

Archived Content

Information identified as archived on the Web is for reference, research or record-keeping purposes. It has not been altered or updated after the date of archiving. Web pages that are archived on the Web are not subject to the Government of Canada Web Standards.

As per the [Communications Policy of the Government of Canada](#), you can request alternate formats on the "[Contact Us](#)" page.

Information archivée dans le Web

Information archivée dans le Web à des fins de consultation, de recherche ou de tenue de documents. Cette dernière n'a aucunement été modifiée ni mise à jour depuis sa date de mise en archive. Les pages archivées dans le Web ne sont pas assujetties aux normes qui s'appliquent aux sites Web du gouvernement du Canada.

Conformément à la [Politique de communication du gouvernement du Canada](#), vous pouvez demander de recevoir cette information dans tout autre format de rechange à la page « [Contactez-nous](#) ».

The Principles of War in the 21st Century: Operational Considerations

By /par Colonel Randy Brooks

This paper was written by a student attending the Canadian Forces College in fulfilment of one of the requirements of the Course of Studies. The paper is a scholastic document, and thus contains facts and opinions which the author alone considered appropriate and correct for the subject. It does not necessarily reflect the policy or the opinion of any agency, including the Government of Canada and the Canadian Department of National Defence. This paper may not be released, quoted or copied except with the express permission of the Canadian Department of National Defence.

La présente étude a été rédigée par un stagiaire du Collège des Forces canadiennes pour satisfaire à l'une des exigences du cours. L'étude est un document qui se rapporte au cours et contient donc des faits et des opinions que seul l'auteur considère appropriés et convenables au sujet. Elle ne reflète pas nécessairement la politique ou l'opinion d'un organisme quelconque, y compris le gouvernement du Canada et le ministère de la Défense nationale du Canada. Il est défendu de diffuser, de citer ou de reproduire cette étude sans la permission expresse du ministère de la Défense nationale.

Abstract

Our current Principles of War have been with us unchanged since the end of the Second World War, yet the transformation of warfare has been total. As we now enter the twenty-first century it is appropriate to ask the question: “*Are these ten Principles of War the ten Principles of War that should guide us and our descendent military leaders in the conduct of operations in the future?*” Does it not follow that, just as equipment rust-out can constrain, even jeopardise the outcome of operations, the conceptual “rust-out” of a dogmatic adherence to doctrine can be equally threatening?

To engender debate, it is the thesis of this paper that, to remain relevant, the very foundation of military doctrine, the Principles of War, must now be altered to reflect the conceptual, organisational and technological changes that have and are occurring in the realm of military affairs.

The Principles of War in the 21st Century: Operational Considerations

Nothing Endures But Change

Over fifty years ago, Montgomery penned his Principles of War as his guidance to future commanders. It is remarkable that these principles, for which “he made no claim to infallibility or to immutability,”¹ have remained, without modification, the foundation of military doctrine for the British, Australian, New Zealand and our own Canadian forces even to this very day.

Now, as we enter the twenty-first century, as we work to incorporate the concepts and complexities of the operational level of war into our current Canadian doctrine, it is appropriate to invoke operational pause and return to first principles. In light of recent and significant doctrinal, organisational and technological changes, one must ask whether *these ten* principles of war are *the ten* principles of war that should guide us and our descendent military leaders in the conduct of operations in the future. Does it not follow that, just as equipment rust-out can constrain, even jeopardise the outcome of operations, the conceptual “rust-out” of a dogmatic adherence to doctrine can be equally threatening? As the military leaders of today, we owe it to our troops to remain conceptually current, to challenge doctrine and to be champions of change on their behalf.

To engender such debate, it is the thesis of this paper that, to remain relevant, the very foundation of military doctrine, the Principles of War, must now be altered to reflect the conceptual, organisational and technological changes that have and are occurring in the realm of military affairs.

¹ John I. Alger, The Quest for Victory: The History of the Principles of War (Westport: Greenwood Press, 1982) 151.

