EDUCATION IS WAR:

THE CONSTITUTION OF POSTINDUSTRIAL LEARNING

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Education is War: The Constitution of Postindustrial Learning

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ABSTRACT

The central thesis of this dissertation is that war and militarism have been
formative in the development of Western education from its inception in
Classical Greece until the present. The secondary thesis is that the formative
influence of warfare on education and on society more generally was
neglected by the AngloAmerican academy during the twentieth century.

This is not to suggest that twentieth century AngloAmerican scholarship and
research was not war related. Rather, it is to suggest that the theoretical
and critical study of the formative role of warfare was neglected in inverse
proportion to the academic effort devoted to war during that century. The
author posits that this critical and theoretical avoidance was a function of the
confluence of material conditions, the Cold War for instance, with the
academic perception of society as generally peaceful, a perception largely
based in the influence of Marx and Spencer.

This neglect is compared to the formative role assigned to warfare in the
early twentieth century German academy, to war as a theme central to
twentieth century American literature, and to the focus on war in French
poststructural theory. Chapter 1 is comprised of a brief history of the
academic construction of warfare in the twentieth century. The author
proffers some reasons for the war aporias that he locates in the
AngloAmerican academy. The second chapter outlines method.

Chapters 3 and 4 are devoted to a theoretical analysis of the development of
mass media, the state, mass schooling, mass warfare and education. The
author posits that war was totally blended into quotidian existence between
1870 and the end of the twentieth century. The influence of military
considerations on the development of the research university is explicated by

tracing the development of organic chemistry, propaganda, computers, and instructional technology and educational psychology. In Chapter 5, the author argues that these industrial processes were superseded after World War II, the change evident in the production of "postindustrial learning." He concludes by asking if education as warfare is a permanent condition.

ACKNOWLEDGEMENTS

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DEDICATION

There is no doubt about the presence of aggressive and destructive tendencies
in the human psyche which are of the nature of biological drives.
However, the most pernicious phenomena of aggression,
transcending self-preservation and self-destruction,
are based upon a characteristic feature of man above the biological level,
namely his capability of creating symbolic universes
in thought, language and behavior.
Ludwig von Bertalanffy (as quoted in Fromm, 1973, 186-87)

Humanity does not gradually progress from combat to combat until it arrives
at universal reciprocity, where the rule of law finally replaces warfare;
humanity installs each of its violences in a system of rules
and thus proceeds from domination to domination
Michel Foucault (1977, 151)

Out of the oil-smooth spirit of the last decades of the nineteenth century,
suddenly, throughout Europe there arose a kindling fever.
Nobody knew exactly was what was on the way,
nobody was able to say whether it was to be a new art,
a New Man, a new morality or perhaps a reshuffling of society....
The Superman was adored, and the Subman was adored,
health and sun were worshipped;
people were enthusiastic hero worshippers and
enthusiastic adherents of the social creed of the Man in the Street,
one had faith and was skeptical,
one was naturalistic and precious, robust and morbid.
Robert Musil (as quoted in Megill, 1987, 112)

The First World War signals the turning point in modern cynicism.
With it the up-tempo phase of the decomposition of old naïvetés begins
—such as those about the nature of war, the nature of social order,
of progress, of bourgeois values, indeed, of bourgeois civilization itself.
Since this war, the diffuse schizoid climate around
the major European powers has not become any less intense.
Since then, those who have spoken of cultural crisis, etc.,
have had that mental disposition of postwar shock
unquestionly in mind that knows that
the naïveté of yesterday will never exist again.
Peter Sloterdijk (1987, 122)

The homogenizing of European man is the greatest process
that cannot be obstructed: one should even hasten it.
The necessity to create a gulf, distance, order of rank,
is given eo ipso [by that itself]
—not the necessity to retard this process.
Friedrich Nietzsche (1913, 1968, 898)

CHAPTER 1:
WAR SATURATED SOCIUS

Introduction

Chapter 1 provides an introduction to the topic of education and warfare. A working definition of education that differs markedly from usual idealist invocations of the term, the "immaculate conception" challenges conventional concepts of education as an inherently beneficial process and of "educated" as a preferred condition of being. It places education and war in context, providing a brief intellectual history of the theoretical study of warfare, and of the way theoretical study of warfare has been neglected in the AngloAmerican academy. It demonstrates that there has been much more interest in war and the way it relates to the academy, to knowledge production—though not necessarily dissemination—since the end of the Cold War than at any other time since World War I ended. It offers some possible reasons for this neglect, suggesting that it is not at all accidental.

Statement of Purpose

War as a discourse and social practice has been academically developed, functionally analyzed and historically examined more extensively than any other human endeavour. At the same time, the socially constitutive role of war has been ignored by the Anglophonic academy until very recently. This is especially so regarding historic and systemic relationships between war and education.

When the relationship between the two social practices has been academically addressed, the address usually has been limited to the formative effect of warfare, and the preparation for it, on educational

institutions—on schools, universities, colleges and research institutes—and, more occasionally yet, on pedagogy and "educational technology." However, even that limited address has been sporadic, as if "going there" is outside academic boundaries.

The purpose of this thesis is to "go there," to expose and explicate academically inarticulate systemic and historical relationships between war and education. This work will demonstrate that war has been socially formative from "pre-history," and in spite of a lack of awareness, has continued to be so throughout "history." War—and the preparation for it— became even more inextricably tied to "history"—to quotidian human existence—from the rise of Protestantism through the age of Enlightenment. Industrialization exacerbated rather than mitigated the European militarization of existence notwithstanding the prevailing history, philosophy and theory developed in Anglophonic jurisdictions that reflect the opposite.

The argument put forward purports that the collusion of industrialism, the state, education, capitalism and war (and Protestantism) led to *quantity become quality* (new forms of social differentiation), saw to a dialectical inversion whereby war became peace and peace became war in the twentieth century.

Indeed, historical change evident from the late seventeenth to the late twentieth century, when taken as a whole, can be read in exact opposition to the prevailing ideological interpretation of civilization advancing through the global imposition of Western practices, values and culture. In this work a case is made to the opposite, that "modernity" has been retrograde in that it has institutionalized previously unknown forms of violence in ways unheard of and impossible until the twentieth century.

Redefining Education

It is a commonplace that education is a field of study rather than a discipline. This field, in turn, is comprised of two elements, namely *knowledge dissemination* and the *production of knowledge devoted to it* (it too called Education).[1] Education, like medicine, law and accounting stands with feet in two camps, the material economy of practice—application—and the theoretical economy of academic "know how."[2]

Ruth Jonathan (1997, 4) says: "education is the one social practice that both reflects and produces social circumstances and values." While that comment may not do justice to the profundity of the operation, it points in the right direction. Education no doubt significantly contributes to the production of social circumstance (reality), but it reflects and produces much more than "values"; it reflects and produces human subjectivity.[3] As Sloterjidk (1987, 72) says:

> From the first look we take at our experiences we believe we can say who we are. The second look will make it clear that education is behind every particular way of being. What seemed to be nature, on closer observation reveals itself as code.

On this reading, education (*Education*) is defined as the production, representation, regulation and distribution of *codified* knowledge and practice intended to produce specific (ideal) forms of subjectivity—the human "subject" that is itself a contingent and performative site (sight) that cannot but physically, affectively, intellectually and cognitively embody what it has been taught.[4] This definition encompasses educational practices as diverse as military training and the subjective installation of ostensible *Bildung* (or liberal education), practices that are usually separated out ideologically, epistemologically and rhetorically. As such, the definition does not privilege certain forms of subjectivity over and above others.[5] As well, it removes the

privileging distinction between the manual and the mental initially
promulgated by Aristotle.

Education, as defined above, is by its very nature formative of subjectivity
that cannot but express certain forms of power that delimit human
possibility, whether it be adjudicated as Bildung or trades training, vocational
or professional. This definition, which could be categorized as cultural
materialist, is grounded in Gur-Ze'ev's (1998) concept of "normalizing
education":[6]

> Control of the legitimization, production, representation and
> distribution of knowledge enables the reduction of the human subject
> into a "subject" who will function as an object or an agent of "her"
> system. In this sense the control of knowledge enables much more
> than the possibilities of policing social behavior: it provide the means
> for establishing an unchallenged legitimization for a certain hegemonic
> version of the production of the "subject," the normalized subject, her
> possibilities and limitations. Such a control is usually called
> "education."

Like Gur-Ze'ev's definition, this one too is indebted to Foucault, in this
instance specifically to his concept of discourse as a set of practices
comprised of text (knowledge), institutions and activity, especially as regards
specialized social activity grounded in expert knowledge.[7] This definition is
intended as a *counter-definition* that lays the groundwork for a *counter-
history* of education based in *counter-factual* approach to knowledge
production.[8] As well, this *counter-definition* is intended as an instance of a
performative pedagogy, an exercise in a de-familiarization (*Verfremdung*)
intended to produce a *counter-education* based in a rhetorical astringent.[9]

As well as leaving out difference defined in the manual/mental division, this
definition does not distinguish between forms of education on the basis of
delivery either. For example, difference based in Coombs (1973)
categorization of formal, informal, non-formal education is not subscribed to
because such differentiation makes even less sense in the contemporary

electronically induced multi-modal (blended) environment than it did when extra-personal social mediation was more strictly mono-modal (face-to-face or bookish).

The same holds for conventional demarcations between education, training, religion and propaganda, those categorizations that are so important to Anglophone idealist philosophers of education (cf. Deardon, Hirst & Peters 1972, Peters 1973). Indeed, the author maintains that hiving off a portion of the means for subjective constitution and naming it education, while other forms of subjective formation like training and propaganda are set in a binary opposition to education, this division working rhetorically and ideologically, in the large sense of that term, to perpetuate an "immaculate conception" of the great Western project termed Education. In turn, this "immaculate conception" (Spanos, 1993) performs rhetorically to maintain and hide the specific material and cultural investments that are embedded in all education.

This is not to suggest a constructionist relativism whereby forms of "education" are theoretically or morally equal, and their social imposition simply a matter of power or preference. It is the opposite, an intent to understand the educative process profoundly by working around its usual discursive construction. For education as conventionally constructed, is a concept so imbricated with ontological baggage as to be of no analytical value. It has no ontological status independent of the agentic factors (human beings, machines that carry systemic logic, etc.) that put "education" into play in the quotidian environment. Education is not the institutions that comprise it except in as much as they are expressive of the social relations and practices that humans create and institutionalize (e.g. schools as carriers of interested knowledge°expressive of class, gender, etc.). Education is not a "thing" or an ideal state but a social process with no existence independent

of or prior to its manifestation in quotidian practice. Importantly, moving beyond the material/ideal divide to a cultural materialist definition allows for the historicization of education—as a discourse and social practice—and of the educational product, which is nothing other than human subjectivity.[10]

Education and War

The effects of technologies, religion, nationalism, the state and capitalism on education have been noted and studied extensively. However, the effect on education of the various social practices subsumed within the term "war" are marked by academic aporias and lacunae that are entirely exceptional. For war is so much a part of Western civilization, knowledge and education that the "rise" of Western civilization is itself coincident with writing being used originally to produce renderings of foreign warfare for the home audience.

Even the technology of writing/reading—especially its mechanization in the nineteenth century and electronic transformation in the twentieth—is rooted in warfare, can be read as a function of it (cf. Kittler, 1999). And, indeed, the avoidance of the theoretical study of the influence of warfare on social practices and products seems more an AngloAmerican peculiarity than a general academic predilection.

This AngloAmerican peculiarity itself requires investigation when it is recognized that the constitutive influence of warfare on all aspects of human endeavour much predates the formal codification of the practice of warfare in Antique empires as Greece, Rome and Egypt. The anthropologist Lawrence Keeley (1997,49) even claims that "total war" was waged during prehistory, stating, "if nonstates could be said to have implemented strategies in war, they were of the attritional and total-war varieties." According to this

reading, total war much predates its supposed generative realization in the mass industrial warfare of the twentieth century (World War I and II).

