strategic opportunity, the suitability of timing for war, is determined by conditions across multiple dimensions of strategy.

⁸⁷⁸ J. Levy, 'Preventive War and Democratic Politics', *International Studies Quarterly*, 52 (2008), 8

⁸⁷⁹ Joll, *Origins* 200-201

⁸⁸⁰ For example, Sean McMeekin, David Herrmann and Christopher Clark; for an overview, see also Mulligan, *Origins*, 8-22

⁸⁸¹ Copeland, 'International relations theory', 174-175

⁸⁸² Strachan, *First World War*, 4- 14; Martel, *Origins of WWI*, 23 Williamson, 'German perceptions', 205, 210 - 211; Wohlforth, 'Perception of Power', 361-363

⁸⁸³ Williamson, 'German perceptions', 211

Towards War

Army expansion and finance bills from late 1912 to early 1913 assisted in retaining a narrowing German military advantage in the short-term⁸⁸⁴ but, constrained by domestic repercussions, even these were modest compared to Moltke's demands for universal conscription and 300,000 men.⁸⁸⁵ Expansions also invigorated reciprocal French and Russian arming:⁸⁸⁶ By 1914 the French army had grown to rival Germany's numerically, and in late 1913 St Petersburg announced the 'Great Army Program' which would increase the Russian army by 40% into 1917 (thrice the size of Germany's).⁸⁸⁷ The military 'window of opportunity', reliant on relative troop numbers and the speeds of the Schlieffen-Moltke Plan, was quickly closing, and when it shut Germany's advantages would be inconsequential⁸⁸⁸ as Moltke related to Hötendorf and Foreign Minister Jagow in Spring 1914;⁸⁸⁹ when the Great Program completed '...[the] military superiority of our enemies would be so great that he [Moltke]...would not know how we might cope...[we require]...preventive war in order to defeat the enemy as long as we could still...pass the test...' ⁸⁹⁰

The events of late June to August of 1914 have been well covered and we need not attend to them here at length, save that Serbian implication in the assassination of the Austrian Archduke Franz occasioned the 'July Crisis'.⁸⁹¹ For Austria-Hungary this was an opportunity to settle the Serbian problem for good, and indeed circumstances were favourable. She enjoyed popular and international sympathy in

⁸⁸⁴ Anievas, '1914', 732

⁸⁸⁵ Mombaur, *Moltke*, 145-147

⁸⁸⁶ Manning, 'Muckden to Tannenberg', 220-222

⁸⁸⁷ Strachan, *First World War*, 14, 47; Copeland, 'International relations theory', 176

⁸⁸⁸ Anievas, '1914', 739; Mombaur, *Moltke*, 108

⁸⁸⁹ Wohlforth, 'Perception of Power', 362; see also Fischer *Germany's Aims*, 50 and Geiss, 'Origins' 79

⁸⁹⁰ Moltke cited in V. Berghahn, *Europe in the Era of Two World Wars: From Militarism and Genocide to Civil Society* (Princeton: Princeton University Press. 2006), 37

⁸⁹¹ For a modern work with depth and breadth of analysis, see Mulligan, *Origins*, 210-229

the wake of the assassination, and German support would extend further than the ‘waiting attitude’ of 1912/13, becoming the ‘Blank Cheque’ communicated to Vienna on July 6th: Germany would defend the Dual Monarchy from Russia regardless of how Serbia was dealt with and support the establishment of a pro-Vienna Balkan League around Bulgaria.⁸⁹²

It is possible that Berlin’s aim was to assist the destruction of Serbia before Russia could respond, to deter Russia, or, failing that, to ‘attack the enemy’s alliance’ as Sun Tzu may have put it, by splitting the entente: Even if Russia supported Serbia leading to Russo-German war, Britain and France still *might* not.⁸⁹³ However, in light of the likelihood, well-known by 1912, of Russian involvement and the possibility of general war, reaffirmed through diplomatic channels during the crisis, such behaviour indicates at least an acceptance of high risk.⁸⁹⁴ Copeland among others, have argued the crisis was even manipulated, to bring about a preventive war which would present Russia as an aggressor and furnish Germany with a suitably defensive *casus belli*.⁸⁹⁵ Furthermore, as Levy points out, Moltke, trusted friend of the Kaiser and most ardent proponent of preventive war, became increasingly influential as the crisis developed.⁸⁹⁶

Indeed, German leadership was certainly still acutely aware of their geographic and temporal strategic position relative to Russia: On the 6th of July Bethmann-Hollweg commented to his secretary; ‘Russia’s military power [is] growing rapidly....Austria

⁸⁹² Strachan, *First World War*, 12–14; Wohlworth, ‘Perception of Power’, 363

⁸⁹³ For a more in-depth estimation of the preferences of the European Powers, including Germany and Austria, between local, continental and world conflict, see J. Levy. ‘Preferences’, 229, 233–237;

⁸⁹⁴ A point Fischer also points out; see Fischer, *Germany’s Aims* 63

⁸⁹⁵ Copeland, ‘International relations theory’, 181 – 197; Fischer, *Germany’s Aims*, 64–69

⁸⁹⁶ Levy, ‘Preventive Logic’, 166

increasingly [weak].... the future belongs to Russia...' ⁸⁹⁷ Similarly, Jagow telegraphed his ambassador in London that Germany was ready for war. Although Russia was not, she would soon be able to crush Germany 'on land by weight of numbers, and she will have her... fleet and...railways ready.' ⁸⁹⁸ Notably these comments were made weeks before Russian mobilisation.

On the 23rd of July Vienna, supported by Berlin, issued Sarajevo an ultimatum, which, like the Spartan ultimatum to the Athenians, was intentionally untenable, leaving Serbia (although acquiescent on most points) unable to fully comply, and proposed arbitration. Vienna did not accept, began mobilising on the 25th, and would declare war on Serbia on the 28th. The Serbians had duly appealed to St Petersburg where Sazonov, the Russian Foreign Minister, suspected Berlin of exploiting the crisis as a pretext for preventive war. ⁸⁹⁹ Russia began mobilisation on the 29th but this did not inherently mean war, (as it had not in 1912) and both Berlin and Vienna were aware of this; nevertheless it provided a pretext for German involvement; news of Russian mobilisation was welcomed at the Prussian war ministry. ⁹⁰⁰ An ultimatum to the Tsar's government was issued on the 31st demanding cessation of mobilisation or Germany would also mobilise. When the deadline passed on August 1st, Berlin not only mobilised, but declared war on Russia and enacted the Schlieffen-Moltke Plan, striking into Luxembourg, and declared war on France on the 3rd. ⁹⁰¹

⁸⁹⁷ Copeland, 'International relations theory', 181; also see Fischer, *Germany's Aims*, 49

⁸⁹⁸ Wohlworth 'Perception of Power', 362

⁸⁹⁹ Strachan, *First World War*, 18 ;

⁹⁰⁰ J. Röhl, 'Goodbye to all that (again)? The Fischer thesis, the new revisionism and the meaning of the First World War', *International Affairs*, 91, 1 (January 2015), 160; Copeland, 'International relations theory', 192; Trachtenberg paints Russian mobilisation as more of a fatalistic acceptance of what was, by then, a seemingly inevitable clash with Germany. Trachtenberg 'The Meaning of Mobilization in 1914' 200-201

⁹⁰¹ Copeland, 'International relations theory', 187 – 194; Strachan, *First World War*, 12-22

Time: Initiating the Great War

The July Crisis presented both a pretext and a confluence of favourable circumstances for Germany to initiate war;⁹⁰² Britain was expected to be distracted by issues in Ireland, French finances were poor, and Russia was still two-to-three years from completing the Great Programme. Vienna was eager for a reckoning with Serbia and was innately involved with the crisis, ensuring Austrian participation. Germany meanwhile, had undertaken naval infrastructure projects and army expansions (although short of Moltke's requested numbers),⁹⁰³ and established press departments to gain public support, whilst the domestic and international opinion sympathised with Austria. Additionally the mood of the public and the Reichstag was generally supportive of war.⁹⁰⁴ Even the Kaiser, varying from pugnacity to avoidance and irresolute in previous crises, accepted the need to destroy Serbia⁹⁰⁵ and could be side-lined by the chancellor.⁹⁰⁶

So many favourable conditions were unlikely to reappear together again in the near future, especially considering the particular rival temporal pressures upon German decision-making; chiefly, the 'window of opportunity' created by the expected German decline relative to Russia. By 1917 the Great Programme would finalise, making Russian armies more powerful and, supported by railway developments, swift to mobilise. Not only would this make Russia in itself more powerful, it would undermine the Schlieffen-Moltke Plan, the only apparent solution for war on two-fronts; further contracting the window of opportunity. Similarly, success relied upon Austria-Hungary engaging Russia in the east and the Dual-Monarchy was in steep

⁹⁰² Röhl, 'Goodbye', 165-166

⁹⁰³ Strachan, *First World War*, 47

⁹⁰⁴ Copeland, 'International relations theory', 190; Röhl, 'Goodbye' 165

⁹⁰⁵ Wohlforth, 'Perception of Power', 362-363; Mombaur, *Moltke*, 107, 136

⁹⁰⁶ Röhl, 'Goodbye', 158

decline.

This also highlights the junction of temporal and spatial strategic dimensions; Where Athens increased strategic depth (and thus durability)⁹⁰⁷ by fortifications the European powers reduced strategic depth via speed of locomotive travel, in turn increasing temporal pressures upon decision-making. This is not to agree with Taylor that mobilisation timetables overtook political control,⁹⁰⁸ but that perceived relative advantages of mobilisation pace defined the ‘window of opportunity’ in which Germany could wage preventive war, and thus how time strongly influenced strategic decision-making.

With the increasing strength of the entente encircling Germany and the likelihood of Britain’s involvement in general war, German decision-makers could ill-afford further delay. Yet when these issues were explicitly clarified in the 1912 conference German strategists opted for short-term delay, to further optimise certain strengths. This is mainly due to the scope and variety of their opponents’ strengths; only in 1912 did Berlin begin to think that war with Britain was possible,⁹⁰⁹ thus requiring more time to ready the navy, whilst against France and Russia the army was still not sufficiently large and prepared, and diplomatic and domestic support had to be strengthened.

The opportune conditions of 1912 were thus traded for time to correct present deficiencies, yet delay also afforded rivals additional years in which to strengthen themselves, undermining the trade. Although delay granted the same time to all,

⁹⁰⁷ P. Porter ‘Why Distance Matters’, *The RUSI Journal*, 160, 3 (2015), 4- 5, 10

⁹⁰⁸ A. J. P. Taylor, *War By Timetable: How the First World War Began*, (London: Macdonald & Co., 1969)

⁹⁰⁹ Tessman et al., ‘Missing Link’, 33

relative capacities to use that resource fluctuated; Germany had been dynamic and ambitious in allocating time and resources, but her gains were yielding diminishing relative returns, as Russia increasingly realised her own great dormant potential in response. The announcement of the Great Programme in 1913 illustrates the problem clearly: No amount of German programs, already constrained by domestic demands, could reasonably distend the closing gulf for the issue was one of impermeable factors of mass, time and space - a vast Russian army's growing ability to mobilise ever quicker. Opportunities to fight on favourable terms thus dwindled in proportion to the capacity to sustain relative strengths and time's nature ensured passed opportunities could not be regained.

In retrospect, Berlin may have overestimated the Russian threat: In 1914 the empire lacked men fit for frontline service, as well as modern weapons, artillery and shells, and was greatly outclassed in staff-work, command, experience, logistics, tactics and technical proficiency. The railways, spread out over Eurasia, were poorly configured for European war,⁹¹⁰ whilst apparent economic successes masked poor industry, high levels of debt and internal unrest.⁹¹¹ Despite quick initial mobilisation and deployment,⁹¹² Russia would fare poorly in the war and withdraw in 1917. This is not to say that Russia was not strengthening, or did not possess great potential (as the rest of the Twentieth Century can attest): We cannot know if a later start-date would have seen improved Russian strategic performance, but that is rather the point of preventive war. Contemporaneous perceptions and projections, not hindsight, would determine decisions.⁹¹³

⁹¹⁰ Kennedy, *Great Powers*, 307-308; Menning, 'Muckden to Tannenberg', 205, 215-219, 221 - 224

⁹¹¹ Kennedy, *Great Powers*, 304 - 312

⁹¹² Terraine, *White Heat*, 25

⁹¹³ Wohlforth, 'Perception of Power', 381

The course of the Great War demonstrated German power, yet swift victory on the Western Front proved elusive and the Kaiserreich, exhausted in protracted, attritional conflict against the combined strengths of Britain, France and, firstly Russia and then the United States, succumbed to the Western Entente-Allies in 1918. This illustrates that strategic conditions can be assessed *before* initiation to indicate *probable* initial advantages and performance, as Sun Tzu advised, but due to the time's linearity and the inherent uncertainties of war and the future, this cannot be guaranteed; ultimately it is wartime performance *during* the violent, uncertain struggle of war which decides the result.

It is difficult to identify a better previous opportunity for Germany to have initiated a general war, though Paul Kennedy, echoing Bethmann-Hollweg, considers 1905 such a point;⁹¹⁴ Russia was engaged in Manchuria with outmoded forces, unable to provide France with assistance and so weakening their alliance, additionally the Franco-British entente was scarcely a year old. This could have been an opportunity to 'attack enemy alliances' before they were consolidated, and perhaps breaking them. Yet, in 1905 Berlin expected favourable future developments; time was a reliable ally that would yield power and security as Germany's rise continued. Patience, not risk, was therefore favoured when war with France and Britain loomed during the 1905 Morocco Crisis; with France and Russia expected to remain relatively weak for some years, there was little urgency for preventive war. In any case, there was no Balkan aspect to force Vienna's involvement and many of the other factors later identified by Tschirschky were uncertain; the Kaiser's resolution and popular support fuelled by a sufficiently honourable pretext.

⁹¹⁴ Kennedy, *Great Powers*, 325; Mulligan, 'Restraints', 128

The 1908/9 Bosnian Crisis as proffered by Moltke and Hötendorf would be the last similar opportunity, but with Russia and Serbia acquiescent in the face of Austrian aggression, Berlin again lacked a popular, public-unifying pretext. After the crisis and into the 1910s, Russia's maturing strength became more apparent, indicating the long-term shift in power that so unnerved Berlin. Although a great-power war was expected, even perhaps inevitable,⁹¹⁵ the presumption had been that Germany would be best placed for it. Russia's ascendant forced a German reassessment of the relationship between time and power; apprehension and dread of relative decline, especially in the face of inevitable war, replaced the old optimism and demanded preventive war.

The expectation of inevitable war, combined with an ingrained preference for preventive war stretching back to Frederickian Prussia made perceptions of power and time interlinked within German decision-making. In 1914, as in 1912, German leaders could only speculate that better opportunities would come, any further delay would involve escalating risk of war on unfavourable terms; 1914 thus presented circumstances at the best they were likely to be- hence Berlin's acceptance and push for preventive war.

Conclusions

Over two thousand years separate the conflicts examined above, yet the motivations of the combatants, Fear, Honour and Interest, remain essentially similar: Both Spartans and Germany based decision for war on preventive logic of apprehension born from observed and predicted shifts in relative power that, without action, would

⁹¹⁵ As Mulligan points out, the 'topos' of inevitable war is open to question; prediction or expectation does not make war inevitable. However, as noted, fear does not have to be accurate to be compelling in strategic decision-making. Mulligan, *Origins* 117 - 119

leave them and their interests vulnerable and uncertain. Both sought to win wars they regarded as inevitable (or very likely) whilst they still possessed advantages in (presumed) relevant strategic dimensions, believing (correctly or not) that those advantages were deteriorating inexorably over time.

The nature of strategic time being essentially linear ingrained, via these shifts, dilemmas of temporal ‘boundaries’ into the strategic decision-making of both polities; that is to say, windows of opportunity. There was a ‘too early’ and a ‘too late’ – the latter being the very motivating problem of preventive war, and producing their relative deficiency in the temporal strategic dimension in this manner. These windows were theoretically at least somewhat malleable, due to the rival aspect of strategic time and its resource-like characteristics. I.e. in both cases better ‘use’ or ‘expenditure’ of time, or resources within that time, could have maintained advantages for longer, providing more choice in the ‘when’ to war; evidenced by the German considerations of the 1912 ‘War Council’, and as exhorted by Archidamus. In both cases we may also see how the temporal window of opportunity, and thus the decision of when to initiate conflict, was influenced by the geographical dimension of strategy and spatial factors, reflecting the spacetime aspect of strategic time. Athens, as a seapower, and with her famous walls, created strategic distance which exacerbated Spartan concerns of her rising power. A key part of German assessment of shifts in relative power was Russia’s increasing capacity to use railways to project considerable power at speed over distance.

Only in anticipation of change can proactive measures be undertaken. This illustrates a fundamental purpose of strategy in the broader sense; to secure a preferable future,

in competition with forces which would shape it otherwise. In Boydian terms: Observation of conditions, Orientation (as analysis and synthesis/ sense-making) of qualities of threat (and prediction of likely future states), and the Decision to undertake a course of action, are of paramount importance for the strategist's use of time. However, as the above cases show prediction, as well as judgement of present conditions, is difficult: compelling fears may be unfounded, threats undervalued until too late, and relative strengths misinterpreted. Time's cataract limits predictive capacity and thus proactive capacity, for only the anticipated can be intentionally influenced in advance; unforeseen emergent factors can only be *reacted* to. Despite their Delphic Oracle the Spartans could not predict Athens' rise; like Russia's revitalisation, it only became a problem of such calibre after the most favourable conditions of power asymmetry had passed. Opportunities are thus lost if they are not understood as opportunities save by the most bellicose or cynical (or perhaps prescient).

It is important to remember that not all issues of timing conflict initiation are concerned with long-term power shifts, and thus are not preventive wars, nevertheless such cases emphasise how perceptions and predictions of fluctuating relative strengths within the strategic dimensions over time can become leading concerns for practicing strategists. For those not confronted with such pressures, war should nevertheless (if necessary) ideally be initiated when relative conditions among the strategic dimensions – 'the odds' - are favourable, as discussed previously. As long as strategy is a competitive enterprise, time's role, as timing, in this regard will be constant.

However, one may naturally conclude that with no meaningful relative change between the strengths of the belligerents over time, the suitability of one time for initiating war over another is indistinguishable. Thus a polity that is significantly and consistently stronger than its likely opponent is less constrained by time in such a fashion; its preponderances make any time more-or-less as suitable as another, in relative terms: The rival aspect of strategic time is not sufficiently influential. Nevertheless, certain dimensions may still indicate preference, most obviously political, for without it there is no perceived purpose for war, but also other intangibles; anticipating mass-mobilisation for general war, the Kaiser's councillors were understandably concerned with gaining public support. The Spartan oligarchs were not-so constrained, but their society and iron-age technology meant that, unlike the German army, the seasons' harvests and weather variations were of significant importance to the *time of year* that the Hellenes could initiate war. This is not to say that modernity has vanquished the friction of seasonal variation, as Winters has well illustrated,⁹¹⁶ and which we discuss in Chapter Six in relation to the 1941 German invasion of Russia.

Also present in these cases are strategic time's aspects as both a physical, linear dimension and a relative, rival commodity: Time's linearity means that opportunities, once passed, cannot be truly revisited, save perhaps if they are abstractly occasioned by certain regular cycles, such as seasons. This requires that the strategist disregard few real opportunities, for risk of making an irreversible error;⁹¹⁷ Tyche can bring misfortune as well as improved odds; some 'windows of opportunity' may never again open. Some conditional advantages or opportunities

⁹¹⁶ Winters et al., *Battling the Elements*

⁹¹⁷ Gray, *Fighting Talk*, 157

may be theoretically extended, through intensified ‘trading’ of other resources for the purpose; such as Germany’s 1912/13 army bills, to retain short-term military superiority. Indeed, more time may be needed to develop advantages or narrow disadvantages, as Achidamus had called for in 432BC, and as Berlin decided in 1912, with planned additional programmes and press offices. Nevertheless delays become unsustainable against the pressures of decline in such cases, thus the need for preventive war.

Where one state is disadvantaged by delay, the rival aspect of time means that the foe benefits in some proportion: Athens and Russia, in the cases above, could benefit from more time until war, to develop their greater resources and potential into relevant strengths to defeat or deter would-be foes, much as Germany had appraised the situation in 1905 and opted for patience; time was on their side. That time could be said to ‘favour’ one side over another whose time was ‘running out’, emphasises this rival, relative aspect of time in strategy; all receive the same amount of absolute time and ‘spending’ it did not diminish its real availability to others. Yet, it is what each can do with, and in, that time – in competition with others- that makes it a ‘rival’ resource which influences the ‘availability’ and windows of opportunity for others. This is rather like the relative time scales explored by John Boyd in his work on Fast Transients.

Sun Tzu’s maxim, that by comparing initial strength across key dimensions at commencement of war, the victor can be determined, would imply that timing is the most important decision in going to war; preventive war emphasises this relationship between timing, victory and defeat, but it is also present in other conflicts. It is

intuitive that the stronger side at the beginning of a conflict is more likely to win, but likelihood is not certainty. Initial strengths may be squandered, or the enemy may somehow compensate for their deficiencies, so that even a belligerent with the opening advantage may lose. The events and decisions during conflict itself, where the uncertain, chance-strewn, competitive environment of war emerges, ultimately decide the outcome.

V: Decisive Points and Time

‘These masses shall not only be thrown upon the decisive point, but...at the proper times and with energy.’

-Jomini⁹¹⁸

‘On my signal, unleash hell.’

-Maximus⁹¹⁹

Introduction

Once war commences and strategic aims are sought through force, the tripartite nature of war and its dynamics as a struggle come to the fore. Time’s influence on the use of the military instrument is no less relevant after that point – *during conflict* – than in the decision of when to go to war. Success or defeat may well hinge upon the skilful use of force in time in operations and tactics; here the ability to command forces at the right point in time and space is vital. By employing theoretical discussion and two cases, the Eastern Theatre of the American Civil War (1861 – 1865), and the Western Front of the Great War (1914 – 1918), this chapter examines time at the ‘lower levels’ of strategy (operations and tactics) and how it has been understood and used in practice, with particular focus on the capacities of command to produce and exploit decisive points in strategic spacetime.

Levels

Strictly speaking this chapter concerns tactics and operations rather than ‘strategy’ in the hierarchical sense, but it is action at these levels where strategy is enacted and

⁹¹⁸ Jomini, *Art of War*, 52

⁹¹⁹ Maximus Meridius (Russel Crowe) Ridley Scott’s *Gladiator* (2000)

success is determined.⁹²⁰ Although loosely explained before, they are worth clarifying: Tactics concerns the movements and activities directly employed against the enemy; battle – usually occupying an area of engagement or ‘battlefield’ (or ‘battle-zone’). The operational level is that of ‘campaigns’, ‘above’ tactics, it combines multiple engagements for strategically useful results. ‘Operational art’ concerns the militarily purposeful manoeuvres of forces in the entire ‘zone of operations’ which determine why, where, how and when, specific engagements are sought (preferably choosing conditions, times and places of tactical advantage.)⁹²¹ In terms of scale, tactics are concerned with a smaller area than contemporary operations (all else; terrain, locomotion, etc. being equal) and thus less time, as it takes longer to physically navigate greater distance. Thus tactical events are, historically, more physically and mentally immediate, whereas operations, and ultimately strategy, must be conducted more abstractedly.⁹²² This is basic, but important to remember when discussing ‘strategic spacetime’⁹²³ across different levels of war.

Command

This chapter opened with Jomini’s ‘Fundamental Principle’; essentially the *effective coordination of sufficient force in time and space*. This is the primary formula of

⁹²⁰ Gray, *Fighting Talk*, 51-57

⁹²¹ (US) (MCDP) 1, *Warfighting*, 21-22; Lonsdale, ‘Strategy’, 25-27

⁹²² Clausewitz, *On War*, 140

⁹²³ See Chapter 3

employing military force in the classical tradition, and still a valuable fundamental principle; as discussed in Chapter Three in relation to the aspect of strategic time which we termed strategic ‘spacetime.’ In order to be so employed, at any level of strategy, as well as to connect military activity to strategic aims more generally, or even exist as a viable strategic instrument, force requires *command*.⁹²⁴ A dimension of strategic performance in its own right (i.e. one commander may be superior to another in these duties),⁹²⁵ command is variously understood as ‘generalship’ or ‘Command and Control’ but it’s essential functions are universal, as van Creveld explains: Beyond administration, command must accurately perceive and assess relevant information to comprehend the military situation; conceive appropriate and practical orders to improve or capitalise on the situation; and control and coordinate force components judiciously⁹²⁶ and translate their will to the battlefield.⁹²⁷

In this regard command is essential to considerations of time in both tactics and operations (and strategy), for it is what conceptually deals with temporal aspects, attempts to solve the ‘crude calculation’ of time, space, and force, and coordinates force for effective use at decisive points in ‘strategic spacetime’. This requires what Boyd described in terms of conceptual agility, known to Clausewitz and Jomini as *coup-d’oeil*; clear and quick perception and comprehension of *relevant* physical and non-physical aspects of the situation *and what they mean*, to form effective ‘solutions’ to the ‘crude calculation’ and thereby gain advantages.⁹²⁸ This requires information about the situation, the usefulness of which depends upon accuracy and

⁹²⁴ N. Durham, Napoleonic Command and Control Notes: 2009-06 ‘The command and control of the Grand Armee Napoleon as organizational designer’, (Monterey, California, Naval Postgraduate School), 5

⁹²⁵ Gray, *Modern Strategy*, 39–40

⁹²⁶ M. van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985), 5–9

⁹²⁷ P. Griffith, *Battle Tactics of the Civil War*, 3rd edition (Marlborough: Crowood Press Ltd, 2014), 53

⁹²⁸ Chapter Three

often timeliness;⁹²⁹ the ability to quickly relay it to and from command may be paramount,⁹³⁰ and a vital piece of information arriving *too late* may as well not arrive. The frictious, uncertain climate of war however, immutably renders the acquisition of timely and accurate information for command difficult,⁹³¹ and so Clausewitz and Jomini, prized the commander possessing *coup- 'd'oeil*, who could quickly divine truth amongst uncertainty and chaos.⁹³²

With solution in mind, command must implement its will by clear and timely communication to *control* the right force or component, otherwise the decisive point and moment may be lost to the dynamic conditions of battle. This was not historically easy due to the lack of effective communications between command and forces until very recent times, and Clausewitz and Jomini were both sceptical of the extent to which command could control forces in practice, beyond their initial deployment.⁹³³ Thus, individuals who *could* impose their will on a situation and produce victory, despite these limitations, like Napoleon and Frederick, were renowned as military geniuses.⁹³⁴ Modern sensory and communications technology, such as 'drones' and networked systems, have made some command processes easier and quicker, but has also led to a glut of data delivered at high speed, stretching the capacity of command systems to process it into timely and useful

⁹²⁹ S. Culpepper, 'Balloons of the Civil War – and Command and Control' thesis presented to US Army Command and Staff College (Fort Leavenworth, Kansas, 1994), 2

⁹³⁰ Griffith, *Battle Tactics*, 53

⁹³¹ Clausewitz *On War*, 117, 233, 273; See Lonsdale, *Clausewitzian Future*, 29–30, 55–68

⁹³² Chapter Three

⁹³³ Jomini, *Art of War*, 207; Clausewitz, *On War*, 101-102,

⁹³⁴ Jomini, *Art of War*, 207, Freedman, *Strategy*, 76-77

intelligence; the answer to which would seem to be the further development of intelligence and organisation.⁹³⁵

Space and Size

Although the processes of command, and principles of concentration and time use are universal,⁹³⁶ the specific requirements, and values of the ‘crude equation’, vary considerably, shaped by strategic context and the propensity of force to arm ‘itself with... inventions of art and science’;⁹³⁷ producing ever-more advanced, sophisticated, larger, mobile, dispersed, and specialised armies, operating over increasingly large areas. All of which create complications and pressures upon command’s capacity to coordinate and concentrate force in space and time effectively.⁹³⁸ For example, Archidamus’ army, a single phalanx of a few thousand hoplites with little specialisation, moving by marching for days to reach its zone of operations (Attica), presents an easier command prospect than the vast, rail-mobile, industrialised forces of 1914, which required large staff corps to control them.

The size, and thus historically the power, of armies (and area they occupy), as well as their mobility, cannot safely exceed the capacity of their command systems, requiring a balance of maximum strength (often mass) against that system’s capacities, as well as those of its logistics. Breaching contemporary limitations courts command failure, with serious repercussions: Writing in the 17th Century, Turenne estimated 50,000 men as the maximum size of an army, before it became

⁹³⁵ Lonsdale, *Clausewitzian Future*, 113–115, 126–129; A. Bazin, *How to Build a Virtual Clausewitz*’ (2017) Available online: <https://thestrategybridge.org/the-bridge/2017/3/21/how-to-build-a-virtual-clausewitz> [Accessed, March 21, 2017]

⁹³⁶ Crevel, *Command*, 1; Strachan, *European Armies*, 2

⁹³⁷ Clausewitz, *On War*, 75

⁹³⁸ Crevel, *Command*, 2–10; Tuck, ‘Land Warfare’, 72

unmanageable by the period's small command retinues.⁹³⁹ To directly control forces in even relatively small areas, historically commanders had to compromise, as van Creveld explains; they might control the key part of the army constantly, like Alexander, employing *coup-d'oeil* to discern decisive spacetime points, before swooping to them at the head of his Companions. Or, like Marlborough, they might position themselves to view as much of the total situation as possible, but moving to directly oversee the most vital actions, which meant loss of control of the rest of the force,⁹⁴⁰ if he had it initially.

Bonaparte bypassed some of the limitations upon command imposed by the larger armies afforded by the revolution and *levee en masse*. Whereas previously armies moved as a single concentrated force for ease of command and security (detachments could lose contact with command, become isolated, or be engaged and destroyed by the enemy), corps organisation split Bonaparte's large army into all-arms sub-units of 20-30,000 men. Corps could move independently along multiple axes of advance more quickly than larger concentrated armies, and swiftly converge on or near the battlefield to fight as a single force.⁹⁴¹

Napoleonic warfare was thus relatively more *mobile*, with corps able to quickly range over (and so control) larger areas of the zone of operations. This improving mobility in strategic spacetime also created greater uncertainty through higher tempos of change in the military situation, similar to the concept of Fast Transients described by Boyd,⁹⁴² which strained the orienting capabilities of contemporary

⁹³⁹ Creveld, *Command*, 58, 104

⁹⁴⁰ *Ibid.*, 10, 54-56, 105-6

⁹⁴¹ *Ibid.*, 88, 97, 101-102; P. Paret, 'Napoleon and the Revolution in War', in Paret et al (eds.), *Makers*, 132

⁹⁴² See Chapter Three

enemy (or even friendly) command systems.⁹⁴³ This could allow spectacular movements, such as the *manoeuvre sur les derrieres*; engaging the enemy with one corps until a supporting corps (rarely more than a day's march away) arrived (often unexpectedly) at a 'decisive point' on the battlefield such as the enemy's flank or rear, threatening their lines of retreat and supply.⁹⁴⁴ The key to Bonaparte's use of such forces was decentralised command; each corps had its own commander and staffs, reducing the level of detail Napoleon, as the 'central processing unit' of the *Grande Armée* had to attend to personally. This freed him to concentrate on what mattered, aided by reports from his subordinates and a staff to manage the volume of information, allowing faster flows of relevant information through Bonaparte's personal sphere, and thus quicker decision-making than his enemies⁹⁴⁵ – contracting the conceptual 'IDA' or even 'OODA' loop, as discussed in Chapter Three.

The size of armies in the field, and the distance between corps on operations, still demanded a Napoleonic commander be highly mobile to apply his personal command talents where necessary. Yet, without adequate communications improvement ever-larger (and thus slower) armies, dispersed across increased operational and tactical areas, became too much, even for Bonaparte:⁹⁴⁶ The Emperor commanded 85,000 at Austerlitz (1805) to effect timely manoeuvres to decisive points,⁹⁴⁷ but command of 150,000 at Jena-Auerstedt (1806), and 130,000 at Borodino (1812), was significantly impaired.⁹⁴⁸ Only later in the Nineteenth Century did general staffs expand sufficiently to ease the burdens of growing scales of area and force encountered in the Napoleonic Wars, with the concomitant effect

⁹⁴³ Strachan, *European Armies*, 64, Crevelld, *Command*, 62; Nelson, 'Space and Time', 142

⁹⁴⁴ Strachan, *European Armies* 50 ; Durham, 'Command and Control of the Grand Armée', 19

⁹⁴⁵ Crevelld, *Command*, 61, 96-97

⁹⁴⁶ Gray, *War*, 44-45

⁹⁴⁷ Durham, 'Command and Control of the Grand Armée', 32

⁹⁴⁸ Freedman, *Strategy*, 80

of moving the commander and their burgeoning staff further from the tactical level, reducing the opportunities of *coup d'oeil* for comprehension, in favour of orientation via received reports.⁹⁴⁹

Force

To influence the battle at decisive points in strategic spacetime, command requires sufficiently mobile, controllable, tools. Tactically this could be a nearby unit, or as Clausewitz recommended a dedicated reserve, to quickly support, counterattack, or exploit opportunity.⁹⁵⁰ Historically, cavalry's inherent mobility compared to infantry (8-15 miles-per-hour vs 3-5)⁹⁵¹ made it ideal for such work: large units of (usually heavy) cavalry with lance or sword, would move from reserve positions to 'shock' (disrupt, injure and terrify) the enemy at decisive points, allowing commanders to shape the situation.⁹⁵² Alexander personally led his Companions as shock cavalry with precision, timing and ferocity at Granicus, Issus and Gaugamela.⁹⁵³ Over two-thousand years later, Napoleon poured his cavalry into momentary gaps in the enemy lines produced by his artillery and infantry,⁹⁵⁴ Jomini and Clausewitz recommended cavalry in the same vein.⁹⁵⁵ Alternatively one might, like Frederick at Leuthen, bring the main force quickly through dead ground to unexpectedly arrive upon the enemy flank.⁹⁵⁶ At the operational level the same principle applies; Bonaparte's corps, moved across the zone of operations to threaten multiple points,

⁹⁴⁹ Creveld, *Command*, 105; see also Strachan, *European Armies*, 125–129

⁹⁵⁰ Strachan, *European Armies*, 17-18

⁹⁵¹ J. Bonie, 'Actions of the French Cavalry 1870' in J. Bonie and O. Kaehler *Cavalry in the Franco-Prussian War*, 2nd Edition, (Driffield, UK: Leonaur, 2010), 98-99

⁹⁵² Creveld, *Command*, 51

⁹⁵³ D. Lonsdale, 'Alexander the Great and the Art of Adaptation' *The Journal of Military History*, 77, 3 (Jul. 2013), 817–818

⁹⁵⁴ Strachan, *European Armies*, 50

⁹⁵⁵ Clausewitz, *Principles of War*, 30–33; Jomini, *Art of War*, 231-233

⁹⁵⁶ Strachan, *European Armies*, 20

confound the enemy, and force them to divide and be defeated in detail, or (by swift concentration) to bring about the *manoeuvre sur les derrieres*.⁹⁵⁷

The exploitation of points of decision thus depends upon command to perceive, comprehend, communicate and coordinate, and suitable tools. However we must bear in mind that this is frustrated in reality due to the frictious climate of war, its reciprocal nature, and limits imposed by variation across the dimensions of war, all of which offer competing demands of time, space, force and command.

To examine this further we employ two case studies of tactical and operational methods; the battles and campaigns of the American Civil War's Eastern Theatre illustrate the principles of time use in a conflict similar in time and form to which Jomini and Clausewitz were familiar with. The second study, the Western Front of the Great War, starkly illustrates limitations upon command's use of time, arising from the frictious climate of war and the character of warfare.