According to Jacob Bronowski, the ascent of man is an evolutionary process; a tension between “the turning-points and the continuities of culture.”² Periods of peaceful cultural continuity are punctuated by periods of dramatic and often violent change. These ‘interesting times’ in history are characterised by conflict and war accelerated and magnified through time by human organisational and technological innovation. The futurists, Alvin and Heidi Toffler, in their book War and Anti-War regard these turning-points as revolutionary and only three in number: the agrarian, industrial and information revolutions that not only change the “game itself...[but] its rules, its equipment, the size and organization of the ‘teams’, their doctrine, tactics, and just about everything else.”³ By their argument, modern militaries are currently in dramatic transition from Newtonian industrial-age war-fighting behemoths to agile information-age forces leveraging knowledge for power in a continuum of operational options across a broad spectrum of human conflict. It is in this enormous transitional context that the Principles of War require to be re-visited.

The Principles of War: Doctrine not Dogma

Pre-1920, before British Field Service Regulations⁴ first identified and codified a distinct list of (then eight) Principles of War (less Morale and Administration of today), little was actually written *identifying* such principles. As far back as Sun Tsu, through Clausewitz, Jomini, Foch, *et al*, various authors waxed eloquent and profound on the art

² Jacob Bronowski, The Ascent of Man (London: Macdonald Futura Publishers, 1981) 15.

³ Alvin and Heidi Toffler, War and Anti-War: Survival at the Dawn of the 21st Century (Boston: Little, Brown and Company, 1993) 29.

⁴ See Appendix 1, 16.

and science of war. However, it was not until the formation of military education schools and specifically “the impact of science upon military education”⁵ that instructors cast about for teachable scientific principles that would aid in the analyses of past wars and in turn aid in preparation for the next. J.F.C. Fuller claimed that his essay entitled “Training Soldiers for War” (1912) was the origin of the official 1920 list “but for the moment his instructors were unwilling to admit that a student’s essay would be superior to the doctrine that they were required to teach.”⁶

It is of interest to note that prior to World War II, just as Fuller’s eight principles were waning in popularity in British doctrine, they were being endorsed with only minor modification in US Army Training Regulations 10-5 (1921)⁷ (with the addition of the principle of *Simplicity*). Since then, with a rigorous on-going institutional review of US Army doctrine their Principles of War have also been the subject of regular doctrinal scrutiny and have undergone modification several times in the last eighty years.

Montgomery, on the other-hand, reviewed ‘Fuller’s Eight’ and in his wartime treatise to his officers entitled High Command in War⁸ retained only three principles (*Surprise, Concentration and Co-operation*) while adding five others of his own (*Air Power, Administration, Initiative, Morale, and Simplicity*).⁹ After the war, he set out as one of his first duties as Chief of the Imperial General Staff to gain the consensus of the service commanders and the chiefs of staff of the Dominion armies on his Principles of War (1946).¹⁰ Although not documented in his memoirs, one gets a strong sense that at

⁵ John I. Alger, The Origins and Adaptations of the Principles of War (Ft. Leavenworth: US Army Command and General Staff College, 1975) 15.

⁶ Alger, 29.

⁷ See Appendix 2, 16.

⁸ See Appendix 3, 17.

⁹ Bernard Montgomery, High Command in War (Germany: 21 Army Group, June 1945) 5-18.

¹⁰ See Appendix 4, 17.

his new desk in Whitehall, as one of his first acts, he deliberately chose to compare “Fuller’s Eight” to his own list of principles published in operations the previous year. Having weighed them in the balance, each against the other, he chose to merge seven of Fuller’s principles with just three of his own, claiming as he did no infallibility or immutability. However, as only one item on a full agenda, unanimity was promptly reached amongst the service chiefs and these same ten Principles of War have subsequently remained dogmatically sealed as the absolute bedrock of our doctrine for more than half a century.

Of interest however, many nations’ armed forces have debated, adopted and subsequently modified their own Principles of War. In a comparative analysis by country¹¹ it is significant to note that the only universal principle that is conspicuous by its absence from all others surveyed is Montgomery’s principle of *Administration*, which begs the first question: “Is *Administration* indeed a valid Principle of War?”