As Keeley (174) puts it:[11]

> The facts recovered by ethnographers and archaeologists indicate unequivocally that primitive and prehistoric warfare was just as terrible and effective as the historic and civilized version...Peaceful prestate societies were very rare; warfare between them was very frequent, and most adult men in such groups saw combat repeatedly...In fact, primitive warfare was more deadly than that conducted between civilized states because of the greater frequency of combat and the more merciless way it was conducted.

Keeley (3-11) explains how academic constructions of warfare, evidence to the contrary, were framed within a misleading dichotomy. The Hobbesian condition of "war of everyman against everyman" provided the anthropological paradigm during the nineteenth century, the "heyday of European imperialism and colonization," while Rousseau's peaceable Noble Savage provided the prevailing academic paradigm during the twentieth century. However, this twentieth century academic "pacification of the past" extends well beyond its manifestation in the discipline of anthropology. Similar claims have been made in the disciplines of psychology, sociology and history, and in this work are being made regarding education and knowledge production more generally.[12]

Bruce Porter (1994, xvi), in *War and the Rise of the State: The Military Foundations of Modern Politics*, the contemporary "book of record" on the pervasive influence of warfare, addresses the way in which the war continued to prove formative during the era of civilization. Addressing the generative thought of the German historian Otto Hintze, Porter writes:

> Hintze argued that "all state organization was originally military organization," and that the form and spirit of the modern state derived primarily from its organization for war. Hinzte's insights, regrettably, have not had the impact they deserve on contemporary political

analysis. The causes of war continue to receive far more scholarly attention than its effects, the role of war as an independent variable remains neglected.

In this regard, Hintze, Sombart and Weber were in agreement, each conceiving of war as constitutive of capitalism in part, not a function of it as, for example, Engels and Lenin had postulated. This particular excursus follows the former in this regard, conceptualizing war as an independent variable, overdetermined by other social practices, but not reducible or subsumed in any of them, by capitalism or religion, for example.[13]

Yet, this revisionist reading of the "Great Western project" of knowledge production and dissemination is not based in Hobbes' view of "natural" life as necessarily fraught with "continual fear, and danger of violent death; and the life of man, solitary, poor, nasty, brutish, and short," or Heraclitus' more proto-realist view that "war is common and strife is justice, and all things happen according to strife and necessity." It is to say however that warfare until now has been endemic to the human condition. It is to say that investigations into the socially formative role of warfare have been conducted only rarely in the contemporary AngloAmerican academy, and that the neglect of theoretical study of the influence of war is no academic accident, but lacuna that is ultimately ideological, the interested selling of a specific perception of existence as increasingly pacific.

As Porter said, "the role of war as an independent variable remains neglected." The author claims the neglect concerns not only the constitution of the modern state that forms the focus of Porter's study, but also in terms of the constitution of education. He claims that the institution in the nineteenth century of national, military, industrial, statist systems of formally compulsed "primary" and "secondary" education, and the development of informally compulsed "tertiary" education in the twentieth century, were vital components of "military/industrial/educational" complexes that emerged in

every nation—socialist or capitalist—that industrialized during the nineteenth and twentieth centuries. While Porter speaks of understanding the state as "creature of war," this work extends that analysis to examining education as a similar "creature."

Interestingly, the "academic pacification of the past," as Keeley (1997) described it, has enjoyed recent renovation in most every academic discipline or field of study. Critical commentary and analysis of the Cold War period (1945-1990) specifically have been prodigiously produced in the U.S. since that war ended. The U.S. historian Robert Griffin writes (2001, 150):

> A little over a decade ago, there were relatively few studies of Cold War culture; fewer still that sought to explain the Cold War as a cultural phenomenon. Today, all this has changed, prompted by the entry into the field of scholars trained in literature, American studies, sociology, anthropology, communication and media studies, as well as by a somewhat belated turn toward culture among Cold War historians themselves. The result has been an extraordinary outpouring of books and articles on virtually every aspect of American culture and how that culture shaped and was in turn shaped by the Cold War.

However, even in this rapidly developing corpus, the few studies that examine the relationship between education and war usually limit their examination to educational institutions, concentrating on the linkage between education and war made evident when "education" was added to the felicitous phrase "military/industrial complex" (*Port Huron Statement of the Students for a Democratic Society*, 1962). This new work mostly concerns the production of various forms of knowledge, while its dissemination is relegated to the edges of the analyses. However, a more systemic historical position regarding education than those developed in the studies referred to above is evident in the work of two sociologists of education, Ramirez and Boli (1987, 2). While they place education into a formative relationship with warfare, they do not address education in other than its statist, industrial, national, secular manifestation:

> ...most comparative studies of education entirely overlook the historical origins of state systems of schooling, thereby ignoring the sociological institutionalization of the social innovation...We show that in some cases military defeat or a failure to keep pace with industrial development in rival countries stimulated the state to turn to education as a means of national revitalization to avoid losing power and prestige in the inter-state system.

Ramirez emphasizes this point, explaining "the general thesis regarding war and education is that military defeat and related setbacks from the 19th century onward often call for national revitalization with education as a core feature of the revitalization program."[14] This address of the systemic, and perhaps structural relationship between war and education is however very much the exception.

While it may be a commonplace that the Prussian schoolmaster won the Franco-Prussian War of 1870, or that compulsed social studies in British schools was designed to instill mass militarist fervor, oddly, theoretical analyses of the influence of war on education as it concerns the development of subjectivity are virtually non-existent. The belated consideration of war and education proffered in this thesis, as the reader can imagine, leads to a revision whereby education appears a less beneficent process than that given in the positive renditions that comprise most of the discourse.

None of this is, however, to suggest that war is an overriding social driver, something akin to the role played by the "economy" in Marx's dialectic. Nor is it to suggest that subjective creativity and energy are linked intrinsically to overt or covert violence, mass or select, random or organized, or to the threat of it. It is to suggest, however, that existential development (recorded civilization) in the West has followed—indeed has been the path of war from inception, and that this path has been left uncharted on the cognitive maps drawn in the contemporary AngloAmerican academy.

Indeed, Western education from the Greeks has been imbricated with warfare—a function of warfare in many instances.

This study focuses on modern education (circa 1500-2000), demonstrating how it began as a statist—ultimately secular—investment in the production of *preindustrial military subjectivity* that, ironically, was grounded in religious justification. The author claims this early modern (*preindustrial*) educational discourse (circa 1500-1800) was *supplemented* (circa 1800-1950) by *military/industrial education* that expressed national, national-imperial, urban and capitalist concerns. This trajectory is evident for example in the work of Fichte, Hegel, von Humboldt, Spencer, Ruskin, Mann, Dewey and Ryerson. Industrial education was dedicated to the production of military/industrial subjectivity. In turn, the work will focus on how that modern system of education has been *supplemented* once again (*circa* 1950-2000), transformed into a *postindustrial* system for the *perpetual* education of *postindustrial populations* performatively maintained on "psychic high alert," on a *perpetual/perceptual military/economic war footing.*[15]

Anglophonic War Aporias

As mentioned, the avoidance of the theoretical study of the influence of warfare on contemporary social practices and products seems more an AngloAmerican peculiarity than a general academic predilection. Some investigation of this state of academic affairs is necessary if this thesis is to be situated within a political economy of knowledge production. For academic war aporia is an anomaly in terms of the history of knowledge production, for the most part a phenomenon peculiar to the twentieth century and the AngloAmerican academy.

Though Anglophonic academic disregard of the influence of warfare on social development was evident from the end of the First World War (1914-1918),

it peaked during the Cold War (1945-1990). This is not to suggest that the most immense academic effort ever was not devoted to the *functional*, *historical* and *analytic* study of war and *the preparation for it* during the twentieth century (Keeley, 1996, 114). It is to suggest, however, that war and military institutions were ignored *theoretically* and *critically* in inverse proportion to their social and academic influence. The limited critical theoretical address that did obtain in the Anglophonic academy was most often limited to the field of sociology, for example the work of Mary Kaldor, Martin Shaw, Anthony Giddens, Barton and Sally Hacker and Michael Mann.

However, following World War II, the Anglophonic academy was not the only one to suffer from "war aporias." In Germany, the last thing academics seemed to want to do was dredge up the violent "past," especially as many of them had been "implicated in it" in one way or another. Indeed, popular and academic aporias became notorious in Germany when the "children of the perpetrators" (*Westernhagen*) noisily forced German society to confront its past behaviours. With that, new work addressing warfare began to be produced. Much of this work concerned the "loss of collective memory," a theme that was central to postcolonial literature and theory as it was developing at that time in various locations around the world.

The German atrocities of World War II exacerbated the theoretical avoidance of war theory in the Anglophonic academy as well—though for different reasons. These atrocities served to re-vilify and re-demonize German thought that already had been demonized thoroughly, not the least because of the strategic vilification of all things German that was so central to Anglophonic propaganda strategies developed during World War I. As most of the academic work produced during the twentieth century that did recognize the influence òf war on society was produced in Germanic academy, the Anglophonic avoidance of German theory doubly reinforced

Anglophonic war aporias. Yet, there may be another more perfidious reason for the aporias of the postwar academy.

After World War II, the U.S. government employed former high ranking Nazis to spy on the U.S.S.R. and actively colluded in resettling Nazis (as did Canada) who otherwise would have been prosecuted for war crimes. The specious "information" gathered by these operatives may have been instrumental in inducing Cold War fever in the U.S. after the Second World War. As the Cold War provided the primary means for population control for forty years, this was a matter of no small significance. Regardless, the U.S.—and the British and French governments, and no doubt others—had many reasons to hide military, economic and political links to Nazi Germany and to the Nazis they employed and assisted before the war and after it (see Chapter 2). Aporias were more likely when supported by a limited or falsified historical record.

Notwithstanding these induced silences, it would seem the field of study termed feminism that developed after the war would have gravitated toward the study of the military more generally. However, with a few exceptions, notably Hacker (1989), Enloe (1988) and Lutz, (2000, 1999, 1997), feminist scholars remained remarkably disinterested in war.[16] As Sally Hacker (1989, 11-12) stated, "It is surprising so little so little feminist attention is directed toward military institutions. We puzzle over the "takeover," the "worldwide subordination of women," the "creation of patriarchy." Yet we rarely analyse military organizations, primary models of patriarchal forms of social organization, which were most salient in these processes." Hacker, however, goes on to do just that, providing one of the few texts that dealt directly with the connections between the military and education.

Another of these texts, and equally as notable, is Noble's (1991) *The Classroom Arsenal: Military Research, Information Technology, and Public*

Education (see Chapter 5). The other is *The Handbook of Research for Educational Communications and Technology* (1996), edited by David H. Jonassen. This edited reference book provides the only source for any comprehensive listing of contemporary theoretical or historical work in the field of education related to warfare. The Handbook evidences that instrumental work in education based in pedagogy, communications technology and content developed through military research is voluminous, while theoretical and critical address of the relationship between the military, war and education is virtually non-existent.

Jonassen (1996, 240) says that "only Noble has written critically and at any length about the contradictions and social difficulties associated with the military's being responsible for so much technology in education." However, Noble's work, which took him ten years to produce, does not go beyond "technology in education." Noble (19) states there is little research on the "interplay between public education and military research," that there is a "paucity of scholarship in the area." Jonassen and Hacker concur, their work providing the only exceptions.