War Between the States

Here our discussion focuses on the methods of tactics and operations in the battles and campaigns of the Eastern Theatre of the American Civil War (1861 – 1865), to examine how principles of time, such as the use of decisive moments, were considered and applied. The war presents an interesting case in this regard, lying roughly half way in time between the Napoleonic wars (1815), the context in which Jomini defined the decisive point and moment, and the Great War (commencing 1914): This is worth noting, particularly given our second case in this chapter and earlier employment of Napoleonic theorists. In the mid-19th Century, Napoleon was still regarded the master of modern warfare, and Jomini, still alive, his leading

⁹⁵⁷ Strachan, *European Armies*, 43-44

interpreter, with influence on the tactical and operational thoughts of both sides; as such their approach to the temporal dimension and its aspects was largely Napoleonic. In contrast to this, the war is also regarded by some commentators to have been the first ‘industrial war’ owing to the proliferation of new weapons and equipment made available by the industrial revolution then spreading to North America;⁹⁵⁸ as such it has even been regarded as foreshadowing the character of conflict seen on the Western Front of 1914-1918.⁹⁵⁹ We focus on the Eastern Theatre due to constraints of time and space here, though for our purposes there is little fundamental difference.⁹⁶⁰

House Divided

The ‘War Between The States’ as it was known, had complex origins which it is not our purpose to discuss here at length, though we may summarise that they lay in the widening economic and political-social tensions between the industrialising, anti-slavery Northern states, and the slave-owning, agrarian society South.⁹⁶¹ Following the election of anti-slavery Republican president Abraham Lincoln in 1860, which seemed to threaten their slave-based society and economic-political power within the US, a number of Southern states seceded to establish the Confederate States of America (CSA).⁹⁶² The ‘Secession Crisis’ intensified following seizure of US

⁹⁵⁸ Stoker, *Grand Design*, 374; the true extent of the novelty is ably challenged by Nosworthy. B. Nosworthy *The Bloody Crucible of Courage; Fighting Methods and Combat Experience of the American Civil War* (London: Constable & Robinson Ltd. 2005), 644

⁹⁵⁹ Fuller, *Conduct of War*, 95; Griffith, *Battle Tactics*, 24–27; R. Current, ‘God and the Strongest Battalions’ in D. Donald, *Why the North Won the Civil War*, paperback edition (New York: Macmillan Publishing Company, 1962); H. Hattaway & A. Jones *How the North Won; A Military History of the Civil War*, Paperback Edition. (Champaign; University of Illinois Press. 1991), 47

⁹⁶⁰ See Nosworthy *Bloody Crucible*, 313, 317-322

⁹⁶¹ A. Foreman, *A World on Fire: An epic History of Two Nations Divided* (London: Allen lane, 2010), 21- 26, J. Keegan, *The American Civil War* (London: Vintage Books, 2010), 3–33; W. Murray & W. Hsieh, *A Savage War : A Military History of the Civil War* (Princeton: Princeton University Press. 2016) 13

⁹⁶² Murray & Hsieh, *Savage War*, 26-32

government property and bombardment of Fort Sumter (a US Army installation), by Confederate militia in April 1861. In response, Lincoln called for a mass volunteer force of 75,000 men to aid the small standing army in suppressing the rebellion, in turn leading to further ordinances of secession from Virginia, Arkansas, Tennessee and North Carolina, who refused to attack their neighbours and joined the Confederacy. On May 6, 1861 the Confederate Congress under President Jefferson Davis (former US secretary of war) formally announced a state of war with the Union.⁹⁶³

To preserve the Union and return Southern states to the fold, through force if necessary, the Lincoln administration adopted the strategic offensive, through invasion and maritime blockade.⁹⁶⁴ The Confederacy, aiming to complete and bolster secession, correspondingly opted for a defensive strategy,⁹⁶⁵ and initially undertook 'cordon defence' across the South to secure manpower and resources. When passive defence proved unfeasible however, it switched to an active defence (with occasional offensive operations),⁹⁶⁶ to wrest initiative from invading Union armies by concentrating forces for battle; a decisive victory in the field could quickly reduce Northern will to fight.⁹⁶⁷ However Confederate strategic considerations progressed little beyond this vague aim.⁹⁶⁸

⁹⁶³ Stoker, *Grand Design*, 6, 13-16, 32 - 33; Keegan, *American Civil War*, 27-36; Beringer et al. *Why the South Lost*; See also M. E. Woods, 'What Twenty-First-Century Historians Have Said about the Causes of Disunion: A Civil War Sesquicentennial Review of the Recent Literature.' *Journal of American History*, 99, 2 (2012), 415-439, for a discussion of the current scholarship on the war's causation. The institution of slavery is generally held as the leading cause though secondary and minor factors should not be disregarded in the transition to open warfare.

⁹⁶⁴ Gray, *War*, 64

⁹⁶⁵ R. Weigley, 'American Strategy from its beginnings through the First World War' in Paret et al (eds.), *Makers*, 420

⁹⁶⁶ Stoker, *Grand Design*, 19, 280-281

⁹⁶⁷ Weigley, 'American Strategy', 422

⁹⁶⁸ Stoker, *Grand Design*, 409

The industrialising North boasted much of America's effective economic components and had significant advantages across the dimensions of war; in maritime, industrial-economic and financial resources with which to maintain its war effort and equip and supply armies. The CSA, although it had access to most of the same civil and technical methods, was a poorer, agrarian society with a small population, little of which could be spared from agriculture. In industry especially the South was relatively weak, lacking works and machines, as well as railway density which facilitated the North's industrialising economy: Southern industrial output was only 7.5% of the American total. Over the course of the war, the Union's industrial and military strengths even expanded whereas the much weaker Confederate economy and infrastructure degraded, compounded by blockade and the harsh demands of war.⁹⁶⁹

The North's larger population (see table 2) provided workers for factories, but also more soldiers. Despite the great size of North America, the US Army of 1860 was miniscule, approximately 16,000 men, owing to a traditional distrust of standing armies and lack of military institutions.⁹⁷⁰ Yet, as in Europe where revolution had unleashed social forces for mass levees, both North and South raised vast citizen forces to realise their strategic demands.⁹⁷¹ By war's end approximately two million men would have served in the Union Army at some point, peaking at one million under arms (1864). The CSA, in contrast, mobilised perhaps one million throughout the war.⁹⁷² Popular mobilisation produced correspondingly large field armies for both sides; for example at Chancellorsville (Virginia, 30 April 1862) the

⁹⁶⁹ Stoker, *Grand Design*, 22 – 26; Kennedy, *Great Powers*, 231 – 233; Murray & Hsieh, *Savage War*, 44-45

⁹⁷⁰ Weigley, 'American Strategy', 419 – 414

⁹⁷¹ Strachan, *European Armies*, 73; Beringer et al, *Why the South Lost*, 41

⁹⁷² Kennedy, *Great Powers*, 229 – 234

Confederates deployed 60,000 against the Union's 120,000,⁹⁷³ rivalling significant Napoleonic engagements and surpassing anything before seen in North America.

Table 2: Population and Industry compared⁹⁷⁴

	Population	Army at peak strength	Total under arms	Casualties battle and disease etc.)	Industrial shops	Rail Track (miles)
Union	20,000,000	1,000,000 (1864)	2,000,000 — 2,100,000	360,000	110,000	22,000
CSA	6,000,000 ⁹⁷⁵	900,000 (1863)	464,5000	258,000	18,000	9,000

Methods of War

Despite strategic disparities, serving and retired US Army officers furnished the great majority of senior officers of both sides (923 Union and 369 Confederates);⁹⁷⁶ as former comrades and even classmates at the US Military Academy at West Point, these officers were expectedly similar in their approach to tactics, operations and command. Before 1860, actual military experience and memory (including of the US Army) mostly consisted of small-scale 'Indian fighting'; as one contemporary put it, 'commanding fifty United States dragoons [but] forgetting everything else.'⁹⁷⁷ At best they may have held company rank during the Mexican War (1846-8), the last time American armies had faced a somewhat-modern foe and that an American general, Winfield Scott, had commanded a sizable force.⁹⁷⁸ He had done so 'in

⁹⁷³ Stoker, *Grand Design*, 258

⁹⁷⁴ Statistics from Kennedy, *Great Powers*, 229 – 234; slightly different figures are given by Murray and Hsieh, however, see Murray & Hsieh, *Savage War*, 43

⁹⁷⁵ Not including slave population

⁹⁷⁶ Griffith, *Battle Tactics*, 96

⁹⁷⁷ Richard Taylor quoted in Henderson, *The Science of War*, 218

⁹⁷⁸ Murray & Hsieh, *Savage War*, 49-51

harmony with the practice of Napoleon⁹⁷⁹ regarding manoeuvre of force, space and time.

Just a generation after Waterloo, Western approaches to war remained broadly Napoleonic, despite technological changes and, in this case, translocation to North America. Military text-books at West Point (primarily an engineering school) focused on French theory and translations of Jomini's work, as well as broadly Jominian work by Dennis Hart Mahan, and Henry Halleck, later Commanding General of the Union Army during the war.⁹⁸⁰ Mahan, who taught at West Point from 1832, had studied military art and science at Metz,⁹⁸¹ and his teachings were accordingly influenced by the Napoleonic experience, especially Jomini's interpretations;⁹⁸² we can see in his own work many of the themes outlined above and in Chapter Three, including the importance of speed, momentum of offensives, decisive battle,⁹⁸³ *coup-d'oeil*,⁹⁸⁴ and the application of force (cavalry or reserves) at the decisive point and moment.⁹⁸⁵ Other theoretical influences included studies of recent European wars; George McClellan (later a senior Union general) was an official observer of the Crimean campaign.⁹⁸⁶ Whilst others, like later Confederate commanders (Robert E. Lee and Thomas Jackson) directly studied Napoleon.⁹⁸⁷ In conduct, tactics, weaponry, all of these experiences were still essentially relevant,⁹⁸⁸

⁹⁷⁹ Beringer et al, *Why the South Lost*, 110

⁹⁸⁰ Strachan, *European Armies*, 73; Weigley, 'American Strategy', 414; See also Mahan, *Advanced-Guard*; Stoker, *Grand Design*, 65

⁹⁸¹ Weigley, 'American Strategy', 413-414

⁹⁸² Shy, 'Jomini', 179; T. H. Williams, 'The Military Leadership of North and South' in Donald. (ed.) *Why the North Won*, 41; See also Hattaway & Jones, *How the North Won*, 11-15

⁹⁸³ Weigley, 'American Strategy', 414-415

⁹⁸⁴ Mahan, *Advanced-Guard*, 30

⁹⁸⁵ *Ibid.*, 23, 32, 45, 48, 50, 68

⁹⁸⁶ Weigley, 'American Strategy', 418

⁹⁸⁷ N. A. Trudeau, *Robert E Lee* (New York: Palgrave MacMillan, 2009), 32; D. Davis, *Stonewall Jackson* (New York: Palgrave MacMillan, 2007), 37; Weigley, 'American Strategy', 424

⁹⁸⁸ Griffith, *Battle Tactics*, 191

and thus deference to European practice was not error or anachronism, but the dominant reference for contemporary large-scale war.⁹⁸⁹

Command

With limited prior experience American commanders had to quickly adapt to new conditions and scales in command.⁹⁹⁰ Like Napoleonic generals, they could not view their entire army, either when in motion as multiple corps across the zone of operations, or deployed across a battlefield (perhaps several miles long). The limitations of their command system restrained influence of control beyond their immediate locality.⁹⁹¹ To counter this, commanders had to be mobile to apply their *coup-d'oeil* and appraise local situations personally, issuing orders directly if necessary. Preferably they would place themselves to influence matters at decisive points⁹⁹² and moments, which necessarily meant moving toward their front: General Lee for example, was often in the saddle moving throughout his army as it moved, and after its deployment.⁹⁹³

If the commander could not attend he relied upon staff officers to detail particulars, oversee the execution of orders and assist subordinates where necessary, as well as collect relevant information to aid the commander's orientation of the situation.⁹⁹⁴

However, with no US staff school before the war and few officers familiar with such

⁹⁸⁹ Not to say there had been no technical change, but the fundamentals of linear combat remained and would have been familiar to a Napoleon or Wellington, let alone a more recent European. See Nosworthy, *Bloody Crucible*, 59-60, 394-398, 401-402, 411-415, 630

⁹⁹⁰ Beringer et al, *Why the South Lost*, 41

⁹⁹¹ G. Griffin, 'Strategic-Operational Command and Control In The American Civil War' monograph, *School of Advanced Military Studies*, United States Army Command and General Staff College, Fort Leavenworth, Kansas (1993), 15

⁹⁹² Ibid.

⁹⁹³ F. Maurice, *Robert E Lee the Soldier* (Boston: Houghton Mifflin Co., 1925), 283

⁹⁹⁴ Griffin, 'Command and Control', 9-16; Griffith, *Battle Tactics*, 56

roles (especially with such large armies) Civil War staffs were frequently sub-par.⁹⁹⁵ Commanding the Army of the Potomac (AOP) (1861-1862), McClellan considered the lack of staff among his greatest obstacles,⁹⁹⁶ and it frustrated him on the offensive at the Battle of Antietam (17 September 1862), where he outnumbered Lee's Army of Northern Virginia and sought to attack from multiple directions at once along his three-mile battlefield, offsetting Lee's defensive advantages. Without adequate staff-work however, McClellan was unable to achieve 'concentration in time' and the assaults were carried out *sequentially* rather than *simultaneously*.⁹⁹⁷

In March 1863, Lee similarly remarked on the failings of subordinate generals to observe orders and keep to plans, for want of staff-work,⁹⁹⁸ and it bedevilled him and his opponent Meade at Gettysburg (1st – 3rd July). Like McClellan at Antietam, Lee struggled to gain what he termed a 'proper concert of action'⁹⁹⁹ at the right time between his corps, spread across an extended battlefield on the 2nd and 3rd of July, for apparent want of a staff to ensure his corps commanders, Ewell and (especially) Longstreet, achieved synchronisation of efforts according to plan.¹⁰⁰⁰ In Meade's case, Sickles, commanding the left-most Union corps, advanced to form a poorly-defensible salient without orders, undermining the Union position and Meade's ability to use interior lines to reinforce Sickles with reserves.¹⁰⁰¹ However, staff

⁹⁹⁵ Griffin, 'Command and Control', 12; See also Hattaway & Jones, *How the North Won*, 103-107, 185

⁹⁹⁶ *Ibid.*, 9

⁹⁹⁷ Griffith, *Battle Tactics*, 57

⁹⁹⁸ Henderson, *Science of War*, 216

⁹⁹⁹ E. Coddington, *The Gettysburg Campaign: A Study in Command* (New York: Touchstone, 1968), 443

¹⁰⁰⁰ Stoker, *Grand Design*, 297-298; Griffith, *Battle Tactics*, 56

¹⁰⁰¹ Coddington, *Gettysburg Campaign*, 355-357, 385 - ; See A. Nofi *The Gettysburg Campaign, June – July 1863*, 3rd edition (Pennsylvania: Combined Books, 1997), 89-128 and also S.W. Sears, *Lincoln's Lieutenants: The High Command of the Army of the Potomac*, Mariner Edition, (New York: Mariner Books. 2018), 559-562

work would improve (especially in the Union Army) throughout the war, and generally command functioned little worse than it had in Napoleon's day.¹⁰⁰²

American commanders could also occasionally employ novel technologies that enhanced the speed or quality of intelligence gathering and issuing orders, allowing the contraction of time in relaying and issuing orders. Most notably, the electro-magnetic telegraph allowed quick messages over distance between corps, armies and government offices, provided of course there was a telegraph connection; 'the clarity of the commander's vision and the near immediate effects of his decisions could be felt far beyond the battlefield[;]...Operational art was exercised through...command and control [via] the telegraph.'¹⁰⁰³The Confederates first employed the potential by using long-distance telegraph to orchestrate the railway movements of three forces dispersed across northern Virginia, concentrating them in advance of the Battle of First Manassas (21 July 1861).¹⁰⁰⁴ Infrastructure requirements meant telegraph was mostly a strategic and operational-level tool,¹⁰⁰⁵ though the AOP employed tactical telegraph wagons in the Peninsular Campaign (March – July 1862) and the battles of Fredericksburg and Chancellorsville, as well as in the entrenchments around Richmond in 1864-65, where it was possible to establish divisional telegraph.¹⁰⁰⁶ However, despite widespread use of the telegraph, communication on the battlefield still mainly relied on manual methods of signalling; wig-wag semaphore and couriers.¹⁰⁰⁷

¹⁰⁰² Griffith, *Battle Tactics*, 57; Griffin, 'Command and Control', 2, 5

¹⁰⁰³ Griffin, 'Command and Control', 29

¹⁰⁰⁴ A. Jones, 'Military Means, Political Ends: Strategy', in G. Borritt (ed.), *Why the Confederacy Lost*, paperback edition, (New York: Oxford University Press, 1993), 52 & 57

¹⁰⁰⁵ Griffith, *Battle Tactics*, 191

¹⁰⁰⁶ Ibid., 70-71

¹⁰⁰⁷ Ibid.

Command also benefitted from fairly reliable forms of intelligence gathering; spies, scouts and even balloons were used to inform command.¹⁰⁰⁸ However, these were not fool-proof, and sometimes a whole army could ‘disappear’ overnight without the enemy’s knowledge, gaining precious time and leaving them to speculate where they were headed. Grant managed to achieve this during his Overland Campaign in 1864, but on both occasions Lee guessed his objective correctly and, with the spacetime advantages of interior lines, was able to get into a favourable position in advance.¹⁰⁰⁹

The Union Army made also use of balloons for intelligence gathering and even command: Equipped with telescopes, balloonists extended the visualisation of the battlefield, providing ‘eyes’ above obstacles, and could even direct artillery fire.¹⁰¹⁰ During the Peninsular Campaign, General George Stoneman (Union) used balloons to good effect with his advance guard to discern weak points in Confederate defences, and personally ascended with the aeronaut Prof. Thaddeus Lowe, to direct his detachment’s assault, via a telegraph; this certainly enhanced his *coup-d’oeil* and OODA orientation, as well as contracting the conceptual OODA loop, as Boyd might put it.¹⁰¹¹ Communicating information from balloonists to Army HQs, and then communicating orders to units, was a slower affair however, and dynamic tactical control was little quicker for McClellan than it would have been without balloons.¹⁰¹² His successor as commander of the AOP, Burnside, deployed a balloon at his headquarters half-way through the Battle of Fredericksburg to little apparent benefit,¹⁰¹³ though Hooker, replacing Burnside, developed a sophisticated

¹⁰⁰⁸ Ibid., 68-9

¹⁰⁰⁹ A. Burne, *Lee, Grant and Sherman: A study in Leadership in the 1864-65 Campaign* (Kansas: University Press of Kansas, 1938), 24 & 42

¹⁰¹⁰ Culpepper, ‘Balloons’, 20; See also Sears, *Lincoln’s Lieutenants*, 103, 193, 249

¹⁰¹¹ Culpepper, ‘Balloons’, 129, 131-132

¹⁰¹² Culpepper, ‘Balloons’, 75, 128

¹⁰¹³ Ibid., 77

intelligence-gathering system for his command preceding the Battle of Chancellorsville that incorporated telegraph, balloons and riders to observe Confederate movements and link the two wings of his force for command purposes. It provided a reasonable intelligence picture but, as it transpired, the decisive manoeuvre of the battle -Jackson's flanking march to the Union right, would be one of the few major manoeuvres unobserved by Union balloonists.¹⁰¹⁴

Light Cavalry

Civil War commanders also benefitted from expert light cavalry functioning as dragoons, mounted infantry and scouts for mobile intelligence-gathering of operational and tactical situations, discerning enemy positions, and enhancing the commander's situational awareness about where a decisive point might be produced or exploited;¹⁰¹⁵ in short, gifting them a reasonably efficient command system with which to perform the Boydian OODA Orientation. However, to counter this, opposing light cavalry suppressed enemy scouts through screening the army as it moved, aiming to increase uncertainty within enemy command as to the whereabouts, or indeed existence, of major formations to potentially gain a level of operational surprise.¹⁰¹⁶ In this simple ancient way, armies engaged in a form of 'time warfare'; relatable to the Boydian concepts of fast-transients and orientation, and at the heart of Singh's theories. Even large engagements such as Brandy Station (June 10th 1863) were fought in the aid/suppression of operational reconnaissance,¹⁰¹⁷ and its use was essential. Following Brandy Station, although a tactical Confederate victory, Meade was still able to advance orderly and quickly

¹⁰¹⁴ Ibid. 94; see also S.W. Sears, *Lincoln's Lieutenants*, 498, 502

¹⁰¹⁵ Strachan, *European Armies*, 16–18, 43–44.; Griffith, *Battle Tactics*, 185–186; See also Nosworthy, *Bloody Crucible*, 280–281, 286–288

¹⁰¹⁶ Henderson, *Science of War*, 77

¹⁰¹⁷ Henderson, *Science of War*, 269 – 272; see also Eicher, *Longest Night*, 490–493

toward what would become the battle of Gettysburg with good intelligence and screening support from his cavalry, allowing him to place forces around the town in advance of Confederate arrival, establish strong positions where he would bring his converging forces, and determine Lee's own advance. By contrast, the bulk of Confederate cavalry under Stuart was raiding many miles away, leaving Lee's Army of Northern Virginia to cautiously advance on Gettysburg with poor intelligence, unsure of Meade's positions and directly losing 'rival time' to the Union commander's gain.¹⁰¹⁸

Operational Mobility

One of the South's few strategic advantages was the extent and nature of its geography, giving it considerable strategic depth.¹⁰¹⁹ Its configuration, trisected by the Appalachians and Mississippi, formed the two theatres of the war: The Western, across the Mississippi plain, and the Eastern, across the Atlantic plain and including the Shenandoah Valley, which formed a strategic corridor from the Confederate interior into Maryland, threatening Washington.¹⁰²⁰ Fighting in the Eastern theatre was mainly concentrated around Virginia and Maryland, between Washington and Richmond, but this still presented a broad zone of operations for Civil War commanders. The area consisted of often dense terrain, crossed by numerous rivers, and was poorly surveyed, leaving both sides wanting for maps essential to campaigning.¹⁰²¹ Under these conditions, commanders encountered obvious temporal constraints in operational movements, for example, during the 1864 Overland Campaign, Grant tried multiple times to turn Lee's flank, and both had to

¹⁰¹⁸ Nofi, *Gettysburg Campaign*, 55-57; Henderson, *Science of War*, 288; Eicher, *Longest Night*, 495

¹⁰¹⁹ Beringer et al, *Why the South Lost*, 129, 249

¹⁰²⁰ Winters et al., *Battling the Elements*, 121 – 123; Keegan, *American Civil War*, 143 - 144

¹⁰²¹ Keegan, *American Civil War*, 95-96, 243-244; see also for example, Hattaway & Jones, *How the North Won*, 193-194

find suitable routes through areas with few roads and dense riverine forests, slowing their movements.¹⁰²² Grant's forces would be met by Lee's reformed front, for the Confederate commander could move on interior lines quicker than Grant on the external, maintaining a relative time advantage which forced Grant to commit costly frontal assaults on entrenchments.¹⁰²³

Given the considerable distances and often difficult terrain of North America, railways became an essential feature of operational movement,¹⁰²⁴ and formed part of the configuration of the theatre in respect to the base lines of the armies. Union armies could employ the Baltimore & Ohio Rail-Road as a base for operational advances, along with the coast and waterways. The Confederacy could use the Virginia Central Railway along with the Shenandoah Valley and its railheads (Fig. 20).¹⁰²⁵ But these were more than merely supply lines; railways greatly increased the speed at which considerable quantities of supplies and manpower could be moved and concentrated, especially when organised via telegraph; to paraphrase Beringer et al, high-speed had the same effect as less distance.¹⁰²⁶ Thus rail effectively 'contracted' strategic 'spacetime' at upper levels of strategy, by allowing the rapid movement of troops and war materials to decisive points.¹⁰²⁷ The centrality of railways to timely operational (and strategic) movement, however, also made them a military target for rebel guerrillas and long-distance independent raids by both

¹⁰²² See also Murray & Hsieh, *Savage War*, 39, 60-65

¹⁰²³ Griffith, *Battle Tactics*, 186, See Burne, *Lee, Grant and Sherman*, 32-34, 42-45,

¹⁰²⁴ Gray, *War*, 58; Murray & Hsieh, *Savage War*, 39, 519

¹⁰²⁵ Beringer et al, *Why the South Lost*, 160-161

¹⁰²⁶ *Ibid.*, 237; also see Hattaway & Jones, *How the North Won* 201

¹⁰²⁷ Strachan, *European Armies*, 122-123; see also Griffith, *Battle Tactics*, 191; Stoker, *Grand Design*, 262-3

Confederate, and later Union, cavalry forces, seeking to degrade the enemy's use of this time-compressing asset.¹⁰²⁸

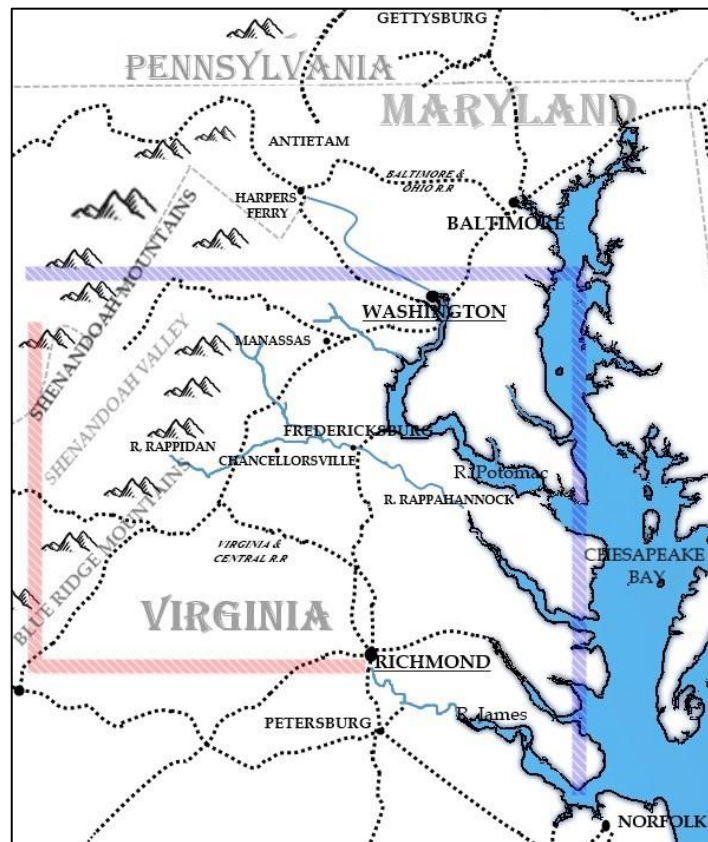


Figure 20: Map of Eastern Theatre showing 'lines of base'

Whilst both sides used railways, the Confederacy, with its smaller forces, and (usually) defensive footing, was particularly enhanced by rail augmenting its strategic, and operational, interior lines, evidenced by Confederate movements before the first significant battle of the conflict; First Manassas (21st July 1861).¹⁰²⁹ Gen. Beauregard, near the rail hub at Manassas Junction, learnt of the advancing Union army of 30,000 under McDowell on the 16th of July. With only 20,000 men, Beauregard was likely to lose any engagement and so telegraphed to Richmond, requesting reinforcement; speed was imperative to concentrate the forces together in

¹⁰²⁸ Indeed, Grant used Sheridan's cavalry to this effect during his Overland campaign. See Beringer et al, *Why the South Lost*, 310; Jones 'Military Means', 62, 70-74; Stoker, *Grand Design*, 257; Hattaway & Jones, *How the North Won*, 611, 684

¹⁰²⁹ Jones, 'Military Means', 52, 57

time to avert defeat. Via telegraph again, President Davis ordered Holmes' brigade in Aquia, 25-miles south-east of Manassas, and the army of 12,000 under Johnston at the mouth of the Shenandoah Valley, 40 miles from Manassas over the Blue-Ridge Mountains, to unite with Beauregard by rail.¹⁰³⁰ Holmes arrived by the 19th and Johnston, who was theoretically pinned in the Shenandoah by the slow-to-act General Patterson, arrived with most of his force by the 20th. This overcame McDowell's numerical advantage when he attacked the following day, and the Confederates were victorious, thanks to having masterfully employed technological novelties to create temporal advantage and concentrate force in spacetime.¹⁰³¹

With a railway network behind it, an army could more easily, and quickly, draw upon the resources of the state at a single point,¹⁰³² but with only one railroad via Manassas (see figure 20) running north-south, invading armies pushed the defender onto their own network whilst foregoing theirs.¹⁰³³ This advanced the Culminating Point in the offense, benefitting the force on the operational defensive. Although mostly a problem for Union armies moving South, this particular issue is well illustrated following the Battle of Antietam in Maryland (17th September 1862): Although defeated in the battle, McClellan could replenish his force without dispersal using nearby railheads, Lee however had to disperse his army to forage for food, leaving him vulnerable.¹⁰³⁴ Without the need to disperse to forage, an army could theoretically maintain greater operational momentum, though this did not

¹⁰³⁰ Stoker, *Grand Design*, 40–43 ; Hattaway & Jones, *How the North Won*, 39–45

¹⁰³¹ Beringer et al, *Why the South Lost*, 110–111, also Murray & Hsieh, *Savage War*, 106–109

¹⁰³² Strachan, *European Armies*, 123; See also Hattaway & Jones, *How the North Won*, 332

¹⁰³³ Keegan, *American Civil War*, 85–7

¹⁰³⁴ Jones 'Military Means', 60; also Hattaway & Jones, *How the North Won*, 244

noticeably occur that frequently, perhaps as Griffith argues, due to over-caution which squandered time and opportunity.¹⁰³⁵

Even when removed from railways, Civil War armies could be remarkably mobile when terrain allowed; in a large zone of operations this could prove opportune for the competent commander to use space and time to their advantage. Jackson's 1862 Shenandoah Valley Campaign, 'one of the most brilliant... in military history',¹⁰³⁶ finely illustrated the possibilities of mobility and tempo obtainable on foot: Jackson used the Valley's complex terrain of waterways, ranges and passes to rapidly move his small army of 17,000 men around the environment, at times covering 30 miles a day; earning them the sobriquet 'foot cavalry'.¹⁰³⁷ Such was the pace that his enemy, Union commander General Banks, was confused as to where Jackson would next attack, and was unable to concentrate against him, whilst Jackson quickly isolated Union detachments and defeated them in detail.¹⁰³⁸ With echoes of Jomini and Sun Tzu, Jackson explained; 'mislead, and surprise the enemy...by... manoeuvring [sic]hurl your ...force onthat weakest part, of your enemy'¹⁰³⁹ Having ejected Banks from the Valley, Jackson threatened Washington; in response larger Union forces under McDowell and Fremont were tasked to join Banks (totalling 60,000 men), converge upon the valley, surround Jackson, and destroy his army.¹⁰⁴⁰ However, the swift Jackson slipped the net and headed for Richmond by rail; in line with Lee's wider operational plan, Jackson's small army

¹⁰³⁵ See Griffith, *Battle Tactics*, 190–193

¹⁰³⁶ Stoker, *Grand Design*, 150

¹⁰³⁷ Davis, *Jackson*, 88–95

¹⁰³⁸ Keegan, *American Civil War*, 144–145; Davis, *Jackson*, 86–88, 90; Murray & Hsieh, *Savage War*, 176; Hattaway & Jones, *How the North Won*, 175–181

¹⁰³⁹ Jackson quoted in Davis, *Jackson*, 90

¹⁰⁴⁰ Beringer et al, *Why the South Lost*, 150,

had drawn considerable Union forces into the Valley, preventing them reinforcing McClellan's army then advancing on Richmond.¹⁰⁴¹

In more open country, operational mobility and the corps system also allowed a commander to practice the classical Napoleonic manoeuvres by convergence: At the Second Battle of Manassas (28th – 30th August), Lee enticed General Pope (Union) to concentrate on Jackson's small corps, whilst surreptitiously bringing Longstreet's corps onto the Union left flank and attacking at the moment Pope committed to an assault, catching the Union commander quite by surprise and in a position of weakness from which he had to rapidly withdraw with his whole army. The episode was all the more audacious, for Lee accurately discerned that other Union commanders nearby would not come to Pope's aid quickly enough. The Confederates thus achieved both operational concentration of forces in spacetime to defeat Pope in detail, and a tactical flanking manoeuvre by operational convergence of his corps on the field, a'la Bonaparte.¹⁰⁴²

In general, Civil War commanders held a broadly 'Napoleonic' view of space, time and force, and subscribed to the Jominian principle of concentrating force at decisive operational points in space and time as a conceptually fused 'strategic spacetime'. However, the great preponderance of manpower available to the Union ultimately allowed them to achieve what could be considered 'concentration of forces in time', as described in Chapter Three; an option which Clausewitz noted was of occasional efficacy if concentration in *space* was over-difficult.¹⁰⁴³

¹⁰⁴¹ Beringer, *Why The South Lost*, 150; Davis, *Jackson*, 86-88, 92-95; Stoker, *Grand Design*, 146–148, 150-151; Keegan, *American Civil War*, 144; Murray & Hsieh, *Savage War*, 176-181

¹⁰⁴² Stoker, *Grand Design*, 166–167; Davis, *Jackson*, 130–136; Strachan, *European Armies*, 44; also Hattaway & Jones, *How the North Won*, 223-227

¹⁰⁴³ Clausewitz, *On War*, 612, 618-9, 634

The necessity of such a strategy lay in the advantages the Confederates held in relative time, afforded by their interior strategic lines on the defensive and with the configuration of Southern strategic geography (including their railroads); as displayed at the First Battle of Manassas. Indeed, following that very first engagement of the war, Lincoln himself considered that ‘we [the Union] have...*greater* numbers...and the enemy has the *greater* facility of concentrating forces upon [‘spacetime’] points; that we must fail, unless we can find some way of making *our* advantage an overmatch for *his*...by menacing him with superior forces at *different* points, at the *same* time....’¹⁰⁴⁴ through concurrent, that is to say synchronised, concentric operations. This, he reasoned, would present the confederates with the dilemma of which Union force to confront, and so overcome their capacity to quickly concentrate decisively; in effect the employment of a ‘concentration in time’, to challenge a technical advantage in concentration in spacetime.¹⁰⁴⁵

However, as Stoker argues, few Union generals were willing to adopt such a method, perceiving it as a violation of Jomini’s First Principle, and the idea was not finally implemented until Grant’s overland campaign in 1864, both at the strategic and operational level: Whilst Union armies across the South moved towards Virginia, Grant employed the same method at the operational level, within the Eastern Theatre, aiming to converge three armies (the Army of the Potomac, the Army of Western Virginia, and the Army of the James) on Richmond, to draw out

¹⁰⁴⁴ Lincoln quoted in Stoker, *Grand Design*, 79

¹⁰⁴⁵ See also Murray & Hsieh, *Savage War*, 168-169

and destroy the Confederate Army of Northern Virginia commanded by the formidable Lee.¹⁰⁴⁶

Battle

The technical conditions of the Civil War dictated the essential logic of tactics; armies deployed linearly for efficient fields of fire, preferably securing their flanks with natural features. On the offensive, commanders sought to concentrate force in space and time against a fraction of the enemy's battle-line to defeat it in detail. The limitations of contemporary communications meant that the control of forces was easier in deployment than during battle, where commanders could only attempt to influence the situation, usually by committing reserves to decisive points/times.¹⁰⁴⁷ As in operations, this was easier when holding interior lines; at Gettysburg, Meade's Army of the Potomac deployed along an acute battle-line shaped like an inverted 'V' across excellent defensive ground. Kept informed of the situation by signals and well-placed observers, and with aids to oversee local events in-line with his plan, Meade benefited from relatively greater situational orientation, and could quickly shift his corps along shorter interior lines at correctly timed moments to oppose and counter Confederate assaults.¹⁰⁴⁸ Lee's attacks by contrast, operating on external lines, employed synchronised frontal assaults ('concentration in time' so to speak) which aimed to stretch Meade's forces thin at multiple points at the moment of decision, and engineer success at a point of the Union lines *before* Meade could respond, i.e. to gain material surprise and thus a relative time advantage.¹⁰⁴⁹ On the 2nd of July this had failed on Meade's left with Longstreet's Corps, and against the

¹⁰⁴⁶ Griffin, 'Command and Control', 32

¹⁰⁴⁷ Griffith, *Battle Tactics*, 60-63; Strachan, *European Armies*, 20, 25

¹⁰⁴⁸ J. Wert, *Gettysburg, Day Three* (New York: Touchstone-Simon & Shuster, 2001), 51, 208; Stoker, *Grand Design*, 297; for example see Sears, *Lincoln's Lieutenants*, 563

¹⁰⁴⁹ See Chapter Three; Griffith, *Battle Tactics*, 60-61; Strachan, *European Armies*, 20-25

Union centre on the 3rd; Pickett's infamous Charge, in which 15,000 men openly advanced over nearly three-quarters of a mile under devastating fire, before being repulsed by counter-attack.¹⁰⁵⁰

Clausewitz deemed the defence the most powerful footing in his time,¹⁰⁵¹ and by 1860 it had become even stronger through small-arms development and the wide adoption of rifled-muskets bearing greater range and precision than the earlier smooth-bores.¹⁰⁵² With greater firepower infantry could cover small gaps in their line, foregoing the need for a continuous battlefront,¹⁰⁵³ allowing forces to occupy broader areas and so distending the battlefront through space, with corresponding increases in the times of movements. Fredericksburg in 1862, Gettysburg, and Union assaults on Confederate trenches at Petersburg in 1864, all illustrate the growing power of the defensive and the difficulty in concentrating force in time and space to overcome it. Although defence was strong, an advancing commander was still mobile and, if competent, could manoeuvre force to flank or envelop the defender; using force, space and time to create potentially decisive points,¹⁰⁵⁴ as per the advice of the Napoleonic theorists.¹⁰⁵⁵

Lee's tactical masterpiece, the Battle of Chancellorsville (30th April – 6th May 1863) shows the possibility:¹⁰⁵⁶ Using 14,000 men to fix Hooker's advancing 72,000 in place, Lee expertly moved the main Confederate force (42,000) under Jackson, rapidly and unexpectedly 20 miles across the battle-front through dead ground, to

¹⁰⁵⁰ Stoker, *Grand Design*, 297

¹⁰⁵¹ Clausewitz, *On War*, 84, 358

¹⁰⁵² Strachan, *European Armies*, 17, 113; Nosworthy, *Bloody Crucible*, 22-35, 40-41

¹⁰⁵³ Beringer et al, *Why the South lost*, 114

¹⁰⁵⁴ Henderson, *Science of War*, 76

¹⁰⁵⁵ See chapter Three

¹⁰⁵⁶ G. W. Gallagher, "'Upon Their Success Hang Momentous Interests': Generals", in G. Borrit (ed.), *Why the Confederacy Lost*, paperback edition, (New York: Oxford University Press, 1993), 105

attack Hooker's exposed flank.¹⁰⁵⁷ This achieved devastating surprise and inflicted over 16,000 casualties; unable to counter and reform his front, Hooker was forced to withdraw.¹⁰⁵⁸ However, feats of rapid movement and shock were specialisations not doctrinal regularities, and such movements were frequently slowed by conditions and fatigue.¹⁰⁵⁹ Furthermore, where Napoleonic commanders fielded elite forces to enter the fray at decisive spacetime points, a'la Jominian lore, American commanders did not,¹⁰⁶⁰ undermining their ability to use force in time, to influence the situation.

