

12

Theory and Practice, Art and Science in Warfare: An Etymological Note

Beatrice Heuser

La théorie est le pied droit et l'expérience le pied gauche,
il faut avoir les deux pieds pour marcher
(Georg Friedrich von Tempelhof)¹

Strategic thinking, or 'theory' if one prefers,
is nothing if not pragmatic.
(Bernard Brodie)²

In this Festschrift for Robert O'Neill, my post-doctoral adviser and patron during the years when I had to spread my wings and leave the safe nest of studenthood, my contribution concerns a subject that we have discussed many times as he guided me on my first lectures in the area of strategic studies. Both of us had been doctoral students of Michael Howard, and both of us read German, so we could discuss Clausewitz and his contribution to the field — which one must concede is outstanding, however critical one might be of parts of Clausewitz's writing. When I asked him for advice on my earliest teaching in strategic studies, Bob once encouraged me to look at definitions of strategy, in theory and

1 von Tempelhof, Georg Friedrich (1997 [1783]) *Geschichte des Sieben-jährigen Krieges*, Vol. I, Osnabrück: Biblio, p. 203.

2 Brodie, Bernard (1974) *War and Politics*, London: Cassell, p. 452f.

practice, art, and science. Here is the 'homework' which, a quarter of a century on, I would like to present to him, with all my thanks and appreciation for the wonderful guidance he has given me over the years.

Etymology

In writings on war, we find the claim made that war is an art. Other authors stress the need for a science of war. This article explores these claims and the reasoning behind them. It will sketch how these terms were used in relation to the terms 'strategy' and 'tactics'.

The difference between theoretical reflection and practical application of the results of the reflection is traditionally conveyed by the terms 'science' and 'art'. A brief reminder of the etymology of both terms is useful here, as the current usage of both terms in English is the exact opposite of its original use. The French and English word 'art' hails from the Latin *ars*, the most important meaning of which, for our purposes, is skill, practical ability to do something, a meaning reflected in the French and English word 'artisan' or skilled craftsman. Originally, the 'Arts' subjects were thus ones that implied practical skills, like the ability to speak a language, or to paint a picture ('fine art'). The equivalent German word, *Kunst*, was related to *Können*, the ability to do something.

The French and English word 'science', by contrast, originally implied abstract knowledge and reflection upon a subject, the *theory* (as opposed to the *practice* of art). It is derived from the Latin *scientia*, knowledge or wisdom, and has its equivalent in the German *Wissenschaft*. Abstract logic, mathematics, theoretical reflections upon the laws of nature (i.e. physics — still called 'natural philosophy' at some Scottish universities) were all sciences, and stood in clear contrast to applied subjects (i.e. arts) such as engineering, founding cannon, building fortifications, or indeed, organising for and waging war, the skills expected from a general.

This does not mean, however, that everybody used these terms consistently. A conflation or confusion of the terms can be traced back to the late Middle Ages. Dodging the choice between art and science, Jean de Bueil in his *Jouvencel* of 1466 told his readers that 'the conduct of war [should be] artful and subtle, which is why it is

appropriate to conduct it by *art and science* [my emphasis].³ A century later, the Englishman John Smythe similarly stated the need for arts and sciences of war, without explaining what he meant by either.⁴ In 1616, Colonel Johann Jacobi von Wallhaussen noted, tautologically: 'The art of war is an art or science about how to wage war.'⁵ The French marshal Feuquières' works, written before 1711, were described by his posthumous publishers as dealing with 'l'Art militaire', while Feuquières himself claimed to be dealing with 'la science de la guerre', which he subdivided into theory and practice.⁶ In the early eighteenth century, Maurice of Saxony, Marshall of France, used both terms — his 'dreams' had the *art* of war as their subject — but then noted that '[a]ll sciences have principles and rules; war alone has none'.⁷

We find a similar muddle of terms in the *Reflections on the Art of War*, originally of 1797, by Georg Heinrich von Berenhorst (1733–1814) from Anhalt-Dessau who pursued his very successful military career in Prussia. Berenhorst only used the expression 'tactics' (and not 'strategy', the utility of which had apparently not yet dawned on him), which he defined as including the choice of weapons,

the way of combining them; any rule, instructions and exercises for the soldier ... with regard to the use of his arms, in his posture and the movement of his body ... I should like to call this elementary tactics. Tactics further means: the principles according to which a century, a cohort, a company or a battalion breaks up, moves, reconfigures ... according to which one deploys cohorts, battalions in the order of battle and lets them advance towards the enemy who is within a shot's or a throw's reach, or lets them retreat: all that pertains to the actual fight, all that will decide on a particular day, at a particular hour, that which the *higher sciences of war* and *skills of army leadership* aim for — higher in the sense that they are based on tactics. These *higher sciences* to me are the *art* of marching with the entire army or substantial parts thereof, to advance, to retreat ... of establishing ... strongholds; of choosing campsites; of using the surface of the earth

3 de Bueil, Jean (1887 [1493]) *Le Jouvencel par Jean de Bueil*, Paris: Renouard, p. 15.