Turning to sociology once again, oddly it is Giddens (1987, 113-14), Britain's most prominent (functionalist) theorist of the state, who foregrounds the role of the military in the constitution of the "state apparatus and other organizations including, at a later date, business firms." He explicitly foregrounds the formative impact of the "military revolution" of the sixteenth century on contemporary society:

> In the expansion of administrative power, the organization of the military played a prime role, influencing both the state apparatus and other organizations including, at a later date, business firms. For it was to a large extent in the military sphere that administrative power in its modern guise was pioneered. The innovations of Maurice of Nassau, the Prince of Orange, are both the most prominent example of this and at the same time exemplify more long-term trends in military organization. Maurice helped initiate two connected administrative

> changes later seen in all more bureaucratized organizations-the
> formation of a body of experts holding exclusive knowledge of certain
> essential administrative techniques, and the simultaneous creation of a
> "de-skilled" population of ordinary soldiery. There is a very real sense
> in which, through Maurice's interventions, the techniques of Taylorism
> became well embedded in the sphere of the armed forces several
> hundred years before, in industrial production, they came to be known
> by such a label.

This formulation of the state and the organization of labour as a militarist exercise is, however, quite recent and very much the exception. Interestingly, the lack of critical and theoretical academic address of the socially constitutive role played by warfare seems inversely related to the quotidian influence of warfare in the twentieth century.[17] At the same time as the Anglophonic academy, that constellation of institutions of higher learning and research that use English as the primary working language, was ignoring the *formative* social and academic influence of war—and ostracizing those that did, for example Mumford and various German sociologists and historians—that influence was becoming increasingly invasive.

From the war movies made by the score during the latter half of the century, to missile gaps and races in space and hot wars the world over, to the protest songs of the "60s" and the counterculture they inspired, war more than any other cultural theme and existential reality influenced the social context and content of popular culture. Popular culture was made possible by war, the technologies that flowed from war and the spacial and cognitive dislocations informed by it. Materially and culturally, popular culture is an *offshoot* of warfare (cf. Kittler, 1999, Winthrop-Young, 2002).

Commercial radio was based on wireless communication technologies developed for warfare; advertising was based in the propaganda techniques developed in Britain and the U.S. during World War I; behaviourism in psychology—and much of psychology itself—like computer science and cybernetics—was based in military research. By the 1940s, broadband radio

was being used extensively to deliver education at a distance. After World War II, educational delivery was based on the instructional design technologies developed by the U.S. during the Second World War. The pedagogical pride of place occupied by instructional technology has only been reinforced by the coming on-line of electronic delivery technology. At the same time, inside the academy and out, the fact that these developments and many others were functions of warfare was studiously neglected.

The same, however, cannot be said about Anglophonic literature. Warfare was foregrounded in this arena of endeavour, no doubt attesting to a number of cultural peculiarities, not the least of which was the fact that warfare—and literary production—was a masculine domain, which, depending on the lens employed, could be read as symptomatic of many and varied personal and cultural phenomena. Consider some of the "seminal" (generative) literary productions of the era. Hemingway's *A Farewell to Arms* (1929) and *For Whom the Bell Tolls* (1940), Lowry's *Under the Volcano* (1947), Mailer's *The Naked and the Dead* (1948), Orwell's *1984* (1949), Heller's *Catch 22* (1961), and, the great postrealist war work, Pynchon's *Gravity's Rainbow* (1973). Interestingly, each of these works concerned the horror of war, the toll it took on the participants. Indeed, each of these books are "anti-war" novels. In them, the romance or heroicization of war had been superceded literarily. In the latter two works, the absurdity of war as well as its intimate relationship to capitalism figure prominently.

Then there is the popular culture of warfare—"comic" books, G.I. Joes, Star Wars, "Westerns," the Alamo, John Wayne, Ronald Regan, Davy Crockett, BB guns, 22's, newspaper headlines, the Berlin Airlift, the Cuban "missile crisis," the Korean War, war correspondence, Pentagon briefings, the NATO, the Warsaw Pact, Maoism, UN police actions, TV reportage, Elvis drafted, the John and Yoko bed-in, Vietnam, Cambodia, a daily televised dead body

count, and Cold War rhetoric emanating from various "informed sources" broadcast daily. Consider these as the contemporary cultural and material manifestations of a martial patriarchal capitalism that did not change in its *essentials* from its inception in North West Europe four hundred years earlier—consider the continuity rather than the difference. Consider common perception as upside and inside out—as in Marx's *camera obscura*—witness war, material and psychic, where perceptions of peace previously existed.

Consider the rise of the national security state, the vast network of electromechanical intelligence gathering and population surveillance instruments that was institutionalized in industrial states during the Cold War period. Consider the growth of the academy itself, its focus on military research and development, its expansive reach in the form of "think tanks" into the innermost sanctuaries of power, of *soi-disant* democratic governance. Consider that those born after 1945 have lived under conditions of constant material and virtual warfare.[18] Consider that we, all of us in the phrase of Deleuze and Guatarri (1988), know nothing other than "a peace more terrifying still than warfare."

Stanley Kubrick's film *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb* (1964) provides one of the few popular critiques of nuclear war produced during the Cold War era. For the most part, however, critical address was generated outside the Anglophonic world. Paul Virilio (1989), a member of the Francophonic academy, was one of the first post-World War II theorists to critically address the relationship between war and perception. Virilio pointed to the distancing of war from Western human experience, even while its lethality multiplied exponentially. For Virilio (2000, 6) "the tragedy of war is mediated through technology. It is no longer mediated through a human being with moral responsibilities. It is

mediated through the destructive power of the atomic bomb, as in Stanley Kubrick's film *Dr. Strangelove*."

The *permanent informal war* (world wars III and IV) under way since World War II ended has lasted ten times longer already (see Chapter 3). The limited wars (e.g. Korea, Vietnam, Nicaragua) and the state of generalized warfare that have marked the entire postwar period up until today were bound to rearrange old institutional patterns, to modify law and conceptions of social order, to alter civic systems of beliefs, refashion the economy. The Cold War (1945-1990) even sired a new form of governance. In the U.S. and in all other industrial democracies, a parallel civil and martial governance structure that worked in tandem and outside formal statist and democratic principles was institutionalized in the 1940s. Until recently, to suggest such a thing was considered conspiracy. Interestingly, unearthing this parallel governance has become a minor industry recently.[19]

Regardless of the lack of critical analysis, the trend was evident to some from its inception. Hanson Baldwin (in de Reincourt, *The American Empire*, 1968), military writer for the *New York Times*, expressed concern in 1947 about the "militarization of our government and of the American state of mind"—what can be characterized as *military mental mobilization*. Perhaps nothing so much attests to the intensity of the Cold War and its militarization of the quotidian as the development of the hydrogen bomb, a device of much enhanced destructive power as compared to the atomic bomb dropped on Hiroshima. The hydrogen bomb was developed in the United States by a group of researchers led by Edward Teller, another European ex-patriot (University of Leipzig). The bomb was first tested in 1952. Other countries soon followed with their own hydrogen bombs: the Soviet Union in 1953, the United Kingdom in 1957, China in 1967 and France in 1968.

This exponential growth of the destructive power of war weapons (hydrogen bombs were more powerful than atom by orders of magnitude) coincided with the exponential growth of codified knowledge and the unprecedented growth of every type of educational and research institution. It coincided with the development of new knowledges based in military research such as cybernetics, its development enabled by large academic funding increases justified by appeals to military, social and economic Cold War *preparedness*.

Yet, the war aporias continued, evidenced for one in the common perception that World War II was followed by a generally peaceful era, marked by limited wars that were not routine but exceptional. Yet, wars, literally hundreds of wars, were a constant; wars were the rule not exception. From 1945 to 1990, some thirty million persons, mostly non-combatants, died from the Cold War directly (see Chapter 3). No doubt, academic war aporias in part were induced by McCarthyite terror and transnational Cold War "chill," by the politics of quotidian fear and by professionalization and specialization—the inculcation of certain knowledges and roles that preclude acceptance of knowledge outside a (restrictive) norm that delimits social expression.[20]

Academic professionalization in the 1960s was itself a form of military, industrial mental mobilization—the placing of expert knowledge within the control of the state and capital. Speaking of scientists specifically, Schmidt (2000, 82) writes:

> A large fraction of these scientists are employed by one or another institution of the military-industrial complex, but they do not raise questions about the social function of their work. And they can't plead ignorance either, because as we have seen, to do what is expected of them they have to be at least somewhat aware of their employers' or funders' interests. They don't challenge their employers' goals; they don't question the social structure that they bolster; they don't offer an alternate view of what scientists should be doing on the job. They have an internalized willingness and ability to be directed in the most

important areas. They concentrate on how best to carry out their assignments—only here do they use their creativity, and then only within the limits of the dominant paradigms. In short, these scientists are professionals.

Described this way, specialization and professionalization can be read symptomatically as the endocolonization of knowledge producers, the successful result of information warfare waged on the home population. As Sally Hacker (1989, 60) says, "Military influence continues today, visible in social distance or antagonism between men and women, as well as in hierarchy and specialization in all major institutions," which would include the academy of course.

Colonel Richard Szarfranski (1995, 60), in his article *A Theory of Information Warfare*, describes just this possibility:

> The target system of information warfare can include every element in the epistemology of an adversary. Epistemology means the entire "organization, structure, methods and validity of knowledge." In layperson's terms, it means everything a human organism—and individual or a group—holds to be true or real, no matter whether that which is held as true or real was acquired as knowledge or as belief.

Described this way, the Cold War "chill" was a form of "information warfare" against the "home front." The overt censorship of the World War II period never really lifted. In the U.S., the National Security Act of 1947 (Truman doctrine) legislated the statist incursion into behavior and thoughts that previously were considered outside the purvey of the state unless a *formal state of war* existed.[21] The hearings of the House Un-American Activities Committee in 1951, Hollywood "witch hunts," academic purges, blacklists in various industries, all these forms of social control materially affected the range of academic investigation. This social control encouraged the technicization of knowledge production, and with that, encouraged the bypassing of "values issues."

This "chill" was, of course, global, infusing Canadian, Australian and British institutions in the same way as it did institutions in the U.S. Roger Fieldhouse (1951) in *Adult Education and the Cold War: Liberal Values under Siege, 1946-1951* documents the effects of the "chill" on adult education everywhere in the British Commonwealth. His analysis even extends to Africa where academic practices were modified to account for Cold War imperatives.

Waging "information warfare" on one's own producers circumscribed knowledge production severely, tied it ever more closely to the ostensible needs of the state and capital for docile populations and war-making capabilities. This included bizarre knowledge production activities as measuring the effects of psychotropic medications on persons hospitalized for mental illnesses, deliberately infusing populations with various viruses to gauge the pathological effect of various toxins, and exposing soldiers to nuclear radiation to measure the pathological effect over extended periods (cf. Moreno, 2000).

Producing academic knowledge that critiqued the prevailing *social ethos* of fear, of militarism and the concomitant glorification of warfare, to say the least, was institutionally unpopular and career threatening for academics during the first decades of the Cold War. Yet this trajectory had been in place since World War I; it was not so much a matter of imposing a new form of social control on the academy and the population at large, but of extending and institutionalizing one that had already been developed (see Chapter 4). Gary (1999, 7) in the *The Nervous Liberals*, offers a plausible explanation for this contemporary quietism that strikes to the heart of the paternal qualities that attach to the educational project:

> I want to suggest that the propaganda anxieties that beset U.S. culture in the era from WWI to the cold war might not have resulted in such ideological constriction had the nation's political and intellectual

classes perceived the U.S. public as being capable, rational, and responsible. The pessimistic assumptions about public incompetence and susceptibility that pervaded much liberal intellectual culture for most of the twentieth century deepened as the totalitarian powers-with their dictatorship cults, international fifth columns, and mass followings-grew as national security threats. If leading liberal thinkers and policy makers had had a higher estimation of public capacity would they have offered a more principled defense of democratic institutions? Would they have contributed to the national security state's enormous growth had they been less fearful of the supposed machine-age power of propaganda?