Cavalry

The cavalry charge, traditionally the instrument of decision, was atypical of Civil War battle, at least for the first three years of the war.¹⁰⁶¹ Rarely suited to the terrain it was also difficult and expensive to train, supply and use, whilst improved firepower meant infantry could better defend itself in loose formations, diminishing the need of even using cavalry to disperse infantry.¹⁰⁶² Lack of cavalry also deprived American commanders of a force for pursuing a defeated enemy and consolidating victory, allowing armies to withdraw safely thus making battle less decisive.¹⁰⁶³ When used, cavalry was frequently small in numbers (250 men at Gaine's Mill) and thus of limited impact in achieving Jomini and Clausewitz's advice on the direct application of force to decisive points. This was partly due to the quality and size of

¹⁰⁵⁷ Murray & Hsieh, *Savage War*, 260-261; Hattaway & Jones, *How the North Won*, 379-383

¹⁰⁵⁸ Stoker, *Grand Design*, 258; Davis, *Jackson*, 183-184; R. Field, *Robert E. Lee* (Oxford: Osprey Publishing, 2010), 27-29; Maurice, *Robert E Lee*, 189-183; see also J. F. C. Fuller, *Grant & Lee: A Study in Personality and Generalship* (London: Indiana University Press, 1957), 187-188 and Eicher, *Longest Night*, 479-480

¹⁰⁵⁹ Keegan, *American Civil War*, 338; Griffith, *Battle Tactics*, 186, 191

¹⁰⁶⁰ Griffith, *Battle Tactics*, 65

¹⁰⁶¹ Henderson, *Science of War*, 55, 246-268; Griffith, *Battle Tactics*, 66-67, 179, 181-182

¹⁰⁶² Griffith, *Battle Tactics*, 180; Beringer et al, *Why the South Lost*, 14 - 15; Strachan, *European Armies*, 84; Nosworthy, *Bloody Crucible*, 286-289, 297, 305,

¹⁰⁶³ Beringer et al, *Why the South Lost*, 171; Griffith, *Battle Tactics*, 29, 38

the force, but also the timing of their commitment to poorly chosen targets:¹⁰⁶⁴ On the third day of Gettysburg, over an hour after the breaking of Pickett's Charge, Kilpatrick, commanding Union 3rd Cavalry Division on the Union left and uncoordinated with other forces in the area, ordered an attack on the Confederate right where infantry had had time to jury-rig barricades from fences. Against this Kilpatrick committed three regiments of Farnsworth's brigade (approx. 1,500 in total) in three *successive* frontal charges over extremely rough ground - a bloody fiasco that cost Farnsworth his life.¹⁰⁶⁵

Just before this action, however, to the north-east of the battlefield, Union cavalry under Gregg on Meade's right had success with sabres against Stuart's brigades of mounted pistoliers,¹⁰⁶⁶ representing a maturing capability of Union cavalry seen the previous month at Brandy Station; with approximately 10,000 aside, this was a large battle with cavalymen fighting on foot, but also in small charges.¹⁰⁶⁷ By 1864, Union cavalry, under the enterprising Sheridan, had developed beyond light roles of screening, scouting and raiding, and as mounted infantry, to sabre charges against infantry. This gave Union cavalry units, supported by horse artillery, the qualities of a mobile all-arms force¹⁰⁶⁸ that, according to Henderson 'struck the true balance between shock and dismounted tactics',¹⁰⁶⁹ and could deliver power quickly and precisely to decisive points. In the 1864 Shenandoah Campaign, Sheridan quickly swept the valley of Early's Confederates with his cavalry-centric force, undertaking

¹⁰⁶⁴ Griffith, *Battle Tactics*, 179 - 180; Henderson, *Science of War*, 269-271

¹⁰⁶⁵ E. J. Wittenberg, *Gettysburg's Forgotten Cavalry Actions: Farnsworth's Charge, South Cavalry Field, and the Battle of Fairfield, July 3, 1863* [Kindle edition] (Casemate Publishers, 2011), 41-50; Coddington, *Gettysburg Campaign*, 523-526

¹⁰⁶⁶ Coddington, *Gettysburg Campaign*, 520-523

¹⁰⁶⁷ Henderson, *Science of War*, 270; Eicher, *Longest Night*, 490-493

¹⁰⁶⁸ Griffith, *Battle Tactics*, 183-188

¹⁰⁶⁹ Henderson, *Science of War*, 55, 60, 268;

decisive massed charges (with the sabre!) at Winchester (19th September) and Cedar Creek (19th October).¹⁰⁷⁰

In the following Overland Campaign Sheridan's cavalry would perform in a hybrid manner, conducting all-arms missions to seize decisive points in advance of slower infantry, with reserves for the charge at the right moment, or to divide the enemy when dispersed.¹⁰⁷¹ In this manner, on April 1st 1865, Sheridan's cavalry and two corps of infantry won the battle of Five Forks, endangering Lee's line of communication and forcing him to withdraw from his entrenched position around Petersburg; Sheridan's mobility then allowed him to block Lee's withdrawal, resulting in the Third Battle of Petersburg and, in turn, Lee's surrender on the 9th.¹⁰⁷²

Time: Time in Civil War tactics and operations

The case of the Civil War's Eastern Theatre illustrates to us that the capacity for command to achieve decision through the application of force in spacetime is influenced by conditions across the strategic dimensions. Although 'Napoleonic' in many technical and conceptual respects, material and doctrinal differences (such as telegraph) gave American commanders the ability to contract the 'time cycles' in which they could receive intelligence and issue orders, whilst rail networks, where usable, were revolutionary to operational movement and concentration in strategic spacetime. However at the tactical level, where technical speeds slowed, commanders had to function within time-scales similar to those of their

¹⁰⁷⁰ Stoker, *Grand Design*, 385; see also Nosworthy, *Bloody Crucible*, 493-495; Eicher, *Longest Night*, 743-753

¹⁰⁷¹ Griffith, *Battle Tactics*, 184-188

¹⁰⁷² And so ending effective Confederate resistance in the East. Beringer et al, *Why the South Lost*, 332-336; Murray & Hsieh, *Savage War*, 499-503

predecessors, constrained by the need for their direct presence and the use of age-old methods to inform and employ their *coup-d'oeil*.

Both sides could exploit the new technologies, providing technically equal time use, albeit variably; Confederate commanders like Lee and Jackson were audacious and quick, whilst Union officers had quantitative, and slight qualitative, technological edge. Yet neither possessed consistent relative temporal advantage, despite its objective improvement compared to their predecessors; thus is tactical and operational time use, relative and actual, determined by conditions across the dimensions of war.

Several factors impeded the capacity to use force in time to effect decisive offensives - the strength of the defence (aided by improvements in firepower) and dense terrain (which was often uncharted), although this did not necessarily cause any more friction than in Napoleonic campaigns. As Griffith points out, the greater obstruction lay in the lack of a suitably mobile tactical force to apply at decisive points or pursue withdrawing enemy forces, compounded by the doctrinal disinclination to do so for much of the war;¹⁰⁷³ at odds with the Napoleonic influence, but in line with American custom.

Armies retained relatively good operational mobility in the withdrawal and could disengage safely, rather than be decisively incapacitated in the field, whilst their size and strength in the defence made them particularly robust.¹⁰⁷⁴ Commanders were thus cautious to commit to risky attack and pursuit without significant advantage and, as a result, Civil War battle was often strategically indecisive. Commanders did

¹⁰⁷³ Griffith, *Battle Tactics*, 191-192

¹⁰⁷⁴ Beringer et al, *Why the South Lost*, 50-51, 239-240; Hattaway & Jones, *How the North Won* 46

not, or could not, easily translate ‘minor’ tactical decision into clear advantages at the higher levels of war, or conduct a high tempo of operations as Napoleon had, thus the conflict was fought over time through multiple attritional engagements.¹⁰⁷⁵ Nevertheless the case shows that, despite the use of technologies which significantly altered specific values of time in command and movement, practical consideration of the ‘crude calculation’ of force, space and time, still had to be made for tactical and operational success, and was comprehended in the same forms defined by the Napoleonic theorists, and even Sun Tzu long before them:¹⁰⁷⁶ Concentration of suitable force at decisive points and moments as the first principle, employed by an agile, oriented mind. The specific values in the equation altered but the formula remained. That *certain success* by formula was not achievable is not peculiar; friction and the enemy frustrate even good plans in implementation, yet Civil War campaigns and battles show the principles of time use at these levels in practice as sound when achieved, if limited. Meade’s use of reserves on interior lines, Lee’s turning movement at Chancellorsville, concentration by rail, Sheridan’s maturing use of cavalry in the charge, etc. all worked in line with Jomini’s First Principle: The phrase attributed to the rustic Confederate general N.B. Forrest, and which succinctly describes Jomini’s First Principle, ‘...get there fustest with the mostest men’¹⁰⁷⁷, sums up much of the necessities and reasoning for tactical and operational Civil War command regarding time. To this end, both sides pursued a policy of destroying the other’s rail networks, cutting supply flows and hindering their ability to concentrate in ‘strategic spacetime’; pre-empting Singh’s points on targeting the enemy’s infrastructure to create asymmetries in time use.

¹⁰⁷⁵ Griffith, *Battle Tactics*, 190–192; Griffin, ‘Command and Control’, 2-3

¹⁰⁷⁶ Chapter Three

¹⁰⁷⁷ Maurice, *Robert E. Lee*, 21

Eventual Union victory in the Eastern Theatre, and thus the war, however, would be delivered by Grant's use of simultaneous concentric advances of multiple army groups in the campaigns of 1864-5, alongside targeting of the Confederate war effort, resources, and civilian morale. Interestingly, the concentric plan was objected to by Halleck because it abandoned the principle of spatial concentration of force,¹⁰⁷⁸ in favour of what Clausewitz almost described as '*concentration in time*'. Stoker points out that this was a strategic-level plan rather than operational, and so not contrary to the principle of concentration at the lower levels of war.¹⁰⁷⁹ Nevertheless the essence of the plan also cascaded to the operational level, with Grant's movements upon Virginia with three armies, effectively constraining the Confederates ability to employ interior lines for concentration in 'strategic spacetime', their principal employment of time; much as Lincoln had considered following First Manassas. With much larger, mobile armies and greater resources, as well as the technical capability to command them, Grant could undertake such manoeuvres; as Jomini and Clausewitz both understood, there are exceptions to the 'rules.'¹⁰⁸⁰

¹⁰⁷⁸ Stoker, *Grand Design*, 375–394, 412

¹⁰⁷⁹ *Ibid.*, 79

¹⁰⁸⁰ Handel, *Masters of War*, 363

The Western Front

The second case considered here regards the use, and challenges to use, of time and timing on the Western Front of the Great War, known for entrenched stalemate, attritional warfare, and the destructive power of the industrial age. A number of the specific tactical problems that confronted commanders and armies in respect to time on the Western front had been encountered previously, from Balaclava to Gettysburg to Muckden and others, though never as comprehensively or in such scale and severity. Although they had been examined individually before the war¹⁰⁸¹ the total problem had not been confronted or resolved, nor could it likely have been without hard learning in the field.¹⁰⁸² Here we discuss how those conditions shaped the character of war and in turn, the use of time by commanders, allowing and/or denying the development of decisive points in strategic spacetime, and how this situation was engaged.

Stalemate

Much of the political and strategic context of the war has been examined in Chapter Four, as well as the strategic and operational necessity perceived by the German General Staff: to win a quick, decisive victory against France with the fast envelopment of French armies, via manoeuvre through the Low Countries, followed by decisive battle. Yet in practice the ‘Schlieffen-Moltke Plan’ proved too ambitious in its demands upon force in strategic spacetime: even with Moltke’s revisions, the

¹⁰⁸¹ Henderson, *Science of War*; See also Strachan, *European Armies*, 128; Howard, ‘M. Howard, ‘Men Against Fire: The Doctrine of the offensive in 1914’, in Paret et al (eds.), *Makers*, 513-514; see also T. Travers, *The Killing Ground: The British Army, The Western Front & The Emergence of Modern War 1900-1918*, Pen & Sword Edition. (Barnsley: Pen & Sword Military Classics, 2003), 62-69, 89-90

¹⁰⁸² Gray, *War*, 81; Aimée Fox has provided a recent study on how this was undertaken in the British Army, see A. Fox, *Learning to Fight: Military Innovation and Chance in the British Army 1914-1918* (Cambridge: Cambridge University Press, 2018)

plan called for a wide operational turning movement of the right wing consisting of the First, Second and Third armies through Belgium into Northern France; whilst the Fourth and Fifth moved forward through Luxembourg to fix French forces at their developed border positions. Consequently, on the far right end of this manoeuvre Alexander von Kluck's First Army of a quarter-of-a-million men would have to cover approximately 400 miles in 25 days to encircle Paris.¹⁰⁸³ This right wing had initial success through August 1914 in the Battle of the Frontiers, pushing French forces and the British Expeditionary Force aside as it drove into France, until diverted from its original objective and drawn east of the French capital to assist Second Army under von Bülow, checked by the French under Lanrezac at Guise.¹⁰⁸⁴

There, around the Marne valley the German offensive met its Culminating Point at the First Battle of the Marne (6th- 9th September 1914); elements of the right wing had been held back to occupy ground and contain the Belgians at Antwerp, while other units had been sent to the Eastern Front by Moltke who believed the battle for France all but won. Although the German army had 24.5 divisions against 17.5 Allied, logistics were struggling to catch up with the quick offensive, and the right wing was running out of momentum. Great advances in technology enabled the Entente to concentrate their forces in space and time via railways, much as the Confederates had before First Manassas, bringing their strength in the Marne region to 41 divisions within a few days.¹⁰⁸⁵ Poorly coordinated by Moltke (who had placed his HQ 150 miles away in Luxembourg), unable to coordinate operations, or liaise between themselves,¹⁰⁸⁶ Kluck turned to face the French Sixth Army defending Paris, creating a gap between First and Second armies, which Bülow then enlarged

¹⁰⁸³ J. Terraine, *The Great War, 1914–18*, 2nd edition (London: Arrow Books Ltd., 1967), 47

¹⁰⁸⁴ Fuller, *Conduct of War*, 158; Strachan, *First World War*, 57

¹⁰⁸⁵ Strachan, *First World War*, 57

¹⁰⁸⁶ Ibid.; Crevel, *Command*, 154-155

trying to protect his own flank. Into this gap, against Kluck's exposed left, the BEF advanced,¹⁰⁸⁷ forcing the German right wing to withdraw to the line of the River Aisne where they entrenched. Unable to drive them back, the British and French also dug in, extending the static conditions between Verdun and Switzerland occasioned by French pre-war fortifications (which the right wheel through Belgium had sought to avoid), to Paris.¹⁰⁸⁸ The Marne was decisive in this regard, not because it ended the war, but because with the failure of the German offensive, the war was more likely to be prolonged.¹⁰⁸⁹

To the north of Paris however there was still room to manoeuvre, and so began the so-called 'race to the sea' through Northern France and Flanders, the last true period of mobility on the Front until 1918, with each side trying to gain the enemy flank.¹⁰⁹⁰ This culminated with the First Battle of Ypres (October 19th – 22nd November 1914) near the Flemish coast, where outnumbered British, French and Belgian forces barely managed to halt a fresh German advance aiming to wrest control of Ypres and roll up the Entente line.¹⁰⁹¹ With the English Channel to their northern flanks there was now no more room for either army to manoeuvre - no flank to turn: The American Civil War Overland Campaign of 1864 had seen both trenches and the operational turning manoeuvre to dislodge the enemy from works, but both sides in the 'Race to the Sea' could hold their fronts whilst extending their lines to flank.

As discussed previously, population growth, social forces, conscription laws and the 'inventions of art and science' of the late-19th and early-20th Century allowed ever

¹⁰⁸⁷ Fuller, *Conduct of War*, 158-159;

¹⁰⁸⁸ Strachan, *First World War*, 56

¹⁰⁸⁹ Terraine, *White Heat*, 103

¹⁰⁹⁰ *Ibid.*, 106-8

¹⁰⁹¹ *Ibid.*, 106-110; Sheffield, *Forgotten Victory*, 109

larger, more mobile, and powerful armies. In Europe, with its large population, industry and rail density, the results were acute: Gettysburg (1863) had *almost* rivalled Jena, during the Prussian Wars Konnigratz (1866) eclipsed the largest battles yet seen in the West, with over 400,000 combatants deployed over 60 miles.¹⁰⁹² However, by 1914 major operations were considered in terms of *millions*. Such a ratio of force-to-space concentrated on this strategically narrow, relatively ‘small’ yet decisive front, prevented operational turning and, alongside defences already established on France’s eastern border, the result was a near-continuous line of defences stretching from the seacoast to the Alps, solidifying quickly as positions and formations were reinforced by railroad. This necessitated a conduct of war more akin to a gigantic siege, focused primarily in the particular geography of Northern France and Flanders.¹⁰⁹³

Despite the failure of the offensive, German armies held the strategic initiative at the end of 1914, occupying great tracts of Belgium and the industrial zones of Northern France (Figure 21). Additionally they benefited from strong defensive positions; to remove them Entente forces would have to attack, determining the conduct of conflict on the Front to be entrenched stalemate until 1918.¹⁰⁹⁴

¹⁰⁹² Creveld, *Command*, 105

¹⁰⁹³ Gray, *War*, 91; Fuller, *Conduct of War*, 157; Terraine, *White Heat*, 44–46; See also Strachan, *European Armies*, 130–135; Mombaur, *Moltke*, 101–105

¹⁰⁹⁴ Terraine, *Great War*, 59, 110 ; Sheffield, *Forgotten Victory*, 108–109; Strachan, *European Armies*, 133, 139; W. Philpott, *Attrition: Fighting the First World War*, paperback edition (London: Abacus, 2014), 44–45

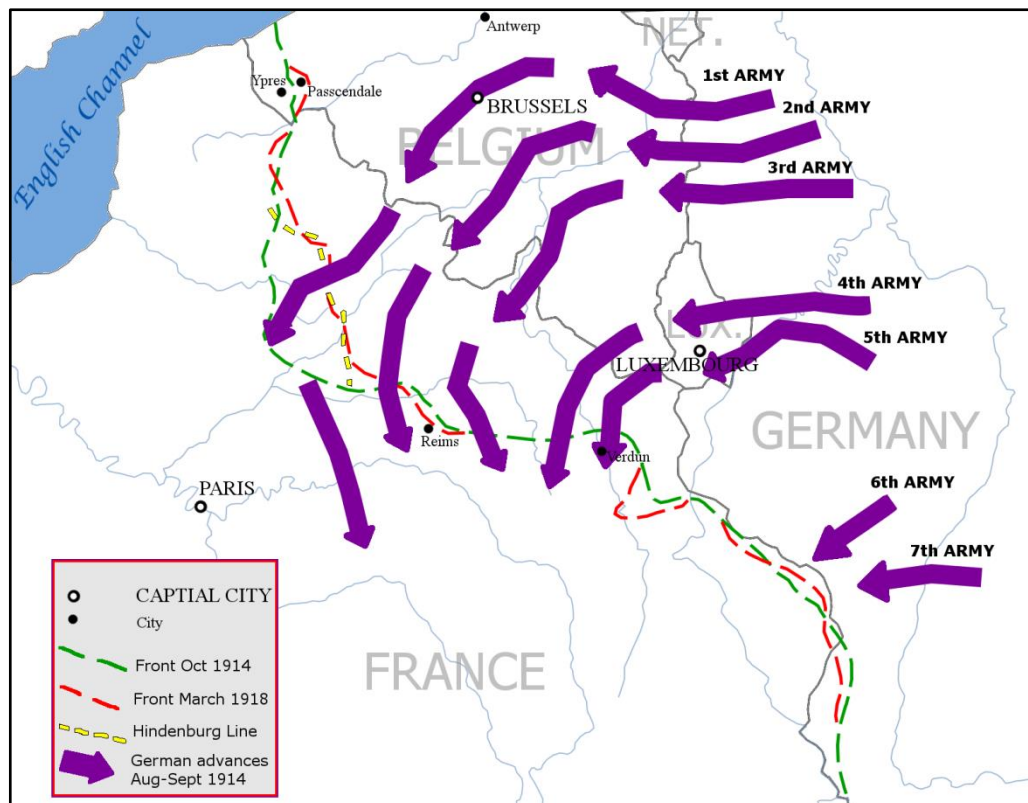


Figure 21: German Advance and the Western Front 1914- 1918

Defensive Power

The extent of the Front brought with it iteration, or rather ‘scaling up’, of the tactical problems of trench warfare across 400+ miles. This produced something of a ‘collapse’ in the tactical and operational levels of strategy: The expansion of force and the battlefield had led Schlieffen to theorise that future warfare would involve ‘integrated operations’ wherein battles formed a continuous ‘Gesamtschlacht’, rather than distinct battles after a period of operational manoeuvre.¹⁰⁹⁵ In essence this would prove true with distensions of tactical space and time: Battles had lasted a day or two in the American Civil War but on the Western Front the scales of forces,

¹⁰⁹⁵ M. Geyer, ‘German Strategy in the Age of Machine Warfare’, in Paret et al (eds.), *Makers*, 530-532

supply and fronts meant they would last for months of continuous fighting,¹⁰⁹⁶ whilst the ranges of firepower, army size and range, and dense railroads, extended *battle* across tens if not hundreds of miles.¹⁰⁹⁷ Additionally, with a continuous presence in the field supported by industrialised logistics, war could be conducted regardless of the season, allowing year-round campaigning.¹⁰⁹⁸ Much like the armies of the American Civil War, Philpott points out this matter of scaling and industrial logistics made Great War armies practically impossible to destroy in the field.¹⁰⁹⁹

The principal difficulty of operations and, for that matter, strategy was essentially tactical on the Western Front; the increasing power of defence.¹¹⁰⁰ Clausewitz had explained that defence was the strongest form of warfare in his time,¹¹⁰¹ and we have seen that the rifles of the American Civil War and entrenchment increased its effectiveness, but the relative power of defence during the Great War has rarely been matched.¹¹⁰² Trenches were but part of the problem, the other was the ‘storm of steel’;¹¹⁰³ small-arms improvements from 1815 to 1860 had already illustrated the ‘tactical crisis’ of advance under modernising firepower, evidenced by Pickett’s charge at Gettysburg against muzzle-loading rifles. By 1890 breech-loading repeating rifles had consistent effective ranges of 600 yards and fire-rates of over 5 rounds-per-minute.¹¹⁰⁴ Machine guns had also matured from the mechanical Gatling gun of the mid 1860s; the Vickers’ Medium-Machine-Gun could fire 250 rounds-

¹⁰⁹⁶ Strachan, *First World War*, 161

¹⁰⁹⁷ M. Howard, ‘Men Against Fire’, 510–511; also Philpott, *Attrition*, 244

¹⁰⁹⁸ Strachan, *WWI*, 161

¹⁰⁹⁹ Philpott, *Attrition*, 59, 65

¹¹⁰⁰ Gray, *War*, 92

¹¹⁰¹ Clausewitz, *On War*, 84

¹¹⁰² Howard, ‘Men Against Fire’, 526; see also Philpott, *Attrition*, 65–66

¹¹⁰³ See Philpott, *Attrition*, 143–147

¹¹⁰⁴ Sheffield, *Forgotten Victory*, 111

per-minute and gave incredible defensive firepower when deployed in stationary batteries;¹¹⁰⁵ each could sweep a 500-yard wide, 2,500-yard deep area.¹¹⁰⁶

But above all, artillery would prove dominant, accounting for the majority of casualties:¹¹⁰⁷ Great War pieces were far superior to their predecessors, with ranges over 5,900 yards, some ranging 22,300 yards.¹¹⁰⁸ Recoilless carriages allowed continuous accurate shelling¹¹⁰⁹ with batteries able to fire thousands of shells an hour.¹¹¹⁰ However, artillery also turned the battlefield into cratered moonscapes, providing cover but slowing movement,¹¹¹¹ whilst a prolonged unambiguous bombardment might signal to the defender an attack was likely at a certain locale; removing surprise and the advantages in relative time it affords.

When men left their trenches and went ‘over the top’ they were fully exposed to this firepower as they crossed ‘no-man’s-land’ to enemy positions; these could be a thousand yards away, as at the Battle of the Somme (1 July – 18 November 1916),¹¹¹² and movement would be slowed by factors of incidental friction; cumbersome equipment, obstacles, barbed wire, and shell-craters; the infamous mud of the region was a hazard in itself.¹¹¹³ With mobility and the ability to use force in strategic spacetime so undermined by endemic geographic and technical factors,

¹¹⁰⁵ Sheffield, *Forgotten Victory*, 111; Strachan, *European Armies*, 138.

¹¹⁰⁶ P. Griffith, *Battle Tactics of the Western Front: The British Army's Art of Attack 1916 – 18* (London: Yale University Press, 1994), 38

¹¹⁰⁷ Sheffield, *Forgotten Victory*, 111

¹¹⁰⁸ Griffith, *Western Front*, 136

¹¹⁰⁹ Howard, ‘Men Against Fire’, 510–511; Strachan, *European Armies*, 119

¹¹¹⁰ Strachan, *European Armies*, 135

¹¹¹¹ Griffith, *Western Front*, 43–44

¹¹¹² Sheffield, *Forgotten Victory*, 164

¹¹¹³ Winters et al., *Battling the Elements*, 40–42

casualties were worse in open offensives; in the September of the Marne counterattack, for example, French losses reached 238,000.¹¹¹⁴

Trenches

Men escaped firepower by entrenchment, initially to confer defence before attack. However, by their nature trenches are static and bolster defence and, occupied and developed over extended periods, their defensive power improved;¹¹¹⁵ German trenches could be particularly well designed, weighted to the rear to avoid enemy artillery and exploit defence-in-depth with a 'web' of concrete hard-points and connecting trenches,¹¹¹⁶ with further lines (as many as six) to fall back upon¹¹¹⁷ (Fig . 22). This increased the distance attackers would have to move through to objectives, whilst under fire;¹¹¹⁸ a trading of space to impose disorder and attrition on advancing enemies, gaining time for the defender to organise counterattacks.¹¹¹⁹ Trench systems were in turn supported and replenished by lateral rail networks, allowing quick transfer of reserves to decisive points.¹¹²⁰

¹¹¹⁴ Strachan, *First World War*, 160

¹¹¹⁵ Philpott, *Attrition*, 154-155, 277

¹¹¹⁶ Terraine, *White Heat*, 144; See also Philpott, 154-155, 277 and J.C. Dunn, *The War The Infantry Knew 1914-1919*, Abacus Edition (London: Abacus, 1994), 302, 409, 416

¹¹¹⁷ Tuck, 'Land Warfare', 84

¹¹¹⁸ Strachan, *European Armies*, 140

¹¹¹⁹ This depth-and-counterattack was the core of German defensive tactics; G. Sheffield, *Command and Morale: The British Army on the Western Front 1914-1918* (Barnsley: Praetorian Press, 2014), 59; Tuck, 'Land Warfare', 84-85; see also Dunn, *The War*, 346

¹¹²⁰ Sheffield, *WWI*, 121; Gray, *War*, 94; See S. Bull, *German Assault Troops of the First World War*, (Stroud: Spellmount. 2007), 21-32, 55-77

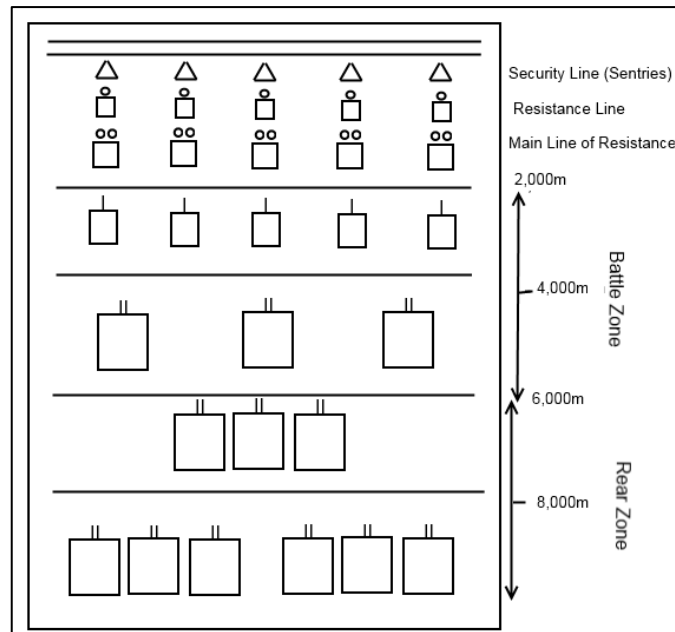


Figure 22: Defence in Depth – Late First World War German Lines, after Samuels.¹¹²¹

The defender thus held the temporal advantages in relative time of interior lines, even if their positioning was not physically shorter than the attacker's front; they could use spacetime in the same way, with quickly organised reserves concentrated at decisive points. Clausewitz had warned of the danger of failing to exploit successes and maintain momentum following battles on parallel fronts; where envelopment was not possible and the enemy could fall back on their lines of communication.¹¹²² This was quite similar to the issue on the Western Front in that momentum could not be maintained: even if an attacking force managed to break *into* a section of front, the defender could withdraw onto their own reserves, whilst holding the flanks around the attacker's salient and then counterattacking with fresh reserves under their own guns.¹¹²³ The further one 'pushed' into deep enemy defensive lines, the more easily the enemy could draw upon their reserves. By contrast the attacker, always effectively working with the temporal disadvantage in

¹¹²¹ M. Samuels, *Doctrine and Dogma*, portrayed in Tuck, 'Land Warfare', 85

¹¹²² Clausewitz, *On War*, 261

¹¹²³ Strachan, *European Armies*, 138; Sheffield, *Command and Morale*, 59

relative time of *exterior* lines, had to break into a continuous fortified front, through a deep defensive zone of successive lines, and break *out through* the other side, to then *exploit* tactical success and convert it into operational effect.¹¹²⁴ Thus, the defender could outpace the exhausted attacker with rapid counterattacks.¹¹²⁵ Even powerful formations, such as the French attackers during the 1915 Champagne offensive (25th September – 4th November) struggled, with even the most successful units failing to breach the second line of German defences.¹¹²⁶

Command

Contemporary communications technology solidified the advantages of the defender in special respect to compressing the temporal aspects of command: Initially, wired telephones and telegraph were not widely available,¹¹²⁷ but as they were procured they became the informational arteries of the trench system, linking forward observers and front-line officers to formation headquarters and beyond. With these technological aids, defending commanders enjoyed an innate superiority in relative time via a contracted OODA-loop; communications networks rapidly informed orientation of the situation when under attack, and then allowed them to quickly

¹¹²⁴ R. Prior and T. Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson 1914-1918*, Pen & Sword Edition ((Barnsley: Pen & Sword Military Classics, 2004), 77; Travers, *The Killing Ground*, 130-132

¹¹²⁵ Gray, *War*, 92-93; Travers, *The Killing Ground*, 133

¹¹²⁶ Fuller, *Conduct of War*, 166; Terraine, *Great War*, 117;

Again, at the Somme in 1916, German main defensive positions were some 3,000 yards in depth. Prior and Wilson, *Command on the Western Front*, 228; The same problems confounded the Entente at the 3rd Battle of Ypres in 1917 see Philpott, *Attrition*, 277

¹¹²⁷ N. Barr, 'Command in the Transition From Mobile to Static Warfare, August 1914 to March, 1915' in G. Sheffield & D. Todman (eds.), *Command and Control on the Western Front: The British Army's Experience 1914 – 18* (Stroud: Spellmount, 2007), 20-21

draw upon reinforcements from centrally-placed reserve positions to concentrate at the decisive point and drive back the enemy.¹¹²⁸

The great scales of forces and front presented grave issues for command and control,¹¹²⁹ and necessitated that commanders be at the confluence of these communication networks, situated progressively further back from the front with every increase in scale of force and front commanded (See Fig. 23). Only there would they be able to perform the functions of command, with enough information (and a large, immobile staff to process it) to form a sufficiently accurate mental picture of the developing situation within such massive engagements, and have prompt and reliable access (relatively speaking) to reserve and support forces with which to exploit opportunity and attempt to impose their will on the battle.¹¹³⁰ Positioned rearwards by necessity, commanders of such operations were less vulnerable to enemy fire,¹¹³¹ but had little opportunity to employ personal *coup-d'oeil* if they had it, unless they drove to the front in motorcars, though they were better placed with their communications nodes.¹¹³²

¹¹²⁸ Sheffield, *Forgotten Victory*, 121; For a description of this system at army and corps level, see Prior and Wilson, *Command on the Western Front*, 182

¹¹²⁹ Philpott, *Attrition* 49-50

¹¹³⁰ See Terraine, *White Heat*, 148–149; Sheffield, *Forgotten Victory*, 121–122; Barr, ‘Command in Transition’ 26-28

¹¹³¹ Barr, ‘Command in Transition’, 28-30

¹¹³² Staffs had been greatly expanded since the middle of the 19th Century to meet increased army sizes. Without them, the functions of command would have been impossible. These were largely immobile, and though Gen. Haig managed to ride elements of his corps staff to the front in 1914, these levels were later restricted to the rear. Despite their sizes, they too suffered ‘information overload’. See Strachan, *European Armies*, 126-127; Barr, ‘Command in Transition’, 14-16

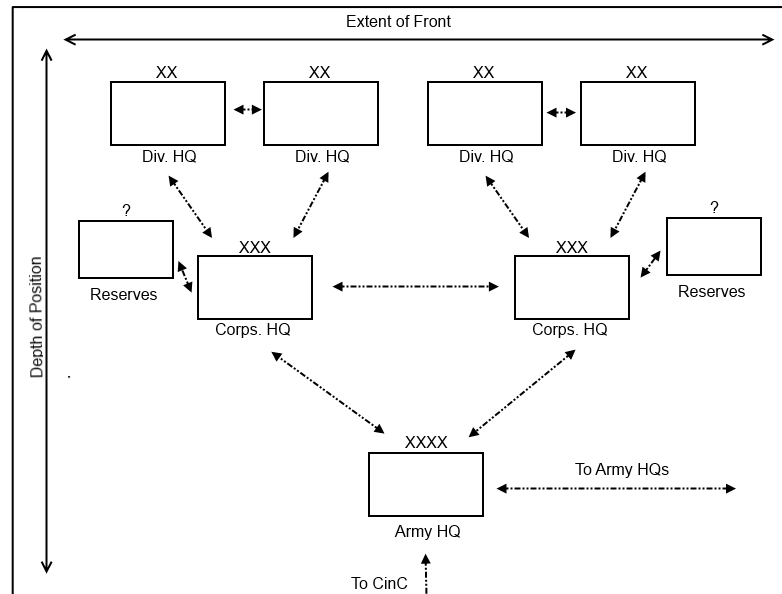


Figure 23: Communications network on Western Front.¹¹³³

Such large command systems were essential to the command of such massive forces, and allowed the commander to retain some timely control of his forces, at least in the defensive. However, he could employ few of these technically-aided temporal advantages on the offensive.¹¹³⁴ Much like during the phases of open warfare in mid-1914 and later 1918, when formations physically moved beyond their own lines, they inevitably increased the gap between themselves and established communications networks, and thus contact with command, logistical support and reserves.¹¹³⁵ This disintegrated the attacking commander's control of force in space and time, without which he could but struggle to influence the situation. German High Command had encountered this in 1914: As the right wing had advanced they outpaced telephone-wire laying and resorted to radio, but the primitive sets had poor ranges and slow signalling with complex ciphers. Thus Moltke lost control, the left wing attacked the French front, and among the right, Kluck was uncoordinated with

¹¹³³ Based on description by Sheffield, *Forgotten Victory*, 121–122

¹¹³⁴ Prior and Wilson, *Command on the Western Front*, 182, 327

¹¹³⁵ Strachan, *European Armies*, 138; Terraine, *White Heat*, 148; see also Philpot, 49, 146–147, 244–245; Dunn, *The War*, 267

Bülow.¹¹³⁶ The ability of higher command to orchestrate forces in respect to changing conditions and potential decisive points in spacetime in turn suffered.