4 Smythe, Sir John (1964 [1590]) *Certain Discourses Military*, Ithaca, NY: Cornell University Press, pp. 3–5.

5 von Wallhaussen, Johann Jacobi (1616) *Das heutige Kriegswesen in einer Perfecten und absoluten Idea begriffen und vorgestellt*, Hanau: Selbstverlag, p. 1.

6 de Pas, Antoine, Marquis de Feuquières (1731) *Mémoires sur la Guerre où l'on a rassemblé les Maximes les plus nécessaires dans les opérations de l'Art Militaire*, Amsterdam, Francois Changuion, title page and p. 2.

7 de Saxe, Maurice (1756) *Rêveries sur l'Art de la Guerre*, The Hague.

according to its features; of passing streams and rivers: finally, the great *art* of making apposite, reliable plans and to ... adapt them cleverly to new developments, or to abandon them and to replace them by others [my emphasis].⁸

To add to the terminological confusion, authors writing in Germanic languages contributed a further term: *Kriegskunde*, knowledge of war (with the word 'Kunde' used much in the sense as the Greek *logia*).⁹ We find in Brussels, to this day, a street called rue de la Stratégie in French, and *Krijgskundestraat* — street of the knowledge of war — in Flemish. The US Joint Chiefs of Staff in their *Dictionary of the U.S. Military Terms for Joint Usage* of 1964 defined 'strategy' as both 'art and science', in peace and war, in the pursuit of political aims.¹⁰ Napoleon himself had little interest in philosophical clarity. He confusingly stated that '[s]trategy is an art', while noting a few lines further on that the great generals of the past had turned 'warfare into a true science'.¹¹ US Joint Chiefs of Staff were thus in good company when in 1964 they issued the following claim in a doctrine manual:

Strategy is the *art and science* of developing and using political, economic, psychological, and military forces as necessary during peace and war, to afford the maximum support to policies, in order to increase the probabilities and favourable consequences of victory and lessen the chances of defeat [my emphasis].¹²

The Prussian officer and military author August Rühle von Lilienstern (1790–1847) remarked on this terminological confusion in much writing on the subject. At the time when Rühle was writing, people began to contrast a workman's skills in performing the same tasks over and over, and the creation of something unique with flair, intuition,

8 von Berenhorst, Georg Heinrich (1978 [1827]) *Betrachtungen über die Kriegskunst, über ihre Fortschritte, ihre Widersprüche und ihre Zuverlässigkeit*, Osnabrück, Biblio Verlag, p. 7f.

9 Cancrin, Georg Ludwig Graf (1818) 'Allgemeine Uebersicht der Kriegskunde zu Lande', in Rühle von Lilienstern, *Aufsätze über Gegenstände und Ereignisse aus dem Gebiete des Kriegswesens*, Berlin: Ernst Siegfried Mittler, pp. 95–101.

10 Luttwak, Edward (2001) *Strategy: The Logic of War and Peace*, Cambridge: Harvard University Press, pp. 239–41.

11 Foch, Ferdinand (1909) *De la Conduite de la Guerre: La manœuvre pour la Bataille*, Paris: Berger-Levrault, p. 3.

12 Quoted in Handel, Michael (1996) *Masters of War: Classical Strategic Thought*, second edition, London: Frank Cass, p. 36.

and genius; the use of word *Kunst* was already moving towards the latter sense, while it was still seen, at the same time, as the opposite of *Wissenschaft* or science.¹³

Nevertheless, what all these writers were in search of were principles and rules governing warfare that could be taught and passed on to subsequent generations. As we have already noted, two schools can be distinguished, those who defined warfare as an art, and those who emphasised the reflexive, theoretical (scientific) skills needed to underpin the practice of warfare.

Science in Warfare

The quest for a science of war can be traced back to antiquity. The first century AD Roman author Frontinus, who wrote in Latin but used the odd Greek word (such as 'strategy') when no Latin word existed, wrote about the science of war — *rei militaris scientia*.¹⁴

In the Middle Ages, the author(s) of the *Book of the Order of Chivalry*, which may have originated in the Spanish-speaking world of the thirteenth century, saw 'the order of knyghthode' as a 'scyence' that deserved to be 'wreton and redde in scoles lyke as the other scyences'.¹⁵ Subsequently, the introduction of fire power, especially hand-held arquebuses and muskets, made drilling soldiers very important: only thus could the relatively rapid firing of these still very unwieldy personal arms be ensured. The resulting movements of lines of soldiers, with the man in the front firing and those behind him reloading and keeping out of the firing line while successively moving forward to take his place, constituted geometrical patterns, the filigree of the battlefield, as the French called it. Other features of Baroque warfare also invoked geometry: the calculation of firing distances and the targeting of cannon, in turn important for the angles of the wide and flat fortifications of Vauban and his contemporaries;

13 von Lilienstern, Rühle (1818) 'Ueber Theorie und Praxis, über den Unterschied zwischen Wissenschaft und Kunst', in *Idem: Aufsätze über Gegenstände und Ereignisse aus dem Gebiete des Kriegswesens*, Vol. 1, Berlin: Mittler, vol. 1, pp. 41f., 45, 71–4.