The 20th Century Canadian Context: Attritional Warfare – force against force

Aside from Rear Admiral L.W. Murray who was appointed Commander in Chief, Canadian Northwest Atlantic during World War II, Canadians simply have not had the opportunity to command at the operational level. On land it is true that, unlike World War I, Canadians were in command of their own formations in battle up to and including the First Canadian Army. That said, even General Crerar was a subordinate commander, in this instance, under Field-Marshal Montgomery as the operational commander of 21 Army Group in Northwest Europe. It was Montgomery who formulated *his* concept of operations and who, along with *his* staff, meticulously planned and conducted *his*

campaign as a sequence of attritional battles, pitting force on force to achieve the strategic endstate. “Rather than directing formations along paths of least resistance to deep operational centers, [British] doctrine perfected the set-piece, or deliberate attack for tactical goals.”¹² The British way of war was the Canadian way of war and as such Canadians were only required to think and fight tactically with “selection and maintenance of the plan, not the aim, being the guiding principle.”¹³

In publishing High Command in War, the one principle Montgomery took the greatest pains to articulate to all subordinates was *his* principle of *Administration*, which emphasised “the importance of close control and co-ordination by the staff.”¹⁴ *Initiative* though theoretically encouraged as a principle was actually stifled by control measures taken at the tactical level. This is further borne out by the fact that Montgomery himself removed the principle of *Initiative* from the 1946 list that is still in vogue today. “While Germans acknowledged an inherently chaotic battlefield, and used *auftragstatik* [sic] as a means to exploit it...rather than accepting the essentially unpredictable nature of the battlefield, they [the British and Canadians] tried to impose order on it.”¹⁵ Time and again requests to exploit weakness with operational manoeuvre were denied so as “not to get ahead” and risk exposing a flank. As seen from the enemy’s perspective, Brigadefuhrer Kurt Meyer wrote:

The Canadian army of 1944 was a high-class force...
Every Canadian operation bore the mark of intensive
planning...The staff always succeeded in burying the
enemy under several tons of explosives and transform-
ing the defensive position into a cemetery...[but] every

¹¹ See Appendix 5, 18.

¹² William McAndrew, “Operational Art and the Canadian Army’s Way of War,” The Operational Art: Developments in the Theory of War (Westport: Praeger Press, 1996) 91.

¹³ McAndrew 92.

¹⁴ Montgomery 13.

¹⁵ McAndrew 92.

one of the Canadian attacks lost its push and determination after a few miles...British and Canadian planning was absolutely without risk...They executed the operations in an inflexible, time-wasting method. Never once did speed, the most powerful weapon of armoured warfare, appear.¹⁶

On the Origins of Canadian Operational Art: We knew not what we did

There was however, a golden moment in Canadian military history when Canadian forces did achieve operational manoeuvre. In World War I, the glory of the Canadian Corps shone through not only at Vimy but also in what became known as Canada's Hundred Days. The Canadian Corps formed part of the 4th British Army. Intensive training in a new kind of "open warfare" combined the firepower of guns and aircraft to fix the enemy while manoeuvre and shock action of tanks with mounted infantry was used to strike. This training stressed the speed of offensive action as a key principle for maintaining the initiative, thus keeping the enemy off-balance and unable to react. From Amiens through Arras, Cambrai, Valenciennes to Mons the rapidly advancing army rolled up the collapsing German front. On the eleventh hour of the eleventh day of the eleventh month, it was all over. Sadly, the golden moment was allowed to fade into history and its lessons lost only to be relearned at great cost just over twenty years later. C. P. Stacey reflects:

It is a remarkable fact that the First World War, which affected Canadian development in so many ways, had almost no long-term influence upon the country's military policy.¹⁷

¹⁶ Tony Foster, Meeting of Generals (Toronto: Methuen, 1986) 431.

¹⁷ C. P. Stacey, Six Years of War (Ottawa: Queen's Printer, 1957) 4.

His words echo still, in the lessons lost to time after World War II, the Korean conflict and in operations thereafter. To the victor go the spoils of war; to the vanquished go its lessons.

The shock of losing the Vietnam War energised the American military to conduct a thorough evaluation of its shortcomings. The rediscovery of Clausewitzian operational art and its inculcation over a thirty-year period culminated in the catharsis of victory in the Persian Gulf in 1991.

A 21st Century Canadian Context: A manoeuvrist approach – force against weakness

It has been proposed that perhaps Somalia was Canada's Vietnam. True, much good has come from the introspection following this trauma. Policy and doctrine have changed. But is it enough?