In trench warfare the communications problem was not technologically dissimilar, but focused on how to exert control of forces through no-man's-land, into the enemy defences, which was especially difficult as formations dispersed under fire for cover.¹¹³⁷ For the most part the technology necessary to avoid communications and control lag, to the point of collapse, when forces moved into such conditions, did simply not exist; the tenuous telecommunications links established could be targeted by the defender's artillery, isolating forces from their command and support with dense barrages, cutting new-laid telephone wires and obstructing runners,¹¹³⁸ degrading command's ability to interact with forces in spacetime. Early wireless sets were bulky and unreliable, easily jammed and rarely deployed to lower formations.¹¹³⁹ For smaller commands, methods of communication beyond the trenches devolved to lamps, flags and similar devices unchanged for centuries and mostly inadequate for trench-warfare.¹¹⁴⁰ Messengers (human and animal) were relatively slow and vulnerable to friction; waylaid potentially indefinitely and their messages delivered not at all or well past their utility.¹¹⁴¹ At Neuve Chapelle (10th – 13th March 1915) for example, British forces held up by the main German defences had to relay intelligence and orders across no-man's-land and through several layers

¹¹³⁶ Creveld, *Command*, 154-155; Strachan, *First World War*, 57

¹¹³⁷ For examples throughout the conflict, see Dunn, *The War*, 216, 233, 348, 444, 478, 508

¹¹³⁸ D. Todman & G. Sheffield, 'Command and Control in the British Army on the Western Front', in Sheffield & Todman (eds.), *Command and Control*, 7-8; Strachan, *European Armies*, 138; Dunn, *The War*, 192; Prior and Wilson, *Command on the Western Front*, 33, 156

¹¹³⁹ Todman & Sheffield, 'Command and Control', 7; See also Dunn, *The War*, 233, 444, 508

¹¹⁴⁰ Strachan, *European Armies*, 124; Barr, 'Command in Transition', 22; Prior and Wilson, *Command on the Western Front*, 33, 83-84

¹¹⁴¹ Sheffield, *Forgotten Victory*, 120-121; runners would continue to be used through 1918, Dunn, *The War*, 553

of command to Corps HQ five miles behind, taking several hours, by which time darkness arrived and momentum extinguished.¹¹⁴²

The tempo of communications between HQs and forces thus slowed to effective silence, leading to a loss of control during the offensive - not just for major formations, but commanders down to battalion level.¹¹⁴³ Units could become effectively 'lost' to command, unsure of where units were or their tactical situation,¹¹⁴⁴ resulting in disorientation of the situation. Rendered blind and mute by a thick pall of Clausewitzian 'fog of war', command's field function – of perceiving and adapting to emergent events and opportunities, and shape the battle through commitment of reserves or coordination of forces at the right points in spacetime and thereby achieve breakthrough - was effectively prohibited:¹¹⁴⁵ '[T]roops of both sides, successful in their first hard task of breaking the enemy's front, hesitating, pausing in confusion, lacking direction, losing their impetus, and halting with victory in sight.'¹¹⁴⁶ With poor orientation and information for their 'crude calculations', additionally delayed by the lag in communications, and thus unable to exploit local breakthroughs via committing reserves, the role of the senior commander in attack (from at least Brigade level) became primarily one of preliminary planning, with little ability to intelligently interact with the battle once begun.¹¹⁴⁷ The attacker's command capacity to provide the force with anything similar to Boyd's OODA-loop, was thus not merely distended, but nigh-dismantled, magnifying the defender's already significant tactical 'relative' time advantage.

¹¹⁴² Strachan, *European Armies*, 140

¹¹⁴³ Terraine, *White Heat*, 148; Sheffield, *Forgotten Victory*, 121

¹¹⁴⁴ G. Sheffield, 'An Army Commander on the Somme: Hubert Gough' in Sheffield & Todman, *Command and Control*, 89

¹¹⁴⁵ Tuck, 'Land Warfare', 86; See also Lonsdale, *Clausewitzian Future*, 114

¹¹⁴⁶ Terraine, *WWI*, 55

¹¹⁴⁷ Todman & Sheffield, 'Command & Control', 7

Mobile Forces

A major problem for Western Front commanders on the offensive was the lack of a suitably mobile and powerful tool of exploitation to apply at decisive points and moments to capitalise on opportunities of breaking in and through enemy positions.¹¹⁴⁸ Tactical mobility, for the most part, had not kept pace with the expansion of the field of battle, or the depth of defence, creating a difficulty in command's exploitation of spacetime. Infantry's employment of cover and movement tactics limited their exposure to fire but also became harder to motivate and command; furthermore advancing at human speeds under fire, the arm often lacked the mobility necessary for exploitation.¹¹⁴⁹ From 1916 however, sufficient numbers of new weapons such as trench mortars and grenades, and light machine guns gave small infantry formations considerably more mobile firepower.¹¹⁵⁰

As in the Civil War, cavalry could not fulfil the role, though not due to a lack of it; European armies (and the US) maintained sizable cavalry throughout the war, and pre-war doctrine anticipated cavalry missions similar to those of the Civil War; reconnaissance, screening, flying-columns, perhaps exploitation of gaps in the enemy lines, as mobile fire-support units or even massed charges.¹¹⁵¹ This was still practicable on the more open Eastern Front, but the conditions of the Western Front made cavalry even more vulnerable, and greatly obstructed these roles,¹¹⁵² yet motor-vehicles remained slow and unreliable, leaving the horse still the most mobile

¹¹⁴⁸ More accurately, early war infantry lacked both mobility and firepower on the offensive. Prior and Wilson, *Command on the Western Front*, 42

¹¹⁴⁹ Todman & Sheffield, 'Command & Control', 81, 93

¹¹⁵⁰ C. McCarthy, 'Queen of the Battlefield: The Development of Command, Organisation and Tactics in the British Infantry Battalion During the Great War', in Sheffield & Todman (eds.), *Command and Control*, 177, 191

¹¹⁵¹ Strachan, *European Armies*, 120-121; See also Henderson, *Science of War*, 51-67; M. Grotelueschen, *The AEF Way of War: The American Army and Combat in World War I*, paperback edition (New York: Cambridge University Press, 2010), 17,

¹¹⁵² Bull, *German Assault Troops*, 5-6

and commonly available fast transport.¹¹⁵³ Rather than anachronism, the massing of cavalry to exploit potential break-through was the only available option.¹¹⁵⁴ Yet, as the Americans discovered in the Soissons offensive (18th -22nd July 1918), lightly-armed cavalry struggled with even small resistance.¹¹⁵⁵

Two technical inventions, aircraft (pre-war) and tanks (wartime), were perceived to potentially fulfil some cavalry roles, however, in relation to time and more generally: The tank, debuting at the Somme (1916), seemed to promise the movement of cavalry¹¹⁵⁶ and firepower needed to return mobility and end the stalemate, but with initial top-speeds of 5mph, and often constrained by logistics and Flanders mud, tanks could usually only support infantry advances (in which they excelled),¹¹⁵⁷ and lacked the mobility the cavalry arm practiced in previous wars to quickly apply force at decisive spacetime points and exploit.¹¹⁵⁸ Nevertheless, at the Battle of Cambrai (20th November 1917), 381 British tanks were able to advance through five miles of German lines, crushing the barbed-wire that hampered infantry,¹¹⁵⁹ avoiding the need for preliminary bombardment to cut wire and so regaining a level of surprise.¹¹⁶⁰ The French and Americans under Mangin undertook a similar action at Soissons in 1918.¹¹⁶¹ However, despite increased production and faster models, tanks would not achieve the sophistication of their

¹¹⁵³ The horse remained the backbone of logistics, and would form a major means of transport well into the Second World War. See Strachan, *European Armies*, 120-121

¹¹⁵⁴ Terraine, *Great War*, 115–116; Groteleuschen, *AEF*, 85; See also Philpot, *Attrition*, 280; Prior and Wilson, *Command on the Western Front*, 78, 275, 306-307, 380; see also Bull, *German Assault Troops*, 41

¹¹⁵⁵ Groteleuschen, *AEF*, 117–118

¹¹⁵⁶ Travers, *The Killing Ground*, 73

¹¹⁵⁷ Sheffield, *Forgotten Victory*, 123, 216 – 220; J, Boff, *Winning and Losing on the Western Front: The British Third Army and the Defeat of Germany in 1918*, paperback edition (Cambridge: Cambridge University Press, 2014), 135, 140, 153, 160

¹¹⁵⁸ Strachan, *European Armies*, 143; Prior and Wilson, *Command on the Western Front*, 249; for early accounts also see Dunn, *The War*, 255, 267,

¹¹⁵⁹ Sheffield, *Forgotten Victory*, 218

¹¹⁶⁰ Strachan, *European Armies*, 143; see also Prior and Wilson, *Command on the Western Front*, 296

¹¹⁶¹ Grotelueschen, *AEF*, 85

Second World War descendants, and were severely strained through later Entente offensives.¹¹⁶² Nevertheless, even the primitive tanks of the war present objective developments of operational and technical competences to influence the temporal dimension, both absolutely and in relative-rival forms; overcoming previously crippling sources of friction encountered on the offensive and, as at Cambrai, returning material surprise. The rival aspect of time meant that tanks need not be quick to be effective in this regard; the defender still lacked the relative time to respond.

Aircraft would mature into the intelligence roles of light cavalry, assisting command's orientation; observing enemy movements, locating friendly units and linking them to command, etc. This was difficult for horsemen in trench conditions but not so much for aircraft:¹¹⁶³ Kluck's movements to the Marne in 1914, and his exposed flank, were both reported by Entente aircraft.¹¹⁶⁴ Aerial reconnaissance, in balloons and planes, could also provide intelligence of enemy concentrations before an offensive, allowing the defender to prepare, and reducing the possibility of the offender employing the advantages of relative time produced by surprise - at least until methods of faster concentration were developed.¹¹⁶⁵

Aeroplanes and balloons could also spot and direct artillery fire, an important component in the maturation of artillery.¹¹⁶⁶ As their use expanded, aircraft and air operations focused on support and denial of such missions, much as cavalry had

¹¹⁶² Boff, *Winning and Losing*, 141-143; see also Prior and Wilson, *Command on the Western Front*, 307

¹¹⁶³ Strachan, *European Armies*, 138; Strachan, *First World War*, 240; see also Barr, 'Command in Transition' 18; Prior and Wilson, *Command on the Western Front*, 36, , 210-211, 248,

¹¹⁶⁴ Strachan, *First World War*, 58; Barr, 'Command in Transition', 18;

¹¹⁶⁵ J. Buckley, *Air Power in the Age of Total War* (London: Routledge, 2003), 50 ; Strachan, *First World War*, 305

¹¹⁶⁶ Buckley, *Air Power*, 50; Sheffield, *Command and Morale*, 61; Prior and Wilson, *Command on the Western Front*, 86, 109, 165, 210

previously been used to screen and penetrate screens, to gain or deny intelligence of enemy positions.¹¹⁶⁷ From 1916, both sides also developed ground-attack aircraft, bringing firepower to decisive points, including interdicting enemy reserves.¹¹⁶⁸ At Cambrai, Entente Close-Air-Support aircraft destroyed enemy gun batteries, easing the tanks' advance.¹¹⁶⁹ However, without good radios and robust construction, Great War aircraft could not deliver decisive tactical power alone.

Weapons System

Rather than as individual tools, armour and airpower became components of emerging combined-arms doctrines focused on artillery and infantry, which proved successful at the Battle of Cambrai (1917) and would return a level of movement to the Western Front in 1918.¹¹⁷⁰ In the Entente's case, Sheffield describes this as an integrated 'weapons system' ¹¹⁷¹ which outclassed the rival German method, though both employed similar developments with different tactical approaches. The last great German offensives, commencing on March 21st 1918, focused on artillery methods and elite infantry employing infiltration: specialist *Sturmabteilungen* with assault weaponry quickly moved through enemy lines behind sudden, accurate barrages, seeking paths of least resistance, followed by regular battalions to strengthen the assault. These tactics sought to paralyse the enemy's command system and ability to orient and react, by speed and surprise; targeting HQ posts and

¹¹⁶⁷ Buckley, *Air Power*, 50, 47–48; For example see Prior and Wilson, *Command on the Western Front*, 321

¹¹⁶⁸ Sheffield, *Forgotten Victory*, 144–145

¹¹⁶⁹ Buckley, *Air Power*, 55

¹¹⁷⁰ Gray, *War*, 92–93

¹¹⁷¹ Sheffield, *Forgotten Victory*, 236–237; Prior and Wilson also discuss the concept Prior and Wilson, *Command on the Western Front* 320, 380, 394

communications infrastructure and maintaining continuous pressure to disallow the enemy from regaining initiative.¹¹⁷²

This proved initially successful against the undermanned British Fifth Army under General Gough, driving him back several miles.¹¹⁷³ However, the momentum of continuous, fast assault and activity proved unsustainable for the attacking infantry, who became exhausted, especially against better prepared British and French armies. Operational command was still effectively blind, and for the first days of the offensive, German GHQ – reliant on the badly distended cycles of command - had little idea of the situation at the front; decentralisation command helped to ease the problem, but there remained significant difficulty in coordinating advances with artillery.¹¹⁷⁴ Furthermore, the endemic problem of movement on the Front, and a lack of horses for transport by 1918, induced logistical collapse, cutting off the forward-flow of supplies and artillery support, undermining momentum against ever-improving Entente resistance.¹¹⁷⁵ Finally, German cavalry was mainly still deployed in the East, thus the offensives also lacked a potential tool to exploit the decisive moment of breakthrough.¹¹⁷⁶ The Spring Offensive failed, with considerable losses and only gaining a large but indefensible salient.¹¹⁷⁷

Conversely, the Entente-Allies' approach of set-piece 'bite-and-hold' operations, developed through 1916/17,¹¹⁷⁸ proved successful at Arras and Messines,¹¹⁷⁹ and became the model for the counter-offensives of 1918. Specialist all-arms teams of

¹¹⁷² Tuck, 'Land Warfare', 86–87 ; Strachan, *First World War*, 289; Creveld, *Command*, 179; Bull, *German Assault Troops*, 127-146, 153

¹¹⁷³ Sheffield, *Forgotten Victory*, 225; Bull, *German Assault Troops*,

¹¹⁷⁴ Creveld, *Command*, 176-179

¹¹⁷⁵ Philpott, *Attrition*, 321

¹¹⁷⁶ Strachan, *First World War*, 287–290 ; Sheffield, *Forgotten Victory*, 224-234

¹¹⁷⁷ Sheffield, *Forgotten Victory*, 245; Strachan, *WWI*, 289-290

¹¹⁷⁸ Although it should be noted that the concept was first articulated by General Henry Rawlinson in early 1915. Prior and Wilson, *Command on the Western Front*, 78-80

¹¹⁷⁹ Strachan, *WWI*, 247; Philpott, *Attrition*, 271, 280

assault infantry, supported by accurate artillery with pre-planned ‘creeping’ barrages to cut wire and cover their advance,¹¹⁸⁰ would capture a limited extent of enemy defences (‘Bite’), followed by consolidation of the position with supplementary forces and supplies to bolster local tactical defence in the face of German counter-attack (‘Hold’).¹¹⁸¹ On the one hand, bite-and-hold sacrificed possible speed and opportunity, as it sought only limited objectives, but it gained greater command certainty in the trade. Occasionally incorporating tanks (which Germany lacked) to crush wire, and Close-Air-Support, the doctrine developed into the most successful offensive method, a core around which lower ranks could use initiative to maintain higher tempos of operations.¹¹⁸² First used by the British, it became standard throughout the Entente in the last two years of the war,¹¹⁸³ culminating in the Battle of Amiens (8th -12th August 1918): the first of several ‘Hundred Days’ offensives that would push back German lines, nearly 50 miles in some stretches, through to the end of the war in November.¹¹⁸⁴

Communications

However, despite the maturation of this ‘weapons system’, continuing difficulties in C2 and logistical momentum stymied the tempo of advance for operations, the increased pace of which demanded faster, ‘contracted’ OODA-loops of response between commands and forces to adapt to and exploit emergent conditions.

Although better communications were employed by 1918, subordinate HQs still

¹¹⁸⁰ Artillery was the decisive arm of the front, but its maturation into such principles as the ‘creeping barrage’ took time, again through 1916/17 and into 1918. See Prior and Wilson, *Command on the Western Front*, 249, 312-313

¹¹⁸¹ Prior and Wilson, *Command on the Western Front*, 78-80, 144, Sheffield, *Forgotten Victory*, 178-181

¹¹⁸² Boff, *Winning and Losing*, 203-208

¹¹⁸³ *Ibid.*, 162-163

¹¹⁸⁴ Sheffield, *Forgotten Victory*, 237-241

struggled to keep up with their progressing battlefronts:¹¹⁸⁵ Company and battalion used runners, brigade commanders could, being more permanent, contact divisional HQs via telephone. To relay a message from battalion to brigade HQ could take over 48 minutes and, if divisional decision was required, an additional 80 minutes could be expected, although in practice this was often much longer due to friction. As Boff points out, communications difficulties were too hard-set to be completely overcome by contemporary means and the resultant communications ‘lag’ was ultimately too great to allow for the rapid decision and action needed to apply decisive force in sufficient time.¹¹⁸⁶ Logistical capacity also remained a limiting factor on the bringing forward of guns and their ammunition, restricting the tempo at which forces could advance safely.¹¹⁸⁷

The command problems of both sides were partly solved by war’s end through decentralisation: The German army had a tradition of delegation wherein General HQs provided broad intent and divisional and corps command designed implementation,¹¹⁸⁸ but the Western Front demanded further decentralisation, and both sides would pursue this to divisional and sub-divisional levels, with divisions being able to call upon their own reserves, and some tactical decision-making falling to junior ranks in order to maximise the use of time and opportunity, especially on the offensive.¹¹⁸⁹ Additionally, command posts and staff observers moved forward to maintain communication links.¹¹⁹⁰ Subordinating artillery formations to brigade and even company commands also allowed decentralised control of support,

¹¹⁸⁵ Boff, *Winning and Losing*, 182–184; See also Sheffield, *Command and Morale*, 57-58

¹¹⁸⁶ Boff, *Winning and Losing*, 185-88

¹¹⁸⁷ *Ibid.*, 89, 91, 244 – 247

¹¹⁸⁸ Strachan, *European Armies*, 124

¹¹⁸⁹ Simkins, “‘Building Blocks’: Aspects of Command and Control at Brigade level in the BEF’s Offensive Operations”, in Sheffield & Todman *Command and Control*, 160 – 165; McCarthy, ‘Queen of the Battlefield’ 178, 180

¹¹⁹⁰ Creveld, *Command*, 175, 183-185

quickening command process.¹¹⁹¹ These practices resulted in more agile command structures with, in Boydian terms, ‘smaller’ OODA-loops.

Time: ‘Time Warfare’ on the Western Front

As stated above, the intelligent employment of time for operational and tactical effect depends upon command and cannot be otherwise; especially in the application of a controlled force at decisive points and times and their exploitation. Naturally this demands a capable ‘cycle’ of perception and response to function. However, on the Western Front, as we have seen, command and control on the offensive was severely degraded by the character of war - produced by qualities and interactions of other dimensions of war, particularly geography, technology, logistics, information and intelligence, and friction. These elements presented inbuilt temporal disparity favouring the defender with, as Sheffield points out,¹¹⁹² ‘smaller’ OODA loop whilst the attacker’s would be pushed to breaking point. In short, command’s effective use of operational and tactical time (much the same thing on the Front due to the collapse of those levels) on the offensive was severely inhibited by the very character of the war. In this regard the Western Front also illustrates with rare clarity perhaps more than most other cases, the rival aspect of time in strategic competition which we have discussed previously.

¹¹⁹¹ Boff, *Winning and Losing*, 203

¹¹⁹² Sheffield, *Forgotten Victory*, 122

Additionally the front showcases the commander's available responses to that aspect of rival time: For the defender, able to employ defence-in-depth as pioneered by the German army, space could be deliberately traded for time in which to attrite the enemy. Unable to exploit space through manoeuvre, and limited to the frontal attack on parallel fronts, both sides developed methods to compensate by employing, or rather emphasising, time as much as space in their instinctive or formal tactical reasoning, implicit in the doctrines and tactics developed through the war to 1918. The German Army focused on infiltrating *Sturm*bataillone and 'hurricane' bombardments, to obtain surprise.¹¹⁹³ The German doctrinal document 'The Attack in the War of Position' (January 1918) is unambiguous; 'The objective...is to penetrate as deeply as possible into ...enemy positions aiming....at the gun line which must be reached on the first day. The first break in is...easy...The difficulty consists in breaking up reinforcements at the correct time and place.... taken by surprise [the enemy] must not be allowed to recover....balance. His countermeasures must be overturned by the offensive's rapid progress.'¹¹⁹⁴ The targeting of Entente communications and command infrastructure by German artillery in support of these tactics even evokes a strong similarity with Singh's concept of 'Time Warfare' in seeking to establish and exacerbate time asymmetries. Indeed, Boyd employed a study of these tactics in support of his own ideas on command and generating disorientation.¹¹⁹⁵

The 'bite-and-hold' set-piece tactics employed by the BEF and later other Entente-Allies likewise obtained material and/or moral surprise with predicted artillery fire and small unit assault. Unlike the German method however, this did not seek

¹¹⁹³ Philpott, *Attrition*, 321

¹¹⁹⁴ The Attack in Position Warfare quoted in Crevel, *Command*, 174

¹¹⁹⁵ See Osinga, *Science, Strategy and War*, 149

unlimited aims and paralysis of enemy command, rather it disrupted enemy response *long enough* to ensure and consolidate the ‘bite’ before another, and another. This is not greatly dissimilar to the isolation and defeat of the enemy ‘in detail’, wherein dispersed forces are beaten piece-meal; with the emphasis on their isolation and defeat in *space*. On the Western Front such manoeuvres were impossible, owing to the advantages of the defender and the conditions of the continuous front. Bite-and-hold methods therefore instead emphasised the isolation of a section of the enemy front and force ‘*in time*’ through material surprise, to explicitly gain and exploit advantages within ‘*relative*’ or ‘*rival*’ ‘strategic time’, and consolidate before the defender could respond with a counterattack. With this emphasis and the use of surprise and some decentralisation of command, this technically functioned much like the ‘time differential’ described by Singh as the objective of reducing relative ‘IDA cycles’ and creating ‘time asymmetries’;¹¹⁹⁶ making bite-and-hold, it appears, a something of a forerunner of Singh’s ‘Time Warfare’ concepts in especially exploiting the rival aspect of strategic time.

Despite a slower overall pace, the bite-and-hold method ‘stored’ momentum in the offensive and, unlike the *Sturmabteilung*, did not so rashly outstrip communications and push against the tactical Culminating Point, so as to become over-vulnerable to counter-attack. The limiting issue of the method was one of finding a happy median of tempo in successive bite-and-hold attacks to retain momentum; too quick and assaulting formations moved beyond artillery support; too slow and time would be given to the enemy in which to reorganise.¹¹⁹⁷ Under practical conditions, as with anything in the face of the enemy, this was neither easy nor certain, and greatly

¹¹⁹⁶ Singh, ‘Critical Dimension’, 187, 199; Singh, ‘New Dimension’, 60–61

¹¹⁹⁷ Sheffield, *Forgotten Victory*, 213; Sheffield, *Command and Morale*, 59

hampered by friction. On the occasion that a decisive moment or point to exploit became available, the contemporary systems of communication for command was frequently unable to apply suitable force, and lacked a sufficiently mobile and powerful force outside of later assault infantry units. In any case, learning the lessons of a new form of warfare, developing new doctrines and practices, and disseminating them throughout such large armies containing mostly inexperienced soldiers, naturally took time and trial in the field, but would nevertheless produce armies much better adapted to warfare on the Western Front.¹¹⁹⁸ Without the necessary communication and mobility technologies however, it is unlikely any force of the era could have conducted more open, fluid warfare due to the other factors in play.

The case also highlights that the temporal dimension of strategy, in its aspect of ‘rival time’, can be manipulated through efforts and competences in the other dimensions, or if conceptualised as a resource ‘traded’ with others, at these lower levels: With the conditions of the front and the character of war, the defender could ‘trade’ space (depth) for the time with which to bring forth reinforcements, whilst their use of railways and electronic communications allowed them to contract their relative available time against the attacker’s distending time cycles. The development of proficient combined arms operations on the offensive, and decentralised command, likewise served to alter temporal asymmetries through contracting relative available strategic-time. Seen in these lights, the Great War truly represents a significant chapter in ‘Time Warfare’.

¹¹⁹⁸ Gray, *War*, 91

Conclusions

The common relationship of time and space ('strategic spacetime'), and force, is evident in this chapter particularly as it concerns the (relatively) small scales of spacetime found at war's lower levels. However, as we have seen in the contrast between the confined battles of the Civil War and great sprawling battles across a continuous Western front in the Great War, those scales of time and space can in themselves vary greatly; and even effectually almost collapse into one another in the latter case.

From classical 'Napoleonic' linear manoeuvres, to all-arms assaults on the Western Front, to contemporary manoeuvre warfare, and in all *physical* operations and engagements the relationship of space, force and time, and the presence of decisive moments and points, holds true, with judicious timing critical.

Commanders of the American Civil War and on the Western Front both sought to perceive, produce, and exploit decisive points in 'strategic spacetime' and impose their will on the operational and/or tactical situation, but necessarily did so differently. As Clausewitz put it; '...the resources he employs, must be governed by the particular characteristics of his own position; but they will also conform to the spirit of the age and to its general character..... [and] the nature of war itself.'¹¹⁹⁹ Objective and relative conditions across the strategic dimensions define the character of the conflict, and the specific values of time, space, and force which command must 'calculate' to achieve military advantage and, in turn, *how*, *why*, and with *what* military tools, they 'solve the equation' and use force in 'strategic spacetime' effectively.

¹¹⁹⁹ Clausewitz, *On War*, 718

Command is obviously essential; our interaction with the temporal dimension necessarily depends on competence within the dimension of command. What is more, as van Creveld points out,¹²⁰⁰ historical alterations to the values and interactions of force, space and time influence the command process, including the capacity to comprehend the tactical or operational situation, perceive potentially decisive points, and deal with the interactions of force and spacetime to create advantage and success; to say nothing of the critical roles of friction and the enemy. Developments like the telegraph may ease command's communications, whilst increased army size and complexity induce challenge for command.

Civil War commanders could, on occasion, employ *coup-d'oeil* and talent to effect with force at decisive spacetime points, and in forms the Napoleonic theorists would have been quite familiar with, such as at Chancellorsville or Second Manassas. The sum of compounding characteristics on the Western Front, however, were sufficiently extreme to critically undermine the ability of command to orient itself in relation to the developing situation and maintain timely and effective control of forces on the offensive to impose its will even late in the war - despite objective advances since the Civil War. When Western Front commanders *did* manage to generate and exploit points in spacetime, through precise bombardments, infiltration or limited bite-and-hold tactics, Jomini's First Principle, of concentrating force in time and space was still integral to success, albeit in a form suited to the particular and difficult conditions of the Front. Not that command had been easy in the Civil War; despite the elementary simplicity expressed in the axioms of Jomini and Clausewitz on using force at decisive moments, there is good reason why masters of

¹²⁰⁰ Creveld, *Command*, 2–10

tactical manoeuvre and ‘operational art’ have been historically revered. In war ‘the simplest thing is *difficult*’,¹²⁰¹ as Clausewitz said.

Likewise, the capabilities of force in relation to time and space, in generating momentum and tempo in line with command’s wishes, are influenced by conditions, friction and the enemy; on the western front conditions of defensive depth and strength restricted such uses of force in spacetime; in the Civil War, a lack of suitable cavalry and the power of the defensive similarly made exploitation of decisive points and pursuit difficult, restricting the tempo of operations. Both external and internal constraints on command, and the instrument available for it to wield, arising from the strategic dimensions, limit the creation and exploitation of tactical and operational decisive points in time.

The chapter also illustrates again the relative-rival nature of ‘strategic time’, and what Singh calls ‘time asymmetries’ produced by the conflict within relative time; made more observable at the lower, more immediate, levels of war. As Sheffield has pointed out *relative* ‘OODA loop’ disparity on the Western Front was key to the power of the defensive, whilst material and moral surprise was integral to the limited successes of the offensives of 1918. Bite-and-hold worked explicitly on the principle of creating time asymmetry in the offense, whilst German infiltration methods directly targeted Entente command cycles. Indeed both cases, as well as the theory discussed above and in Chapter Three, demonstrate historical nuance for such temporal aspects; combined-arms offensives supported by accurate barrage on the Western Front, or interior lines, Grant’s concentric advance, and the destruction of railroads in the Civil War directly targeted the enemy’s ‘time cycles’ of perception,

¹²⁰¹Clausewitz, *On War*, 119

orientation and response: 'Time warfare' is not so new in practice. The concept of the decisive moment itself acutely expresses strategic time's relative-rival aspect, as well as its absolute linearity; tactical and operational opportunities from the struggle of war expire as well as arrive. For example Meade's timely dispatch of reserves to contested points of his interior line at Gettysburg, against the dwindling strength of Lee's successive assaults. This demands a careful husbanding of the relative temporal resource, and by effort and degradation of the enemy's, its manipulation and trade.

VI: Duration

‘It is never beneficial...to have a military operation continue for a long time’

- Sun Tzu¹²⁰²

‘You have the watches. We have the time.’

- Alleged Afghan Proverb

Introduction

In this chapter we examine the duration of war, a significant temporal feature of any conflict’s character, and upon which can depend its outcome. Whilst it is logical that most belligerents would seek to expose themselves to the serious risks, privations and damages of armed conflict for as short an amount of time as possible, a combatant may have specific compelling strategic need for a ‘*short*’ war. They may have severe deficiencies in strength and endurance for a protracted conflict, holding only an initial and declining advantage, thus requiring rapid victory. Conversely, it may be that the capability of a belligerent for endurance in a prolonged struggle allows them to use time to improve or augment their initial strengths, yielding eventual victory against an initially stronger enemy, provided they can last long enough. Whether potential, anticipated, or realised, the duration of a conflict thus influences strategic necessities, decisions, activity and outcomes. In this chapter we consider these relationships and may observe the nexus between time and the other strategic dimensions, how this relationship places temporal pressures upon strategic

¹²⁰² Sun Tzu, *Art of War* (Cleary), 59

actors, as well as how time can be ‘traded’ for with other strategic resources for advantage. This is undertaken firstly through reflection upon some of the theories of strategists we have previously discussed, and to flesh these out we employ two cases: The Second World War in Europe (1939-1945), a conventional, great-power conflict, and the more unconventional war waged by the Vietnamese Communists from 1947 to 1975, with particular focus on the main period of American involvement (c. 1965-1973).