14 Frontinus, Sextus Iulius (1925 [ca. A.D. 84–96]) 'Stratagematon' in Charles E. Bennett (trans. and ed.) *Frontinus: The Stratagems and the Aqueeducts of Rome*, London: William Heinemann, p. 2f.

15 Anon. (c. 1483) *Book of the Order of Chivalry*, p. 23.

the zig-zagging trenches constructed for sieges to approach the adversary's ramparts without making oneself vulnerable to his defensive fire; the movement of troops and their concentration in the area of the potential battlefield; and the supply lines and distances of depots to the battlefield, all these involved geometric calculations. Henry Duke of Rohan thus spoke about the '*science of the general*', which consisted of the understanding and ability to apply such aspects of warfare.¹⁶

In the age of Newton, Euler, and Boyle, military writers sought increasingly to find scientific axioms applicable to warfare, just as the former had discovered hard and fast rules governing mathematics, inanimate nature in general, or gasses in particular. Warfare was thus increasingly seen as a subject of academic study and mathematical training, and military academies opened their doors. In 1740, Bardet de Villeneuve published his 12 volumes on *Military Science*, in which he drew extensively on the works of the Spanish officer and diplomat Santa Cruz de Marcenado.¹⁷ Twenty years later, Paul Gédéon Joly de Maizeroy, the translator of Emperor Leo VI's *Taktika*, to whom we owe the introduction of the term '*stratégie*' to French and thus into the Western vernacular languages, used the term '*military science*' in his *Essais militaires*.¹⁸ And after the Napoleonic Wars, an anonymous author, writing in Vienna, explained that '*strategy is the science of war*', and it was this subject to which he devoted his three-volume study of past wars.¹⁹

Despite heavy competition from those who insisted that warfare was only an art, not a science, the science school battled on. The Italian naval historian and Dominican priest, Alberto Guglielmotti, writing between 1856 and 1889, defined strategy as

The supreme military *science* which invents the way of guiding the forces on the battlefield to victory. [Strategy] is similar to dynamics which ... studies the laws of movement, space, time in an abstract way,

16 de Rohan, Henri Duc (1972 [1636]) *Le Parfaict Capitaine*, Osnabrück, Biblio Verlag, p. 262.

17 de Villeneuve, Bardet (1740) *La Science militaire*, Vol. 1 : Cours de la science militaire, The Hague: Jean van Duren. For a biography and excerpts of Santa Cruz de Marcenado in English translation, see Heuser, Beatrice (2010) *The Strategy Makers*, Santa Monica: ABC-Clio, pp. 124–46.

18 de Maizeroy, Paul Gédéon Joly (1762) *Essais militaires, ou l'on traite des armes défensives*, Amsterdam: Gosses.

19 Anon. (1814) *Grundsätze der Strategie erläutert durch die Darstellung des Feldzugs von 1796 in Deutschland*, Vol. 1, Wien: Anton Strauss, pp. vii, 3.

and then moves to mass, speed, impact, resistance, friction. Strategy calculates the axes and dispositions of attack from the basis to the objective; it controls the lines of communication and the withdrawal routes; it compares, in a solution given to a strategic problem, the advantages and disadvantages and resolves in concrete terms, on the terrain, the fundamental problem of the movement of forces over faster routes, in the shortest time, in order and in a timely manner to win. This applies as much to [war on] the land as at sea [my emphasis].²⁰

Similar ideas can be found among his French contemporaries, such as General Lewal.²¹

The late nineteenth century, with its exponential growth in the number and spread of new technological inventions, if anything made the scientific even more popular. In the early twentieth century, German and British authors wrote about *Strategical Sciences* and the *Science of War*.²² Marxism-Leninism and the individuals, movements, and states inspired by it even claimed that history was a science, and consequently also saw military science as essential underpinnings of warfare. In German parlance to this day, science encompasses both 'natural sciences' and 'the sciences of the spirit', what in Britain would be called the arts and humanities. The claim that warfare has to be studied 'scientifically' thus seems to be the oldest, as well as the more modern approach.

Warfare as an Art

Yet the emphasis on the practical side of war studies also has a distinguished pedigree that came to the fore especially during the Renaissance, and is still going strong. In the early 1400s, the first modern strategist, Christine de Pizan, wrote about the 'art of war',

20 Ferrante, Enzo (1993) 'La pensée navale italienne: II. De Lissa à la Grande Guerre', in Hervé Coutau-Bégarie, *L'Évolution de la Pensée navale*, Band III, Paris: Economica, p. 106f.

21 Lewal, Général J. L. (1892) *Introduction à la Partie positive de la Stratégie*, Paris: Librairie militaire L. Baudoin, p. 61f.