Yet some "public intellectuals," a vanished breed according to Jacoby (1987), spoke directly to the "people." At the height of the Cold War, U.S. sociologist C. Wright Mills produced *The Causes of World War III*, (1958), a tract that addressed militarism and war.[22] British academics, Bertrand Russell and E.P. Thompson most notably, actively campaigned against the practice of nuclear war. However, a socially ordained quietism is perhaps the most fitting term to describe the academic intellectual aporias. Antiwar protests and ban the bomb marches did little to change the trajectory of academic knowledge production. U.S. President Eisenhower's injunction (*Farewell Speech to the Nation*, January 1961) to "guard against the acquisition of unwarranted influence, whether sought or unsought, by the military industrial complex," went academically unheeded.[23]

Historicizing the Aporia

Reasons for Anglocentric war aporias stretch well back into nineteenth century and to the Enlightenment (Mann, 1988, 147). Though mass war as exemplified by universal conscription (*levée en masse*) originated in France after the Revolution of 1789, the inter-statist peace in Europe from the Congress of Vienna (1815) to the wars of German expansion (1864-1871) obscured the recognition of the continuing influence of warfare on society. As well, European industrialization coincided with the period of relative peace that followed the Napoleonic upheaval, this coincidence itself leading some

social theorists to view war as anachronistic in an age of unprecedented material progress.

In *The German Ideology* published in 1846, Marx (Tucker, 1972, 126-129) tellingly wrote about war in his discussion of the historical dialectic, "Up till now [the time of communitarian tribal society] violence war, pillage, murder and robbery, etc. have been accepted as the driving force of history." With the coming of private property and division of labour, Marx concluded that war became archaic (German Ideology in *Marx-Engels Reader*, 126-129). This beneficent view colored academic perceptions of warfare from the late nineteenth century, and still grounds the Utopian trajectory in much "left academic labour."

Daniel Pick (1993, 52-53) writes, "Marx shared with Cobden [Victorian anti-militarist] the view that militarism as such was fundamentally anachronistic and atavistic." The influential British sociologist Herbert Spencer viewed war very similarly. Pick (77):

> Spencer divided society into two types—the "militant" and the "industrial" types. Despite their commingling in practice, he believed that they displayed an opposite character in principle. The industrial form was thus, in its essence, opposed to war. In the militant society (exemplified by Russia and Prussia), the state appropriates industry, above all railways for military functions. Political control gradually slides back towards the army. In the industrial society (such as Britain) on the other hand, the historical trajectory is towards free trade, liberalism and a gradual decline in the role of the state.

Yet, at the same time, the formative role of war in human history was recognized almost without exception. Hacker *et al* (1987, 753):

> Spencer more forcefully than Marx insisted on a military model for industrial organization, and more forthrightly than Engels traced women's subordination to the male monopoly of arms. By nineteenth century's end, the idea that government ultimately originated in military institutions had become widely accepted. Some believed with Marx and Spencer that militarism declined as industrialism advanced;

others shared the view often linked to social Darwinism that military institutions remained as vital as ever. Virtually no one, however, questioned the historical primacy of military institutions.

That, however, changed quickly. While Spencer himself was aware his positive evolutionary social model had been overtaken by events in his own lifetime, it was the positive views of war's obsolescence that carried forward into the twentieth century Anglophonic academy. Robert M. Young (1998, 179) in *Herbert Spencer and "Inevitable" Progress"* writes:

> When he (Spencer) first put forward his ideas in the 1850s the acme of civilisation could be glimpsed. In the early 1860s and subsequently his hopes were dashed. One need only think of the Crimean War (1854-6), the American Civil War (1861-5), the Great Depression (1876-96), and the Boer War (1899-1902).

This is not to suggest that war did not have powerful military/academic supporters. For military leaders such as Prussian Field Marshall Helmuth Ludwig von Moltke (1800-1891) and the social Darwinist British Brigadier-General Sir Reginald Clare Hart (1848-1931) war was a necessary and desirable social practice, a moral social cleansing that was inherently progressive. While such views fell into disfavour in the twentieth century, the positive view that war had been conquered did not. Hacker *et al* (1987, 757) state:

> Military institutions as a subject of comment or study, however, declined sharply after World War 1 (1918). One reason was reaction against the excesses of social evolutionism, with which historical interest seemed closely allied. All the social sciences stressed a more narrowly conceived scientism centered on studying structure. Military studies might well have benefited from such an approach, but a widely felt revulsion against war debarred them from such consideration. During the next two decades and more aging scholars whose intellectual roots antedated World War I still assumed the military origins of civilized society, but these ideas grew less and less relevant to current concerns. Only since mid-century has interest in these subjects revived . . . .

The military theorist Martin Shaw (1988, 12) chronicles the way these academic war aporias were built into the very structure of the Anglophonic conceptual apparatus, this particular perceptual formation of necessity disallowing an appreciation of the formative role of war:

> Despite a wide acceptance of the social character of war, it is widely excluded from the basic models of modern society that are on offer in social science. The concept of "industrial society" which has informed mainstream sociology from Saint-Simon, Comte and Durkheim onwards was defined by contrast with the military hierarchy of feudal-agrarian society. It was proposed by Comte, for example, in the belief that a rational scientific social organization of labour—the basic sense of "industry"—must imply peace. It has long since been proven that this optimism was utterly displaced: but the concept of "industrial society" has survived, minus the assertion of pacifism, as a *de facto* model of warless society.

Marxism, of course, could not conceptualize war/militarism as the "prime mover," that role reserved for the mode/means of production. Shaw writes (13):

> Later Marxism confronted the twentieth century experience of war by adapting the model, to theorise about the state, imperialism and nationalism. These code words have entered the wider sociological parlance, generally permitting their users to skirt round the problem of war by examining the wider economic, political and ideological relations: rarely the social process of war itself.

This particular "blind spot" in Marxism may have contributed more than any other discursive construct to war aporias in the Anglophonic academy. "Left" critics otherwise may have concentrated more on exposing the formative social and economic influence of warfare and military institutions.[24] A singular economic determinism as compared to an inter-active (reciprocal) multiple determinist model may have held more explanatory power, at least in understanding the continuing socially constitutive nature of warfare. The sociologist Warren Sproule (1997) in *Virtual Battlefields: Informatics, "Irreality" and the Sociology of War*:

> . . . mainstream sociology has taken from classical nineteenth-century theory two kindred assumptions about contemporary society: That military imperatives have been separated from and no longer play an important role on wider social activity; and that the incidence of warfare decreases and eventually disappears under conditions of modernity.

The sociologist of war, Michael Mann calls this neglect of war "shameful" (1988, 146). Mann divides sociology into two camps, the liberal/Marxian and the militarist. The liberal/Marxists camp won out over the militarist camp for a simple reason, liberal/Marxists won World War II. He writes (148):

> Since 1945 the militarists have been forgotten, the waverers purged on their most violent side (e.g. Weber's Herrschaft became not "domination" but "authority" in English translation), and the "classic tradition" of liberal/Marxist *pacific transnational sociology has been enshrined in pedagogy* [italics added].

Jacques von Doorn (1973), a noted sociologist and historian of war, writes:

> With the exception of the social origins of the officer corps, little cumulative research has been undertaken [in military sociology], and in fact much of what is carried out amounts to further argumentation of the body of empirical knowledge with no further *theoretical processing* [italics added].

Martin Shaw (1998, 12) writes similarly:

> For virtually all schools of social thought, wars are exceptional phases in social life, abnormal phenomena that interrupt the fundamental social patterns. On this point there is no serious disagreement between, say, a functionalist sociologist like Talcott Parsons, for whom society is essentially consensual and harmonious, and a Marxist theorist of modes of exploitation and class struggle. War is as much a disturbance of the ordinary pattern of capitalist development and class conflict as it is of the self-equilibrating social system.

However, the academic refusal to view war and militarism as unexceptional, pervasive and endemic may be based on more than a simple "winner writes history." The military theorist Sir Michael Howard points out in his recent essay *The Invention of Peace* (2001) that at no point since 1648 when the

modern statist system was instituted with the Peace of Westphalia has that system ever led to stability or peace. The historian Niall Ferguson (2001, 28) writes similarly, "No twenty-five year period since 1495 has been entirely without war." At the same, however, he writes (393), "Such beliefs [in the end of war] have proven remarkably resilient in the face of repeated and bitter disappointment."

Keeley (1996, 121) identifies academic roots of what he identifies as the "trade-raid opposition":

> One common assumption made by many people concerning the contexts for war and peace is that if societies are exchanging goods and marriage partners with one another, relations between them are likely to remain peaceful. This assumption underlies the often-voiced opinion that increasing trade and "cultural exchanges" between otherwise hostile nations will lessen the chances of war. This attitude reflects some social anthropological observations about what has been called the trade-raid opposition. Following the lead of the great French structuralist anthropologist Claude Levi-Strauss, anthropologists have characterized trading and raiding as structurally opposed forms of social relations: "war is exchange gone bad, and exchange is a war averted.

This commonsensical equation has, however, been proven wrong, during World Wars I and II especially. The modern state system, contrary to the "academic pacification of the past," has witnessed wars of increasing magnitude and lethality. Yet, the common view of industrial (and postindustrial) society as generally peaceful still informs academic production generally.[25] Mann (1986, 402) writes: "….the unusual period of geopolitical and social peace dominating the west since World War II has led sociology to neglect the importance of military organization for modern society."

Yet immediately after World War II, the British Empire fought off an indigenous independence movement to maintain control of the rubber trade in Malaysia, this tenacious hold on the rubber trade allowing the Empire to pay off its U.S. war debts. War in the Philippines, the Dutch East Indies,

Indonesia, in Korea, in China and in Indochina, in Palestine, in India and Pakistan, Iran, Iraq, in Greece and Cyprus marked the "peaceful era" immediately after World War II ended (1945-1955).

There were, of course, many other wars to follow, leading to 30 million actual cold war casualties (Coronil, 2000). When this list of wars, which is far from exhaustive, is combined with the wars for independence in Africa, with numerous coup d'états throughput the world that led to deaths of more millions of people, for example in Guatemala, Chile, El Salvador, Nicaragua, Iraq, Iran and Panama, the argument for the existence for academic war aporias is compelling. However, even Mann, a prominent contemporary sociologist of war, falls prey to the post WWII "peace thesis," to the "optical illusion."

Contradictorily however, Mann concludes the chapter on "the autonomy of military power" stating (440): "Military power—despite its neglect by twentieth century sociology—proved to have massive and murderous effects on twentieth century society. Its world-historical moment of 1914 was actually to last rather longer."

Aporias Contradicted

Hacker and Hacker (1987, 744-745) identify this academic war aporia:

> Military institutions have strongly and persistently affected other social and economic institutions, a larger reality often ignored by modern scholars of whatever political persuasion. The problem begins with an inability—or unwillingness—to understand military institutions on their own terms. Conservative and Marxist theorists alike, for example, can offer no theory to explain either the cause or effects of innovation in military technology. . . .That war often promotes technological change has become something of a truism since the Industrial Revolution allowed *ideas to become weapons swiftly* enough to reshape the war in progress—when, of course, money flows most freely. Yet the constant, though often far from obvious interactions of military

institutions with other aspects of society have consequences
potentially far greater [italics added].