Short War

As Mao Zedong wrote, ‘... quick decision is sought at all times and in all countries [;] long drawn-out war is considered harmful.’¹²⁰³ This echoes Sun Tzu’s maxim at the head of this chapter, penned over two-thousand years before Mao; it is never beneficial to engage in prolonged conflict.¹²⁰⁴ A protracted war, warned Sun Tzu, exhausts resources, lowers morale of the army and population, and incurs privations on the population.¹²⁰⁵ As Gray points out, it also gives the enemy time to learn and improve, to gain the upper hand¹²⁰⁶ and may produce social and political discord and change.¹²⁰⁷ Thus Sun Tzu and Clausewitz advocated quick victory, by fast and precise application of decisive force in operations,¹²⁰⁸ and Clausewitz argued that war should be concluded before arrival of the strategic ‘Culminating Point’, after

¹²⁰³ Mao Tse-Tung, *Selected Military Writings* (Peking: Foreign Languages Press, 1968), 69

¹²⁰⁴ With the potential exception of niche interests; see E. Jordaan, ‘Conclusion’, in D-P Baker & E Jordaan (eds), *South Africa and Contemporary Counterinsurgency Roots, Practices, Prospects* (Claremont: UCT Press, 2010), 222

¹²⁰⁵ See chapter Three, and Sun Tzu, *Art of War*, (Cleary) 59, 61- 63, 66

¹²⁰⁶ Gray, *Modern Strategy*, 174

¹²⁰⁷ C. Gray, ‘Defense Planning and the Duration of War’, *Defense Analysis*, 1, 1 (1985), 32

¹²⁰⁸ Handel, *Masters*, 156 - 159

which the foe's military capability begins to outweigh one's own, and their likelihood of victory increases.¹²⁰⁹

Nevertheless we have seen in previous chapters how difficult it can be to quickly achieve the desired strategic results; the failure of the Schlieffen-Moltke plan being a prime example. At the time of writing, the US-led Coalition has been engaged in Afghanistan for nearly sixteen years - a long time in human terms; the Peloponnesian War discussed in Chapter Four lasted nearly *thirty*, and this is still short compared to conflicts like the 'Hundred Years War', the several decades of the Cold War, and the perennial conflicts surrounding Palestine, Kurdistan, etc. By comparison 'long' wars like the American Civil War and the First World War (each just over four years long) seem brief, whilst at the other end of the scale we see conflicts like the 'Six Day War' (June 5 – 10 1967), though part of a larger 'set' of Arab-Israeli conflicts, or the 45-minute bombardment that constituted the Anglo-Zanzibar War (27 August 1896).¹²¹⁰ Evidently, strategy concerns conflicts with great variation of duration as well as conduct (indeed the two are linked), despite the near-universal desire for short war.

The dynamics of why this is so lie in the struggle of political wills that defines war; as Clausewitz wrote, war is the action of compelling the enemy to submit to one's will via force, through overcoming their capacity to *resist*, defined by '*the total means at his disposal and the strength of his will*'¹²¹¹ i.e. physical and moral strengths across the strategic dimensions. Once that capacity (physical and/or moral strengths) is overcome, conflict is concluded and the enemy brought to terms.

¹²⁰⁹ See Chapter Three; Clausewitz, *On War*, 157; Till, *Seapower*, 69

¹²¹⁰ P. Gordon, 'Can the War on Terror Be Won? How to Fight the Right War', *Foreign Affairs*, 86, 6 (Nov 2007) 54; Franz, 'Two Letters', 173

¹²¹¹ Clausewitz, *On War*, 77, see 75- 77

However, war does not consist of a single blow, but is an interactive ‘two-struggle’ competition; the enemy also seeks victory and counters efforts to defeat him. This makes the situation one of *relative* strengths in relevant dimensions. The ‘stronger’ the enemy, relatively and objectively, the longer and more ably, they may contest the decision.¹²¹² Against an adversary weaker in the most relevant dimensions, a short war might be concluded; such as the 1982 Falklands War,¹²¹³ whereas wars between polities and alliances that are roughly matched in motivation and resources naturally thus result in longer conflicts.¹²¹⁴ To employ Clausewitz’s wrestling metaphor; a stronger, more skilled, or lucky fighter *might* defeat an inferior opponent in the first round, a tougher opponent may last longer, but if the two are roughly matched in skill, luck, condition, etc. or one can make their strengths count for the strengths of the other, neither may be able to win until the other errs, retires, or is sufficiently exhausted. Alternatively, Clausewitz observes that a weaker opponent may seek to prolong war in order to wear down the will of a stronger adversary.¹²¹⁵

Assessment of relative strength in the strategic dimensions, as we have seen in the case of German planning before 1914, may be linked to a preference of duration; the desire for quick victory was tethered to the possible timing of war initiation, as well as the *raison d’être* of the conflict. Even policymakers wary of their polity’s ability to endure prolonged conflict may choose war when expecting quick victory.¹²¹⁶ But, as with the timing of initiating war,¹²¹⁷ likely duration can only be crudely gauged before, or during, conflict by considering these strengths, indeed it is an extension of

¹²¹² J. Fearon, ‘Why Do Some Civil Wars Last so Much Longer than Others?’ *Journal of Peace Research*, 41, 3 (May, 2004), 297

¹²¹³ Gray, ‘Duration’, 32

¹²¹⁴ *Ibid*, 30

¹²¹⁵ Clausewitz, *On War*, 93 - 94

¹²¹⁶ Gray, ‘Duration’, 24

¹²¹⁷ See Chapter Four

the same idea. Not all strengths are easily calculable; intangible moral forces, such as the political will to fight, are especially difficult to assess and deliberately influence.¹²¹⁸ Additionally, relative strengths fluctuate with the fortunes of war as each side struggles for victory over the other, drawing in more forces to contest the decision according to will, in an intrinsic escalatory dynamic.¹²¹⁹ Expended resources become ‘sunk’ costs, irretrievable due to the linear nature of time and irrelevant to the decision to continue¹²²⁰ where there is possibility that more expenditure will lead to victory. Total duration is thus produced by the complexities of interactive struggle, escalatory factors, and uncertain and variable relative strength. Only in rare cases of strategic surprise, as Luttwak points out, is the interactive struggle ‘suspended’, stymieing the enemy’s ability to (re)act,¹²²¹ thus theoretically shortening the conflict.

Long War

Whilst polities generally desire quick victory, the interactive dynamics described above may negate the possibility. This relates to Clausewitz’s point of strategic time’s inherent bias:¹²²² If prolonged war is more injurious to one side, then naturally the other benefits. To continue the wrestler metaphor; the combatant that relies on quick decision may be defeated by the opponent who endures and draws upon different strengths at a later point, provided they remain in the fight. The seapower theorist Alfred Mahan remarked that if a weaker state could endure, they might, with time, draw upon other resources and develop strength, whereas if they were ‘overthrown and crushed quickly, the most magnificent possibilities of natural

¹²¹⁸ See Chapter One, also Gray, *Fighting Talk*, 40 - 41, 51

¹²¹⁹ Clausewitz, *On War*, 77

¹²²⁰ S. Speece, ‘Duelling with Clausewitz’, *Small Wars Journal*, 10, 4 (April 2014), 2

¹²²¹ Luttwak, *Strategy*, 4

¹²²² See Chapter Three

power will not save [them].'¹²²³ If a conflict is swiftly decided, the 'starting conditions' of forces immediately to hand are likely the most decisive, for the immediately disadvantaged enemy will not have time to correct their fortunes before decision.¹²²⁴ Such is the logic behind strategic surprise, but additionally this is clear in the case of nuclear warfare, which between modern nuclear great-powers (such as the United States and Soviet Union by the 1970s) holds the potential of an exceptionally quick, if destructive, conclusion.¹²²⁵ However, for the most part, as Clausewitz explained, war does not consist of a single, short blow, or even a set of simultaneous decisions, but of successive acts from interactive struggle.¹²²⁶ Furthermore, Gray argues, the 'longer the war, the more likely that the impact of all the dimensions of strategy will be apparent'¹²²⁷ i.e., the longer the conflict, the more time belligerents have to realise their full capacities, and the greater potential opportunity for the initially-disadvantaged polity to correct the disparity. We have already encountered this to an extent in the cases of the Union and the Entente's greater relative long-term strengths providing the foundations of eventual victories. Clausewitz maintained that time's bias favoured the defender,¹²²⁸ but prolonged duration also favours specific 'types' of strategic entity, particularly seapowers and insurgents.¹²²⁹ With command of the sea and access to the wealth of maritime trade, a seapower may exploit the duration of a war by using naval forces and the seas as a 'shield', behind which they can develop strength over time via maritime trade, and

¹²²³ Mahan, *Influence of Seapower*, 48

¹²²⁴ Gray, *Modern Strategy*, 174

¹²²⁵ See Gray, *War*, 211-213

¹²²⁶ Clausewitz, *On War*, 79

¹²²⁷ *Ibid*, 173

¹²²⁸ See Chapter Three

¹²²⁹ Gray, *Modern Strategy*, 43

later translate their advantages at sea to success on land.¹²³⁰ Pericles' strategic plan for Athens followed a similar approach by employing the Long Walls and Athenian maritime power to deny early victory to the Peloponnesians and outlast Spartan capacity and/or will to continue it.¹²³¹ Pericles' early death meant the strategy was not well followed, and other complications and errors led to Athens' eventual defeat in 404BC, though only after her maritime strengths were negated.¹²³² More successfully, Britain historically employed seapower in this fashion, including during the Great War, where the Entente-Allies functioned as a maritime coalition, harnessing the massive resources of the British Empire, and later the United States, to better sustain their war effort over time before delivering victory.¹²³³

Whilst the dynamics that influence a war's length remain relevant to insurgencies, such conflicts are particular in respect to time and duration, being generally accepted¹²³⁴ as inherently protracted by 'nature';¹²³⁵ The communist insurgency in China, for example, lasted 27 years,¹²³⁶ and since its end in 1949 the average duration of insurgencies has even increased.¹²³⁷ From different sides of the table, Mao Zedong (insurgent) and David Galula (counterinsurgent), theorised that this protraction originates from the strategic asymmetries of the combatants which necessitates the insurgent to adopt irregular warfare. Initially they are usually militarily much weaker than the counterinsurgent, and so must employ asymmetric

¹²³⁰ Mahan, *Influence of Seapower*, 48-49 ; Gray, *Modern Strategy*, 43

¹²³¹ Hanson, *A War Like No Other*, 26-29

¹²³² See Chapter Four and Kagan, *Peloponnesian War*, 60-63; 483-484,

¹²³³ Sheffield, *Forgotten Victory*, 87 – 93; Gray, *Modern Strategy*, 218

¹²³⁴ With some exception, see P. B. Johnston & B. Urlacher 'Explaining the Duration of Counterinsurgency Campaigns', Unpublished manuscript, Rand Corp. & University of North Dakota (2012), 2

¹²³⁵ D-P Baker & M. O'Neill, 'Introduction: Contemporary South Africa and counterinsurgency', in Baker & Jordaan, *Contemporary Counterinsurgency*, 7 ; Ucko, *New Counterinsurgency Era*, 121-122; See Department of the Army and USMC, FM 3-24/MCWP 3-33.5, *Counterinsurgency* (2006) 1-24

¹²³⁶ Hammes, *Sling and Stone*, 14

¹²³⁷ Fearon, 'Civil Wars', 275, 297; Johnston & Urlacher 'Duration', 2

methods of warfare; guerrilla tactics, high-mobility forces in ambushes, and ‘hit-and-run’, to avoid their own destruction in decisive engagements.¹²³⁸

Additionally, counterinsurgents are not always alert to the initial insurgent threat, which is necessarily covert in the beginning, and also often lack suitable forces or doctrine to counter insurgencies, both of which take time to develop.¹²³⁹ This is made no quicker by the inherent slowness in gaining public support through long-term projects;¹²⁴⁰ insurgencies are essentially fought for and across public-political support as the essential font of power for both sides, as well as their arena.¹²⁴¹ As discussed in Chapter One, intangible dimensions such as morale and political will are difficult to calculate and influence. The fact that insurgent and counterinsurgent employ very different methods and means in their fight makes it difficult to assess relative strengths and so infer probable duration.¹²⁴² The result of these factors is drawn-out, indecisive warfare with attritional, gradually-cumulative effects.

Once conflict has begun it is then in the guerrilla’s interest to avoid decision, and even keep the conflict going, so that they may gain strength. As Hanska points out, this is quite the opposite of conventional advice on quick decisions, employing different perspectives of time and ‘temporalities’.¹²⁴³ By postponing decisive engagement, guerrilla methods give insurgents time to develop and organise greater relative power, to the point where they may eventually defeat the counterinsurgent

¹²³⁸ Galula, *Counterinsurgency Warfare*, 2–6, 7-10, 11-13; Mao, *Military Writings*, 102–104; Gray, *War*, 249-251

¹²³⁹ Galula, *Counterinsurgency Warfare*, 2, 21; J. A. Nagl, *Learning to Eat Soup With a Knife: Counterinsurgency Lessons From Malaya and Vietnam*, paperback edition (Chicago: University Of Chicago Press, 2005), 68, 71; See L. Scholtz & T. Potgieter ‘Counterinsurgency in Afghanistan’, in Baker & Jordaan (eds), *Contemporary Counterinsurgency*, 174–179

¹²⁴⁰ See Nagl, *Learning*, 22-23, 93-95

¹²⁴¹ Baker & O’Neill, ‘Introduction’, 4-5; D. Ucko, *The New Counterinsurgency Era: Transforming the US Military for Modern Wars* (Washington: Georgetown University Press, 2009), 88

¹²⁴² Fearon, ‘Civil Wars’, 298

¹²⁴³ Hanska, ‘Times of war’, 232, 235

decisively with more conventional arms.¹²⁴⁴ Mao described this with his three-staged doctrine for guerrillas, which states that insurgents are initially on the strategic defensive, and moves through phases based on the changing balance of relative strength against the counterinsurgent, toward the strategic offensive, as both sides gain or lose military, political, social and economic power.¹²⁴⁵ This is conceptually similar to Clausewitz's thought on transitioning between defensive and offensive at the decisive strategic moment in relation to the Culminating Point, albeit more gradual and complex.¹²⁴⁶ (I) Strategic Defence: Insurgents cultivate political strength and support of the population whilst conducting limited, covert action: (II) Gradual Transition: Insurgents gain strength and bases; guerrilla conflict attrites government forces and popular confidence in government: (III), Strategic Offense: Insurgents deploy regular forces in open warfare and conclude conflict.¹²⁴⁷

Taken together, these various characteristics of guerrilla warfare indicate the generally accepted notion that time as duration is a natural ally of the insurgent, or even, as Gray terms it a *weapon*:¹²⁴⁸ Provided, at least, they are diligent in attriting the counterinsurgent's force and preserving and expanding their power and support over time.¹²⁴⁹ Indeed, T.E. Lawrence recalled his chief 'card' in leading the Arab guerrillas against the Ottomans had been time: 'Final victory seemed certain, if the war lasted long enough for us to work it out.'¹²⁵⁰

It naturally follows then, that if time is the insurgent's ally, it is the counterinsurgent's enemy: As Lawrence put it, fighting insurgents is slow and

¹²⁴⁴ Gray, *War*, 249 - 251; Galula, *Counterinsurgency Warfare*, 2,6

¹²⁴⁵ Mao, *Military Writings*, 103-105; Chen-Ya Tien, *Chinese Military Theory*, 244

¹²⁴⁶ Handel, *Masters*, 190-193

¹²⁴⁷ Nagl, *Learning*, 23

¹²⁴⁸ Baker & O'Neill, 'Introduction', 7; Gray, *Modern Strategy*, 43; Gray, *War*, 253

¹²⁴⁹ Mao, *Military Writings*, 102-105, 120-122, 123

¹²⁵⁰ Lawrence, *Seven Pillars*, 202.

messy, ‘like eating soup with a knife.’¹²⁵¹ A generation before him, Callwell advocated quick decision to avoid protracted, attritional warfare against guerrillas.¹²⁵² Counterinsurgency also tends to be more expensive than insurgent methods,¹²⁵³ and so over time this degrades resources; but more importantly, prolonged indecisive guerrilla war attrites the political and morale will of the counterinsurgent to continue the fight; thus the insurgent does not need to overcome their physical capacity, necessarily, but erode their *will*.¹²⁵⁴ This necessitates that the counterinsurgent has a serious interest in the conflict’s outcome, if they are to prevail;¹²⁵⁵ more likely among regimes fighting internal threats than those fighting campaigns far-flung from their domestic setting. Indeed, current counterinsurgency theory, advises strategic patience in expectation of long, costly campaigns, in which success is intangible (being psychological), and difficult to gauge.¹²⁵⁶ This may indicate that the aspects of strategic time especially appreciated by the insurgent according to Hanska, are already being accounted for within counterinsurgency theory.

The relationship between duration, activity, success and strategy is explored now through the practical examples of the Second World War (in Europe) of 1939 – 1945, and US involvement in Vietnam, from 1965 - 1972. Although quite different in form, these cases illustrate how the duration of a given conflict is produced via war’s nature and variable characteristics, and what duration means for the strategist seeking to effect victory.

¹²⁵¹ Nagl, *Learning*, xxii

¹²⁵² Callwell, *Small Wars*, 73-78

¹²⁵³ Galula, *Counterinsurgency Warfare*, 6-7

¹²⁵⁴ Gray, *Modern Strategy*, 43; A. Gossman, ‘Insurgency and counterinsurgency: An introduction’, in Baker & Jordaan (eds.), *Contemporary Counterinsurgency*, 33; Scholtz & Potgieter ‘Afghanistan’, 179

¹²⁵⁵ Hammes, *Sling & Stone*, 120

¹²⁵⁶ Baker & O’Neill ‘Introduction’, 7; Gossman, ‘Insurgency and Counterinsurgency’, 33

The Second World War in Europe

Our first case in this chapter examines the Second World War, fought between the Axis powers (the German Third Reich dominant), and the Allies; the United States and British Empire in the West and the Soviet Union, alongside their respective junior partners. Although truly a large and complex ‘World War’, we are constrained by practicalities to focus here on the two main fronts of the war in Europe between 1939 and 1945. Here we can observe how the will, capacities, and strategies of key belligerents were influenced by, and in turn influenced, the duration of the conflict, with specific attention to Germany’s need for quick victory, and how those plans were confounded by other factors. The rise of National Socialism in Germany, and the origins of the Second World War have been well explored elsewhere,¹²⁵⁷ but some elements of the regime necessitate consideration here for context, as they are relevant to German strategic concerns about the duration of conflict.

Third Reich

Like so many other facets of German society under Hitler, Berlin’s strategic calculus became steeped in the radical ideology of National-Socialism, transcending Germany’s innate strategic revisionism and even Wilhelmine *Weltpolitik*.¹²⁵⁸ In part they accord with the restoration of what Thucydides’ would have called German *Honour*, the dynamic pursuit of her *Interests*, and security from strategic *Fears*, in line with German revisionist aims and general desires of powerful states. But these were understood and intensified through the matrix of National Socialism. The doctrine maintained a deterministic view of history (similar to Marxism, albeit

¹²⁵⁷ E.g. Frank McDonough, *Hitler and the Rise of the Nazi Party* (2nd Edition. 2014 Routledge Oxford); G. Weinberg, *A World at Arms: A Global History of World War II* (Cambridge: Cambridge University Press, 1994), 6–47:

¹²⁵⁸ Geyer, ‘German Strategy’, 572, 596 ; Gray, *War*, 109

exchanging race for class), wherein racial groups engage in a ‘Social Darwinist’ struggle for resources, survival and dominance: The German state, reformed as ‘The Third Reich’, would be the tool of victory for the Germanic racial group. Infamously this engendered mass-murder of Jews and other ‘inferior’ groups to ‘purify and strengthen’ the Germanic race, but also encoded war and epic conquest into the regime’s strategic character: Massive military expansionism was seen as essential to unify the Germanic population spread across Europe, and secure sufficient resources and land for agricultural settlement (*‘lebensraum’*), requiring a much larger area than Germany possessed even before 1914.¹²⁵⁹

Due to the physical and human geography of Europe, *lebensraum* would be found in the east, then populated by ‘inferior’ Slavs (destined to be enslaved or murdered) and dominated by the Soviet Union. The Soviet Union was also, according to Hitler, the product of a Jewish anti-German conspiracy, and the main ideological foe for the Reich in what he believed to be an impending eschatological, racial-ideological *total* war. The ultimate goal of this ideologically-imbued ‘strategy’ was thus nothing short of the complete revision of the world order by the establishment of a millenarian utopia, the ‘Thousand Year Reich’: an economically autarkic, militarily invincible, globally-hegemonic, ‘racially pure’ Germanic ethno-superpower astride Eurasia.¹²⁶⁰

¹²⁵⁹ Weinberg, *World at Arms*, 21

¹²⁶⁰ See W. Churchill, *The Second World War, Volume 1: The Gathering Storm* (London: Cassell & Co. Ltd, 1948), 44-45; Geyer, ‘German Strategy’, 565 - 566, 573 – 577; Weinberg, *World at Arms*, 20 – 22, 44; Gray, *War*, 126, 143-144, 165; See also J. Noakes and G. Pridham (Eds.) *Nazism 1919-1945: Volume 3, Foreign Policy, War and Racial Extermination*, 2006 Edition. (Exeter: University of Exeter Press. 2006) 3-5, 9-12

However, with both personal and wider strategic temporal pressures, Hitler was a ‘gangster in a hurry’¹²⁶¹ to complete this vision: A hypochondriac, and already approaching middle-age when he came to power in 1933, Hitler believed he alone had the mettle to implement this vision, and wished to lay the foundations before his own decline and/or demise.¹²⁶² Furthermore, Hitler was determined to avoid a repeat of the protracted stalemate, domestic discontent, and defeat Germany had suffered in the Great War. The pre- 1914 concerns of the Wilhelmine strategists had proved well founded: Germany’s failure to gain quick victory against a coalition of great powers with almost inexhaustible resources from maritime communications, had left her exhausted by years of fighting on two fronts (at least until 1917)¹²⁶³ and blockade, leading to regime change and subsequent capitulation by the new republican government in 1918, which in turn birthed the ‘stab-in-the-back legend’ that had aided Hitler’s rise to power.¹²⁶⁴

However, the Germany that Hitler inherited, although still potentially very powerful, was nevertheless weakened and humiliated by the punitive terms of peace imposed at the Versailles Conference of 1919, losing colonies and even European territories, as well as being obligated to accept ‘War Guilt’, which justified reparations demanded by the victors, occasioning financial turmoil for Germany. The Wall Street Crash of 1929, and subsequent Great Depression, greatly exacerbated these

¹²⁶¹ Gray, *War*, 145

¹²⁶² Weinburg, *World at Arms*, 28 – 30, 45 ; Geyer, ‘German Strategy’, 575; See also Noakes and Pridham *Nazism*, 145-146

¹²⁶³ See Chapters Four and Five

¹²⁶⁴ Gray, *War*, 90, 95, Weinberg, *World at Arms*, 20–21; See also J. Keegan, *The Second World War* (London: Pimlico. 1989), 23-26

problems and, though they propelled Hitler's rise, they left Germany an economic shadow of her former self.¹²⁶⁵

To avoid the problems of economic weakness and a repeat of the Great War and defeat, Hitler thus intended a series of *short*, isolated, and *decisive* conquests, to begin circa 1943. Each victory would, stage-by-stage, furnish resources and advantages for success in the *next* – and so on, to the point where the foundations of the Thousand Year Reich were laid, around 1950.¹²⁶⁶ As before 1914, a line had to be trodden, between going to war too early, or too late; rapid re-arming was essential to give Germany short-term military advantages with which to decisively strike enemies *before* they could use their greater economic potential to rearm with newer weaponry. 1944, Hitler believed, would be the closing-year of this window of opportunity.¹²⁶⁷ The *Wehrmacht* was rapidly expanded and rearmed from 1936, and within two years 52% of government expenditure and 17% of gross national product was dedicated to arms production (more than Britain, France, and the US combined).¹²⁶⁸

However, although rearmament (and other projects) accelerated short-term economic and military recovery, the program was poorly managed with respect to deeper long-term weaknesses in Germany's narrow industrial base (beset by production-slowness bottlenecks), and further strained the economy. Focusing on armament production also undermined German exports, reducing the wealth with which to purchase the essential resources Germany lacked for modern industry and

¹²⁶⁵ Kennedy, *Great Powers*, 371, 392-395; Keegan, *Second World War*, 26-27

¹²⁶⁶ Gray, *War*, 126, 143-145; Weinberg, *World at Arms*, 22

¹²⁶⁷ Weinberg, *World at Arms*, 29, 45; Gray, *War*, 145 ; See also J. Black, *World War Two: A military history* (New York: Routledge. 2003), 3-6; N. Davies, *Europe at War, 1939-1940: No Simple Victory*, Paperback edition. (London: Pan Books. 2006), 57

¹²⁶⁸ Kennedy, *Great Powers*, 393- 394

war, such as iron, copper, petroleum and bauxite (reserves of which were chronically low, even in peace-time).¹²⁶⁹ Even in 1937, two years before the war would begin, stockpiles were exhausted.¹²⁷⁰ In short, Germany had a narrow economic base compared to its expanded military capabilities, with which to fight a large war for a prolonged period; furthermore, Hitler believed this base would narrow further by 1944.¹²⁷¹

Economic difficulties were already on the horizon by 1938 and to ‘resolve’ these economic constraints and provide the wherewithal for future conquests, the regime sought to acquire resources by conquering; a short-term-focused ‘cycle’ of plunder and rearmament. This led to the ‘premature’ peaceful annexation of Austria in March (gaining gold, oil and manpower), followed by the Czech Sudetenland months later,¹²⁷² and the rest of Czechoslovakia in 1939, yielding more resources and advanced industry and materiel. Nevertheless, stocks of key resources remained critical and rationed,¹²⁷³ and the policy of ‘conquer-and-plunder’ could probably only go so far before becoming unsustainable. Meanwhile, expansionism could hasten future enemies into mobilising and forming powerful coalitions:¹²⁷⁴ France and her allies were already becoming alert to German resurgence and, though the Soviet Union was the main ideological foe, the militarily and economically powerful France and Britain were considered greater potential near-term threats to Hitler’s ambitions; thus they were to be dealt with first, leading to an industrial focus on air

¹²⁶⁹ Weinberg, *World at Arms*, 23; Kennedy, *Great Powers*, 395 – 397; Geyer, ‘German Strategy’, 569;

¹²⁷⁰ Kennedy, *Great Powers*, 397

¹²⁷¹ Gray, *War*, 145; See also Keegan, *Second World War*, 92; N. Davies, *Europe at War*, 32-33

¹²⁷² Keegan, *Second World War*, 31-32

¹²⁷³ Kennedy, *Great Powers*, 396 – 400; R. J. Overy, *Why the Allies Won* (London: Jonathan Cape, 1995), 12 - 13

¹²⁷⁴ Geyer, ‘German Strategy’, 575

and naval armament with which to defeat Britain.¹²⁷⁵ With the need to avert short-term crises, and yet still achieve the grandiose ideological ambitions of the longer term, Hitler's regime was thus pushed toward revision of the strategic situation sooner rather than later.¹²⁷⁶

Springtime

Despite the gains from Austria and Czechoslovakia, the Reich required further resources to pursue its 'destiny'. Hitler had been diplomatically outmanoeuvred by British Prime Minister Neville Chamberlain during the 1938-9 Czechoslovakia annexation, denying him war with France, and giving Britain and France time to rearm,¹²⁷⁷ but he would not be deterred from his next target – Poland. In August 1939, Hitler had obtained a 'non-aggression' pact with Joseph Stalin's Soviet Union to effectually divide Eastern Europe between them, beginning with Poland.¹²⁷⁸ Stalin hoped to avoid conflict with Germany through appeasement and misdirection, whilst the latter believed he could postpone the eschatological clash with communism until after victory against Poland and the Western powers.¹²⁷⁹ Initiated on September 1st, the invasion was the debut of Germany's main tool for achieving the Reich's ambitions; the combined-arms operational methods of her regenerating army and air-force, the product of maturing combined and manoeuvre-warfare concepts since the Great War, married to technological improvements.¹²⁸⁰ Later coined '*Blitzkrieg*', the focus was on mass armoured offensives, disorienting enemy command via rapid

¹²⁷⁵ Weinberg, *World at Arms*, 21, 28

¹²⁷⁶ Kennedy, *Great Powers*, 400; See also, A. Beevor, *The Second World War*, Paperback edition. (London: Weidenfeld & Nicolson. 2014) 19-20

¹²⁷⁷ Gray, *War*, 129

¹²⁷⁸ Keegan, *Second World War*, 33-36

¹²⁷⁹ J. J. Weltman, *World Politics and the Evolution of War* (Baltimore: The John Hopkins University Press, 1995), 123; Weinberg, *World at Arms*, 30-34

¹²⁸⁰ Black, *World War Two*, 9-10

manoeuvre and infiltration, coordinated by wireless radio and assisted by Close-Air-Support, suiting the need for *quick* victory. Indeed, Poland was defeated by October 6th.¹²⁸¹

Although unable to directly assist Poland, the need to contain Germany forced Britain, France and their junior allies, to declare war on September 3rd - Hitler had his western war. The Allies also sought to avoid the problems of the last war with a time-focused strategy, though one based on protraction: By adopting a strong defensive in France, they aimed to force Germany to undertake costly offensives that would wear-down the Reich's war-machine over time, whilst imposing a maritime blockade to cripple the German economy. With superior seapower, and time afforded by the defensive, the long-term application of greater resources (and potential US help)¹²⁸² would come into play and supply the forces for transitioning to the offensive when German short-term power waned.¹²⁸³

With more men and modern weapons, France and Britain seemed to initially possess the upper-hand,¹²⁸⁴ and had already mobilised their industries, out-producing Germany in tanks and aircraft by the following year. Meanwhile Germany's limited industrial base meant rearmament was behind schedule; the *Kriegsmarine* especially perceived itself still unprepared for war with Britain.¹²⁸⁵ However, the Allies' defensive stance ceded the initiative, and so time, with which the Reich captured Denmark and Norway in April 1940 before turning to France and Belgium in May. Then, 123 divisions, spearheaded by concentrated mobile armour and supported by

¹²⁸¹ Fuller, *Conduct of War*, 256 – 257; Gray, *War*, 147 ; Overy, *Why*, 12 – 14; See also Black, *World War Two*, 35-39; Keegan, *Second World War*, 45-36, 45

¹²⁸² Beevor, *Second World War*, 114-115, 131-135

¹²⁸³ Gray, *War*, 111; Weltman, *World Politics*, 127-128; Keegan, *Second World War*, 51-53; See also N. Davies, *Europe at War*, 75

¹²⁸⁴ N. Davies, *Europe at War*, 82

¹²⁸⁵ Kennedy, *Great Powers*, 397-398;

aircraft, penetrated Allied defences, confounding superior Anglo-French numbers of men and tanks. Within six weeks the French army had capitulated, Belgium and Paris were occupied and Allied forces driven from the continent at Dunkirk.¹²⁸⁶ The radical success again proved the operational strength of German arms, increasing confidence in the method as an avoidance of ‘Germany’s long-term economic vulnerability.’¹²⁸⁷



Figure 24: Map of Third Reich; Late 1940

Island Fortress

These victories gave the Reich the resources of Western Europe and the Baltic, and secured trade routes with neutral Sweden and Spain; alongside supplies afforded by the Soviet pact, which undermined Britain’s blockade.¹²⁸⁸ Furthermore, with France defeated, Britain remained the only serious foe and was effectively exiled from the continent, unable to undertake major offensives against Germany. Yet for truly

¹²⁸⁶ Weltman, *World Politics*, 128 – 129; Black, *World War Two* 45-52; Keegan, *Second World War*, 36-39, 45-72

¹²⁸⁷ Kennedy, *Great Powers*, 440-441; See also Black, *World War Two*, 51

¹²⁸⁸ Kennedy, *Great Powers*, 441

decisive victory, Hitler had to force London to terms, or invade.¹²⁸⁹ The government of Winston Churchill, having assessed negotiation would lead to humiliation and subjugation,¹²⁹⁰ resolved to continue fighting rather than capitulation whilst the strategic situation was, if uncomfortable, not doomed and might even improve: Despite defeat on the continent, a third of a million Allied troops had been evacuated to Britain, the Royal Navy still commanded the Channel, and the Royal Air Force contested the skies - domains where Britain possessed, or would develop, superiority. With these wards establishing 'strategic distance',¹²⁹¹ combined with the political determination to continue the conflict, Britain intended to 'hold-out', 'buying' the time with which to further the latent resources of the Empire and harness the material assistance being provided by the friendly Roosevelt administration in Washington;¹²⁹² to cultivate relevant dimensional strengths with the available 'relative' strategic time gained. Churchill also keenly hoped to involve the United States as an ally combatant, which would likely prove decisive and conclude the war favourably.¹²⁹³

In August 1940, however, the *Luftwaffe* commenced major operations to gain the air superiority essential to invasion, aiming to destroy the RAF in decisive aerial battle and bombing RAF and production infrastructure. However the service was underequipped with the type of aircraft necessary for long-range combat or heavy bombing.¹²⁹⁴ In what became the 'Battle of Britain', greater numbers of German craft were also offset by Britain's advanced radar-based air-defence system, which

¹²⁸⁹ Gray, *War*, 131; Keegan, *Second World War*,

¹²⁹⁰ See Beevor, *Second World War*, 132, 135

¹²⁹¹ Porter, 'Why Distance Matters', 4-5, 10; see also Beevor, *Second World War*, 131-135

¹²⁹² Weinberg, *World at Arms*, 241

¹²⁹³ Freedman, *Strategy*, 139-142; Beevor, *Second World War*, 114-115, 147

¹²⁹⁴ Keegan, *Second World War*, 50-51, 75-81

allowed superior RAF craft to decisively concentrate in spacetime.¹²⁹⁵ Most importantly, as the Battle extended into attritional fighting with the failure to effect decisive battle, *Luftwaffe* fighter losses surpassed Germany's ability to replenish airframes and pilots: the Reich's economic constraints meant production had barely grown since peace-time, and even declined, with serviceable craft declining from 725 in July, to 275 in September. Conversely, British production exceeded 200% of the German rate, replacing RAF losses *and increasing* serviceable numbers from 591 to 734.¹²⁹⁶ By mid-September, 1940 it was clear the Luftwaffe could not deliver air-superiority (according to Overy and O'Brien it was never even close) and invasion was 'postponed' by the end of the year.¹²⁹⁷

With the invasion of Britain quashed and subsequent morale-bombing of London ineffectual,¹²⁹⁸ Berlin's best hope for victory against Britain was its *guerre-de-course* on the trans-Atlantic shipping upon which Britain depended for key resources, including food, petroleum, ores, and materiel from North America. This 'Battle of the Atlantic' (1939-1945) was thus the key battleground for Britain, but also eventually for the US (also a seapower, but less dependently so) as the sea-lanes would be the conduit of American power (materiel, and later troops) into Britain, and thus Europe.¹²⁹⁹ 1939-1942 saw initial German successes, as U-boats sank millions of tons of shipping, despite the fact that the *Kriegsmarine* was unprepared and had been least-favoured in pre-war resource allocation: Out of 300 boats hoped

¹²⁹⁵ Overy, *Air War*, 31-2; P.P. O'Brien, *How the War was Won*, (Cambridge: Cambridge University Press, 2015), 107; Black, *World War Two*, 53-55

¹²⁹⁶ Ellis, *Brute Force*, 26; Overy, *Air War*, 31-33; See also O'Brien, *How*, 123-124

¹²⁹⁷ Overy, *Air War*, 32-35, 45; O'Brien, *How*, 97, 123-127; also Weltman, *World Politics*, 131; Black, *World War Two*, 53-55

¹²⁹⁸ Weinberg, *World at Arms*, 148-150

¹²⁹⁹ Overy, *Why*, 22, 32-33, 37; See also N. Davies, *Europe at War*, 88, 99

for by Admiral Donitz, he commanded 57 in 1939.¹³⁰⁰ Such a campaign is inherently attritional, relying on sustained effect over time, and often slow; but with too few boats, that effect was all-the-longer in maturation. Hitler, initially sceptical of the impact of *guerre-de-course*, neglected the support required for true effectiveness, whilst often re-tasking U-boats to support Mediterranean and Baltic operations,¹³⁰¹ particularly with the preparation and conduct of the Eastern campaign commencing in summer 1941 (see below), which diverted resources, production facilities and *Luftwaffe* support from Atlantic operations.