22 von Caemmerer, Rudolf (1904) *Die Entwicklung der Strategischen Wissenschaft im 19. Jahrhundert*, trans. Karl von Donat, Berlin: Baensch; von Caemmerer, Rudolf (1905) *The Development of Strategical Science*, London: Hugh Rees; Henderson, G. F. R. (1905) *The Science of War: A Collection of Essays and Lectures, 1892–1903*, London: Longmans, Green; Fuller, J. F. C. (1925) *The Foundations of the Science of War*, London: Hutchinson.

'military art', and the 'art of chivalry'.²³ A century later, Berault Stuart, one of the captains employed by the King of France, and Niccolò Machiavelli in Florence would follow this usage with their respective books on the *Art of War*.²⁴ By the seventeenth century, it was normal to be referring to the art of war, not only in Italian but also in French, English, and German.²⁵

What they all had in common was the quest for transmittable rules and principles which could help future practitioners of warfare. Yet Jacques François de Chastenot de Puysegur, Marshal of France, who between 1693 and 1743 wrote principles and rules on the art of war, claimed that he had previously not come across any such principles in any areas of the art of war, except in the sub-area of siegecraft.²⁶ At the time of the French Revolution, Georg Heinrich von Berenhorst, in trying to establish a set of rules and principles governing warfare, followed the precedent of Machiavelli and Puysegur in referring to *Kriegskunst*, the art of war, and for a long time this term would dominate writing in German on the subject. Behrenhorst was mainly concerned with arguing that there was a body of knowledge and insights that can be passed on to younger generations. He noted that hitherto, most cultures had mainly passed on lessons learnt empirically from experiences of previous wars and battles, rather than trying to rise above such empiricism and attempting to approach warfare from the perspective of theoretical approaches, such as those of geometry or geography.²⁷

23 de Pizan, Christine (1997 [1404]) *Le Livre des Faits et Bonnes Mœurs du roi Charles V le Sage*, Eric Hicks & Thérèse Moreau (trans. and ed.), Paris: Stock, p. 158ff; de Pisan, Christine, *L'Art de la Chevalerie selon Végèce* (1488 [1410]), Paris: Antoine Verard.

24 Stuart, Berault, Seigneur d'Aubigny (1976 [1508]) *Traité sur l'Art de la Guerre*, Elie de Comminges (ed.), Den Haag : Martinus Nijnhoff; Machiavelli, Niccolò (1521) *Libro della Arte della Guerra*, Florence: li Heredi di Philipppo di Giunta.

25 Hexham, Henry (1642) *The Principles of the Art Militarie, Practised in the Warres of the Vnited Netherlands*, Part 1, second edition, Delft; Part 2 (1642) Delft: Antony of Heusden; à Troupitzen, Laurentius (1638) *Kriegs Kunst, Nach Königlich Schwedischer Manier...*, Franckfurt: Mattheo Merian; de Billon, Jean (1613) *Les Principes de l'Art militaire*, Lyon: Berthelin; Mallet, Allain Manesson (1684) *Les travaux de Mars, ou l'art de la guerre*, Paris: Denys Thierry.

26 de Chastenot, Jacques François, Marquis de Puységur or Puysegur (1748) *Art de la Guerre, par principes et par règles*, Paris: Charles-Antoine Jombert, p. 3.

27 von Berenhorst, Georg Heinrich (1789) *Betrachtungen über die Kriegskunst über ihre Fortschritte, ihre Widersprüche und Zuverlässigkeit*, Vol. 1, second edition, Leipzig: G. Fleischer the Younger.

Henri Baron de Jomini, the foremost and first great analyst of Napoleonic warfare, first published his definitions on the subject in 1805 and defined strategy as

the art of making war upon the map, and comprehends the whole theater of operations. Grand Tactics is the art of posting troops upon the battlefield according to the accidents of the ground, or bringing them into action, and the art of fighting upon the ground in contradistinction to planning upon a map.²⁸

Elsewhere, Jomini wrote: 'Strategy ... is the *art* of bringing the greatest part of the forces of an army upon the important point of the theater of war or the zone of operations [my emphasis].'²⁹ Jomini thus came down on the side of those who regarded strategy — and waging war — as an art, not a science. Jomini's definitions would dominate the nineteenth century.