Defence policy for the 21st century articulates a need to “strengthen our military relationship with the US military to ensure Canadian and US forces are inter-operable and capable of combined operations.”¹⁸ Joint operational doctrine prescribes a detailed operational planning process that emulates US and NATO processes. The new basic source documents of the three environments, Heart of Oak, Canada's Army and Out of the Sun establish the doctrinal foundation for competency in operations using common Principles of War that Leonhard in his book, The Principles of War for the Information Age, states were “focused originally at the tactical level of war.”¹⁹ Canadian officers are

¹⁸ Strategy 2020 – Canadian Defence into the 21st Century (Ottawa: Department of National Defence, 2000) http://www.vcds.dnd.ca/cds/strategy2k/s2k06_e.asp

¹⁹ Robert Leonhard, The Principles of War for the Information Age (Novato: Presidio Press, 1998) 273.

now being schooled in the operational art, with an emphasis on the use of the indirect approach. Do the Principles of War still apply? Do they apply equally at all levels?

Essentially, at the operational level of warfare the commander's concept of operations connects a campaign of tactical engagements along a line of operation that avoids strength and exploits identified weakness, culminating with the defeat, capture or destruction of the enemy's center of gravity pursuant to the desired strategic end-state. This is a radically different vision from anything that Montgomery ever had in mind. He wrote and then re-wrote his Principles of War for the conduct of *attritional warfare* in an *industrial age* context. With both context and process having now changed, it is arguable that were he here today, Monty himself would insist on a review, as he did in 1946, of his own Principles of War. It is not enough to adopt new policy and doctrine and expect compliance and inculcation without examining the underlying principles upon which they stand.

Selection and Maintenance of the Aim: The first principle of war at all levels

Over time and by various services it has been called the aim, object[ive], mission, center of gravity, or even, the point of main effort. Semantics aside, there is no doubt that "this first principle is the most important one, as success ultimately depends on the accuracy of and adherence to the aim."²⁰ It exists to guide commanders at all levels throughout an operation. In the initiation phase, starting at the strategic level, and with concentricity throughout the chain of command, the accurate and timely selection of the aim, the defeat of that which sustains the enemy's will to win, must be correctly

²⁰ CFP 300, Canada's Army: We Stand on Guard for Thee (Ottawa: Department of National Defence, 1998)

identified. It reaches out into the future and envisions the strategic endstate in clear and unambiguous terms. Just as important, especially within a coalition, is the *unity of effort* among partners, the willingness to burden-share while constantly maintaining a common vision throughout the entire operation. It is this cohesion of will that often is itself the coalition's own center of gravity which must be protected from exploitation by the enemy. This was the case in the Gulf War. Much effort on the part of the coalition was spent 'Scud-hunting' so as to keep Israel out of the war and the Arab partners in. In this regard the strategic threat posed by the elusive mobile Scud launcher was greater than that posed by six divisions of the Iraqi Republican Guard. Coalition cohesion was also at risk in Kosovo. The lesson is clear: even though it may ultimately pose the greatest test of all, accurate and timely *selection* and the persistent and aggressive *maintenance* of a clear and unambiguous aim is still paramount today. It forms the basis of the commander's vision and, when clearly and dramatically articulated, shines like a beacon through the fog and friction of war illuminating the way ahead for all to follow.

Auftragstaktik: Facilitate and exploit tactical Initiative

Current doctrine requires operational commanders to achieve operational manoeuvre and concentrate overwhelming force against an enemy's weaknesses: the faults and seams in both his physical and moral dimensions. No one knows better than the enemy where his own weaknesses lay and he will take great care to guard them from discovery. These faults and seams are best found by our forces in contact at the tactical level of warfare. Tactical commanders must be imbued with a strong spirit of initiative and given the freedom to use it to discover the enemy's weaknesses. *Auftragstaktik* or

‘mission-orders’ entrust tactical commanders to use their initiative in the accomplishment of the mission. In essence, they are told the *who, what, when, where, and why* of a mission but they are specifically not told *how* to do it. This Germanic notion is based on the two-fold assumption that those in contact know best how to accomplish the mission with the resources available and will fight all the harder in the accomplishment of their own plan of action. It is an exercise that works with chaos and does not try to impose order upon it. As identified earlier, this artful ability to ‘let go’ of the battlefield is absolutely antithetical to Montgomery’s English notion of a business-like way of administering the battlefield into submission. If operational commanders are to embrace the operational art and learn to “let go” of the battlefield then it is time to “let go” of the principle of *Administration* at the tactical level of warfare and replace it with the principle of *Initiative*. In this case *re-place* would in fact be the operative word because this action would effectively reverse Montgomery's 1946 decision to delete any reference to *Initiative* and insert his principle of *Administration* in its place. Initiative is a gift, born of trust, that you give to your subordinates. In turn, they will not disappoint.