More powerfully, the noted U.S. scholar Bruce Porter (1994) writes:

"The decisive means for politics is violence," wrote Max Weber,
"Anyone who fails to see this is...a political infant." But if a randomly
selected group of educated Americans and Europeans were asked to
list the five words that best characterize Western civilization, it is a fair
bet that only a handful would include "violence." We resist
acknowledging, much less squarely confronting, the pervasive role of
war in our history and politics, conditioned as we are by three
centuries of Enlightenment vanity to think of the history of the West as
a tapestry of progress, a steady ascent from Medieval darkness to the
light of reason. When faced with the nonetheless undeniable
prevalence of violent conflict in the modern era, we shrink, ostrichlike,
from the implications of our own history. The tendency of scholarship
has been to marginalize the study of war into compartmentalized
niches of military history and international security, to treat war as
anomaly, an interruption on the development of the West. Should we
not rather discard evolutionary and progressive models of change and
humbly acknowledge this tragic—and fundamental—thread in Western
Civilization?

Levidow and Robins (1989, 160) write similarly:

"The discipline of the army gives birth to all discipline." The military
serves as a model for the organizational imperative "that the
obedience of a plurality [mass] of [sic] men is rationally uniform."
From that base, Weber argued, it has developed a pervasive impact
upon the broader social order: "No special proof is necessary to show
that *military discipline* is the *ideal model* for the capitalist [and
socialist] *factory*, as it was for the ancient plantation." The scientific
management of both the army and industry requires rational
calculation and impersonal regulation. In both spheres, "the psycho-
physical apparatus of man is completely adjusted to the demands of
the world, the tools, machines—in short, to an individual "function."

Sproule (1997) concurs:

Spinning off his central conviction that "[m]ilitary discipline gives birth
to all discipline" (1968:1155), Weber particularly stressed the part
played by the armed forces and war in nation-state formation in
general and capitalism in particular (1968: 980-982); the same
influence at work in the organisation of civilian industry and workplace

practices, so obvious that "[n]o special proof is necessary to show that
military discipline is the ideal of the modern capitalist factory, as it was
for the ancient plantation" (1968:1148-1155) . . .

On the "ancient plantation" as in the "capitalist factory" "labour" is modeled
on military discipline, not arrived at in some "natural" way as classical
economics has it. The great theorizer of contemporary society, Max Weber,
even attributes the rise of democracy to war. He states: "The basis of
democratization is everywhere purely military in character…Military discipline
meant the triumph of democracy because the community wished and was
compelled to secure the co-operation of non-aristocratic masses and hence
put arms, and along with arms political power, into their hands" (Weber,
General Economic History, 1950, 325-326, from Porter, 1994, xvi).

In a similar vein, T.C.W. Blanning (1996, 211) in *The Origins of the French
Revolutionary Wars* held that:

> . . . the French Revolutionary wars did constitute the first modern
> war, not because it represented a conflict between two diametrically
> opposed ideologies [royalist religious conservative vs. democratist
> secular liberalism], but because of what it became. By liberating their
> states in the course of 1792-94, by casting off all inhibitions and
> maximising their resources, the French revolutionaries waged total war
> of unprecedented intensity and on an unprecedented scale. Not only
> did it "revolutionise the Revolution" it also forced the other European
> states into emulation, however delayed and partial. After almost a
> quarter of a century of devastation, exploitation and over-exertion, no
> part of Europe was untouched, politically economically, socially
> intellectually or culturally. It was not the French Revolution which
> created the modern world it was the French revolutionary wars.

Mumford (1934, 90) too assigned a central productive role to the military.
"By the sixteenth century," writes Mumford, "mining had definitely set the
pattern for capitalist exploitation" (1934, 74-75):[26]

> First, improvements in the technique of warfare, especially the rapid
> growth of the artillery arm, increased the consumption of iron: this led
> to new demands upon the mine. In order to finance the ever more
> costly equipment and maintenance of the new paid soldiery, the rulers

of Europe had recourse to the financier. As security for the loan, the lender took over the royal mines. The development of the mines themselves then became a respectable avenue of financial enterprise, with returns that compared favorably with the usurious and generally unpayable interest. Spurred by the unpaid notes, the rulers were in turn driven to new conquests or to the exploitation of remote territories: and so the cycle began over again.

Mumford (76) continues:

. . . War, mechanization, mining and finance played into each other's hands. Mining was the key industry that furnished the sinews of war and increased the metallic contents of the original capital hoard, the war-chest: on the other hand, it furthered the industrialization of arms, and enriched the financier by both processes. The uncertainty of both warfare and mining increased the possibilities for speculative gains: this provided a rich broth for the bacteria of finance to thrive in.

Thus Mumford locates the origins of capitalism in its relationship to mining and warfare. This is quite similar to Braudel's (1967) historical tracing of the origins of capitalism in which he highlights the role of the great German banking family, the Fuggers, and their relationship to mining.

While Marx subscribed to the "war obsolescence theory," the same cannot be said of his successors. Engels and Lenin did address the way in which the historical dialectical process played out through the military function. Engels, unlike Marx, wrote extensively on warfare and militarism. For him, capitalism and militarism colluded to provide the conditions whereby "the armies of the princes (the capitalist state) become transformed into armies of the people; the machine refuses to work, and militarism collapses by the dialectic of its own evolution." (Engels as quoted in Shaw, 1988, 51). However, while this "dialectal transformation thesis" may have provided a theory that could account for the Russian Revolution, it certainly could not account for World War I in the rest of Europe.

Lenin developed a highly theoretical approach to warfare and used Clausewitz's war theory to develop militant Marxism (see Chapter 3). His

1916 essay *Imperialism: The Highest Form of Capitalism* combined Marxist philosophy with that of the Prussian military theorist. Clausewitz, of course, saw war as an extension of politics, a policy instrument to be employed to achieve political goals (*Realpolitik*). Lenin applied Clausewitiz's thought directly to the Marxist idea of proletarian revolution to create his particular form of militant Marxism whose goal was global revolution.

Yet Lenin and Engels subordinated warfare to the "economy," reading contemporary warfare as a function of capitalist imperialism, thereby maintaining the primacy of economic determinism. While they did not "write warfare out of history," they could not accept its theoretical status as a variable that existed in part at least independent of the logic of capital.

However, academic work—of the left or right—that did address war, capitalism, the individual, state and nation in ways that challenged the ideological primacy of liberal (and Hegelian) concepts of the state, the ideology of "liberal humanism," that challenged the idea of war and peace as formal and separate conditions of existence was kept out sight, often as not demonized by the Anglophonic academy. This is evidenced, for example, in the fact that the dialectical analysis of warfare and militarism in the late nineteenth and early twentieth was carried out by theorists schooled on the continent.

Engels, who first developed a Marxist theory of war, had been schooled in Germany in the Hegelian tradition as, of course, had Marx. Lenin was schooled in Russia. Karl Liebknecht and Rosa Luxemburg, the first theorists to produce a Marxist anti-militarist critique of war, were educated within the German Empire (they were killed for their efforts). On the other end of the spectrum in Weimar, the new German intellectual conservatives were as influenced by theories of war and by their experiences in the First World War as those who were opposed to war—and this prominently includes Walter

Benjamin and Bertolt Brecht. The conservatives, however, in large accommodated and promoted "total war" theoretically and politically, and, indeed, as was the case with Ernst Jünger, who used total war as the basis for a comprehensive political and moral stance (Wolin, 1991).[27]

However, that the liberal Hegelian paradigm of statist formalism (ideology of modernity) still holds in the current condition of long-standing constant low-grade ultra-statist warfare can only be explained as an ideological denial of the actual conditions of contemporary existence. For example, even something so fundamental as Hegel's admiration of the militarist Prussian state which served as a model for his historical dialectic, that he served the Prussian state faithfully at the University of Berlin, seems to have gone missing in the contemporary Anglophonic academy wherein his work has been renovated recently.

Knowledge Accessibility

Continental history and sociology that did address the centrality of warfare in human history and in contemporary society was not readily available in the Anglophonic academy until the 1960s. Weber's *Wirtschaft und Gesellschaft* (published 1922, 2nd. volume 1925) was not available in English until 1947 as *The Theory of Social and Economic Organization*, translated by A.R. Henderson and Talcott Parsons.

To complicate the situation, Parsons translation of Weber emphasized Weber's "social stasis" thought and remains controversial. *Wirtschaft und Gesellschaft*, now titled *Economy and Society*, was republished in 1968 to address these concerns. Weber's work on religion is, of course, more prominent still than his work on militarism. As well, the two most prominent U.S. sociologists of their time, C. Wright Mills (1916-1962) and Talcott Parsons (1902-1979) spent their academic lives extending the work of

Weber, with Mills concentrating on industrialization and rationalization more than militarization and Parsons developing his "structural functionalism" as a capitalist operations manual for maintaining and extending "social stasis." Modernization theory and area studies provide examples (Simpson, 1998, 165).

Norbert Elias's *Über den Prozess der Zivilisation* (1939) was first available in English in 1978 as *The Civilizing Process*. Elias (1982, 104), like Weber, attributed the rise of the nation-state to its monopoly on violence:

> The society of what we call the modern age is characterised, above all in the West, by a certain level of monopolisation. Free use of weapons is denied the individual and reserved to a central authority of whatever kind, and likewise, the taxation of property or income of individuals is concentrated in the hands of a central social authority. The financial means thus flowing into this central authority maintain its monopoly on force, while this in turn maintains the monopoly of taxation. Neither has in any sense precedence over the other; they are two sides of the same monopoly.

While it was often held that modern states went from a state of indiscriminate (disorganized) violence to one of liberal freedom guaranteed by the statist maintenance of a military function separate from civil society, it may be more correct to think of the state itself as built upon structured—and pervasive—violence grounded in a general militarization of the socius. Otto Hintze, a German historian whose work was not readily available in English until relatively recently, certainly did not subscribe to the "peaceable society" thesis. Like so many theorists who lineate and categorize existence (employ time as a marker), Hintze (1975, 187) divided history into three epochs:

> We can distinguish three great epochs in this process [the Germanification of the Roman Empire], in which definite types of military and state organizations appear linked together: the epoch of the tribal and clan system at the dawn of history, the epoch of feudalism in the Middle Ages, and the epoch of militarism in the modern period.

Characterizing the modern period as an *epoch of militarism* differs in kind from concepts of modernity as Enlightenment and progress. Werner Sombart, like Weber, located the roots of capitalism outside the economy, in war (De Landa, 1991, 109). The *Annales* historian Fernand Braudel (1967, 398-412), explains how the state came to garner this monopoly. According to Braudel, the great commercial towns (e.g. the towns of the Hanseatic League) could not appropriate the "war machine" as fully as the fledgling states of the sixteenth century. States drew fighters from relatively large geographic regions, could draw on greater material and financial resources to industrialize warfare ("national banks" came to form part of this equation), and could fight wars of longer span and intensity less expensively than the towns who used mercenary forces financed on a more local basis.

As mentioned, anti-German academic sentiment tied to warfare led to the demonization of all things German. Lawton and Gordon (2002, 142-143) identify two reasons for the decline of the influence of German Idealism and the rise of "new philosophical systems more congenial to empirical science, such as pragmatism, logical positivism and linguistic philosophy" after World War I.[28] The first, sounding contemporary, was the rejection of the Hegelian view "that individuals only realize themselves as members of a state." The second was "a hatred of all things German" which combined with the rise of Hitler "ensured that Hegelian influence remained an object of intellectual and moral contempt until long after the Second World War. This can be seen clearly in Karl Popper's *The Open Society and its Enemies* (1945) and other attacks on historicism."

The aporias grounded in these reasons and no doubt others led to an occlusion of critique and history that may have led to a theoretical (philosophical) appreciation of the formative impact of warfare on contemporary development, to a knowledge "lag" if not a complete

avoidance. Such a view is supported by the quick incorporation of European science into its AngloAmerican equivalent. For example, the work of Einstein, Bohr, Heisenberg and Planck was applied to war-making with alacrity, while theory dedicated to understanding war and militarism and their relationship to the capitalist state system, the system of five hundred years as Braudel termed it, was kept off library shelves and conceptual agendas.