The American naval strategist Alfred Thayer Mahan (1840–1914), writing at the end of the nineteenth century, provided perhaps the most elaborate defence of the concept that warfare should be seen as an art. He followed Jomini in many respects, and picked up in particular on the Jominian argument about strategy as an art, not a science:

Science is sure of nothing until it is proved ... it aims at absolute certainties, — dogmas, — towards which, through numerous experiments, it keeps moving. Its truths, once established, are fixed, rigid, unbending, and the relation between cause and effect are rather laws than principles; hard lines incapable of change, rather than living seeds. *Science* discovers and teaches truths which it has no power to change; *Art*, out of materials which it finds about it, creates new forms in endless variety. It is not bound down to a mechanical reproduction of similar effects, as is inanimate nature, but partakes of the freedom of the human mind in which it has its root. Art acknowledges principles and even rules; but these are not so much fetters, or bars, which compel its movements aright, as guides which warn when it is going wrong. In this living sense, *the conduct of war is an art*, having its spring in the mind of man, dealing with very various circumstances, admitting certain principles; but, beyond that, manifold in its manifestations, according to the genius of the artist and the temper of the materials with which he is dealing. To such an effort dogmatic prescription is

28 Henri, Antoine, Baron de Jomini (1868 [1837]) *The Art of War*, Capt. G. H. Mendell and Capt. W. P. Craighill (trans.), Philadelphia: J. B. Lippincott, pp. 69–71.

29 *Ibid.*, p. 322.

unsuited; the best of rules, when applied to it, cannot be rigid, but must have that free play which distinguishes a principle from a mere rule [my emphasis].³⁰

Here we see the inversion of the meaning of the two terms that was creeping into the English language: increasingly, 'art' came to mean something done with instinct, intuition and talent (even genius), not by rote, reflection, or reasoning.

Other very technical definitions abounded in the later nineteenth and early twentieth centuries, such as that of the Britons Sir Edward Hamley, General J. F. Maurice,³¹ his namesake General Frederick Barton Maurice,³² and G. F. R. Henderson, who by 'strategy' understood 'the art of rightly directing the masses of troops towards the objects of the campaign'.³³ At the outset of the twentieth century, Lt. Col. Walter James wrote:

The *art of war* is usually divided into two parts — strategy and tactics. Strategy deals with the military considerations which determine the choice of the offensive or defensive, the selection of the country in which to fight, the objects against which the armies should be directed, and embraces the Plan of Campaign or General Idea which dominates the conduct of the operations. Broadly speaking, therefore, strategy is concerned with the movement of troops before they come into actual collision, while tactics deals with the leading of troops in battle, or when battle is imminent [my emphasis].³⁴

Equally, Captain (later Sir) Basil Henry Liddell Hart, whose most important works stem from the 1920s, 1930s, and 1940s, defined strategy as '[t]he art of distributing and applying military means to fulfil the ends of policy [my emphasis]'.³⁵ Liddell Hart was pessimistic about the existence of a science of war, not because he did not ardently

30 Mahan, Alfred Thayer (1918) *Naval Strategy Compared and Contrasted with the Principles and Practice of Military Operations on Land*, Boston: Little, Brown and Co., p. 299f.

31 Maurice, J. F. (1891) *War*, London: Macmillan, p. 7.

32 Maurice, F. B. (1929) *British Strategy*, London: Constable & Co., p. 3.

33 Henderson, G. F. R. (1905) *The Science of War: A Collection of Essays and Lectures, 1892–1903*, London: Longmans, Green, p. 39.

34 James, W. H. (1904) *Modern Strategy*, second edition, Edinburgh: William Blackwood and Sons, p. 17f.

35 Hart, Basil Liddell (n.d. [1944]) *Thoughts on War*, London: Faber and Faber, p. 229.

wish to promote it, but because he did not feel that humanity had made much leeway with it. Four years before the outbreak of the Second World War, he wrote:

A study of military history brings ample confirmation of Rebecca West's [*bon*] *mot*: 'Before a war military science seems a real science, like astronomy, but after a war it seems more like astrology' ... There is, doubtless, a science of war; but we are a long way from discovering it. Apart from the mere technique of utilizing weapons, what passes for 'military science' is hardly more than the interpretation of conventions nurtured by tradition and warped by sentiment, patriotic and professional.³⁶

Liddell Hart's contemporary, the French admiral and Clausewitz-disciple, Raoul Castex (1878–1968) came down firmly on the 'art' side of the 'art-or-science' debate, with strategy as the 'art of the general', an art that had its own theory, however, which facilitated its learning in the absence of copious personal experiences.³⁷

A Cold War example of the arts–science debate comes from Belgium, where the analyst of strategy, Henri Bernard, emphasised that war and conflicts are not physical experiments which can be repeated step by step and in all physical conditions — if that were the case, one could speak about a science in the modern sense of empirically based on repeatable experiments. But the conduct of war pairs material, physical forces (which are quantifiable) with moral forces, it is a 'struggle of wills', and thus has unquantifiable dimensions.³⁸

At the end of the Cold War, the British political scientist Robert Neild used a wider definition still: 'Strategy is the *art* of pursuing political aims by the use or possession of military means [my emphasis].'³⁹ The broadest use of the terms 'strategy' and 'art' were made by the British strategist Lawrence Freedman: 'strategy is the *art* of creating

36 Ibid., p. 45.

37 Castex, Raoul (1937 [1929]) *Théories stratégiques*, Vol. 1, second edition, Paris: SEGMC, p. 20f.

38 Bernard, Henri (1965) *Guerre Totale et Guerre Révolutionnaire*, Brussels and Paris: Brepols, p. 5.

39 Neild, Robert (1990) *An Essay on Strategy as it Affects the Achievement of Peace in a Nuclear Setting*, Basingstoke: Macmillan, p. 1.

power' [my emphasis].⁴⁰ In the Anglophone countries, the notion that strategy is an art still prevails over its Marxist-Leninist designation as a science.