Sustainment vice Administration

Today, administration revolves around those issues that focus on the sustainment of personnel, a J1 function. Logistics encompasses all other issues of sustainment including supply, maintenance and transport and are the pervue of the J4 staff. The common thread between these two support elements is the combat function of sustainment. During the Persian Gulf War these two functions were fused together, providing the operational commander with a single point of contact for advice on issues

of sustainment throughout the preparation and conduct of the war. Creative sustainment strategies were critical in enabling operational manoeuvre and ultimately in securing victory with amazing speed and remarkably few casualties. Future operations will require the ability to deploy rapidly over great distances with extended lines of communications. Issues of sustainment will increase in importance and complexity. Identifying *Sustainment* as a new principle of war for the 21st century, subsuming both administration *and* logistics together at the operational level, justifiably recognises its overall importance as a force enabler.

Information Operations: “Scientia potestas est”

Information provides knowledge and “knowledge is power”. Now more than ever this maxim holds true. Current Canadian doctrine states that:

It is now possible for commanders to mass both physical and psychological effects at the right time and place to leverage their combat power and influence decision-makers by using IO and its supporting ... technologies.²¹

Today, to deny information to the enemy while maximising your own is to fight in cyberspace for superior battlespace knowledge. This will allow the victor in this virtual dimension to decide on a course of action and to act in real space and time faster than his enemy can possibly react. The synergistic integration of command and control with communications, computers and intelligence capabilities provides the 21st century commander with a real-time, multi-dimensional understanding of the battlespace unlike anything available in Montgomery’s time. Cyberwarfare would have been absolutely

²¹ Information Operations, (Ottawa: Department of National Defence, 1998)

foreign to him and therefore was not a consideration when drafting his Principles of War. At the operational level it must now be recognised that the maintenance of *Superior battlespace knowledge* is clearly valid as a Principle of War for the 21st century.

Achieving Operational Manoeuvre: On Agility, Orchestration and Risk

Three potential candidates for principles of war at the operational level today are *Agility, Orchestration* and *Risk*. The first two are adaptations of operational tenets (read principles) embedded in current US joint doctrine²² and the third is taken from the German.²³

Agility is described as having the characteristics of both physical and mental quickness. Robert Riscassi in his article, Principles for Coalition Warfare,²⁴ uses the analogy of a boxer to describe this tenet as it applies to the operational level of war. The boxer remains balanced and light on his feet, able to shift and feint as he adjusts to his opponent's actions. Always keeping up his guard, he remains alert to the first sign of weakness or hesitation – then attacks with a knockout blow. To quote Muhammad Ali, “I float like a butterfly and sting like a bee.” This dynamic equilibrium is of paramount importance in operations. To act otherwise is to have feet of clay and invite attack from an unexpected quarter. It is both a physical characteristic of the fighting force and a mental characteristic of its commander. The two work in concert with one another to maintain operational agility.

²² FM 100-5 Operations (Washington: US Department of the Army, 1993) 2-6.

²³ Hermann Foertsch, The Art of Modern Warfare, trans. Theodore W. Knauth (New York, 1940) 31

²⁴ Robert Riscassi, “Principles for Coalition Warfare,” JFQ (Summer 1993): 60.

Orchestration, vice the US tenet of synchronisation, is arguably a more apt term to use when attempting to describe the artistic sense of battle command that in German is known as ‘fingerspitzengefühl’. This ‘finger-tip touch’ is at the very essence of the practice of operational art. The operational commander must have the ability to see patterns in the chaos and take action as situations and opportunities coalesce before him. It is a sixth sense of just what to do, where to be and when. It is the uncommon touch of the master conductor orchestrating a symphony of fire and manoeuvre. Uncommon for there are many painters but few artists. Commanders need to be selected for their ability to orchestrate, hence the need to identify and embed the principle of *Orchestration* at the operational level of war.

In Germany, under General Hans Von Seeckt, primary doctrine was issued as early as 1921 that espoused the manoeuvrist approach over the stalemate of trench warfare. At its heart was a principle that stated that “great success is based upon bold risk”.²⁵ Montgomery’s principle of *Administration* effectively removed risk-taking from the equation and it is fair to say that, in World War II, the Germans were masters of the art of manoeuvre warfare – the English (and by extension the Canadians) were not. If we are now to embrace a doctrine of manoeuvre warfare we must therefore also embrace its associated operational principle of war - that of *Risk*.