Education as Credulity

There may be a more heretical reason for academic war aporias. Pick (1993, 215) writes:

> Even before the First World War, and ensuing bitter reflections on the "treason of the intellectuals," the idea of the peculiar susceptibility of the educated had been explored in the language of self-critical liberalism. Cf. Hobson's Psychology of Jingoism (1901): "Now the most astonishing phenomenon of war fever is the credulity displayed by the educated classes" (p.21). After 1914-18, of course, that perception grew much stronger. To take another example from the 1930s, note how Virginia Woolf insists that certain kinds of education offer no protection, no civilisation against force, possessiveness, war: "Need we collect more facts from history and against biography to prove our statement that all attempts to influence the young against war through the education they receive at universities must be abandoned? For do they not prove that education, far from teaching the educated generosity and magnanimity, makes them on the contrary so anxious to keep their possessions, that "grandeur and power" of the poets speak, in their own hands, that they will use not force but much subtler methods than force when they are asked to share them? And are not force and possessiveness not very closely connected with war? (Three Guineas, p.35).

Pick (201) also points out that Einstein "insists that the susceptibilities of the educated individual and the hypnotized masses cannot be easily differentiated. Indeed, if anything the intellectual and educated were more vulnerable than the uncultured population to collective manipulation."[29] Jacques Ellul, the French theologian and technology critic, developed a thesis

similar to Einstein's. In *Propaganda: The Formation of Men's Attitudes*
(1965, 110-111), Ellul observed a similar "peculiar susceptibility" of the
educated:

> These facts [regarding the social implementation of literacy] leave no
> doubt that the development of primary education is a fundamental
> condition for the organization of propaganda, even though such a
> conclusion may run counter to many prejudices...the need for a certain
> cultural level to make people susceptible to propaganda is best
> understood if one looks at one of propaganda's most important
> devices—the manipulation of symbols......it is only normal that the most
> educated people (intellectuals) are the first to be reached by such
> propaganda.

For Ellul urbanization and industrialization are necessary preconditions for
the development and use of "propaganda." Propaganda is necessarily a
function of massified (not organic) society. Goebbels himself, Ellul (93)
writes, "recognized that the peasants could be reached only if their
structured milieu was shattered; and the difficulties that Lenin experienced in
integrating the Russians peasantry into the pattern of revolution are well
known."

The destruction of "structured milieu" in order to render a society receptive
to various messages is most certainly a favoured military strategy.
Psychological operations (psyops) have been developed for just that purpose.
While Sun-Tze outlined these methods more than two thousand years ago, it
wasn't until the First World War that they were scientized (academized) and
turned on domestic populations (see Chapters 3 and 5). This, of course, is
an active form of knowledge production. On the other hand, "credulity" is a
passive form, whereby education itself circumscribes social possibility in
specific ways by forming subjectivity susceptible to mediated messages (thus
the suspicion of writing in an oral culture, see Chapter 4). Such may be the
trade-off between literacy and illiteracy, education and ignorance, when

illiteracy (a concept that dates to late nineteenth century Europe) and ignorance are not equated with the *lack* of intelligence or ability.

Thesis Outline

This author relies on historical "evidence" speaking, while aware that any "evidence" has been filtered at the least by time/power and the limitations inherent in communication. The work relies on the preponderance and variety of examples presented no matter their location in "history," as well as on the way they are presented, in the performative instance. The approach taken cuts through time, proceeding to produce a narrative based on viewing the past synchronomously.

Chapter 1 has provided an introduction to the topic of education and warfare. It has provided a working definition of education that differs markedly from usual idealist invocations of the term, the "immaculate conception." And it has placed education and war in context, providing a brief intellectual history of the theoretical study of warfare, and of the way theoretical study of warfare has been neglected in the AngloAmerican academy. It has offered some possible reasons for this neglect, and also demonstrated that there has been much more interest in war and the way it relates to the academy, to knowledge production—though not necessarily dissemination—since the end of the Cold War.

Chapter 2 provides a brief excursus into the historical conditions that made various forms of twentieth century critique possible. It provides the "outline of a method," providing a theoretical justification for academic work that is at once intuitive and methodical. Indeed, employing intuition, following one's nose to the point where historical and rhetorical disconnections and discontinuities seem to evidence continuity and coherence, is perhaps the

work's greatest strength and weakness. Yet such could not but be the "method" as there in no "historical record" to access or a body of literature dedicated to the examination of education and its relationship to warfare. This information, including the "theory" that gives it meaning, was culled from the most diverse of sources and then patterned (sequenced). These sequences and patterns constitute "findings."

In order to accomplish this, the author employed "dialectical thinking" itself as method. Such method allows, indeed encourages, various forms of unorthodox language usage and even the employment of "creative ambiguity." Such method is intended to draw attention to the way ambiguity is "built-into" language, to allow novel conceptualization of "everyday" events and ways of speaking. The author attempts this by transforming nouns into processes—verbs (this itself a symptom of the "Americanization" of English). Thus capitalism, or, more correctly, the installation of capitalism in various societies or societal sectors, is termed "capitalization" (a play on conventional restricted meaning of that term). Likewise for "nationalism," its social installation is referred to as "nationalization." And for militarism, industrialism, postindustrialism; however, the term "weaponization" is employed without reference to "weaponism." This unorthodox language is intended to draw the reader's attention to the historical and contingent quality of so many phenomena that so often are taken as natural "states of being."

Chapter 3, titled "War Machine," addresses the history, discourse and social practice of warfare by employing 1870 as a jumping off point. It takes the reader through recent war history and war critique as well as war literature. It provides a historical tracing of the contemporary "war machine," and provides theory to place warfare in a context that emphasizes its impact on everyday existence, not only in periods of war, but in periods of ostensible

"peace." It proffers "counter" or "anti-war machines" based in the theory of Deleuze and Guatarri, suggesting that these "war machines" that are not for war provide a site of resistance to the "war machine" dedicated to destruction. It provides a number of exemplars of twentieth century literature and culture that reflect the material and psychological prevalence of war throughout the century. Finally, it points to the significance of 1870 as a year when great change became evident, where the impact of the industrial revolution on both material and immaterial production came to world attention because of the war of 1870-71.

Chapter 4 addresses the development of the Teaching Machine, the making of contemporary perception from that same historical vantage. Employing 1870 as a jumping off point once again, the work addresses the political engineering of perception that began as soon as the technological means to do so were available. Again the work provides a brief historical excursus, taking the reader to the mechanization of perception that began with the invention of perspective during the Florentine Renaissance.

The chapter draws upon polyglot sources once again, piecing together a narrative to demonstrate that "education" and the "media" do not exist in some binary formation with the first term privileged over and above the latter, but that these two modes of subjective formation—the "formal" and "informal" are complementary rather than antagonistic.

The chapter addresses the processes of militarization, nationalization, industrialization and capitalization. Each of these processes is conceived as a significant contribution to subjectivization or, more philosophically, subjectification, the production of subjectivity. More "theory" is developed as well, this time employing Deleuze and Guatarri's concept of "assemblage."

Chapter 5 extends this analysis to postindustrialization, documenting ways in which processes of educationalization have changed along with material conditions. The author examines the "weaponization of education," providing four exemplars of the process. This leads to the conclusion that the complex of educational and research institutions that comprise the contemporary academy is itself the greatest war weapon ever invented.

Highlighting ways in which education from its inception in Ancient Greece has demonstrably intimate connections to warfare, that education *is* warfare in ways that have been left inarticulate, the author asks if education *as* warfare is a permanent condition. A brief history of education as war is developed, demonstrating ways in which contemporary education is as formatively influenced by war as by the state and capitalism.

The whole of the work is permeated by "dialectical thinking," the continual attempt to look "behind the seen/scene" to what is hidden—and to understand how the "seen"—including the tools for its apprehension—is a contingent (historical) construction. To that end, the Hegelian insight whereby quantitative change can become qualititative provides a unifying theme, evident not only in the author's conclusions, but in the theory brought to the fore and in the historical examples provided.

Finally, a disruption of the "self-evident" is intended (*Verfremdung*). The work is meant to challenge received conceptions of education, capitalism, war, the state, industrialism and of history itself, of war and peace as separate spheres and forces. It is intended to replace such a disintegrated—disciplined—conceptual framework with a view that recognizes the intense interrelatedness and continuity, as well as the abrupt discontinuity, of social forces and their discursive constructions (history).

Chapter Notes

1   Katherine Hayles (1999, 12-13), though specifically discussing the information/materiality dichotomy, provides a remarkable caution regarding the idealist privileging of a discourse/social practice:

> The Platonic backhand works by inferring from the world's noisy multiplicity a simplified abstraction. So far so good: this is what theorizing should do. The problem comes when the move circles around to constitute the abstraction as the originary form from which the world's multiplicity derives. Whereas the Platonic backhand has a history dating back to Greeks, the Platonic forehand is more recent. To reach fully developed form, it required the assistance of powerful computers. This move starts from simplified abstractions and, using simulation techniques such as genetic algorithms, evolves a multiplicity sufficient complex that it can be seen as a world of its own. The two moves thus make their play in opposite directions. The backhand goes from noisy multiplicity to reductive simplicity, whereas the forehand swings from simplicity to multiplicity. They share a common ideology—privileging the abstract as the Real and downplaying the importance of material instantiation.

"Education" is privileged once through the "Platonic backhand." As the social practice of law often abstracts Justice as the Real (i.e. law considered as the administration of Justice), so the social practice of education is abstracted as the Real. Unlike "Justice," which is separated in language from "law," "Education" is a term used to signify both its material instantiation (daily practice) and its Ideal Form (education). This privileges the abstract "Education" twice.

2   Hoskin (1993, 271-304) argues that education is the "proto" or "Ur" discipline. He writes, "education far from being subordinate, is superordinate." This work subscribes to this concept, that education is a central arena for academic production, and indeed, following Hoskin, that the disciplines themselves came out of education. Hoskin (272) claims that the idea of education as an "inferior form of disciplinary life" is "perverse and misguided."

3   Prevailing conceptions of education are grounded in the "ideology of humanism," the granting of the human of an a priori status as an autonomous, free-standing monad that is "shaped" or "molded" or allowed to "fully develop its inherent potential" by application of proper education (e.g. *Bildung*, liberal education). Humanism works ideologically to prevent the recognition of the profound ways in which humans are plastic, socially produced. This production goes much beyond "socialization," a concept that respects autonomous subjectivity (the liberal subject) which is merely addended socially. The humanist model of the human is tied closely to Enlightenment liberalism (e.g. Locke, Rousseau) which provides prevailing conceptions of "freedom."

4   William Spanos (1993, 2000) is one of the few educational theorists who takes a similar view of the educative process. Using Heidegger, Derrida and Foucault, Spanos locates contemporary educational discourse in the Roman re-colonization of the originary "errant" (de-centered) thinking of the pre-Socratic

Grecians. On this reading, the displacement of a-lethia with veritas, truth as dis-closure (Heidegger finds this kind of truth in theoria) with truth as correspondence (between object and representation) was co-extant with the privileging of the sense of sight to which the pre-Socratic Greeks were ambivalent (Jay, 1993) and, with the imperial eye (ocularcentrism) instituted, the constitution of education as (readily observable) scholarship and training in good conduct (*eruditio et institutio in bonas artes*) was implemented.

Spanos (1993, xii-xx) claims this pedagogical imperialism resonates throughout humanist education from the Enlightenment, and resonates again in the New World Order (Pax Americana):

> However outrageous it may at first seem to the innocent and well-intentioned disinterested humanist or liberally educated man or woman, this disciplinary strategy—this technology of power—which has as its end the coercive re-formation of de-formed entities or, what is the same thing, the re-centering of the de-centered center and thus of ec-centric or err-atic being in the name of the logocentric norm (the guardian eye of bourgeois humanism) and the consumer capitalist power structure — has been the real agenda informing the "disinterested," "liberal" discourse of the post-Enlightenment university.