Hitler had also desired to avoid bringing the US into the war ‘early’ by unrestricted submarine warfare, as had happened in 1917; although an accepted eventuality, he much preferred to defeat the Soviets before concentrating on the battleship programmes with which the Reich would defeat the US, though these would be wastefully stopped and started several times.¹³⁰² Nevertheless, even after declaring war on the US in late 1941, following the Japanese attack on Pearl Harbour, he remained mostly focused on the east, and only partly-realised the potentials of *guerre-de-course* by 1943.¹³⁰³ Meanwhile the British and US navies learnt to counter the submarine threat, and by 1943 had adopted the convoy system alongside anti-submarine-warfare methods and technologies (including air-support, depth-charges and centimetric radar) which allowed them to inflict a heavy toll on the U-boats,¹³⁰⁴ whilst simultaneously straining their production via the bombing of U-boat production facilities.¹³⁰⁵ Furthermore the Western Allies, especially the US, could

¹³⁰⁰ Ellis, *Brute Force*, 160 – 161; Kennedy, *Great Powers*, 442; Keegan, *Second World War*, 84

¹³⁰¹ Ellis, *Brute Force*, 135, 143-144, 147 -148; see also Keegan, *Second World War*, 83-92

¹³⁰² Weinberg, *World at Arms*, 235, 238, 543

¹³⁰³ Ellis, *Brute Force*, 135, 143-144, 147-148 ; Overy, *Why*, 55

¹³⁰⁴ Ellis, *Brute Force*, 152 – 154; Keegan, *Second World War*, 90-91; see also O’Brien, *How*, 253-265,

¹³⁰⁵ Till, *Seapower*, 105

ultimately build vessels much quicker than they could be sunk (see fig. 25), which, with the total size of Allied merchant shipping, put the fleet beyond the attritional capacity of the U-boat menace.¹³⁰⁶ According to Ellis, Dönitz's U-boats would need to have severely injured Britain's merchant fleet by 1942 to have had any serious long-term impact, yet then Hitler had been less supportive and the force weaker—only in spring 1943 did Donitz have enough boats (100) to undertake major operations,¹³⁰⁷ by which time the boat had sailed in respect to decisive strategic defeat of the Western Allies or even Britain alone.¹³⁰⁸

In short, the Third Reich failed to overcome the physical and morale-political capacities of Britain to resist before the Western Allies could improve upon their strategic position, and certainly not within a sufficient time according to the imperative for short war pressured by German long-term deficiencies.

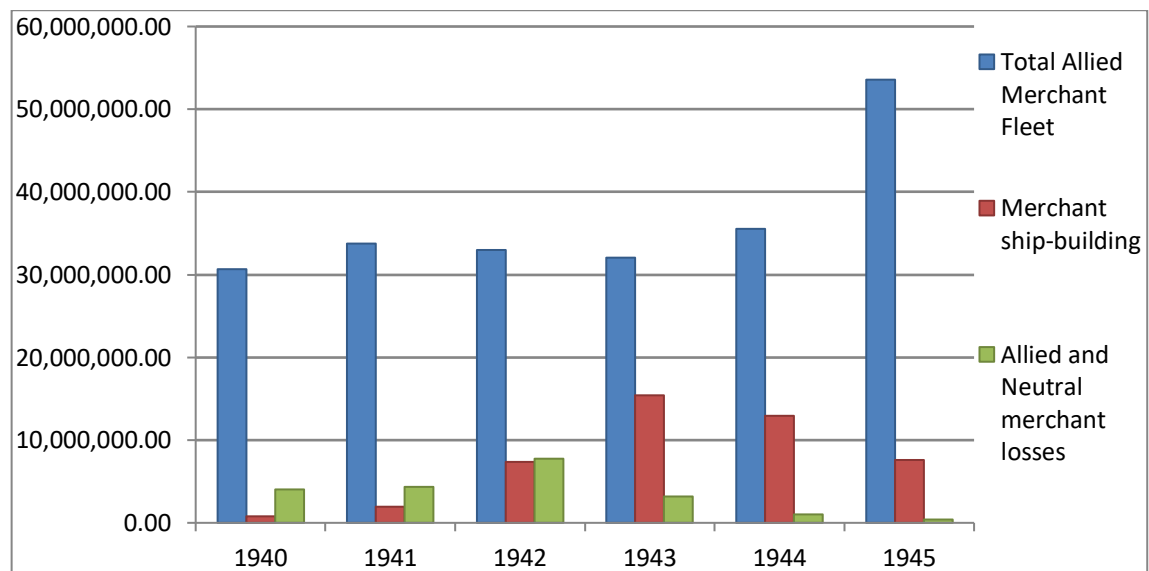


Figure 25: Allied Merchant Fleets, building and losses, in millions gross tons; data from Ellis¹³⁰⁹

¹³⁰⁶ Kennedy, *Great Powers*, 454; Keegan, *Second World War*, 84-86, 89, 91; See also, N. Davies, *Europe at War*, 26-27, 98

¹³⁰⁷ Ellis, *Brute Force*, 152-161; Kennedy, *Great Powers*, 448

¹³⁰⁸ Keegan sees in the U-boat threat a greater potential menace; Keegan, *Second World War*, 83-92

¹³⁰⁹ Ellis, *Brute Force*, 137-159

Winter

Despite the essential role of the Western Allies, Hitler's desire for a short war was arguably lost in the east: Having failed to conclude his western war by mid-1941, Hitler had been forced to settle, temporarily, for Britain being 'contained', as the mounting temporal pressures presented by relative strategic time already demanded preparation for the next move: The conquest of the Soviet Union.¹³¹⁰ This would yield vast resources (especially food, ores and fuel),¹³¹¹ which the expanding Reich required to build ships and aircraft to defeat Britain and prepare for war with the US. By contrast, delay spent on consolidating power in Europe would gift the Soviets greater relative time in which to strengthen their own capabilities and, perhaps, eventually ally with the US and Britain.¹³¹² At the time Hitler believed the US might become involved in 1942, and wished to have defeated the Soviets by then.¹³¹³ Thus the invasion in 1941 had temporal necessity in relation to the Reich's ravenous demand for resources, but also a modicum of strategic wisdom in line with Sun Tzu's advice on striking the enemy before alliances are formed.¹³¹⁴ Although sometimes considered Hitler's greatest mistake in that it led to a war on two fronts, the invasion was nevertheless the truest manifestation of National-Socialist aims; the vanquishment of Jews, Slavs, and the communist state, alongside conquering *lebensraum* in Eastern Europe, were foundational to the 'Thousand-Year-Reich'.¹³¹⁵

The invasion, codenamed Operation Barbarossa, was a massive undertaking, with planning beginning in mid-1940, to mirror previous victories with surprise and

¹³¹⁰ Gray, *War*, 128 ; Black, *World War Two*, 74-75; Keegan, *Second World War*, 101-103

¹³¹¹ Keegan, *Second World War*, 111, 171; Beevor, *Second World War*, 225

¹³¹² Keegan, *Second World War*, 101-103; Davies, *Europe at War*, 94

¹³¹³ Freedman, *Strategy*, 142-143; Black, *World War Two*, 74-76

¹³¹⁴ Sun Tzu, *Art of War* (Cleary), 71 – 72

¹³¹⁵ Weinberg, *World at Arms*, 190-193; Gray, *War*, 153 Freedman, *Strategy*, 143; Keegan, *Second World War*, 112-113

lightning-fast mass-offensives along the Soviet border. It was assumed (almost as faith) that experienced, technologically and operationally superior German mobile forces would use their superior capacities of concentration in spacetime, to swiftly encircle and destroy poorly-equipped Red Army formations near the Soviet frontier within weeks, as they had in France and Poland. Moscow would then be easily captured, and the Soviet Union would fold like a bad hand, avoiding protracted war.¹³¹⁶ Confident of the outcome, Hitler had already begun planning for the defeat of Britain and the expected war with the US before launching Barbarossa, and ordered industrial focus towards the *Luftwaffe* and *Kriegsmarine* for those tasks.¹³¹⁷

Although the need to assist Hitler's Italian allies in their opportunistic Balkan, Mediterranean and North African misadventures delayed invasion, originally planned for May, Barbarossa was nevertheless launched on June 22nd 1941. Over 4 million Axis troops (containing the great majority of the German army) advanced along three diverging axes; toward Leningrad (St-Petersburg), Moscow via Minsk, and the Caucasian oil-fields via the industrialised Donbass; all important economic and political targets (See map, figure 26).¹³¹⁸ The Red Army was caught by surprise in the midst of reorganisation and deployed forward to the Soviet borders, playing to German strengths. Furthermore, Stalin's refusal to believe Hitler had attacked only worsened the confusion by delaying the Soviet response at the highest level of the Soviet command system,¹³¹⁹ wasting what little relative time they could hope to employ when faced with complete psychological and material surprise. Initial

¹³¹⁶ Ellis, *Brute Force*, 16, 43-44, 50-53; Weinberg, *World at Arms*, 265; Black, *World War Two*, 75; Davies, *Europe at War*, 99

¹³¹⁷ Weinberg, *World at Arms*, 205; Overy, *Why*, 17

¹³¹⁸ Freedman, *Strategy*, 142; Winters et al, *Battling the Elements*, 87; Keegan, *Second World War*, 150

¹³¹⁹ Ellis, *Brute Force*, 40-41; Keegan, *Second World War*, 150-152; Beevor, *Second World War*, 227-233

victories of Barbarossa were unprecedented, with 3 million Soviet troops killed or captured within four months.¹³²⁰ Triumphantly Hitler declared victory in October and characteristically looked forward to the complete annihilation of Moscow and establishment of the Thousand-Year-Reich; he increased production of armaments for defeating Britain and in December even had the confidence to declare war on the US in support of his Japanese allies.¹³²¹



Figure 26: Map of Operation Barbarossa, 1941

However, this optimism would prove premature; overconfidence in rapid victory had led German leadership to disregard the geographical and logistical dimensions of strategy, as well as Soviet strength and longer-term capability.¹³²² Not concentrated upon a single objective, the three advances headed into a vast zone of

¹³²⁰ Kennedy, *Great Powers*, 443

¹³²¹ Overy, *Why*, 16-18 ; Weinberg, *World at Arms*, 268, 289

¹³²² Winters et al, *Battling the Elements*, 87; Ellis, *Brute Force*, 50-51; Black, *World War Two*, 77

operations, exceeding 500,000 square miles, with a broadening front which drew them further apart. This critically undermined the operational principles behind earlier ‘*Blitzkrieg*’ successes; fast offensives within confined areas, overwhelming foes and decisively defeating them *before* they could be stopped¹³²³ - in effect a giant exploitation of ‘material surprise.’ However, in the vast area of European Russia, German armies could simply not advance *quickly* enough, and with sufficient momentum relative to the dispositions of the enemy and operational objectives.¹³²⁴ Furthermore, the *Luftwaffe*, already weakened by the Battle of Britain, was also over-stretched in this great area, with equipment better suited for the western war than missions in Russia.¹³²⁵

In the expectation of quick victory, German logistics had failed to provide winter-warfare equipment or even sufficient fuel and spare parts essential for motorized forces travelling ever-greater distances, severely undermining the power and speed of the advances the further they advanced into the country.¹³²⁶ Russia herself also provided terrible seasonal-climatic conditions for fighting, which effectively ‘de-modernised’ the *Wehrmacht* as Gray puts it.¹³²⁷ Autumn rains turned bad roads into seas of mud, bottle-necking supply-lines, clogging machines and breeding disease, and the especially-harsh winter that followed ruined unprepared equipment and men.

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¹³²³ Kennedy, *Great Powers*, 442; 139; Black, *World War Two*, 76-77, 83, 86; See also P. Parker & F. Hobbins (eds.), *Collins Atlas of Military History* (London: Harper Collins Publishers Ltd., 2007), 139; *Collins World Atlas*, 7th edition (London: Harper Collins Publishers Ltd., 2005), 22-23

¹³²⁴ See also Black, *World War Two*, 78-79

¹³²⁵ Weinberg, *World at Arms*, 194; Ellis, *Brute Force*, 45-46; Davies, *Europe at War*, 101

¹³²⁶ Weinberg, *World at Arms*, 187-8; Gray, *War*, 133

¹³²⁷ Gray, *Modern Strategy*, 40

¹³²⁸ Winters et al, *Battling the Elements*, 89-93 ; see also Black, *World War Two*, 84-85

As such, German forces began to approach (in Clausewitzian terms) the culminating point of their advance, without having managed to destroy the Red Army in the field through lightning manoeuvre. In short, the operational formula of force in spacetime which had won German strategic victories had begun to disintegrate. This lost time to nature, but also to the Soviets: Fighting tenaciously despite terrible losses, Red Army forces only withdrew grudgingly, inflicting heavy losses yet denying decision in the frontier, whilst ‘buying’ time to recover and prepare counterattacks.¹³²⁹

Withdrawal also drew-in German forces and distended their supply-lines further,¹³³⁰ leading to a prolonged, desperate and ever-more costly campaign. In September, Army-Group North besieging Leningrad committed to what would become an almost 900-day siege; Army-Group Centre advancing on Moscow, slowed and nigh-exhausted before arrival, also faced improved defences when it finally arrived, and a battle that drew in millions of troops but which it was forced to abandon in December.¹³³¹ As Clausewitz had warned, ‘Time...is less likely to bring favor to the victor than to the vanquished... offensive war requires...quick, irresistible decision....any kind of interruption, pause, or suspension of activity is inconsistent with the nature of offensive war.’¹³³² Instead of the quick, decisive offensive required for German strategy, the Russian campaign had become, by 1942, a desperate, attritional and protracted affair, favouring the long-term qualities of the Soviet Union in the strategic dimensions: With a population circa 130 million and great resource-wealth, the Soviet Union could endure vast losses of men, material and territory, perhaps even Moscow, and remain undefeated.¹³³³ Despite relative

¹³²⁹ Black, *World War Two*, 78-81

¹³³⁰ Weinberger, *World at Arms*, 265; Ellis, *Brute Force*, 57-59

¹³³¹ Gray, *War*, 133

¹³³² Clausewitz, *On War*, 597-599

¹³³³ Black, *World War Two*, 85

tactical ineffectiveness and higher loss-rates in materiel and soldiers, 4.2 million men remained under Soviet command in December 1941, and millions more could replace their losses.¹³³⁴

The Soviets also continued (and developed) their production of armaments by the astonishing feat of relocating industrial facilities eastward of the Ural Mountains.¹³³⁵ This scheme, though undoubtedly difficult, used the time ‘won’ in delaying the slowing German advance, and ‘spent’ it in creating strategic depth in spacetime far from the threat of German arms. In 1941 their factories produced over 6,500 tanks against Germany’s 2,800, and four times the number of aircraft. By contrast, and despite prioritising manufacture of tanks in early 1941, German production could not cover growing losses of machines or men.¹³³⁶ Haunted by the regime-change of 1918, Hitler was loath to mobilise the German economy and society toward a war-footing, whereas the Soviet economy and society was fully mobilised to the war-effort, motivated by intense emotions toward the brutal ideological foe.¹³³⁷

Nevertheless, despite losses the *Wehrmacht* remained a powerful force, and was committed to another attempt for decision in Russia in summer 1942, with Army-Group South’s drive for the vital Caucasus and Caspian oil-fields. The Soviets again withdrew, trading space for time, and straining German logistical lines by a further 600 miles, whilst the invaders -operating on divergent lines- diffused divisions to the South-East and to Stalingrad, the siege of which halted their advance before a Soviet counteroffensive pushed them back.¹³³⁸ By the time of the Battle of Stalingrad the

¹³³⁴ Kennedy, *Great Powers*, 443-450

¹³³⁵ Ellis, *Brute Force*, 281; Black, *World War Two*, 80-81

¹³³⁶ Kennedy, *Great Powers*, 443-450; Ellis, *Brute Force*, 46-47 82-3

¹³³⁷ Overy, *Why*, 121

¹³³⁸ Winters et al, *Battling the Elements*, 88, Black, *World War Two*, 113-119; Davies, *Europe at War*, 100, 107-108

invasion had arguably already met its culminating point,¹³³⁹ and the Red Army, with the relative time gained in blood, space and effort, was coming into its own. By 1943 it was large enough to tolerate six times the losses of Axis forces and still maintain the offensive, whilst Soviet operational, organisational and command methods had also had time to improve:¹³⁴⁰ as Gray points out, near-defeat often encourages an enemy to learn from their mistakes and adapt, correcting their performance in light of mistakes which did not prove serious enough to cut short their ‘schooling’.¹³⁴¹

Turning Tide

Despite US entry into the war in late-1941 and the stalling of the eastern offensive in 1942, Berlin still met 1943 with some sanguinity: More slave labour allowed German workers to join the *Wehrmacht* and, with the appointment of Albert Speer as *Reichsminister* of Armaments the previous February, industry was rationalised and production of key armaments such as submarines and tanks was increased.¹³⁴² With a new Russian offensive and intensification of the U-boat campaign, it was hoped 1943 would see a severe, potentially decisive blow struck which would split the Allies between East and West, allowing a separate peace with the British and Americans.¹³⁴³

However, as the events of 1943 unfolded, the tide of the war turned more clearly to the Allies’ favour. In the East, Berlin’s attempt to revivify the offensive and decisively defeat the Red Army near Kursk (where some 20% of the Red Army was deployed) broke upon several layers of well-prepared defences. This, with the

¹³³⁹ Gray, *War*, 128

¹³⁴⁰ Kennedy, *Great Powers*, 453; Overy, *Why*, 121

¹³⁴¹ Gray, *Modern Strategy*, 174

¹³⁴² It would even peak in 1944, See Black, *World War Two*, , 228-229, 238-239, 240-243

¹³⁴³ Weinberg, *World at Arms*, 476, 587-588; Overy, *Why*, 250

following Soviet counterattack, would cost the Reich thousands of tanks and guns, 400,000 men, and the initiative; after the Battle of Kursk (5 July-23 August), the *Wehrmacht* was on the defensive,¹³⁴⁴ but on a broad battlefield it could not hope to hold in the face of the larger Red Army: The vast zone of operations again undermined the ability of German arms to concentrate effectively in spacetime.

Additionally, Allied operations in North Africa, though a minor theatre, produced successes which deprived Germany access to Middle-Eastern oil.¹³⁴⁵ This had also tied down and attrited German troops, and paved the way for opening a new southern front on mainland Europe via the invasion of Sicily and Italy in summer 1943.¹³⁴⁶ In the west Britain had opportunity to use the ‘rival’ time gained through 1941-2 to build up its forces. Supremacy in the Atlantic through 1943 enabled the Allies to bring resources and American power into Britain,¹³⁴⁷ providing the staging point to launch an invasion of mainland Europe, thus opening the problem of an additional major front for Berlin. American commanders were keen to do this in 1943 (or even 1942), but the British maintained, quite correctly, that more time was needed to develop the power necessary for successful amphibious landings.¹³⁴⁸

By January 1943 this included a large bomber fleet which, as the ‘Combined Bomber Offensive’ (CBO), targeted (at times) the *Luftwaffe*, civilian morale, and infrastructure bottlenecks within the ‘industrial web’ of military production; with the aim of crippling the German capacity to resist, to mixed results.¹³⁴⁹ Despite the vast scale of the offensive bombing did not fully collapse the Reich’s industry, but it

¹³⁴⁴ Gray, *War*, 136-7; See Kegan, *Second World War*, 376-394, 395-400

¹³⁴⁵ Overy, *Why*, 53-54

¹³⁴⁶ Gray, *War*, 137

¹³⁴⁷ Davies, *Europe at War*, 99

¹³⁴⁸ Overy, *Why*, 124

¹³⁴⁹ R. Pape, *Bombing to Win: Air Power and Coercion in War* (New York: Cornell University Press, 1996), 264-267; See Keegan, *Second World War*, 354-361

limited what Speer's reforms could achieve, just as they were coming into effect.¹³⁵⁰ Nor did it coerce the population; given the character of the regime it is unlikely it could have.¹³⁵¹ Nevertheless, the *Luftwaffe* was engaged in grinding aerial attrition, and staggering amounts of guns and ammunition were diverted to anti-aircraft defence.¹³⁵² Oil and transport infrastructure also proved effective targets, and by 1945 their destruction had seriously degraded *Wehrmacht* mobility; the key to its success.¹³⁵³

By 1944 Germany had lost the strategic initiative and, with the scale of losses in the previous two years, had little hope to regain it.¹³⁵⁴ In the increasingly attritional character of the war, the Allies held the decisive relative long-term strength of economic superiority, with vastly superior resources¹³⁵⁵ and a combined manufacturing power twice that of the Axis, and this was already being converted into a great superiority in materiel;¹³⁵⁶ through 1943, US production averaged one ship and nearly 150 aircraft *per day*.¹³⁵⁷ Thus, when Western Allied forces invaded Normandy in June 1944 they did so with local superiorities of 20-to-1 in tanks and 25-to-1 in aircraft over the Germans. In the following year the Soviets, fighting the bulk of the Reich's forces in the east, managed 5-to-1 advantages in tanks and men, and 17-to-1 in aircraft.¹³⁵⁸ With such overwhelming superior strength, Allied victory was all-but eventually assured.¹³⁵⁹ Foreshadowing the ultimate result of the war, the noted German commander Erwin Rommel remarked following his defeat in North

¹³⁵⁰ Ellis, *Brute Force*, 515, 526-7: See also Keegan, *Second World War*, 159-161; O'Brien, 349-357

¹³⁵¹ Pape, *Bombing*, 283

¹³⁵² Overy, *Air War*, 121-124; Black, *World War Two*, 184-187; O'Brien, *How*, 24, 93, 325-339

¹³⁵³ Pape, *Bombing*, 275-8, 283, 312; see also O'Brien, *How*, 318, 323-325, 357-373

¹³⁵⁴ Gray, *War*, 137

¹³⁵⁵ See Ellis, *Brute Force*, appendix tables 46 - 50

¹³⁵⁶ See O'Brien, *How*, 72-76, 76-82, 371-373

¹³⁵⁷ Kennedy, *Great Powers*, 457; Ellis, *Brute Force*, appendix table 411; Black, *World War Two*, 246-259

¹³⁵⁸ Kennedy, *Great Powers*, 453

¹³⁵⁹ Brodie, *War and Politics*, 40

Africa that ‘the moment the overwhelming industrial capacity of the United States made itself felt in any theatre... there was no longer any chance of ultimate victory [there]....Tactical skill could only postpone [decision], it could not avert...fate....’¹³⁶⁰ The only remaining question was how soon Germany’s fate was to be sealed.

As this asymmetry began to affect the course of the war, the temporal relationships of the belligerents shifted in turn, indicating the relationship between the temporal and the other dimensions of strategy: The necessity of quick victory for the Reich applied when Hitler had the upper-hand and could maintain the strategic offensive; less so when that hand was more obviously lost through 1943-44 after defeats in in Russia and Normandy. The allies by contrast had required time to cultivate their long-term strengths, to translate them into effective means of fighting, and ultimately winning the war. Once that correlation of forces had decisively shifted and eventual victory seemed certain, both Allied factions (Anglosphere West and Soviet East) naturally saw to bring it a quicker conclusion.¹³⁶¹ However, three interconnected factors obstructed possible short-cuts to Allied victory, despite their overwhelming material advantages:

Firstly, as Gray points out, the objective of war is not just peace, but a peace that makes ‘the war worthwhile.’¹³⁶² Aware of the irrepressibly ruthless ambition of their enemy, the Allies had bound themselves together in early 1943 to the object of Germany’s *unconditional* surrender, and its occupation for ‘de-nazification’;

¹³⁶⁰ Ellis, *Brute Force*, 346-347

¹³⁶¹ Weinberger, *World at Arms*, 540

¹³⁶² Gray, *Fighting Talk*, 7

preventing separate, earlier, peace between Berlin and either faction.¹³⁶³ The only way to victory was thus through the utter destruction of the Third Reich.

Secondly, this demanded a campaign to the heart of the Reich, defended by the *Whermacht* which, despite its losses, remained a potent force. The tools available to the allies were not capable of *quickly* neutralising German *capability* to resist (save perhaps the new atomic weapon). The CBO was large but slow, cumulative and attritional by nature, whilst Allied ground offensives on both fronts were also largely attritional and therefore slow, albeit gaining in momentum.

Finally, the enemy's *will* to resist proved nigh-adamantine; despite overwhelming and mounting odds following the completion of Operation Overlord and the inexorable march of the Red Army through Eastern and Central Europe in 1944, Hitler was determined to fight on. The regime's hopes were pinned on the (already overdue) V-missiles, and counteroffensives on both the Eastern and Western Fronts in winter 1944/45.¹³⁶⁴ The V1 and V2 missiles, heralded as *Wunderwaffe* which would defeat Britain and break the trans-Atlantic alliance, entered service in mid-1944, over a year late, and proved a great drain on resources and effort. Despite being launched in their thousands (many of which missed their target or were destroyed in the air) they failed to achieve their vaunted impact and defeat Britain or halt Allied advances.¹³⁶⁵ Meanwhile the planned counteroffensives of winter 1944/55 made only limited impact in slowing the Allied advances, rather than stopping them and whatever time they managed to purchase for the Reich was ultimately futile. Nevertheless the war in Europe would only end on May 8th, 1945:

¹³⁶³ Pape, *Bombing*, 257-258

¹³⁶⁴ Gray, *War*, 138–139; Ellis, *Brute Force*, 531

¹³⁶⁵ Weinberg, *World at Arms*, 465, 561, 563; Keegan, *Second World War*, 484-487; O'Brien, *How*, 30-33

Despite the gradual and systematic destruction of the great part of its *physical* capacity to resist, the Reich had nevertheless determined to fight on to the very bitter end, even as Soviet troops finally entered Berlin.¹³⁶⁶

Time: Hitler's Short War Denied

The Second World War in Europe well illustrates a number of the points highlighted in the opening of this chapter; particularly the interactive dynamics in the nature of war as a struggle which influence the duration of conflict. With the capabilities of the powerful industrialised belligerents involved and committed to an intense *total war* for national, ideological (and sometimes racial) survival, it appears unlikely the war could have been short, despite intents to the contrary. Seeking quick victory, the Reich launched war with notable strategic 'impatience' that never truly diminished, and which blinded its leaders to the possibilities and risk of protracted conflict, despite Hitler's initial desire to avoid a repeat of 1918. In 1939 the Reich was a potent war-machine, but with limited initial resources its strategic undertakings were inevitably against the clock, defined by its economic limitations, geared to quick conquests relative to enemies' capacity to endure and mobilise. The attritional nature of the war after 1942/3 ensured eventual Allied victory; the inability to develop long-term capability due to its approach to economic matters was, as Ellis points out, the Reich's Achilles Heel.¹³⁶⁷

Although the German economy had been partially mobilised in 1939, and gained resources by conquest, the regime failed (remarkably for a dictatorship) to mobilise the economy for the demands of major war until Speer's appointment in 1942. This

¹³⁶⁶ Keegan, *Second World War*, 440-447

¹³⁶⁷ Ellis, *Brute Force*, 18; See also Keegan, *Second World War*, 170-172

only took effect well after the Reich's enemies had fully mobilised and were in a position to disrupt and limit what potential still remained within the Reich's economy¹³⁶⁸ after having wasted years of potential. Production was thus only expanded slowly, barely able to replace battle-lost materiel, let alone meet the demands of protracted total war, until 1943.¹³⁶⁹ Even then, German society did not approach mobilisation to the extent of Britain and the Soviets' until 1944/45(!).¹³⁷⁰

The narrow economic base of the Reich, compared to its intended revisionist strategic goal also meant that German industry, or at least the elements of it which were controlled, were reoriented back-and-forth between major projects as the near-term situation seemed to demand; from land-war in the west to preparation for invasion of the Soviet Union, to ships and aircraft for the defeat of Britain, and so on. All the while this drew in precious few resources with little real focus. Furthermore, resources and efforts were also diverted to the Holocaust and other racial policies (even to war's end), and to ultimately fruitless *Wunderwaffe* programmes.¹³⁷¹

This is not to say that Germany was economically weak; clearly it had the dimensional strengths to fight three major powers for several years of total war, but economic strength was committed too little and too late, and was too-often wrongly spent; compounding the temporal limitations of her endurance. Time's inexorable *linear* march determined that such mistakes could only be rectified through more-difficult military or economic efforts later on. However, with dwindling relative

¹³⁶⁸ Overy, *Why*, 250-1; Kennedy, *Great Powers*, 457; Black, *World War Two*, 228-230, 240-241

¹³⁶⁹ Weinberg, *World at Arms*, 409

¹³⁷⁰ *Ibid.*, 471

¹³⁷¹ Weinberg, *World at Arms*, 465, 472-475; Black, *World War Two*, 241

strength against mounting Allied power, the Reich could ultimately not ‘make up’ those previously misspent and lost chances for earlier preparation.

This left Germany with little opportunity among her relative strengths to ‘buy’ more time that could be meaningfully used: The regime had failed to use their scarce temporal resource wisely (even when resource-rich after conquering much of Europe) by investing in long-term strength of the kind that offered strategic endurance, in favour of plunder, and ‘quick fixes’, even during the lengthening war; best evidenced by the expensive, and late, *Wunderwaffe* programmes which did little more than assist the allies by draining useful resources¹³⁷² away from more strategically useful projects, hamstringing the Reich’s capacity to endure. The devices of earlier offensive successes, such as the Blitzkrieg combined arms doctrine proved less effective in the protracted, attritional war that developed from 1942, and which found Germany on the strategic defensive in 1944.

Additionally we may observe how the Allied forces avoided strategic defeat and ‘bought’ time, exacerbating the Reich’s own temporal pressures for decisive and quick victory. All accomplished this by activity and geography, to create what Porter terms ‘strategic distance’; an abstracted ‘distance’ defined by limitations imposed by physical geography and strategic use of it¹³⁷³ (not dissimilar to the ‘strategic time’ concept of this work). It is this abstracted ‘resource’ which the Western Allies and Soviets could ‘trade’ for or ‘convert’ into usable, *relative* time.

Britain had historically relied on its navy to create strategic distance in the Channel, and with air forces and air defence systems she could make a firmer ‘barrier’ for her

¹³⁷² Weinberg, *World at Arms*, 465

¹³⁷³ Porter, ‘Distance’, 4-5, 10

preservation.¹³⁷⁴ This in turn purchased time with which to mobilise the home and imperial economy and exploit the ever-growing influx of resources and materiel to build ships, aircraft and defences.¹³⁷⁵ This established Britain as an ever-stronger fortress on the Reich's Atlantic flank, and later, the ideal staging point for the eventual return to the continent in 1943/44. What is more, by continuing the war at sea and in the air, Britain forced German industry to continue manufacturing materiel for such conflict, undermining production for the land war in the east.¹³⁷⁶ Lastly, the British retained a high morale and strong political will to endure; Overy has questioned whether even the defeat of Russia would have swiftly led to British capitulation.¹³⁷⁷

The bulk of the Western Allies' material power lay in the United States and, with the Atlantic controlled by the US and Royal navies (the U-boat *guerre-de-course* accepted), it may as well have been on the moon as far as the Reich's ability to injure it directly was concerned.¹³⁷⁸ As with Britain's security from invasion, this also brought the time to build up the stupendous material advantages of the Western Allies.¹³⁷⁹

The Soviets also employed considerable strategic depth afforded by the vast expanses of Russian geography; a historical advantage among the strategic dimensions which Russian Strategists had traditionally used to gain time, as against Napoleon. The sheer scale of the widening zone of operations in European-Russia directly undermined the principles of rapid movement and concentrated shock to

¹³⁷⁴ Ibid., 5, 9

¹³⁷⁵ Overy, *Air War*, 60; Weinberg, *World at Arms*, 180

¹³⁷⁶ Weinberg, *World at Arms*, 409, 603-605

¹³⁷⁷ Overy, *Air War*, 61

¹³⁷⁸ Overy, *Why*, 34 See also, O'Brien, *How*, 46-47

¹³⁷⁹ Kennedy, *Great Powers*, 444

deliver quick strategic decision; the heart of the ‘Blitzkrieg’ operational doctrine, and the very foundation of Germany’s earlier military successes. Murray argues that Stalin’s initial reluctance to make use of this feature by a more calculated withdrawal is a primary cause of such high Soviet losses during Barbarossa.¹³⁸⁰ However, the Soviets also possessed an abundance of manpower, and could absorb unprecedented losses of men and equipment, as well as territory.¹³⁸¹

Together, these factors ‘bought’ time via their ‘expenditure’ which, alongside moral factors, kept the Soviet Union in the war and allowed regeneration of its capabilities by relocating vital facilities to the Russian interior, and mobilising its potentially powerful economy. As Winters et al have pointed out, the circumstances and relative strengths of the belligerents served to make time, space and the environment terrible enemies of Hitler’s invasion; ‘By avoiding defeat the Russians drained the resources and vitality of an initially stronger enemy.Failure to win a quick and decisive victory forced...Hitler’s Germany into [a prolonged campaign] in a hostile setting’¹³⁸² which it could not hope to conquer.

Failures in military and logistical planning exacerbated the problems of space and lack of time for German forces, and wrought additional horrors as natural time exposed the invaders to successive bouts of harsh seasonal conditions, amplified over two years of intense attritional fighting: As Winters *et al.* conclude, time, environmental factors and space, were particular foes for Germany in the east, assisting the attrition of the German war machine.¹³⁸³ But arguably it is the *time* gained by space and relative military performance which proved decisive in the East

¹³⁸⁰ W. Murray ‘Some thoughts on War and Geography’, in C. Gray & G. Sloan (eds.), *Geopolitics, Geography and Strategy*, Routledge edition (London: Routledge, 2013), 214 - 215

¹³⁸¹ Kennedy, *Great Powers*, 443

¹³⁸² Winters et al, *Battling the Elements*, 95

¹³⁸³ Ibid.

by allowing Soviet regeneration, coupled with the duration of the conflict in which German forces were ground down by weight of prolonged bitter fighting and conditions. It may be speculated that, had Hitler been able to take Moscow in 1941, which was possible, the outcome may have been different. Yet, even that may not have shattered Soviet capability or willpower.¹³⁸⁴

It is also worth noting the change in temporal pressures which visited the belligerents, echoing Clausewitz's words on the duration of engagements; 'The decision can never be reached too soon to suit the winner or delayed long enough to suit the loser.'¹³⁸⁵ Hitler embarked upon war with a clear strategic need for quick, decisive victories, however these could not be gained and his window of victory had closed perhaps as early as 1942, according to Ellis¹³⁸⁶ and Gray,¹³⁸⁷ with the failure to defeat the Soviet Union quickly and so be forced into a war against growing powers on two fronts. This change in the correlation of relative strength and the gradual gaining of the initiative by the Allies in 1943-1944, with Kursk and Operation Overlord, served to shift the relationship of both sides with respect to duration. Then on the strategic defensive, the Reich sought to *gain* time, to break-up the Allies, and develop hoped-for *Wunderwaffe* to reinvigorate the Reich's rapidly declining condition. Conversely, the Allies, faced with the rapid expansions of the Reich and spearheaded by the lightning-fast operational methods of the Wehrmacht, initially needed to delay decision and avoid defeat. However, after gaining the upper-hand with a great predominance of resources their interest veered toward a quick conclusion.¹³⁸⁸ This well illustrates how time, even in a specific aspect such as

¹³⁸⁴ Kennedy, *Great Powers*, 443

¹³⁸⁵ Clausewitz, *On War*, 238

¹³⁸⁶ Ellis, *Brute Force*, 79

¹³⁸⁷ Gray, *War*, 151

¹³⁸⁸ Weinberg, *World at Arms*, 540

the duration of war, is not a *constant* ally, but somewhat mercurial and dependent on the course of the developing interaction of struggle and fluctuations in the relative conditions of the other dimensions of war.

Finally, we may point out that Hitler could not see into the future; expectations of victory, though high, were not sufficient currency to purchase his empire. Only the uncertain gamble with war could win that, and the cataract of time ensured the outcome could not be knowable in advance. As Gray puts it, the enemy too has a vote¹³⁸⁹ in how the strategic situation develops and, as we have seen in this case, how long the war may be, paid for in their own relative competences in the dimensions of strategy, including time.