Finally, consider the very nature of conflict itself. Has it not also undergone fundamental change? Gone are the dramatic discontinuities between right and wrong, good and evil, *Peace* and *War*. Across a spectrum of human conflict there is now a continuum of possible military options that may cause us in future to think not in terms of the Principles of War (only one extrem

The Doctrinal Debate or a lack thereof

Charles Grant in his paper, History in the Development of Contemporary Doctrine quotes Sir Michael Howard in saying, “We must be careful that we do not fall into the trap of using the lessons of history to win the last war - [for]

the differences brought about between one war and another by social and technological changes are immense, and an unintelligent study of military history which does not take into account of these changes may quite easily be more dangerous than no study at all.”²⁶

On the issue of the validity of the Principles of War, it may well be said that Canada has chosen the less dangerous approach. Virtually nothing exists in print that challenges this doctrinal foundation. True, in 1950 an anonymous editorial article appeared in the December issue of the Canadian Army Journal, which stated that the Principles of War were “not a set of ironclad rules from which there must be no jot of deviation.”²⁷ Research finds further published references to Canadian Staff College papers written in November 1951, Fall 1960, Spring and Winter of 1961. Thereafter the trail goes cold. Further debate beyond the application of the Principles of War to the nuclear battlefield²⁸ is not found though times have changed dramatically.

MGen Robert Scales Jr., former Commandant of the US Army War College confirms that there is little debate state-side as well, but that “dialogue and debate,

²⁵ Foertsch 31.

²⁶ Charles Grant, “The Use of History in the Development of Contemporary Doctrine,” The Origins of Contemporary Doctrine, J. Gooch editor (Camberley: SCSI Occasional Paper Number 30, 1997) 9.

²⁷ “The Principles of War,” Canadian Army Journal Vol 4 No 7 (Dec 1950): 1.

²⁸ C. E. Beattie, “The Validity of Our Principles of War in the Nuclear Age,” Canadian Army Journal (Jan 1964): 38.

especially in times of dynamic change, are indispensable for developing and refining ideas.”²⁹

Back to the Future: A Return to First Principles

Nothing endures but change. With respect for the past, we must challenge past assumptions in light of present change and use the results as a guide to prepare for the future and what it will deliver. As we are guided by the rich legacy of our antecedents so to our descendent military leaders will be guided by us. What will be our legacy?

In conclusion, now more than fifty years have passed since Montgomery gave us our current Principles of War. Richard Simpkin observed that,

Time and again, where radical change in equipment, doctrine or force structure is concerned, one finds a gestation period of between 30 and 50 years or more between the technique becoming feasible, or the need for change apparent, and full-scale adoption of the innovation.³⁰

It has been shown that, to remain relevant, the very foundation of military doctrine, the Principles of War, must now undergo alteration to reflect the conceptual, organisational and technological changes that have and are occurring in the realm of military affairs. Now is the time to embed a new foundation of principles with application across the full spectrum of conflict and continuum of operations for use in the twenty-first century.

²⁹ Leonhard vii.

³⁰ Leonhard 241.

Appendix 1 - British Field Service Regulations Vol II (1920) pp. 14-15

1. Maintenance of the objective
2. Offensive action
3. Surprise
4. Concentration
5. Economy of force
6. Security
7. Mobility
8. Co-operation

Appendix 2 - US Army Training Regulations 10-5 (1921) pp. 1-2

1. Objective
2. Offensive
3. Mass
4. Economy of force
5. Movement (now Maneuver)
6. Surprise
7. Security
8. Simplicity
9. Co-operation (now Unity of Command)

Appendix 3 - Montgomery, High Command In War (1945) pp 5-18

Principles of War

1. Air power
2. Administration
3. The initiative
4. Morale
5. Surprise
6. Concentration
7. Co-operation
8. Simplicity

Appendix 4 - Montgomery, The Principles of War (1946 to today)

1. Selection and Maintenance of the Aim
2. Maintenance of Morale
3. Offensive Action
4. Surprise
5. Security
6. Concentration of Force
7. Economy of Effort
8. Flexibility
9. Co-operation
10. Administration