A Science and an Art, or Strategy as one and Tactics as the Other?

Authors other than the muddle-headed, such as Jacobi von Wallhausen and Berenhorst, saw both science and art as necessary in warfare. Some tied them in with the distinction between strategy and tactics.

Those writing in German began to use the terms 'strategy' and 'tactics' much in the way of Emperor Leo VI, from about the time his work was translated into German in five volumes in 1777–1781. We thus find 'strategy' and 'tactics' used by the Prussian mathematician Heinrich von Bülow (1752–1807), who sought to bring calculable order, logic, and clarity to the art (or practice) of war. Around 1800, he wrote:

The *science* of military movements of two armies at war outside our range of view, or, if you prefer, out of the range of the shot of the big guns etc. is strategy. The *science* of the military movement in the presence of the enemy, in his full view, or, if you prefer, within the firing range of his big guns, is tactics [my emphasis].

From this he derived the not very profound rule of thumb that strategy could be divided into 'two main parts: the march and the camp'.⁴¹ Later he used a second definition, equating '*science* of war' with '*theory*', and '*art* of war' with its '*application*'.⁴²

Their contemporary, Archduke Charles (1771–1847), a veteran of the Napoleonic Wars, in 1806 defined 'strategy' as 'the *science* of war: it designs the plan, circumscribes and determines the development of military operations; it is the particular science of the supreme commander [my emphasis]'. 'Tactics', by contrast, he defined as 'the *art* of war. It teaches the way in which strategic designs are to be executed;

40 Freedman, Lawrence (2004) *Deterrence*, Cambridge: Polity Press; Freedman, Lawrence (2013) *Strategy: A History*, Oxford: Oxford University Press.

41 von Bülow, Dietrich Heinrich Frhr (1799) *Geist des neuern Kriegssystems hergeleitet aus dem Grundsatz einer Basis der Operationen*, Hamburg: Benjamin Gottlieb Hoffmann, pp. 83f., 89.

42 *Ibid.*, p. xiv.

it is the necessary skill of each leader of troops [my emphasis].'⁴³ We thus find a correlation between 'strategy' and 'science', and 'tactics' and 'art'. Similarly, writing in 1809, August Wagner divided warfare into an enduring component — pertaining especially to its purpose — which he saw as the subject of the 'science of war'; and a component constantly changing with 'the shape of weapons and encounters', which he saw as the domain of the 'art of war'.⁴⁴

To clarify matters, Rühle von Lilienstern devoted a lecture to the question of the difference between art and science, in the context of a lecture series on war that he published in 1818.⁴⁵ Honing in on the officer's need for science/reflection and understanding of the issues at hand on the one hand, and his need for the capacity for applying this through art/action/its practice, Rühle argued that neither was enough on its own, and both only made sense if they had each other: 'Any practice without theory lacks rules and is vague [*unsicher*], its success lies in the hands of fortune; any theory without a possible and without an intended practice remains empty, sterile, pointless speculation.' He introduced a helpful simile: without theory/science and reflection, the practitioner would be confronted with the skill sets he was taught like an artisan with a large tool kit which was thrown at his feet in complete disarray. Only by putting it in order and by reflecting systematically and scientifically on the problem at hand would he be able to identify the tools that would be needed for the operation he planned. Rühle further argued that a survey of the history of warfare could lead to two different products: one, a narrative or description (historiography), another, a reflection on a higher level, addressing the questions whether laws had been at work, and why and for what purpose things had been done (what today one might expect to find in the social sciences).⁴⁶

43 Archduke Charles (1882 [1838]) 'Das Kriegswesen in Folge der französischen Revolutionskriege', in Freiherr von Waldstätten (ed.), *Erzherzog Karl: Ausgewählte militärische Schriften*, Berlin: Richard Wilhelmi, p. 57; Archduke Charles (1882) *Ausgewählte militärische Schriften*, Berlin: R. Wilhelmi, pp. vii, 3.

44 Wagner, August (1809) *Grundzüge der reinen Strategie*, Amsterdam: Kunst- und Industrie-Comptoir, pp. vii ff.; see also Anon. (1814) *Grundsätze der Strategie erläutert durch die Darstellung des Feldzugs von 1796 in Deutschland*, Vol. 1, Wien: Anton Strauss, p. vii.

45 von Lilienstern, Rühle (1818) 'Ueber Theorie und Praxis, über den Unterschied zwischen Wissenschaft und Kunst', in *Idem: Aufsätze über Gegenstände und Ereignisse aus dem Gebiete des Kriegswesens*, Vol. 1, Berlin: Mittler, vol. 1, pp. 56, 37–75.