5   This follows with the definition taken from *The Catholic Encyclopedia*: "In the broadest sense, education includes all those experiences by which intelligence is developed, knowledge acquired, and character formed. In a narrower sense, it is the work done by certain agencies and institutions, the home and the school, for the express purpose of training immature minds."

6   Ilan Gur-Ze 'ev (2001) has developed a "posthumanist" pedagogy—or a counter-education—that stands in contradistinction to liberal pedagogies with their assumptions of dialectical or linear progress. For Gur-Ze'ev, what is commonly construed as education per se is normalizing education, a practice that is inherently violent because it imposes a series of restrictions upon the "knower."

7   Gur-Ze'ev (1999) in *Knowledge and Violence* writes:

> Normalized education constitutes and commands the "subject" in four levels: 1. Control of the psychic construction of the "subject," her psychological possibilities, strives, as well as the limits of controlling and changing their borders. 2. Control of the conceptual apparatus, associations and their integration with the psychic level and its presence in the conceptual level. 3. Control of collective and private self-conscious. 4. Control of the function of the "subject" in "her" reality and the minimization of the possibilities for change in the representation of reality that normalizing education reflects and serves.

8   For counter-history and counter-education, see Foucault (1977) "Nietzsche, Genealogy, History" in *Language, Counter-Memory, Practice*. "Counterfactual" is a term taken from the Niall Ferguson (2001, 407). Ferguson, justifying a "speculative" approach to the writing of history, says, "As so often in historical analysis, only a 'counterfactual' approach will get us close to a sufficient answer." While making no comparison to the work of Ferguson and other

contemporary speculative historians, nonetheless, this author subscribes to the idea that "history" is more than fact (random data), that is can be read coherently.

9   Fredric Jameson's commentary on the usefulness of the German playwright, dramaturgist and theorist Bertolt Brecht for academic production informs this use of *Verfremdung* (estranging the familiar). See Fredric Jameson, *Brecht and Method* and Maria-Regina Kecht (Ed.). (1992) *Pedagogy is Politics: Literary Theory and Critical Teaching*.

10   Guatarri (1995, 1-2) writes:

> At least three types of problem prompt us to enlarge the definition of subjectivity beyond the classical opposition between individual subject and society, and in doing so, revise the models of the unconscious currently in circulation: the irruption of subjective factors at the forefront of current events, the massive development of machinic productions of subjectivity and, finally, the recent prominence of ethological and ecological perspectives on human subjectivity.

This work follows Guattari's model especially as regards the "machinic production of subjectivity."

11   Industrial is simply a term to refer to human industry (the manipulation of the environment). However, it is used here in a more discrete sense to refer to the application of power-driven machinery to (manu)facturing. The mechanical loom, a primary instance of the use of external power in the manufacturing process, is dated to 1785 (the Rev. E. Cartwright). However, full-blown industrialization often is dated to 1848 in England, and was evident in the eastern US and western Europe shortly thereafter. Industrialization precipitated vast changes to social life, the human as well as to production per se (manufacturing).

12   Keeley (1996, 164) writes:

> The concepts that provide the framework for the pacified past originated in the period immediately following World War II. Several features of that particular war and its aftermath encouraged a pervasive and profound odium for everything connected with warfare. Since the hearth and wellspring of modern Western culture remains western Europe, the events in and the attitudes of that region are of key concern because they soon radiate to the New World and beyond.

13   Athusser (1969, 101) defines overdetermination: ". . . the 'contradiction' is inseparable from the total structure of the social body in which it is found, inseparable from its formal conditions of existence, and even from the instances it governs; it is radically affected by them, determining, but also determined in one and the same movement, and determined by the various levels and instances of the social formations it animates; it might be called overdetermined in its principle."

14   Personal correspondence with Professor Ramirez, August 29, 2002.

15   Geoffrey Winthrop-Young (2002, 837) writes:

> . . . .if war is now the normal state of affairs for the industrialized nations, then potentially all media technologies, no matter who designed them for what purpose, add to the suffusion of society with war. In this case, the term war transcends its restricted meaning and now refers to a set of basic operational procedures that are as indispensable to combat situations and military engagements as they are to the routines of everyday life of modern society. The execution of these operations involves surveillance, information gathering, and interception while their preparation involves drill, mobilization, and the creation of self-guided operators. The latter is also known as subject-formation. . .

This work extends that argument to education "as a set of basic operational procedures that are as indispensable to combat situations and military engagements as they are to the routines of everyday life of modern society." In this regard and many others, postindustrial society is totally-blended, rhetorical demarcation between war and peace, education and training, civil and military notwithstanding (see Chapter 5).

16   The biologism of anthropologists as Conrad Lorenz and Lionel Tiger and the "biological determinism" that characterize some forms of feminism stress the "natural violence of the male." Keeley (1996, 157-58) provides an encapsulation of this issue:

> One persistent claim made regarding the scarcity of peace is that humans (especially men) are driven by their "biology" or "nature" to war on one another. Obviously, nothing in humans' nature inhibits them from making war, but this lack hardly creates an automatic compulsion to fight. Almost all higher animals are capable of violence against their own kind. Humans seem no more predisposed to aggressive behavior than any other species that commonly fights and occasionally kills its own kind over territory, sexual access, or social dominance.

The "evolutionary psychologist" Richard Dawkins, in his book *The Selfish Gene* (1989), takes "biologism" to another level altogether. He views humans as "gene machines," with human behavior pre-programmed genetically—to preserve a "selfish" genetic make-up.

17   Keeley (1996, 20) expresses academic aporia as regards the military origin of the most taken-for-granted of cultural artifacts, highways and cars:

> Such completely symbolic interpretations [academic interpretations of the built environment] also neglect the extremely significant fact that among the primary rationales for building the German autobahns and the American inter state freeway system were arguments that they would facilitate the movement of modern mechanized armies. If present-day archaeologists were faced with interpreting the physical remains of modern industrial societies, they might emphasize the derivative symbolism of cars and highways while quietly ignoring the dependence of such symbolism on practical economic or even military concerns.

18   Van Creveld (1991, 210) writes:

> In the not too distant future, major-military-technological research and development as we have known it since the industrial revolution will grind

to halt. Even today, for every new weapons system actually fielded there are perhaps a score that never get beyond the drawing board; the research and development process is in large party an empty game whose main purpose is to provide employment and serve as a welfare system for engineers.

19   Internet sites by the score now deliver critical comment on a daily basis. Prominent among these are Chomsky's Znet, http://www.zmag.org/ZNET.htm, From the Wilderness Publications, http://www.fromthewilderness.com/index.html, AntiWar.com, http://www.antiwar.com/World Policy Institute, http://www.worldpolicy.org/wpi/index.html, Third World Traveler, http://www.worldpolicy.org/wpi/index.html), and the University of Münster's Peace and Conflict Studies, http://www.uni muenster.de/ PeaCon/welcomee.html.

20   Massumi (1993) in *The Politics of Everyday Fear* examines the institutionalization of quotidian fear during the Cold War period. Robert Corber (1997) in *Homosexuality in Cold War America: Resistance and the Crisis of Masculinity* examines the relationship between Cold War and the construction of homosexuality as a pathological threat to national security. He examines the way in which media, most especially the content of movies, were enlisted in this effort. The films of Alfred Hitchcock are exemplary. Jeff Schmidt (2000) in *Disciplined Minds: A Critical Look at Salaried Professionals and the Soul-Battering System that Shapes their Lives* examines the role of professionalization in domesticating academia.

21   Sidney Lens (1987) in *Permanent War* was one of the first to document the rise of the national security state (garrison state) during the Second World War. His work captures the militarization of existence as a function of changes to the role of the state that occurred in the U.S. and all other Anglophonic jurisdictions. Lens traces contemporary statism (nominal democracy) to generative developments during the Second World War. Lens writes, "in 1939 the (U.S.) federal government had about eight hundred thousand civilian employees, about 10% of whom worked for national security agencies. At the end of the war the figure approached four million of which more than 75% were in national security agencies (Barnet Richard, Roots of War, 1972)." Other work, notably *The Economy of Death*, Barnet (1969), *War and Society*, Polenburg, (1972), a book of record on the quotidian influence of the Second World War, *The Permanent War Economy: American Capitalism in Decline*, Melman (1974), *The Coming of Postindustrial Society,* Bell (1973) addresses the formative influence of war and militarism in the development of new forms of capitalism and statism. None of this work directly addressed the role of the research university in constructing the national security state, viewed the research university itself as a war weapon, or addressed the role of education in the process.

22   C. Wright Mills had already explained the influence of the military industrial complex in 1959 in *The Power Elite*. He called it a power elite because its leaders came from all areas of society. He identified the influence of the military on education.

23   From Eisenhower's *Farewell Address to the Nation* (1961):

> The conjunction of an immense military establishment and huge arms industry is new in the American experience. The total influence – economic, political, and even spiritual—is felt in every city, every state house, and every office of the federal government...In the councils of government, we must guard against unwarranted influence, whether sought or unsought, by the military-industrial complex.

24   "Crises of overaccumulation" is a very productive Marxist concept that can explain the role of warfare in the contemporary U.S. According to Marxist theory, overaccumulation is "built-into" capitalism; is forms a portion of the logic of the capitalist system. War can provide a "clearing house" by which capitalism rids itself of too much wealth in the form of "capital" (e.g. "money"). To quote from Patrick Bond *What is a crisis of overproduction*?:

> Capital accumulation refers to the generation of wealth in the form of "capital." It is capital because it is employed by capitalists not to produce with specific social uses in mind, but instead to produce commodities for the purpose of exchange, for profit, and hence for the self-expansion of capital. Such an emphasis by individual capitalists on continually expanding the "exchange-value" of output, with secondary concern for the social and physical limits of expansion (size of the market, environmental, political and labour problems, etc.), gives rise to enormous contradictions. These are built into the very laws of motion of the system. Perhaps the most serious of capitalist self- contradictions, most thoroughly embedded within the capital accumulation process, is the general tendency towards an increased capital-labour ratio in production—more machines in relation to workers—which is fuelled by the combination of technological change and intercapitalist competition, and made possible by the concentration and centralisation of capital . . .

> When an economy reaches a decisive stage of overaccumulation, then it becomes difficult to bring together all these resources in a profitable way to meet social needs. How does the system respond? There are many ways to move an overaccumulation crisis around through time and space. But the only real "solution" to overaccumulation—the only response to the crisis capable of reestablishing the conditions for a new round of accumulation—is widespread devaluation. Devaluation entails the scrapping of the economic deadwood, which takes forms as diverse as depressions, banking crashes, inflation, plant shutdowns, and, as Schumpeter called it, the sometimes "creative destruction" of physical and human capital (though sometimes the uncreative solution of war) [italics added]. The process of devaluation happens continuously, as outmoded machines and superfluous workers are made redundant, as waste (including state expenditure on armaments) becomes an acceptable form of mopping up overaccumulation, and as inflation eats away at buying power. This continual, incremental devaluation does not, however, mean capitalism has learned to equilibrate, thus avoiding more serious, system-threatening crises.

25   On this reading, postindustrialism co-exists alongside preindustrialism and industrialism. For example, one geographic area may be "totally wired" and

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dedicated to the production of information (for example, the accounting data produced in India "overnight" for transnational accounting firms based in Europe and North America), a preindustrial production platform dedicated to manual production may be located nearby, while an industrial gas works may be located between.