Vietnam

The Vietnam War has resonated strongly in modern strategy, as a stark lesson in the problems that a Western democracy, even a superpower, can face in protracted conflict. In this case we consider how Vietnamese communists and American strategists approached the conflict with regard to its duration, during the period of the US's long commitment to Vietnam. We pay particular regard to the Vietnamese employment and adaptation of the Maoist model of Protracted Warfare, and how and why duration was shaped by the belligerents.

Indochina

The long, narrow territory of Vietnam covers an area over 127,000 square miles between the ninth and twenty-sixth parallel, sharing long highland borders (exceeding 2,000 miles) with Cambodia and Laos. 80% of the territory is densely

¹³⁸⁹ Gray, *Fighting Talk*, 66

vegetated with jungles and swampland.¹³⁹⁰ In this environment, ideal for guerrilla warfare of concealment and hit-and-run,¹³⁹¹ the Vietnamese waged irregular warfare for hundreds of years, against Chinese invaders and French colonial authorities, followed by the Japanese who subordinated French colonial rule in the region in 1940. The following year, Ho Chi Minh, the founder of the Indochinese Communist Party (1929), returned to Vietnam from China to form the ‘League for the Independence of Vietnam’ (the ‘*Vietminh*’) from nationalist and communist rebels and, with aid from US agents, waged guerrilla warfare against the Japanese through 1945.¹³⁹²

With Japanese defeat in the Pacific War in mid-1945, the Vietminh exploited the resulting power vacuum, taking Hanoi and other cities across the north and middle of the country, and declared independence as the Democratic Republic of Vietnam (DRV). By gaining recognition from Washington, Ho hoped to deter a restoration of French rule or Chinese invasion.¹³⁹³ However, the arrival of Anglo-French forces in late-1945 to reassert French authority thwarted this, and Washington, more concerned with the end of the Second World War and the emerging virtual conflict that would become the Cold War, ranked Indochina low among its priorities compared to the need to maintain the alliance with France.¹³⁹⁴ An intermittent, complex quasi-peace prevailed whilst talks between French and Vietminh

¹³⁹⁰ J. Corum & W. Johnson, *Airpower in Small Wars: Fighting Insurgents and Terrorists* (Lawrence, KA: University of Kansas, 2003), 228

¹³⁹¹ Winters et al, *Battling the Elements*, 97, 100-101

¹³⁹² S. Karnow, *Vietnam: A History*, 3rd edition (London: Pimlico, 1994), 148; R. D. Schulzinger, *A Time for War; The United States and Vietnam 1941 – 1975*, paperback edition (New York: Oxford University Press, 1998), 4-12; See also F. Logevall, *Embers of War; The Fall of an Empire and the Making of America's Vietnam*, Paperback edition (New York: Random House Publishing, 2013), 35, 82-114

¹³⁹³ Schulzinger, *Time For War*, 18–21; A. Wiest, *Essential Histories: The Vietnam War 1956 – 1975* (Oxford: Osprey Publishing, 2002), 12

¹³⁹⁴ Schulzinger, *Time for War*, 16, 20-21; J. L. Gaddis, *The Cold War* (London: Penguin Books, 2005), 18; Gray, *War*, 186–193; See also Logevall, *Embers*, 108-109, 113-116

representatives proceeded, however the great differences in aims for Indochina's future meant agreement proved elusive, and conflict between French forces and the Vietminh resumed in 1947.¹³⁹⁵

For the Vietminh, the war with France was merely another battle in Vietnam's long fight for independence, one which they believed they could ultimately win despite the military superiority of their enemy. To this end, the Vietminh leaders, Ho, Vo Nguyen Giap (commander of Vietminh forces) and Truong Chinh (the organisation's chief theorist), all Maoist-communists and students of Mao Zedong's theories, employed his doctrine of a three-phased insurgency; from relative weakness, avoiding defeat in a guerrilla phase of 'equilibrium', to the counteroffensive.¹³⁹⁶ However, they also adapted Maoist ideas to their particular strategic-dimensional circumstances: Where Mao maintained a sequential progression, the Vietminh moved between phases at local levels as required;¹³⁹⁷ and, whereas Mao advocated guerrilla forces become regulars when transitioning into the mobile 'third phase', the Vietminh followed Truong's concept of 'war-of-interlocking-combs'- employing both irregular and regular forces and methods in all phases, as complimentary elements of a flexible whole.¹³⁹⁸

Additionally, as Hammes argues, the Vietnamese 'modification' of Maoist insurgency doctrine focused on the enemy's political *will* to fight, with aggressive propaganda directed at the French (and Vietnamese) public, and the international

¹³⁹⁵ Schulzinger, *Time for War*, 28–29 ;Karnow, *Vietnam*, 164–167; M.B. Young, *The Vietnam Wars 1945-1990*, HarperPerennial edition. (New York: HarperPerennial. 1991), 8-21

¹³⁹⁶ J. Shy & T. W. Collier, 'Revolutionary War' in P. Paret, *Makers*, 846; Schulzinger, *Time for War*, 51

¹³⁹⁷ Shulzinger, *Time for War*, 51 ; Corum & Johnson, *Airpower*, 231; Freedman, *Strategy*, 186

¹³⁹⁸ Johnson, *Vietnam*, 32, 48, 51-53, 74-79, 85; see also Truong Chinh 'The Resistance Will Win' in *Selected Writings* (Hanoi: Foreign Languages Publishing House, 1977), 111, 134-136;; Corum & Johnson, *Airpower*, 231

community.¹³⁹⁹ Yet we may also note that the Vietminh leadership consciously prioritised the *protracted*, attritional, element of their strategy to wear down their foe.¹⁴⁰⁰ As Truong Chinh wrote in 1947 ‘the more the enemy fights, the more the [domestic French] anti-war...movementwill stay his hands;revolutionary movement[s] in...French colonies will...spread his forces; and he will find himself in a position of [international] isolation...to achieve [this,] the war must be prolonged, and we must have time. Time is on our side – time will be our best strategist, if we are determined...’,¹⁴⁰¹ and expressed by Ho in a warning to Paris; ‘You will kill ten of our men and we will kill one of yours. Yet...it is you who will tire [first].’¹⁴⁰²

This particularly time-centric approach recognised that the relative dimensional strengths of the Vietminh lay in their greater determination and endurance, and embraced the rival aspect of strategic time’s nature. This is by following what Hanska describes as the inherently different approach to time and applicable ‘rules of temporalities’ with which the guerrilla must wage war compared to the conventional combatant, through seeking and exploiting protraction to attrite the enemy.¹⁴⁰³ Furthermore, and perhaps making them more receptive to such a strategy, it well-reflected the long-ingrained strategic history and culture of Vietnam, which heavily features long-drawn campaigns of resistance against foreign occupiers, and the resultant world-view that time was ultimately ‘on their side.’¹⁴⁰⁴ Time was thus

¹³⁹⁹ I. Beckett, *Modern Insurgencies and Counterinsurgencies: Guerrillas and their opponents since 1750*. (Routledge: London, 2001), 81 ; Hammes, *Sling & Stone*, 56, 65-66

¹⁴⁰⁰ See Johnson, *Vietnam*, 53, 77

¹⁴⁰¹ Truong Chinh ‘Resistance Will Win’, 108

¹⁴⁰² Ho Chi Minh, cited in J. L. Harper, *The Cold War* (Oxford: Oxford University Press, 2011), 160

¹⁴⁰³ Hanska, ‘Times of war’, 232

¹⁴⁰⁴ Kane, *Military Logistics*, 82; Schulzinger, *Time for War*, 328, 331; Johnson, *Vietnam*, 51

more than a 'space' in which events happened, but a 'weapon' for the Vietminh to wield.

Meanwhile, French strategy focused on attempting to engage Vietminh units in decisive engagements with manoeuvre-warfare forces supported by aircraft, and endeavoured to control the country with fortifications. This proved ineffective against the guerrillas, who avoided battle and ignored French enclaves and strongholds as they gained support of the rural populace to control of the countryside, as Mao had advocated.¹⁴⁰⁵

The Cold War

In the hardening light of the Cold War, that shaped Washington's strategic worldview, President Truman was compelled to attempt containment of the spread of international communism, understood as a Muscovite plot, through what became known as the 'Truman Doctrine'; the supporting anti-communist states around the world.¹⁴⁰⁶ Under this rubric Asia became a focal point following the events of 1949-50: In March 1949, Paris reorganised Vietnam as a puppet republic, and framed the Indochina conflict as a fight against communism to gain American support. Most importantly however, in October Mao gained victory in China's civil war and subsequently aligned his new communist regime to Stalin's Soviet Union, opening a 'second front' to the Cold War. Beijing also began to provide the Vietminh with considerable quantities of materiel via their shared border.¹⁴⁰⁷

¹⁴⁰⁵ Corum & Johnson, *Airpower*, 146-147, 151, 230; Hammes, *Sling & Stone*, 59-61; see Freedman, *Strategy*, 185

¹⁴⁰⁶ Kennedy, *Great Powers*, 493

¹⁴⁰⁷ Logevall, *Embers*, 222-223; 263-264; Corum & Johnson, *Airpower*, 151-152, 236; see Gaddis, *Cold War*, 34-40 and Young, *Vietnamese Wars*, 28-30

The following year, communist North Korea, a Soviet client with Beijing's support, invaded US-allied South Korea. The subsequent three-year long Korean War influenced Washington's perception of the situation in Asia, later articulated by Truman's successor, Eisenhower, as 'Domino Theory'; the fall of one state to communism would encourage its spread throughout the region- like falling dominos. Correspondingly Vietnam ascended Washington's index of concerns as a potential 'domino', and Truman, then Eisenhower, committed to supporting France in Indochina with financial, advisory and material assistance from 1950.¹⁴⁰⁸ However, the costly three-year long Korean venture had proven unpopular with the American people,¹⁴⁰⁹ obliging Washington to proceed more hesitantly in Asia.

Dien-Bien-Phu

In 1951 Ho described Vietminh strategy in Maoist terms, as transitioning toward a 'general counteroffensive';¹⁴¹⁰ the great influx of Chinese aid gave Giap confidence in accelerating to the 'third stage',¹⁴¹¹ although the resulting Red River campaign proved premature.¹⁴¹² Despite US support, French strategy was inadequate in dealing with the Vietminh's methods, which they did not fully comprehend.¹⁴¹³ Furthermore, France was exhausted by years of war, and the French public questioned their country's involvement, which had cost 100,000 casualties by 1953, with little apparent benefit. With no obvious victory in sight, the increasingly

¹⁴⁰⁸ Logevall, *Embers*, 222-223, 339; Young, *Vietnam Wars*, 27-31; Gaddis, *Cold War*, 40-43, 45-50, 123; Nagl, *Learning*, 118

¹⁴⁰⁹ Harper, *Cold War*, 107

¹⁴¹⁰ Hammes, *Sling & Stone*, 59

¹⁴¹¹ C. Shrader, *A War of Logistics: Parachutes and Ports in Indochina 1945 – 1954* (Lexington: University Press of Kentucky, 2015), 195

¹⁴¹² Shy & Collier, 'Revolutionary War', 848

¹⁴¹³ Hammes, *Sling & Stone*, 56-59

impatient French government began considering withdrawal¹⁴¹⁴ and, in a last effort to defeat the Vietminh in decisive battle, launched a major conventional campaign in 1953. This results in the Battle of Dienbienphu in March the following year, in which thousands of French soldiers were surrounded and captured by Giap's mixed forces. Though not a full expression of the Maoist third phase (it did not lead to a conventional offensive), Dienbienphu illustrates the flexibility of the Vietnamese variation, as a decisive 'bloody blow' hard enough to shatter French will.¹⁴¹⁵ At the following Geneva Conference in July, Vietnam was provisionally divided along the 17th Parallel, between Ho's Communist DRV in the North (based in Hanoi), and the South; under temporary French control from Saigon pending full withdrawal and planned elections to reunify the country (see map, figure 27).¹⁴¹⁶

¹⁴¹⁴ Weist, *Vietnam*, 14–15; Schulzinger, *Time for War*, 55-56

¹⁴¹⁵ See Young, *Vietnam Wars*, 30-41 and Becket, *Modern Insurgencies*, 80

¹⁴¹⁶ Logevall's in-depth examination of the battle in its strategic context and its repercussions at Geneva is superlative. Logevall, *Embers*, 381, 403-428, 445-453, 510-519, 524-543, 580-585; Schulzinger, *Time for War*, 59-62, 75 – 77, 89; Young, *Vietnam Wars*, 30-41



Figure 27: Map of the Democratic Republic of Vietnam (DRV) and the Republic of Vietnam (RVN).

Determined to avoid further dominos falling in Asia, Washington quickly installed the nationalist Ngo Dinh Diem in Saigon as president of the Republic of Vietnam (RVN), and increased their support, with over 1 billion USD in aid by 1960.¹⁴¹⁷ However, Diem proved an aloof tyrant, and failed to initiate the reforms that could have gained him popularity, spending aid on the RVN's Armed Forces (RVNAF) and suppressing political rivals.¹⁴¹⁸ Consequently, by 1960, with military and materiel support from Hanoi, southern communists within the RVN had revived Protracted War as the National Liberation Front (NLF or '*Vietcong*')¹⁴¹⁹ and Ho declared in that year he would 'liberate' the South.¹⁴²⁰

¹⁴¹⁷ Schulzinger, *Time for War*, 57, 77, 86-90; Young, *Vietnam Wars*, 44

¹⁴¹⁸ See Logevall, *Embers*, 628-29, 655, 679-683, 689-696

¹⁴¹⁹ Schulzinger, *Time for War*, 87-96; Karnow, *Vietnam*, 235-256; Young, *Vietnam Wars*, 52 -63

¹⁴²⁰ Corum & Johnson, *Airpower*, 233

Americanization

In 1961 Senator John F. Kennedy, a vocal proponent of US leadership in the crusade against communism in Asia, took office. He promptly increased aid to Saigon, authorising US Airforce and Special Forces deployments in support of RVN Armed Forces (RVNAF), and thousands more military advisors, including British counterinsurgency experts.¹⁴²¹ Kennedy and his Vice-President, Lyndon Johnson, were nevertheless ambivalent about US involvement: Johnson, wary of the French experience, warned of getting ‘bogged down chasing irregulars [around] Southeast Asia,’¹⁴²² and neither wanted the political fallout of another ‘Korea’; yet nor could they allow Vietnam to fall. Thus they escalated American involvement in small, politically-acceptable increments as seemed necessary, hoping to secure the RVN through limited means.¹⁴²³ However, according to Tilford this policy of phased escalation only served to protract the war further.¹⁴²⁴ It is, at least, seemingly contrary to Clausewitz’s advice (albeit admittedly at different levels of war) on the simultaneous use of available forces for producing strategic decision and his caution that force does not work like in classical mechanics; achieving the same result with less force but over more time.¹⁴²⁵

In response to this increasing American involvement in the conflict, and indicating the continued temporal focus of the strategy employed by the Vietnamese

¹⁴²¹ Schulzinger, *Time for War*, 105–107, 112; Logevall, *Embers*, 702-706; Corum & Johnson., 237, 243;

¹⁴²² Schulzinger, *Time for War*, 104

¹⁴²³ E. H. Tilford, ‘The Prolongation of the United States in Vietnam’, in K. Magyar & C. Danopoulos (eds.), *Prolonged War: A Post Nuclear Challenge*, US Department of Defense Report (1994), 373 – 374; Harper, *Cold War*, 159; Johnson, *Vietnam*, 72; Young, *Vietnam Wars*, 158

¹⁴²⁴ Tilford, ‘Prolongation’, 374

¹⁴²⁵ Clausewitz, *On War*, 211, 597; see chapter 3

communists,¹⁴²⁶ Ho echoed the warning he had given Paris in 1947; ‘It took us eight years...to defeat [France]....the Americans are stronger...It might... take ten years but [the Vietcong] will defeat them in the end. We [the DRV] shall marshal public opinion about this unjust war...’¹⁴²⁷ One of the few men to somewhat appreciate the Vietnamese-Maoist strategy and its temporal focus was Sir Robert Thompson, head of the British COIN advisory team dispatched by Kennedy from 1961 to 1965. From the beginning of his mission he advocated a counterinsurgency strategy for the RVNAF based on his Malayan experience, anticipating a 5-year counterinsurgency campaign. This would involve methodical, time-consuming population-control and methodical clear-and-hold operations, rather than the quick, mobile, search-and-destroy methods promoted by American advisors, to restore Saigon’s control of the countryside and deny the communists popular support.¹⁴²⁸ This chimed with Kennedy’s own encouragement of the US forces toward counterinsurgency and special operations; however, despite limited progress in this vein, the US military establishment was broadly resistant to such approaches, and counterinsurgency doctrines failed to develop within US, or RVN, forces.¹⁴²⁹ Conversely, the prevailing understanding among US commanders in Saigon and Washington was that the strategic situation was narrowly military, and similar to Korea; the North Vietnamese Army (‘NVA’) had to be prevented from conventionally invading the RVN across the 17th Parallel, and Vietcong activity was regarded as the prelude, or secondary, to such an invasion.¹⁴³⁰ RVN forces therefore continued to be configured (as since 1955) along the lines of US conventional forces, and performed poorly in

¹⁴²⁶ See Johnson, *Vietnam*, 76-77

¹⁴²⁷ Ho Chi Minh cited in Hammes, *Sling and Stone*, 64

¹⁴²⁸ Schulzinger, *Time for War*, 105-6; Nagl, *Learning*, 130-131

¹⁴²⁹ Nagl, *Learning*, 124-134, 138-142

¹⁴³⁰ A perception which survived the war, and is not without merit given the ultimate events of 1975. See Summers, *American Strategy in Vietnam*, 1, 53-54, 62-64; For counterpoints, see Johnson, *Vietnam*, 54-56, 74-79, 80, 85

‘pacification’ operations within the South, before and during major US involvement.¹⁴³¹

The situation in South Vietnam continued to decline through 1962 and 1963 as the RVNAF was defeated in engagements with communist forces and the Diem regime proved ineffectual and unpopular; Kennedy and his advisors came to believe that Diem was a liability, and that the best route to securing the RVN was ‘to make the war an American operation.’¹⁴³² Diem’s removal in a coup in November 1963, paved the way for a more pliable Saigon regime, however, the assassination of Kennedy weeks later brought confusion to Washington’s stance on Vietnam, beyond the basic notion that the RVN had to survive; nevertheless Johnson, reluctantly inheriting the situation which distracted from his domestic programs and the impending 1964 elections, effectively put Vietnam ‘on hold.’¹⁴³³ This in effect ceded relative time for the Vietcong to continue their guerrilla campaign, which they ably ‘spent’ in husbanding their strengths with assistance and direction from Hanoi. With aid from Beijing (and Moscow) in the form of logistics, equipment, training, and thousands of engineers and anti-aircraft gunners, the DRV could send thousands of professional troops south via the Ho-Chi-Minh Trail, avoiding the fortified Demilitarized Zone at the 17th Parallel.¹⁴³⁴

In 1964 DRV vessels attacked the *USS Maddox* in the Gulf of Tonkin, in February 1965 the Vietcong attacked a US Airbase in the centre of the RVN, and by spring 1965, the Vietcong had gained control of some 60% of the countryside; communist

¹⁴³¹ Nagl, *Learning*, 119-123; Corum & Johnson, *Airpower*, 237-241; Shy & Collier, ‘Revolutionary War’, 855

¹⁴³² Schulzinger, *Time for War*, 330

¹⁴³³ Tilford, ‘Prolongation’, 374-375

¹⁴³⁴ A network of roads and paths snaking through the long borders of the two Vietnams and their neighbours Cambodia and Laos; Karnow, *Vietnam*, 346 – 348; Schulzinger, *Time for War*, 184-185; See also S.C. Tucker, *Vietnam* (London: UCL Press. 1999), 90, 162-3, 179

victory seemed imminent.¹⁴³⁵ Fear, Honour and Interest meant that Johnson and Washington could no longer avoid the steeply deteriorating political and military situation;¹⁴³⁶ as the President put it; ‘if we are driven from the field in Vietnam....no nation [could] have the same confidence in...American protection.’¹⁴³⁷ Consequently, when the commander of US forces in Vietnam, General William Westmoreland (US Army) requested 44 manoeuvre battalions, aiming to avert disaster, the request was granted, passing a point of no return for Washington’s ‘Americanisation’ of the war; US combat units increased the US commitment to 184,000 by the end of the year.¹⁴³⁸

Run Through the Jungle

With overwhelming superiority in resources, technology and conventional operations, American commanders felt confident that a quick victory against the communists was guaranteed.¹⁴³⁹ Nevertheless, American options were constrained: Following the Maddox affair and the build-up of US troops in 1965, Beijing had prepared for war, and Mao had warned that China would intervene should US ground-forces enter North Vietnam.¹⁴⁴⁰ With little appetite for a repeat of the expensive and bloody Korean War by escalating the conflict and drawing in China on the one hand, and the fall of the RVN to communism on the other, Johnson adopted a ‘middle course’; deploying only sufficient troops (it was believed) to

¹⁴³⁵ J. W. Gibson, *The Perfect War: Techno War in Vietnam*, 2nd edition (New York: The Atlantic Monthly Press, 2000), 94; Schulzinger, *Time for War*, 150-156, 164, 169; Weist, *Vietnam*, 20-21

¹⁴³⁶ Logevall, *Embers*, 708-710;

¹⁴³⁷ L. B. Johnson cited in Gaddis, *Cold War*, 133

¹⁴³⁸ Schulzinger, *Time for War*, 150-153; Tilford, ‘Prolongation’, 374-375 ; Gaddis, *Cold War*, 133

¹⁴³⁹ Hammes, *Sling & Stone*, 73

¹⁴⁴⁰ Harper, *Cold War*, 157

stabilise the situation in the RVN, but thus limiting what Westmoreland could achieve.¹⁴⁴¹

Westmoreland, like many American commanders, believed that classic counterinsurgency operations, as Thompson had suggested, were ‘not the American way’; such a campaign would require too many men and produce high casualties, as well as be unpopular with US servicemen reluctant to spend time in the field. It would also likely take even longer than the several years Thompson had projected. The American people, it was generally believed, would not tolerate such a costly, drawn-out conflict.¹⁴⁴² Westmoreland was not ignorant of this, and his strategy, somewhat sensibly, sought to avoid such problems: It centred upon a three-phase building-up of forces and escalation; firstly, through mid-1965-to-mid-1966, securing key areas and bases to stabilise the situation and interrupt communist forces; secondly, a sustained, attritional, ‘search-and-destroy’ campaign against communist main force units, defeating them with high-mobility, high-firepower, helicopter-borne forces, informed by high-tech intelligence methods; finally, with over 500,000 troops (expected circa 1969) US forces would, if necessary, force remaining communists into conventional battles, defeating them or driving them from the RVN.¹⁴⁴³

¹⁴⁴¹ Harper, *Cold War*, 159; Summers, *American Strategy in Vietnam*, 10-11, 80; Johnson, *Vietnam*, 72

¹⁴⁴² Schulzinger, *Time for War*, 194

¹⁴⁴³ Summers, *American Strategy in Vietnam*, 73; J. Wirtz, *The Tet Offensive: Intelligence Failure in War* (New York: Cornell University Press, 1991), 111; Karnow, *Vietnam*, 450; T.L. Brown *War and Aftermath in Vietnam* (London: Routledge, 1991), 186; Tilford ‘Prolongation’, 378; Gibson, *Perfect War*, 95; Sorely, *Westmoreland*, 73,, 92-93, 146

The main element in practice, the ‘attritional’ phase¹⁴⁴⁴ followed a cybernetic ‘war-management or ‘techno-war’ approach informed by the ‘management theory’ paradigm of the period. As Gibson points out this conceptualised the US and communist military as competing ‘technological-production systems’,¹⁴⁴⁵ the effectiveness of which (without ground to be gained) was measured by statistical analysis of success metrics, including bomber sorties undertaken and, most infamously kill-to-death ratios- with body-counts of communist dead taken after engagements.¹⁴⁴⁶ The US military, being the superior ‘system’ would outperform the communists and destroy enemy resources (men) at a greater *rate over time*, to breaking-point; a form of techno-scientific attrition.¹⁴⁴⁷ In a sense this is a form of ‘time-warfare’, indirectly concerning the relative, usable time available to each belligerent based on their production rate; *a race*. Westmoreland considered a K/D ratio of 10 communists per American killed would see the US reach the ‘crossover point’ circa 1969, by which point Westmoreland believed, Hanoi and the Vietcong would *lose the will to fight* against seemingly-unbeatable, technologically-superior enemies.¹⁴⁴⁸

It is also worth noting that the techno-scientific approach, through reducing war to data sets of success metrics measured by information systems, attempted what Bülow and the Enlightenment theorists had failed to do; remove uncertainty from war by assessing every variable and using the data to inform of necessary ‘production rates’ and ‘scientific’ predictions on the course and duration of the war.

¹⁴⁴⁴ J. Clarke, ‘On Strategy and the Vietnam War’ *Parameters*, XVI, 4 (1986), 40 ; Tilford, ‘Prolongation’, 378

¹⁴⁴⁵ Gibson, *Perfect War*, 93; See also Bosquet, *Scientific Way*, 154-161

¹⁴⁴⁶ Gibson, *Perfect War*, 112–113, 164 -174; Sorely, *Westmoreland*, 91-95, 121-123

¹⁴⁴⁷ Gibson, *Perfect War*, 101, 124; see also Tucker, *Vietnam*, 102-103

¹⁴⁴⁸ Tilford, ‘Prolongation’, 379; Sorely, *Westmoreland*, 91, 123-124, 147, 217-218, see also, Summers, *American Strategy in Vietnam*, 65

However, as Bosquet has well explained, this could not cope when confronted with the inherent chaos and complexities of the nature of war in reality,¹⁴⁴⁹ or account for the determination of the enemy and their moral strengths among the population.¹⁴⁵⁰ Techno-scientific ‘war-management’ thus ultimately failed to breach the cataract of strategic time, and instead, as a closed, cybernetic system, it ‘looped’ away from accurate assessment of the course of the war,¹⁴⁵¹ resulting in the debacle of mis-assessment of 1967/68 (see below).

As the rates of metric-production did not meet production, and Hanoi and the Vietcong increased their forces, Westmoreland found it necessary to revise his troop budgets ever-upward¹⁴⁵² to attempt to meet the ‘production capacity’ of success-metrics believed necessary to overcome enemy reinforcement and obtain the desired correlation of forces (see table 3). Despite this it was maintained that continued large-scale bombing offensives, and the sheer rate of destruction, would overcome Hanoi’s will to resist before it was necessary to commit larger forces for extended periods and exceed a politically acceptable time-frame:¹⁴⁵³ In the technowar approach, time could be traded by effort in direct transaction – twice as many troops deployed meant the same task would be done in half the time, for example. Again, this was at odds with Clausewitz’s description of the calculations of force and time.¹⁴⁵⁴

¹⁴⁴⁹ See Chapter One.

¹⁴⁵⁰ Bosquet, *Scientific Way*, 154-161; see also Summers, *American Strategy in Vietnam*, 28-29

¹⁴⁵¹ See Chapter Three; and Bosquet, *Scientific Way*, 157

¹⁴⁵² Sorely, *Westmoreland*, 94

¹⁴⁵³ As Summers points out, this method also required a minimum amount of time. Summers, *American Strategy in Vietnam*, 56, 73; See also Gibson, *Perfect War*, 95-97; Tilford, ‘Prolongation’, 379

¹⁴⁵⁴ See chapter Three and Clausewitz, *On War*, 597

Table 3: US Military forces in Vietnam¹⁴⁵⁵

Year	US troops in South Vietnam
1965	184,000
1966	389,000
1967	465,000
1968	495,000
1969	541,000

Vietcong

By contrast, the Hanoi Politburo and Vietcong understood the conflict as primarily one of will; gradual escalation indicated to them that the US lacked long-term strategy and political will,¹⁴⁵⁶ and they believed Washington could be compelled to withdraw if the war was made long, costly, and arduous enough to the American public as it had for the French – Giap anticipated 50,000 US servicemen killed would be sufficiently intolerable.¹⁴⁵⁷ Consequently they continued to pursue a strategy of protracted guerrilla warfare and, where possible, avoided battle; except when they had opportunity to inflict casualties, before withdrawing ahead of arriving US firepower. The dense jungle and swamplands of Vietnam (despite defoliation operations) afforded them operational and tactical advantages by masking their movements and camps and facilitating their ambush and hit-and-run tactics, which combined to undermine the high-tech advantages of US/RVN forces.¹⁴⁵⁸ Employing the ‘Ho-Chi-Minh trail’, units could also infiltrate, or withdraw to sanctuaries, across the Cambodian-Vietnam-Laos borders.¹⁴⁵⁹

¹⁴⁵⁵ Gibson, *Perfect War*, 95

¹⁴⁵⁶ Harper, *Cold War*, 160; Summers, *American Strategy in Vietnam*, 56, 69, 83; Johnson, *Vietnam*, 76-77

¹⁴⁵⁷ Tilford, ‘Prolongation’, 379-380

¹⁴⁵⁸ Nagl, *Learning*, 156; Weist, *Vietnam*, 20–21; See Winters et al, *Battling the Elements*, 108-110

¹⁴⁵⁹ Harper, *Cold War*, 157

Bereft of a controllable front, and lacking the numbers and will to maintain large rural areas, the very mobility (and thus impermanence) of US/RVN helicopter-borne forces allowed the Vietcong to retake areas once they had departed, whilst RVN civil and military forces (reluctant and ill-configured for pacification) often failed to re-establish government control in ‘cleared’ zones.¹⁴⁶⁰ Indeed, insufficient attention was paid to the social-political dimensions of the war; whilst the presence of so many foreign soldiers and the escalation of the war only worsened the conditions that fuelled unrest; the deliberate destruction of rural communities by heavy bombing (to deprive the Vietcong of their support among the peasantry) did not aid matters.¹⁴⁶¹

Both sides thus raced to reach a ‘cross-over point’:¹⁴⁶² For the US this was the point at which Hanoi would finally give up in the face of superior American force, but the need for ‘techno-war’s’ success metrics morphed it into a bean-counting destruction of communist forces at higher rates than they might be replaced. For Hanoi; the point lay, with less mathematical certainty, in the American will, to be ground down by their modified Protracted War and strategic patience – strategic time’s bias, after all was on their side.