46 *Ibid.*, pp. 46–8.

At the same time, Rühle was convinced that practice nourished reflection, and that reflection would inspire action, so that to be fruitful, both would ideally have to interact; but, crucially, one could complement one's practical experience and theoretical reflection with that of others through the medium of lecture and literature. Theory was thus, for him, a distillation from experience — the essence of experience. (Rühle's metaphor evokes the process whereby a salt is distilled from its liquid solution.) This essence, this elixir, would be so strong that no lesser mind would be able to digest it, and for that reason some might reject theory as they simply could not get their heads around it. On the one hand, any theory that was not rooted in experience (i.e. in empirical knowledge), which was the mere figment of the imagination of an armchair strategist (*Stubengelehrter*), would easily shatter when it clashed with hard facts. It would be useless as a directive for action. On the other hand, one's understanding of one's own experience could not fail to be enriched by good theory, and would allow analysis on a higher level, and at once more insightfully. Rühle's advice was thus to approach both theory and supposed lessons drawn from one's own experiences critically, and to check theory against reality. He advised his readers to compare one's own limited experiences with those of others (and with examples recorded in literature), as exceptions exist for all rules, and chance deviations from the norm will occur, and no one person can amass sufficiently large experience to come to (what we would now call statistically relevant, large-n) conclusions. Moreover, even if 99 experiences confirm one rule, in war there is no certainty that the hundredth case will be dominated by another. Bottom line, Rühle argued, nothing would replace the individual officer's analytical skills, his good critical judgment, informed by both practical experience and by theory.⁴⁷

Another logically coherent attempt to define the roles of science and art in warfare can be found a century later, when French General Jean Colin tackled the subject in his *Transformations of War* of 1911. To him, war was the object both of a science and an art. Science, he wrote, 'seeks laws, identifies and classifies facts; art chooses, combines and produces'.

47 Ibid., pp. 53–7, 62f.

There is a *science* of war which studies the means of action and the elements of war, analyses the events of past wars, compares them, and draws conclusions about the relations of cause and effect, sometimes succeeding in establishing general laws. *Art*, more or less using the results produced by science, at the moment of action chooses the procedures that seem suitable to diverse particular cases. [Art] is the application to action of the actor's natural gifts and of assimilated knowledge. Depending on each individual instance, the latter will play a more or less important role. *Science* finds in *art* a more or less direct application ... sometimes *art* can do without *science*, sometimes it is reduced to the [pure] application of scientific findings [my emphasis].⁴⁸

Interestingly, we also find the inversion of this relationship in French literature. General Bonnal, lecturing at the Paris Ecole de Guerre in 1892–1893, told his students that '[s]trategy is the *art* of conceiving; tactics the *science* of execution [my emphasis]'.⁴⁹ Creating further terminological confusion, in the late Russian Empire, General Mikhail Ivanovich Dragomirov dismissed the concept of a 'science' of war out of hand, instead endorsing the concept of a 'theory of war'.⁵⁰

But the debate was by no means settled. Sir Julian Corbett (1854–1922) commented on the art–science debate:

[T]he classical strategists insist again and again on the danger of seeking from [their so-called science] what it cannot give. They even repudiate the very name of 'Science'. They prefer the older term 'Art'. They will permit no laws or rules. Such laws, they say, can only mislead in practice, for the friction to which they are subject from the incalculable human factors alone is such that the friction is stronger than the law.⁵¹

Corbett wrote that 'the mistrust of theory' that is so characteristic of the British,

arises from a misconception of what it is that theory claims to do. It does not pretend to give the power of conduct in the field; it claims no more than to increase the effective power of conduct. Its main

48 Colin, Jean (1989 [1911]) *Les transformations de la guerre*, Paris: Economica, p. 4.

49 Castex, Raoul (1937 [1929]) *Théories stratégiques*, Vol. 1, second edition, Paris: SEGMC, p. 6.

50 Quoted in Foch, Ferdinand (1918 [1900]) *Principes de la Guerre: Conférences faites en 1900 à l'École supérieure de Guerre*, fifth edition, Paris: Berger-Levrault, p. 8.

51 Corbett, Sir Julian S. (1988 [1911]) *Some Principles of Maritime Strategy*. Annapolis, MD: US Naval Institute Press, p. 8.

practical value is that it can assist a capable man to acquire a broad outlook whereby he may be the surer his plan shall cover all the ground, and whereby he may with greater rapidity and certainty seize all the factors of a sudden situation.⁵²

It was impossible, however, to ignore the debate. Corbett for one, like Mahan before him, emphasised the need for a common vocabulary to discuss war plans, and this needed to be produced through 'theoretical study'.⁵³