Appendix 5 - The Principles of War: An International Comparison³¹

UK Aus NZ Cda	US	Former USSR	France	China
1. Aim	Objective	-----	-----	Aim
2. Morale	-----	-----	-----	Morale
3. Offensive Action	Offensive	-----	-----	Offensive Action
4. Surprise	Surprise	Surprise	Surprise	Surprise
5. Security	Security	-----	-----	Security
6. Conc of Force	Mass	Massing of Force	Conc of Effort	Conc of Force
7. Economy of Effort	Economy of Force	Economy of Force	-----	-----
8. Flexibility	Maneuver	Initiative	-----	Initiative & Flexibility
9. Co-op	Unity of Command	Co-ord	-----	Co-ord
10. Admin	-----	-----	-----	-----

³¹ Adapted from the US Joint Staff Officer's Guide (Washington: DoD, 1997) 2-3.
<http://www.afsc.edu/pub1/afsc0110.htm>

Bibliography

Alger, John I. The Origins and Adaptations of the Principles of War. Fort Leavenworth, Kansas: US Army Command and General Staff College, 1975.

Alger, John I. The Quest for Victory: The History of the Principles of War. Westport, Connecticut: Greenwood Press, 1982.

Bronowski, Jacob. The Ascent of Man. London: Macdonald Futura Publishers, 1981.

Clausewitz, Karl von. On War. Ed. and trans. Michael Howard and Peter Paret. Princeton: Princeton University Press, 1976.

Foster, Tony. Meeting of Generals. Toronto: Methuen, 1986.

Gooch, John. editor. The Origins of Contemporary Doctrine. (The Occasional Number 30). Camberley, UK: The Strategic and Combat Studies Institute, September 1997.

Johnson, William T., et al. The Principles of War for the 21st Century: Strategic Considerations. Carlisle Barracks, Pennsylvania. US Army War College, 1 Aug 1995.

Jomini, Antoine H. The Art of War. Trans. G. H. Mendell and W. P. Graghill. Harrisburg, Pennsylvania: Stackpole Books, 1987.

Leonhard, Robert R. The Principles of War for the Information Age. Novato, California: Presidio Press, 1998.

McKercher BJC and Michael A. Hennessy, editors. The Operational Art: Developments in the Theories of War. Westport, Connecticut: Praeger, 1996.

Montgomery, Field-Martial Bernard. High Command In War. Germany, June 1945.

Montgomery, Field-Martial Bernard. The Memoirs of Field-Martial the Viscount Montgomery of Alamein, K.G., London: Collins, 1958.

Stacey, C. P. Six Years of War: The Official History of the Canadian Army in the Second World War, Vol. I. Ottawa: Queen's Printer, 1957.

Toffler, Alvin and Heidi. War and Anti-War: Survival at the Dawn of the 21st Century. Boston: Little, Brown and Company, 1993.

“Military History and the Principles of War.” Editorial. Canadian Army Journal (December 1950): 1.

Beattie, C. E. “The Validity of Our Principles of War in the Nuclear Age.” Canadian Army Journal (January 1964): 38-46.

Eddy, K T. "The Canadian Forces and the Operational Level of War." Canadian Defence Quarterly. (April 1992): 18-24.

Kennedy, K.C. “The Principles of War.” Canadian Army Journal. (November 1951): 69-74.

Loomis, D.G. “The Principles of War and the Canadian Army.” The Canadian Army Journal. (Winter 1961): 33.

Menning, Bruce W. "Operational Art's Origins." Military Review. 77, No. 5 (1997): 32-48.

Richards, J.C.C. “The Principles of War.” Canadian Army Journal. (Spring 1961): 2-7.

Stevenson, R.M. “The Principles of War and the Canadian Army.” Canadian Army Journal. (Spring 1961): 7-12.

B-GG-005-001/AF-000 (Draft) The Strategic Framework for the CF, Ottawa: DND, 1999.

AJP-01 - Allied Joint Doctrine, Mons: SHAPE, 1998.

United Kingdom Doctrine for Joint and Combined Operations, London: MoD, 1998.

CF Force Employment Manual, Ottawa: DND, 1998.

B-GG-005-004/AF-032 CF Information Operations, Ottawa: DND, 1998.

CFP 300 Canada's Army: We Stand On Guard For Thee, Ottawa: DND, 1998.

The Joint Staff Officer’s Guide, Washington: DoD, 1997.
<http://www.afsc.edu/pub1/afsc0110.htm>