Tet

By late 1967, Westmoreland was confident that the bulk of the Vietcong was destroyed and US forces were entering the third-and-final phase of his plan; the military situation in the RVN was stabilised, and statistical analysis indicated

¹⁴⁶⁰ See Nagl, *Learning*, 155-158 ; Schulzinger, *Time for War*, 199-200

¹⁴⁶¹ See Shy & Collier, ‘Revolutionary War’, 856; Karnow, *Vietnam*, 454-457,

¹⁴⁶² Schulzinger, *Time for War*, 186-188; See also Sorely, *Westmoreland*, 123-124, 147, 155

success - victory was on the horizon.¹⁴⁶³ Despite military optimism, however the American public were becoming increasingly disillusioned with the war; the slow pace of apparent progress, drafting, and high casualties (in the attritional phase between 1965 and 1967, nearly 15,900 US servicemen were killed, and 52,000 wounded)¹⁴⁶⁴ had produced a large and influential anti-war movement in America, drawing thousands of protesters. Meanwhile, in Congress Johnson faced criticism for his handling of the war, and calls for American withdrawal.¹⁴⁶⁵

On January 30th 1968, Giap unleashed a grand offensive coinciding with the ‘Tet’ Lunar New Year festival; approximately 84,000 troops (mostly Vietcong) struck simultaneously across hundreds of towns, cities and other points in South Vietnam.¹⁴⁶⁶ With operational surprise they captured many settlements, although subsequently failed to keep them against US/RVN counteroffensives, losing 45-58,000 troops and many more wounded in the following weeks, crippling many Vietcong cadres, morally and physically.¹⁴⁶⁷ Without gaining territory or (fully) destroying the RVNAF, the ‘Tet’ offensive looked to American commanders like a failed ‘go-for-broke’, precipitating the end of the war.¹⁴⁶⁸ Indeed, with so many enemy dead on top of previous years’ quotas, victory was considered imminent; the enemy would soon be annihilated, or their will broken.¹⁴⁶⁹ To capitalise on the apparent failure, seize the initiative and quickly deliver victory, Westmoreland argued that ‘...exploiting this opportunity could materially shorten the war,’¹⁴⁷⁰ and

¹⁴⁶³ See Sorely, *Westmoreland*, 147-149, 181-182, 155; Wirtz, *Tet Offensive*, 111; Gibson, *Perfect War*, 165; Young, *Vietnam Wars*, 220

¹⁴⁶⁴ Gibson, *Perfect War*, 173

¹⁴⁶⁵ Schulzinger, *Time for War*, 215-217, 223-226, 229, 246; Young, *Vietnam Wars*, 152, 197-209

¹⁴⁶⁶ see Johnson, *Vietnam*, 78-79

¹⁴⁶⁷ Weist, *Vietnam*, 45, Gibson, *Perfect War*, 165-166

¹⁴⁶⁸ Schulzinger, *Time for War*, 261

¹⁴⁶⁹ Gibson, *Perfect War*, 165-6; Also see Sorely, *Westmoreland*, 145-147

¹⁴⁷⁰ Westmoreland cited in Nagl, *Learning*, 166

requested an additional 200,000 troops on top of annual increases for a counter offensive.¹⁴⁷¹ Opinions differ on Giap's intent behind Tet; whether an attempt to transition to the third phase of Protracted Warfare¹⁴⁷² or, in light of Vietnamese history and the fact the communists had been fighting for decades, part of a longer-term strategy.¹⁴⁷³ Thompson, and US journalists, were at least accurate in describing it as a psychological victory for the communists;¹⁴⁷⁴ as Giap later remarked; 'until Tet [the US] thought they could win the war, but now they knew they could not'.¹⁴⁷⁵

The Aftermath

The Tet offensive was widely reported in US and International media with scenes of atrocities on television and in newspapers. The results of this were twofold: Firstly, to the American people who generally had believed (as per the official stance) that the war was being won, reporting of Tet exposed that official stance as disingenuous;¹⁴⁷⁶ rather it seemed that communist forces could strike throughout South Vietnam at will (even the US embassy in Saigon had been attacked), and possessed apparently unlimited manpower. Secondly, and a point which Ho was quick to capitalise on,¹⁴⁷⁷ the brutality of US/ RVN reprisals shocked public conscience.¹⁴⁷⁸ Consequently, support for Johnson sharply declined, and the disillusioned swelled the ranks of the anti-war movement.¹⁴⁷⁹ Clark Clifford, Johnson's new Secretary of Defence, had become sceptical as to whether, even with additional forces, a quick victory would be possible, and whether the public would

¹⁴⁷¹ Gibson, *Perfect War*, 166-167; Nagl, *Learning*, 167; Sorely, *Westmoreland*, 190-191

¹⁴⁷² Hammes, *Sling & Stone*, 74

¹⁴⁷³ Karnow, *Vietnam*, 654; Gibson, *Perfect War*, 176; See also Young, *Vietnam Wars*,

¹⁴⁷⁴ Gibson, *Perfect War*, 175; Schulzinger, *Time for War*, 262; Johnson, *Vietnam*, 72; Summers, *American Strategy in Vietnam*, 95; See Young, *Vietnam Wars*, 225-226

¹⁴⁷⁵ Giap cited in Schulzinger, *Time for War*, 263

¹⁴⁷⁶ Hammes, *Sling & Stone*, 72

¹⁴⁷⁷ *Ibid*, 71

¹⁴⁷⁸ Schulzinger, *Time for War*, 260-262; Young, *Vietnam Wars*, 225-226

¹⁴⁷⁹ Karnow, *Vietnam*, 556-561; Schulzinger, *Time for War*, 240-245, 263; Nagl, *Learning*, 167

tolerate further commitment with high casualties. Having conducted an in-depth review of the war, he concluded US forces could not win militarily in Vietnam, only delay communist victory; reforms within the DRV were the only route to success, and he recommended reorienting strategy toward population security in support of that, alongside a de-escalation of US involvement.¹⁴⁸⁰

Westmoreland was replaced with Gen. Creighton Abrams in July 1968, a critic of the search-and-destroy strategy, he was much more willing to recognise the social and political dimensions of the war, and undertake more ‘traditional’ counterinsurgency measures through population security and the use of small-unit patrols and improving RVN paramilitary forces.¹⁴⁸¹ However, time was already running out for his mission; ‘the realities of the American political situation indicated a need to consider time limitations in developing a strategy to ‘win.’’¹⁴⁸²

Elder statesman Dean Acheson suggested negotiation with Hanoi; sensing the increasing anti-war mood among the people, he believed the US ‘could no longer do the job we set out to do in the time we have left and we must take steps to disengage.’¹⁴⁸³ Negotiations indeed followed, with Hanoi encouraged to the table by heavy US bombing of the DRV. However, whereas Washington hoped for an agreement that secured RVN independence, the persistence of the communists to reunify the country (both before the negotiations and later) suggests that their participation was merely to buy time with which to recover from the Tet Offensive and gain relief from the bombing campaign.¹⁴⁸⁴ Indeed, Mao himself had advocated

¹⁴⁸⁰ Schulzinger, *Time for War*, 263–266; Nagl, *Learning*, 167–168

¹⁴⁸¹ Nagl, *Learning*, 168–171; Johnson, *Vietnam*, 72

¹⁴⁸² Abrams cited in Nagl, *Learning*, 171

¹⁴⁸³ Schulzinger, *Time for War*, 266; See also Young, *Vietnam Wars*, 228; and Summers, *American Strategy in Vietnam*, 56, 73

¹⁴⁸⁴ Harper, *Cold War*, 158

the use of negotiations as a means of avoiding defeat and purchasing more time to gain strength.¹⁴⁸⁵

Vietnamization

In March 1968 Johnson, his reputation overshadowed by failure in Vietnam, declared his intention not to stand for re-election, and in November was replaced by Richard Nixon who pledged a quick end to the war; though with no clear end in sight, Nixon himself was in danger of suffering the same fate as Johnson.¹⁴⁸⁶ Nixon inherited his predecessor's intended program for withdrawal and transfer of roles to the RVN, termed 'Vietnamisation.' This provided a clearer objective for US forces, but the rate under which the policy could proceed was dependent on the intensity of communist activity, progress in the ongoing negotiations, and success in improving the RVNAF to the point where it could preserve the RVN independently.¹⁴⁸⁷ To withdraw *over*-quickly would appear domestically and internationally weak, discrediting US strength and loyalty, and leave the RVN vulnerable. This process would prove long and arduous, costing a further 20,000 American lives.¹⁴⁸⁸ So constrained, Nixon needed to 'buy' more time for the process to gain traction, alongside preventing the Vietcong from launching a major offensive. To gain more relative time, he secretly ordered the extensive heavy bombing of the Ho-Chi-Minh trail and communist sanctuaries in Cambodia, to interdict and disrupt the build-up of NVA forces, and committed US forces to supporting RVN and joint operations into Laos and Cambodia between 1969 and 1971. These worked in 'buying' more time for the slow process of Vietnamisation however, when revealed, these actions

¹⁴⁸⁵ Mao Tse Tung, *Guerrilla Warfare*, 22

¹⁴⁸⁶ Tilford, 'Prolongation', 382; Schulzinger, *Time for War*, 275; see also Young, *Vietnam Wars*, 230-235

¹⁴⁸⁷ See also Summers *American Strategy in Vietnam*, 66-68

¹⁴⁸⁸ Tilford, 'Prolongation', 382-383; Schulzinger, *Time for War*, 276-279

seemed to indicate that instead of ending the war, Nixon's administration was intensifying US involvement. This proved very unpopular with the American public, sparking more anti-war protests across America, in turn again undermining the government's capacity for maintaining patience in Vietnam.¹⁴⁸⁹

Hanoi too faced shifting time pressures as the Cold War developed; Beijing had removed Chinese forces from the DRV in protest of the 1968 peace talks, and both Moscow and Beijing were beginning to lose interest in Vietnam, developing new priorities and even entering rapprochement with the US.¹⁴⁹⁰ To capitalize on this support whilst it remained, Hanoi now also considered nearer-term victory. Additionally, as Thompson pointed out, the leading figures of the communist party had been fighting for decades and may have been anxious to complete the revolution; Ho had died in 1969.¹⁴⁹¹

Furthermore, in the wake of an unsuccessful RVN-US invasion of Laos in 1971, and with another US election due in 1972, Giap, believing Washington would be unlikely to undertake ground operations, sensed opportunity for an invasion of the RVN for that year to influence ongoing negotiations.¹⁴⁹² This 'Easter Offensive' was initially successful, but was contained via considerable American airpower in Operation Linebacker;¹⁴⁹³ for the Vietcong, victory would not come in 1972, and the bombing campaign threatened to render DRV forces too weak for later use. Hanoi thus re-entered negotiations with Washington and Saigon in early 1973, and concluded a cease-fire in Paris at the end of January, which effectively ended US

¹⁴⁸⁹ Tilford, 'Prolongation', 384; Schulzinger, *Time for War*, 277–287

¹⁴⁹⁰ Harper, *Cold War*, 158; Karnow, *Vietnam*, 652; Young, *Vietnam Wars*, 266–267

¹⁴⁹¹ Tilford, 'Prolongation', 385

¹⁴⁹² Ibid.; Karnow, *Vietnam*, 654–655

¹⁴⁹³ Schulzinger, *Time for War*, 295

military involvement in Vietnam.¹⁴⁹⁴ Nixon claimed he had ‘...finally achieved peace with honour’,¹⁴⁹⁵ but, for the DRV, the cease-fire, as with the negotiation-
cease-fires before, suspended the bombing and brought time to recover and re-build
their strength for continuing the war.¹⁴⁹⁶

In March 1973, much to the relief of the American public, the last US troops left
Hanoi.¹⁴⁹⁷ At that point Saigon still maintained significant military strength and was
preparing to crush the Vietcong, and drive out remaining DRV units from the south,
whereas Hanoi was still recovering from the losses of 1972. However, this could not
last without US economic aid to maintain the operating costs of the high-tech
RVNAF; the precarious South Vietnamese economy began to collapse, taking the
military with it, whilst the Vietcong and North Vietnamese reverted to guerrilla
warfare whilst building military strength.¹⁴⁹⁸ By late 1974 they had recovered and,
armed with the latest Soviet weaponry they undertook a limited offensive in Phuoc
Long Province, easily overcoming the RVNAF. Emboldened by the lack of US
response,¹⁴⁹⁹ and Saigon’s inability to prevent an offensive without fuel and
ammunition, the North Vietnamese troops pressed home their advantage; Saigon
finally to fell to the communists in April 1975.

¹⁴⁹⁴ Tilford, ‘Prolongation’, 386–388

¹⁴⁹⁵ Nixon cited in Karnow, *Vietnam*, 669

¹⁴⁹⁶ Tilford, ‘Prolongation’, 388 ; Karnow, *Vietnam*, 672–673

¹⁴⁹⁷ Karnow, *Vietnam*, 670

¹⁴⁹⁸ *Ibid.*, 673–65; Tucker, *Vietnam*, 181–182

¹⁴⁹⁹ Karnow, *Vietnam*, 678; Weist, *Vietnam*, 81; Young, *Vietnam Wars*, 292

Time: Hanoi's long war gained

Through 'the Vietnamese Modification' as Hammes terms it, Ho, Truong and Giap adapted Maoist Protracted Warfare doctrine to their fight against the French, and later the Americans, by using guerrilla methods and propaganda to directly target their enemies' Achilles Heel; public morale, and thus democratic political will.¹⁵⁰⁰ But, going further than Hammes, to agree with Tilford,¹⁵⁰¹ we may also say that the Vietnamese Communists particularly emphasised the temporal dimension in their 'modification' of Maoist strategy: As Ho wrote in 1959, 'Time is the condition to be won... coming before terrain and *support* of the people. Only with time can we defeat the enemy.'¹⁵⁰² Maoist doctrine approaches time primarily as a *resource*, to 'spend' on gaining ideological influence and popular support, convertible into military strength,¹⁵⁰³ toward the point when transition into the third phase for conventional victory is optimal; the strategic effects of duration itself are subsidiary.

The Vietnamese employed time for husbanding strength in this manner, but also exploited the biased nature of strategic time to *use time*, as duration, in its own right; as a psychological 'weapon' (alongside guerrilla warfare and propaganda), to induce war-weariness and attrite their enemies' will. The Vietnamese communists thus undertook a time-centric strategy, even waged 'time warfare', based not on relative decision-and-action speed as in recent theories,¹⁵⁰⁴ but on prolongation, and exploited their temporal advantage as an over-match for their enemies' supremacy in

¹⁵⁰⁰ Hammes, *Sling & Stone* 56, 73-74; Beckett, *Modern Insurgencies*, 80

¹⁵⁰¹ Tilford, 'Prolongation', 380

¹⁵⁰² Ho Chi Minh cited in Tilford, 'Prolongation' 380; also Kane, *Military Logistics*, 82

¹⁵⁰³ Shy & Collier, 'Revolutionary War', 849

¹⁵⁰⁴ see Chapter 3

many other strategic dimensions; much as Clausewitz observed on the use of duration by the weak, to exhaust will of the strong.¹⁵⁰⁵

Dean Rusk (Secretary of State for Kennedy and Johnson) described the conflict during Americanisation as one of *patience*, between the American people and the Vietnamese Communists,¹⁵⁰⁶ and Shy and Collier also highlight this in respect to the French, for whom time was ‘a dwindling resource as patience ran out in Paris.’¹⁵⁰⁷ The clock of domestic-political tolerance was ever ticking-down on drawn-out wars of decreasing apparent worth, compared to expended, and anticipated, costs in lives and treasure. In this regard the communists held advantage in the political dimension¹⁵⁰⁸ by possessing what Clausewitz termed a ‘negative’ policy of resistance:¹⁵⁰⁹ In short, they were fighting for, as they saw it, the immediate and vital aim of self-defence. This motivating factor for their endurance proved an overmatch for public support for France to retain Indochinese colonies, or the US’s to prevent Vietnam’s fall to communism; strategically coherent goals, but ultimately insufficiently motivating for democracies to endure the costs of long, far-off wars. The very physical and psychological distance of such a campaign plays a part, leading a polity to ‘...value the struggle less than its weaker opponent fighting at home. Conversely...more tolerant of the costs, fighting for what they value closer to home [the Vietnamese communists had] more of a dog in the fight.’¹⁵¹⁰

The Communists were therefore at least accepting of the demands of prolonged war, but as Kane points out, this ‘...was basic to their system of military thought.

¹⁵⁰⁵ Clausewitz, *On War*, 93-94

¹⁵⁰⁶ Schulzinger, *Time for War*, 330

¹⁵⁰⁷ Shy & Collier, ‘Revolutionary War’, 849

¹⁵⁰⁸ See Gray, *Modern Strategy*, 26-29

¹⁵⁰⁹ Clausewitz, *On War*, 93

¹⁵¹⁰ Porter, *Distance*, 7

Vietnamese history and folklore features innumerable accounts of ...patriots who defeated foreign invaders by fighting on in contests which lasted for decades, or even centuries.¹⁵¹¹ Within this paradigm, *eventual* victory was assured, and the US, like the French and others before them, would leave in the fullness of time; the Vietnamese just had to avoid defeat and wait,¹⁵¹² or as Nixon's National Security Advisor, Henry Kissinger, put it 'the guerrilla wins if he does not lose.'¹⁵¹³ Thus strategic patience, born from greater political will and a long-history of protracted war, as well as geography, gave the Vietnamese Communists relative advantages in the temporal dimension.

As Clausewitz pointed out, however, prolonged *resistance* cannot be totally *passive*; 'sheer endurance would not be fighting [;]'¹⁵¹⁴ effort over time was needed to build support and to degrade the enemy's will. Guerrilla warfare fulfilled this latter purpose in Maoist-Vietnamese strategy, but also contributed to maintaining temporal advantage by its 'defensive' stance; not holding ground and avoiding direct confrontation with superior enemy forces, Jakopovich argues, allows guerrillas to trade 'space' for time, used in husbanding forces and targeting enemy will.¹⁵¹⁵ Guerrilla operations were aided by the geography of Vietnam; the long, porous borders with Laos and Cambodia provided an ideal infiltration route and the vast jungles and swamps were a guerrilla's boon for camps and movement. These were even easier to exploit with the lack of persistent US/RVN force control in rural areas

¹⁵¹¹ Kane, *Military Logistics*, 82; Such a historical tradition had, by necessity, well-accustomed the Vietnamese strategic-cultural paradigm to what Hanska terms the different perspectives of time and 'temporalities' of the guerrilla, which compensate for their conventional inferiority to industrialised, modern forces, see Hanska, 'Times of war', 232, 235, 323

¹⁵¹² Schulzinger, *Time for War*, 328, 331

¹⁵¹³ Kissinger cited in Nagl, *Learning*, 171

¹⁵¹⁴ Clausewitz, *On War*, 93

¹⁵¹⁵ D. Jakopovich, 'Time Factor in Insurrections', *Strategic Analysis*, 32, 3, (May 2008), 360, note 364

for much of the war, allowing guerrillas to live among the peasants and retake regions they had been evicted from. Thus the communists made use of their geography as both ‘shield’ and ‘highway’¹⁵¹⁶ to support guerrilla, and thus protracted, war, another ‘trade’ or rather ‘conversion’ of strategic space and depth into ‘more’ of the temporal resource. This was especially necessary after major losses following shifts into high-intensity warfare in 1951, ‘68, and ‘72 – uncharacteristic indicators of impatience *perhaps*, but these reversals could be *reversed*; by returning to guerrilla warfare, or, in the later cases, having assessed the Americans’ will, the communists could, as Mao suggested, use negotiations to delay and ‘buy’ back time for recuperation and conversion into strength.¹⁵¹⁷

In a sense, the US had waged its own ‘time war’ in Vietnam, though one with a more ‘impatient’ strategy,¹⁵¹⁸ pressured by the ticking clock of domestic political tolerance for the costly commitment to Vietnam. The cybernetic ‘Technowar’ paradigm appraised conflict in terms of a *race* to victory between the rates of two similar (albeit asymmetrically large and efficient) military production systems; under it, the immense physical power of the US could not technically lose. Militarily it never would, but the time wasted pursuing it may have mortgaged ultimate strategic success, and this would only be realised by the time it was already too late to correct previous errors; the clock had run down.¹⁵¹⁹ Technowar had also sought to conquer uncertainty, and thus the future, to divine through careful measurement of data what lay beyond the cataract of strategic time and so influence it to bring about the destruction of the enemy’s will. This proved futile, despite the advanced technological systems and models employed, statistically accounting for the chaos

¹⁵¹⁶ See Porter ‘Distance’, 4-13,

¹⁵¹⁷ Becket, *Modern Insurgencies*, 80

¹⁵¹⁸ Shy & Collier, ‘Revolutionary War’, 855

¹⁵¹⁹ Hammes, *Sling & Stone*, 73

and uncertainty inherent to war, or the intangible, mercurial dimensions of will and morale, proved a fools errand

Had the US population been able to endure in its commitment, it may be *speculated* that the DRV would not have taken Saigon in 1975. But it should be remembered that when it did, it was with conventional NVA troops; the Vietcong had been near-destroyed during Tet, although gradually replenished later. By then, Abrams was implementing a budding but effective counterinsurgent strategy in the RVN. This is not to say that the US only needed more time and patience; an earlier employment of social-political focused counterinsurgency methods and gaining the support of the southern population for a viable Saigon government, would likely have been needed.¹⁵²⁰ If pursued properly from 1965, this *may* have won and even shortened the war, with amicable gains for the US population. Yet, with the desire for a quick victory and avoidance of another ‘Korea’, a narrow understanding of the conflict and disregard for its social-political considerations, it is perhaps unlikely such a strategy could have then been adopted. On the other hand, Vann theorises there is a point in insurgencies, past large, open engagements such as the Vietcong could achieve by 1963, after which the outcome may only be stalled, not averted;¹⁵²¹ perhaps then time had already run out by 1965, yet perhaps Tet presented an opportunity for a fresh start which the American people no longer had the patience to endure.

¹⁵²⁰ Harper, *Cold War*, 159

¹⁵²¹ A. Seegers, ‘Making Sense of Counterinsurgency’ in D-P. Baker & E. Jordaan (eds), *South Africa and Contemporary Counterinsurgency: Roots, Practices, Prospects* (Claremont: UCT Press, 2010), 15

Conclusions

Although different in character and conduct, the broadly conventional war in Europe and the communist insurgency in Vietnam were both subject to the same dynamics of competing wills and capabilities that produced their respective durations and which, in both cases, is key in considering strategic behaviour and results. That is not to say time as duration was the only decisive factor: In both cases, the victor employed attritional operations; in the Second World War superior Allied resources and economic strength provided overwhelming force that pressured and ultimately crushed the Third Reich; and in Vietnam constant guerrilla activity, and cunning propaganda usage, wore down the motivating will of the American body politic. However, time, as duration, was the essential factor for the fruition of these attritional efforts.

We may also conclude, based on our cases and discussion that, due to the conditions of objective and relative strengths in the dimensions of strategy, temporal pressures developed so that duration favoured or disfavoured combatants, driving one of them toward seeking relatively quick victory. This is most obviously the case with Hitler's need to avoid German economic constraints and another attritional conflict against enemies with superior long-term strengths, but we may also see the need of successive US presidents to comprehensively secure the RVN from communism before domestic political patience expired, as it had for the French before them. However, in both cases, war's nature as a struggle against a competing, intelligent foe ultimately obstructed this need decisively, if not easily or simply; the enemy has a vote in the duration of war. Whilst these polities suffered from protraction, their enemies gained in proportion, again revealing the biased and rival aspect of strategic

time. For the Allies of the Second World War this was in building up their strengths and converting their greater resources into relevant military power; the Vietnamese communists approached the matter similarly, though with especial conscious use of duration *itself* to attrite the political will of their enemy. The Third Reich ultimately lacked relative strength among the relevant, physical dimensions necessary for the endurance to resist in a prolonged conflict against three well-resourced enemies, though it had the tenacity to fight nearly to the bitter end. The democratic United States by contrast, had stupendous material strength, but ultimately lacked the political-moral endurance for a suspect, drawn-out commitment in a far-away place, against an enemy that was prepared to wait patiently for them to lose the will to continue.

Duration does not, at first, appear so linked to our concept of strategic spacetime as the other aspects of time in strategy we have covered previously, but these cases both indicate a relationship with the geographic dimension. Using space to protract conflict was vital to the British, Soviets, and the Vietnamese Communists for maintaining their war efforts; the Soviets used the vast expanses of Russia, and great quantities of manpower, to ‘buy’ more of the temporal resource; the British, via seapower and airpower, similarly created ‘strategic distance’ through effort, to convert into more useful time, through protraction; and the Vietnamese communists, via guerrilla operations in ideal terrain managed to avoid defeat and sustain their long, attritional campaign. By contrast, in their early victories, the *Wehrmacht* employed operational art and speed to ‘contract’ strategic spacetime and gain devastating material surprise over the enemy before they had time to react, preserving momentum and gaining quick decisive battles and avoid protracted stalemates. Likewise, the US used technologically advanced airborne operations in

an attempt to achieve quick victory over the Vietcong through search-and-destroy. We may therefore see in these cases various means of distending or shortening the duration of conflict to an extent, by ‘converting’ or ‘trading’ in the temporal resource with various currencies through strategy, operations, and tactical efforts, such as withdrawal and defensiveness, guerrilla warfare, or high-tempo campaigns of manoeuvre that overcome the enemy’s capacity to resist. The *capability* to influence the duration of conflict in these forms, however, depends on relative strengths in multiple other interacting strategic dimensions such as geography, physical resources, operational expertise, or a strategic culture rooted in long-term endurance. These ‘interact’ or ‘combine’ with the temporal dimension, to provide temporal advantages to one side or the other, and define the rival aspect of strategic time in the specific case.

The observation earlier attributed to a Taliban guerrilla of the recent Afghanistan conflict, ‘you have the watches. We have the time’, could easily have been made by a Vietcong guerrilla, or for that matter any of their historical predecessors (if their opponents *had* watches at least). There is little to suggest that in the future there will not be those who benefit from similar asymmetries in strategic time, at least in insurgencies: the possibility of employing duration in this form as a ‘weapon’, in a great-power conventional conflict seems unlikely in a world of nuclear weapons. Within ‘smaller’ wars, and especially irregular conflicts, the competitive aspect of war’s nature as a struggle continues to insure that one side will likely benefit from protraction at their enemy’s inevitable expense, opening up this option of employing ‘time warfare’.

VII: Concluding Thoughts: Time in Strategy

Introduction

This work opened with the opinion of the esteemed theorist Colin S. Gray that, despite it's clearly evident significance in strategic activity, *time* has been relatively underappreciated as the subject of discussion in the works of strategic theory, at least when compared to other identifiable factors.¹⁵²² This is not to say that the subject has been completely disregarded; as we have seen in our earlier review of strategic literature, writers on strategic and military matters have discussed time in various forms throughout history. Indeed, Gray himself has, albeit succinctly, commented on certain facets of time, with that phenomenon as one of his identified dimensions of strategy.¹⁵²³ Additionally it should be born in mind that the principal classical theorists Clausewitz, Sunzi, and also Jomini, have discussed time in their work, in connection with elements of their general theories; these vignettes have in turn been the subject of investigation by scholars seeking to enhance our understanding of those particular aspects of time within those theories, or the understandings of time itself held by the theorists.¹⁵²⁴ Hanska has also very recently completed a thorough exploration of how time has been viewed and considered by historical theorists for the practice of war at the operational level of strategy.¹⁵²⁵

Recent writers have, in support of their theories on particular forms of warfare, also attended to narrow aspects of time; Simpkin, for example, as a manoeuvrist focused upon speeds of manoeuvre in space, whilst those involved in the 20th and 21st

Century discussions of insurgency have likewise concerned themselves with just one

¹⁵²² Gray, *Fighting Talk*, 70

¹⁵²³ See Gray, *Fighting Talk*, 70-72; Gray, *Modern Strategy*, 42-43

¹⁵²⁴ Nelson, 'Space & Time'; Paquette, 'Strategy & Time'

¹⁵²⁵ Hanska, 'Times of War'

or two aspects of time in practice (in their case contradictory elements of speed and protraction) at different levels – this is summarised by Mao Zedong’s description of guerrilla warfare as ‘tactical speed in a war strategically protracted.’¹⁵²⁶ Among the recent writers, Boyd and Singh, but also Mao to some extent, stand out as having developed theories of strategic success with time at their very core; respectively, a grand theory of competitive adaptation in a chaotic environment, with a strong temporal theme; a theory of ‘time warfare’ focusing on speed; and, the basis for a doctrine of war based on delay and protraction. Thus, whilst there have been disparate discussions of time in strategic theory, addressing certain features of the phenomenon, Gray’s observation remains true in that there has not been a general investigation into time, qua time, in strategy itself.

As such, the original contribution of this piece of research to the strategic literature has been to address this deficit, and more fully ‘translate’ time into strategy, with a comprehensive approach to the nature of time and its multiple relevant aspects, for theory and practice at multiple levels of strategy, and in varied contexts. This has entailed some ontological consideration of the phenomena of time itself, and synthesis of precursory concepts from strategic and non-strategic literature, to ultimately present an important ‘first’ step in bringing together and addressing the disparate ‘time in strategy’ ideas into a coherent theory of time in strategy that identifies basic principles and relationships, and so achieve one of the aims of the research identified in the methodology; the formulation of a cogent theory.¹⁵²⁷

With the basic hypothesis that time is a central factor in strategic activity and decision-making, the primary query of this research has been to consider ‘how is

¹⁵²⁶ Mao Tse-Tung, *Guerrilla Warfare*, 96 & 97

¹⁵²⁷ see Vego, ‘On Military Theory’, 65

time important in the conduct of strategy?’ To answer this, subordinate inquiries were undertaken on the nature of time in strategy; whether time is a dimension or resource; how it may be used for advantage; and whether it is possible to ‘wage time warfare’; as well as consideration of how time interacts with other factors. Ultimately these also indicate the importance of time in relation to strategic success or failure.

This work began with a conceptual exploration of strategy and time as separate subjects in Chapters One and Two. This was followed by an examination of the different strategic literature regarding particular facets of time in Chapter Three, to ‘translate’ the subject of time into strategy. From these was developed a general theory of time in strategy, that is to say, of the nature and constituent aspects of the temporal strategic dimension, or a ‘theory of *strategic time*’; as a means to address the research queries. The key aspects of *strategic time* have also served as themes running throughout the latter part of the work, which employed strategic history cases of strategic action at different contexts and levels of war, to give the theoretical deductions some empirical grounding and to test the hypothesis.

Strategic Time

This work has shown that the multifaceted nature of *strategic time* derives from the nature of time as a physical phenomenon, from the social ‘constructs’ of ‘human time’, and, in part, from the nature of war, as described by Clausewitz; an interactive struggle, a competition of wills and capabilities for political purpose.

Obviously, it is a basic fact of physics (at least in our usual human ‘mesoscale’) that time is unidirectional, constant and linear, giving it its ‘inflexibility’, as both a

physical dimension and a strategic one. This basic nature imposes insoluble restrictions on the strategist identical to those encountered in the rest of human existence; the past cannot be regained exactly, there is no 'restart' or 'rewind.' Expended efforts and resources cannot be re-spent again for different outcomes, and one cannot return to a previous, more opportune moment in time to undertake strategic activity, as the Lacedaemonians and Wilhelmine strategists had to accept in their considerations of preventive war against the Athenian Empire and the Entente.

This hard 'rule' of physical time also imposes the 'cataract' upon strategists; they can never have certain knowledge of the future to overcome its uncertainties. This is especially so when we consider the nature of war as an interactive struggle between intelligent foes, which engenders uncertainty from the paradoxical logic at the heart of strategy, on top of the uncertainty of the future as a fact of physics; the enemy has an influence on the course of war which usually is in direct opposition to our own, and as a creative foe they can produce unanticipated novelty that confounds the best laid plans.

Despite lacking precognition, however, Sparta and Berlin were both encouraged toward preventive logic in their decision-making by their respective concerns for the future. And yet, nor did this logic in turn force their hand instantly; each cautiously approached a war they considered 'inevitable' after having 'passed-up' potentially better opportunities in time which could not be regained. Caught between concern over their future relative power, divined from gauging the past and present, and the costs of war in the immediate future, each was stuck on a timeline of urgency; their opportunity for action 'running out' due to the burgeoning strengths of their would-be foe.

In this vein we have also seen that time in strategy, although effectively absolute and universal in the above sense, becomes nevertheless ‘relative’ and ‘rival’ due to war’s nature as a struggle of wills and the paradoxical logic of strategy (and thus *strategic time*): *Each* belligerent has the same ‘amount’ of time on the clock, but the deciding factor is ultimately what they can do with that same amount of physical time, and how that in turn influences the conditions of relative strength between the belligerents in the context of dynamic, interactive competition; i.e. *in the context of strategy*. This can be simply expressed by Boyd’s example of jet fighters in the Korean War mentioned in Chapter Three; due to the design features of the F86 Sabre, its pilot could ‘do more’ useful activity, (specifically complete its OODA cycle more quickly and accurately) in a set period of time than the MiG pilot, and so alter the tactical situation favourably. Indeed, it is this aspect of rival time which is the temporal element of Boyd’s OODA and Singh’s IDA theories; without the competitive element that gives strategic time its ‘rival’ and ‘relative’ aspects they make little sense. A larger scale example of the theme is that of Lee at Gettysburg, or the offensive commander on the Western Front; each was against an enemy which could, for reasons of their physical disposition and efforts benefiting from ‘interior lines’, make better use of the same amount of time; again in their cases in terms of OODA. Differently and yet related, with a far greater capacity for production and superior resources, and the sense to do so, the Soviet Union and the United States could use the period of 1941-1943/4 much more effectively in mobilising their greater latent strengths than Hitler’s regime could, as discussed in Chapter Six.

This work has also shown the interrelationship between time and other dimensions of strategy, especially geography, by which we mean both terrain features and scales. The crude equations of force in *space and time*, or as we have termed that

complex here ‘strategic spacetime’, make up much of the operational and tactical business of war in which masters of the operational art, like Napoleon have excelled in through the intelligent application of force at the right moment and place; recognised by Clausewitz and Jomini as the first rule of war. As seen in Chapter Five, this was integral to Robert E. Lee’s success at Chancellorsville where, with a suitably agile force directed to the right place and moment by a suitably agile mind, he rivalled Napoleon at Austerlitz in regards to this capacity for cognitive orientation of force and spacetime; *the coup d’oeil*.

Additionally in Chapter Five we saw how, on the Western Front, defensive preparations shaped tactical and operational terrain to favour the defender with greater depth and distance distending the time-cycles necessary for tactical command on the offensive beyond its earlier capacities to function in this regard, or to generate momentum of force.

At the higher levels of war, the same aspects of strategic time similarly function, as evidenced by the Soviet Union and Great Britain in the Second World War, exploiting and developing ‘strategic distance’ as Porter puts it,¹⁵²⁸ on the defensive, in order to ‘gain’ *relative* time against the Third Reich; relative time which played to their strengths which resided in latent capacities and required time to come into effect.

Bias

This also highlights the bias aspect of *strategic time*. The relative strengths of the Third Reich at the height of its power circa 1942 were formidable; capable of

¹⁵²⁸ Porter, ‘Distance’

sustaining multiple fronts of conflict against three major adversaries after having conquered swathes of Europe. Yet, its time *advantages* mainly lay in tactical and operational art to win quick victories. Like the Confederacy and Wilhelmine Germany, and -Archidamus believed- the Spartans, the Reich needed its wars to be of short duration; its strengths in the dimensions which would come to bear over time, attributes of economic staying power, were relatively weak by comparison and unsustainable in the attritional conflict the war became. Although different in detail of the relationship between dimensions co-opted and converted, the same can be said of the mid-20th Century conflicts in Vietnam where the Vietnamese Communists took their ‘natural’ advantage in strategic time’s bias and formed a potent time-centric strategy of protraction to prevail over two militarily superior Western powers, including the physically indomitable United States, by grinding down their moral-political *will* by patience and attritional guerrilla-warfare.

Furthermore, this work has shown why it is necessary to consider the enemy’s approach to time and how that may differ to one’s own; when confronted with a foe with an alien conception of time stemming from martial necessity, clever doctrine or historical strategic culture as was the case with the protracted strategy of Vietnamese Communists, even a power with considerable other strengths may still be forced from the conflict if it does not appreciate this and effectively counter the strategy it informs. Similarly to the warning Hughes has made, we may deduce that an insular approach to the temporal dimension which does not account for its other aspects and how the enemy may enlist them cleverly, can leave one vulnerable; an over-focus on

speed, for example, ‘makes patience an asymmetric threat in the quivers of those who would wait out [the] impulsive.’¹⁵²⁹

Time as a resource

This thesis has also identified convenient conceptualisations of time as both a *physical dimension* in which strategy is conducted, and as a resource which can be ‘converted’; this is most obvious in the case of geography as discussed above, where relative advantages in geography can be used in such a manner as to allow time advantages, but other strengths may be used to ‘gain time’ or establish advantages in time; an illustration of this in relation to technology and time would be the design features of the respective airframes in Boyd’s example, whilst another would be the Confederate use of railways to ‘compress spacetime’ before the battle of First Manassas. However, in order to use time advantages, the strategist must have some other factor to their credit; the Entente in the Great War, like the Allies in the Second World War, could endure a longer, attritional war than Germany, as could the Vietnamese Communists in their conflict with the US, via temporal asymmetries derived from resources or political will.

Time Warfare

This work has also observed the means by which time has been employed historically as a ‘weapon’ or as the basis of ‘time warfare’: The Vietnamese Communists in their adaptation of Maoist protracted warfare present the most obvious example at the strategic level but the use of any time asymmetry for advantage could be so considered. Here the use of surprise, both moral and material,

¹⁵²⁹ Hughes, ‘Cult of the Quick’, 64-65, see also 67

can apply to any level of war and, although the preventive war examples of Chapter Four roughly fit this category as analogous to a material surprise, a more complete example would be Operation Barbarossa, which gained considerable initial advantage from its surprise effect upon the Soviet command structure and unprepared Red Army.

Less obvious are those methods of tactical ‘time warfare’ developed on the Western Front discussed in Chapter Five. In a sense these built upon the same ideas of the crude calculations of force and strategic spacetime which had been the mainstays of war for centuries, but the particular characteristics are worth bearing in mind: German *Sturmabteilungen* employed surprise, speed and rapid tempos to overwhelm enemy command response times with confusion in a form befitting the ideas of, and indeed noted by, Boyd – later repeated by German arms in the Second World War with the armoured offensives of so-called Blitzkrieg. On the other hand, the British developed the no-less time-centric methods of bite-and-hold which turned the temporal advantages of the defender ‘inside out’ through surprise and concentration of force in spacetime. Both employed material surprises to develop temporal asymmetries in relative time, which is, as mentioned above, the core of the temporal aspect of Boyd’s work and the extent of Singh’s.

More simply, ‘time warfare’ as described by Singh includes the destruction of the enemy’s abilities to employ or establish time advantages; this was the case with defence-in-depth on the Western Front and the bite-and-hold tactics developed to counter them, but was no-less the case in the American Civil War’s use of light, mobile cavalry raiders in the destruction of railroads which compressed spacetime for logistics, and can extend further back in time to the destruction of bridges, for

example. Thus we may make a minor concluding point that Singh, whilst correct in his identification of the use of ‘time warfare’, has, as we have here, provided description rather than novel proscription on ‘time warfare.’

Conclusions & Implications

The main contribution to strategic studies presented by this thesis has been its identification and systematic appreciation of the basic relevant principles of the temporal phenomenon in strategy, presenting a cohesive general theory of ‘*strategic time*’, informed by historical practice, which has only existed loosely across multiple disparate works of theory and history, and so address the gap identified by Gray. The theory of strategic time is the vehicle by which this work has sought to answer the research objectives framed in its commencement.

This thesis has argued that time is an important dimension of strategy, and the historical examples herein employed have demonstrated how, and in diverse ways, that is undeniably the case at all levels of strategy. Certainly, time is an omnipresent factor insomuch as everything in war and strategy obviously contain a temporal element. However, to say that time is the *most* important dimension would be to go too far. The importance of time in its various forms depends upon the strategic context the belligerent(s) is in, and the character of the war they are fighting. It is not time itself necessarily, but its use, its interactions, its ‘conversions’, which provide the kind of advantages which can be rendered strategically useful, directly or cumulatively, or even decisive.

This is relevant to the practicing strategist in the same manner that it is necessary to know the relative conditions, strengths and weaknesses, of the belligerents in respect

to any of the other identifiable strategic dimensions of performance. Through understanding time and its interactions with, and place among, other dimensions, the strategist may better formulate their plans and methods for the situation before them, to employ temporal advantages, or undermine those of the enemy and perhaps even make of time a useful weapon: As it began, this work ends with a quote from Colin Gray, one which encapsulates temporal considerations for the practitioner:

‘A competent strategist must devise a strategy that co-opts time as an ally, rather than struggles against its unforgiving nature as an enemy’¹⁵³⁰

¹⁵³⁰ Gray, *Fighting Talk*, 72

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