In Russia's communist era, Marxist-Leninist definitions continued to follow narrow definitions of strategy and tactics, adding the intermediary level of operation. They described strategy as the preparation and conduct of war in general, operations the conduct of war on a theatre level, while tactics was the organisation and conduct of battle in detail. The essence of both was the same: armed conflict. In parallel, they used the terms 'military art' referring to 'the theory and practice of preparing and conducting military operations', and 'military science' referring to 'the system of knowledge about the character and laws of war'. Strategic, operational and tactical level warfare were all part of military art, taught through military doctrine, subject to the rules identified (objectively) by military science.⁵⁴ The Chief of the Soviet General Staff Marshal Nikolaj Orgakov (1917–1994) wrote as late as in 1979: 'War strategy' (*voyennaya strategiya*) is 'that part of military *art* which determines the principles of the preparation [of war] and the conduct of war and the campaign in its entirety [my emphasis]'. Echoing Clausewitz, he continued: 'Strategic military actions are the fundamental means for the achievement of the purposes of the war.'⁵⁵

Other reflections on the importance of theory and its relation to practice could be found in the West. The American Clausewitz-scholar Bernard Brodie wrote at the end of the Vietnam War:

52 Ibid., p. 3f.

53 Ibid., pp. 6–8.

54 Quoted in Leebaert, Derek (ed.) (1981) *Soviet Military Thinking*, London: George Allen and Unwin, p. 14f.

55 Quoted in Backerra, Manfred (1983) 'Zur sowjetischen Militärdoktrin seit 1945', *Beiträge zur Konfliktforschung* 1, p. 48. This definition is still very close to that supplied by Clausewitz. In book two of *On War*, he defined 'strategy' merely as 'the use of engagements for the object of the war' — a very technical approach. See von Clausewitz, Carl (1976 [1832]) *On War*, Michael Howard and Peter Paret (trans. and ed.), Princeton University Press, pp. 128, 177.

Strategic thinking, or 'theory' if one prefers, is nothing if not pragmatic. Strategy is a 'how to do it' study, a guide to accomplishing something and doing it efficiently. As in many other branches of politics, the question that matters in strategy is: Will the idea work? More important, will it be likely to work under the special circumstances under which it will next be tested? These circumstances are not likely to be known or knowable much in advance of the moment of testing, though the uncertainty is itself a factor to be reckoned with in one's strategic doctrine. Above all, strategic theory is a theory for action.⁵⁶

From this, the Anglo-American strategist Colin S. Gray developed his term 'strategic theory' in a didactic context, defined as follows: 'Strategic theory helps educate the strategist so that he can conceive of, plan, and execute strategy by his command performance.'⁵⁷

The Invention of the Social Sciences

It is a testimony to the genius of the Prussian philosopher-general Carl von Clausewitz (1780–1831) that he overcame this confusion of terminology and these semantic quarrels by cutting the Gordian knot. In his great *On War*, Clausewitz simply concluded that neither term was satisfactory, speaking out against this separation between arts and sciences: 'No matter how obvious and palpable the difference between knowledge [science] and ability [art] may be ... it is still extremely difficult to separate them entirely in the individual ... [I]f it is impossible to imagine a human being capable of perception but not of judgment or vice versa, it is likewise impossible to separate art and knowledge altogether.' He conceded,

creation and production lie in the realm of art; science will dominate where the object is inquiry and knowledge. It follows that the term 'art of war' is more suitable than 'science of war' ... But we must go on to say that strictly speaking war is *neither an art nor a science* ... [W]ar ... is part of man's social existence. War is a clash between major interests, which is resolved by bloodshed — that is the only way in which it differs from other conflicts. Rather than comparing it to art we could more accurately compare it to commerce, which is also a conflict of human interests and activities, and it is *still* closer to

56 Brodie, Bernard (1973) *War and Politics*, London: Cassell, p. 452f.

57 Gray, Colin S. (2010) *The Strategy Bridge: Theory for Practice*, Oxford: Oxford University Press.

politics, which in turn may be considered as a kind of commerce on a larger scale. Politics, moreover, is the womb in which war develops ... [my emphasis].

This is where we encounter the idea about the relationship between politics and war for which Clausewitz is most famous.⁵⁸

One might thus argue that Clausewitz was one of the fathers of the social sciences, which sought to come out of the impasse of seeing human endeavours as either something to be studied scientifically, or as something for which only the quest for practical prescriptions made sense. In a different way, Clausewitz thus brought Rühle's dialectic between empirical knowledge and theory-based analysis to a new synthesis, thereby laying great parts of the foundations of strategic studies as we have come to know them.

58 Clausewitz, Carl (1976 [1832]) *On War*, Michael Howard and Peter Paret (trans. and ed.), Princeton University Press, p. 128. For a draft version of this passage, see Hahlweg, Werner (ed.) (1990) *Carl von Clausewitz: Schriften, Aufsätze, Studien, Briefe*, Vol. 2, Part 2, Göttingen: Vandenhoeck & Rupprecht, pp. 668–70.

This text is taken from *War, Strategy and History: Essays in Honour of Professor Robert O'Neill*, edited by Daniel Marston and Tamara Leahy, published 2016 by ANU Press, The Australian National University, Canberra, Australia.