Each of these forms of production, in turn, in aspects increasingly resembles the others (blending). Industrial plants adopt digital technologies, while the postindustrial accounting firms come to resemble preindustrial "outputting" operations. The goods produced manually (preindustrial economy) are elevated to the status of "crafts" and produced for export and tourism, while industrially produced goods take the place of manually-produced goods in the local economy. Such a mixture was not possible until recently (the 1980s). However, all "advanced" economies at root are still a function of "third generation" industrial technologies (e.g. electrical generation, advanced metallurgy, petrochemicals [plastics], hierarchical corporate structures). In this rendering, modes of production are contiguous.

As well, postindustrial refers to an economy of the interior, the production and consumption of subjectivity itself (cf. Negri, *Back to the Future, A Portable Document*). This differs from the original meaning (Touraine, 1970, Bell, 1973).

26   De Landa (1991, 109) offers another interpretation of the overdetermination of the economy:

> There is a sense in which economic institutions have a military origin, but the inverse is also true. The trade and credit machinery created by capitalism was both a result and a cause of the commercialization of violence that began the clockwork era of mercenary warfare in the thirteenth century. A feedback loop was established between the two spheres: a certain level of productivity and a surplus created taxable wealth. This wealth fueled the war machine in the form of payments for mercenaries. The soldiers in turn became consumers, recirculating the money and stimulating the economy. A different loop involved the military not as a consumer but as a suppler: a suppler of protection for trade routes. Money buys protection, but at the same time, the technology of the protector evolves.

27   Please note that the works of the authors referenced have been read in English translation only.

28   Sloterdijk (1987, 348-49) writes: "In the will to knowledge, interests are always astir that do not exhaust themselves in knowledge as such but serve the subjects as weapons against the objects. 'Objective knowledge' in this sense possesses the character of a weapon."

29   Virilio (1994, 23) explains this "peculiar susceptibility" may not have been quite so straightforward—that it took some to instill "learned ignorance."

> The retreat from the mathematically derived mechanical explanation took time. Max Planck postulated quantum theory in 1900, 'quanta' being mathematical facts that cannot be accounted for. After that, as Sir Arthur Eddington remarked 'every genuine law of nature stood a good chance of seeming irrational to the rational man'. These facts were difficult to accept

for they not only went against cumulative scientific prejudice, they went equally against the dominant philosophies and ideologies.

This makes it easier to see why Einstein's theory was banned, why efforts to popularize it and communicate it to a wider audience were so sporadic, 'limiting and reducing the body of knowledge on the subject to a small privileged group crushing the philosophical spirit of the people and leading to the gravest spiritual impoverishment'...By reminding us that 'there is no scientific truth', in the middle of a century crawling with engineers, Einstein remobolised what fifteenth century poets and mystics like Cues called learned ignorance; in other words the presupposition of not-knowing and especially not-seeing which restores to every research project it fundamental context of prime ignorance.

CHAPTER 2:
OFFENSIVE POSITIONING

Introduction

This chapter provides the "outline of a method," providing a theoretical justification for academic work such as this that is as much intuitive as methodical. Indeed, employing intuition, following one's nose to the point where historical and rhetorical disconnections and discontinuities seem to evidence continuity and coherence, is perhaps the greatest strength and weakness of this production. Yet such could not but be the "method" as there is no "historical record" to access, or body of literature dedicated to the historical examination of education and its relationship to warfare. This information, including the "theory" that gives it meaning, was culled from the most diverse of sources and then patterned (sequenced). These sequences and patterns constitute "findings."

In order to accomplish this, the author employs "dialectical thinking" itself as method. Such method allows, indeed encourages, various forms of unorthodox language usage and even the employment of "creative ambiguity." Such method is intended to draw attention to the way ambiguity is "built-into" language, to allow novel conceptualizations of "everyday" events and ways of speaking. The author attempts this by transforming nouns into processes—verbs (this itself a symptom of the "Americanization" of English). The author, as well, addresses the "battle of assumptions" between postmodern and empiricist historians, explaining how this production worked from within both productions. The chapter opens by proffering an excursus into the historical conditions that made various forms of twentieth century critique possible.

Mise-en-scène

If the Classical script that survived "history" is read symptomatically, it is evident that academic knowledge producers during both the classical and modern epochs were taken up with the formation *and* control of human thought and activity. The product of that concern (knowledge) time and again was reformed, rediscovered and reinvented—supplemented and superceded—to the point where the concern for *control* marks most knowledge and may even define it.

During the Enlightenment and the early Industrial era (*circa* 1700-1900) this concern evidenced prominently in the invention of secularism and the human sciences (Foucault, 1971). However, the human addressed (reinvented) by these discourses, neo-classical or modern, had been invented much earlier, some 2,500 years ago, on the Attic peninsula.

The process by which this invention proceeded has recently come to be termed subjectification—the technologies of self-regulation (cf. Butler, 1997, Deleuze, 1995, Foucault, 1980, Heidegger, 1997). Deleuze (113) addresses this formative invention that still lives on in *traces* (discourse):

> . . . in politics (and elsewhere) the Greeks invented a power relation between free men, it's free men who govern free men. Given that, it's not enough for force to be exerted on other forces or to suffer the effects of other forces, it has to be exerted upon itself too: the man fit to govern others is the man who's completely mastered himself. By bending back force upon itself, by setting force in a relation to itself, the Greeks invent subjectification. We're no longer in the domain of codified rules of knowledge (relations between forms), and constraining rules of power (the relation of force to other forces), but in one of rules that are in some sense *optional* (self-relation): the best thing is to exert power over yourself [italics in original].

This development, the invention of the cultural imaginary termed the human, can even be traced to a precise geographic location, a garden in Ancient Athens named the Academy. There, in that place, the "West" (post-Socratic

thought, *logos*) sprouted in concert with the internecine wars concerning the military, political and economic control of the Peloponnesus and the sea lanes, land routes and colonies that constituted three competing Hellenic empires (see Chapter 5). Fieser (2002) provides this description:

> The Academy (*Academia*) was originally a public garden or grove in the suburbs of Athens, about six stadia from the city, named from Academus or Hecademus, who left it to the citizens for gymnastics (Paus. i. 29). . . . The Academy suffered severely during the siege of Athens by Sylla [Peloponnesian wars], many trees being cut down to supply timber for machines of war. Few retreats could be more favorable to philosophy and the Muses. Within this enclosure Plato possessed, as part of his patrimony, a small garden, in which he opened a school for the reception of those inclined to attend his instructions. Hence arose the Academic sect, and hence the term Academy has descended to our times.

The sectarian knowledge (*logos*) developed then was redeveloped when Rome colonized Greece (circa 150 BCE)—and Greece discursively colonized Rome (*circa* 150 BCE)—was "lost" to the West and then again "found" (*circa* 450-1250 AD), this "Western finding" of ostensibly lost knowledge often assigned causal significance as regards the origins of the European Renaissance (*circa* 1250-1450). Thus one form of Hellenic knowledge came to be considered Knowledge itself. In changed and changing form, Knowledge thus identified served well with Power to the point where the two can be conflated (Foucault, *Power/Knowledge*, 1980). When Europeans some two millennia later proceeded with their projects of global colonization (discovery), *logos* came to be inscribed on the planet presenting as the "age of the world picture" (*i.e. enframing*, Heidegger's historicization of the present).

However, the imperialism (universalism) of this Romanized and scientized Hellenic thought, in other words, the parochialism of that thought, and more importantly, its post-Renaissance successors (e.g. neo-classical metaphysics, empiricist science, political economy), began to be critically apprehended in

the new global imperial centre (Northwest Europe, especially in Germany and Austro-Hungary) from the early nineteenth century. With that apprehension, the exceptional status granted knowledge, consciousness and the trope of unmediated vision as pre-existent and value-free, as prior to language, as co-extant with positive knowledge, with humanism, progress and linearity (Whig history) was destabilized and denatured.

Mise-en-abyme

Thought concerned with "seeing through" received knowledge has been "deconstructive," from the start, concerned with exposing the "structure of the structures" that underscore human language and thought, and with that, of "reality." The historian Hayden White (1987, 186) summarizes this recognition:

It used to be thought that certain texts, such as those produced by the great nineteenth century theorists of civilization, were themselves less cultural artifacts than self-interpreting models for explanation on the human sciences. But now not even Hegel, Marx, Nietzsche, and Freud can escape the charge of ideological deformation that they once brought against their opponents in the methodological and theoretical disputes of their own times. They too must be "deconstructed," their "blindness" specified, and their places in the *épistèmes* of their epochs determined before they can enter the lists of possible models of historical reconstruction and analysis.

Marxism (historical materialism) inflected much of this deconstruction, including its expression in various fields of study that arose during the twentieth century, for example in social theory, critical theory, cultural studies, feminist theory, literary theory and poststructuralism. Academic work in these new arenas was self-consciously self-referential, interested as much in the relationship between the "real" and symbolic and linguistic

representations of it, as in that which, since the development of empirical science, had been (officially) construed as "reality."

While analytic philosophy worked to understand language more profoundly, to better capture a discernable reality existing outside the language, symbols, images required to conceive and perceive it, other forms of theorizing concentrated on exposing the nature of language and of representation and thereby demonstrate how the "real" in part at least was a function of the language, precepts, concepts and percepts that allowed its apparent apprehension (Culler, 1982, Schiffrin, 1994). This is not to suggest that reality does not exist prior to or outside human consciousness, only that its apprehension must be partial, contingent and mediated—and ultimately political and ideological in aspects.[1]

Jean Baudrillard's work (1994, 2001) is an exemplar of this deconstructive tendency. According to him, the "real" *has been* "disappeared," lost to humans through the levels of mediations that now structure its apprehension. For Baudrillard, not only the image, but the image of the image, not the referent for the image, have been technologically "lost." The "unreal" now is the "real," a politicized and highly partial space that ultimately grounds a postreal or posthuman (postindustrial) *subjective type.*

In instances, such provocative and speculative theorizing led to a spiraling *mise-en-abyme* (abyss) whereby knowledge doubled back on knowledge, especially in the instances where the possibility for non-conditioned exterior empirical evidence or logical proofs had been called into question. This spiral was brought to the fore most especially in the work of Jacques Derrida (1967). Ironically, Derrida logically demonstrated that a text cannot possess stable meaning, and that it cannot be adjudicated by external references such as the "life" of the author.

For Derrida, dialectical regression replaced mimetic meaning, with words found to carry *traces* that hypothetically stretched back from meaning to meaning, this leaving the concept of non-relational validity, of empirical historical evidence, and of most any other ostensibly concrete referential position, previously considered external to the theory or discourse, open to refusal. With Derrida, any reference point external to the discourse, when brought to bear, was in turn deconstructed (historicized).

This relational system of thought (epistemology) wherein there is no appeal to final authority, linguistic, scientific or moral, whereby an endless string of signifiers with no final signified is all there is, may be a more valid philosophical system than systems predicated upon the discovery of a final position (analytic philosophy, positivism, theology, Marxism). Nonetheless, "postmodernist" theory, to use an inadequate term, engendered considerable resistance and was described variously as discursively vertiginous, immoral, paralytic, apolitical and solipsistic.[2]

The disdain—or perhaps fear and loathing—that poststructuralism engendered was evidenced when poststructuralist forms of theorizing attracted vigorous academic address by the conservative academy. The historiographer Arthur Marwick (2001) in his defence of "foundationalism" refers to this as the "battle of basic assumptions." And as Jameson (2002, 1-7) recently pointed out, in the last several years this "battle" has been won by the conservatives, this evidenced for one by the return of "philosophy." As Jameson puts it, one of the "great achievements of postmodernity" has been subject to "reversal," though not yet quite relegated to the discursive dustbin.

Working Method

Perhaps, however, poststructuralism still can be employed productively to ground a historical and social narrative if it is acknowledged up front that the historical record, no matter how confabulated, must be taken at face value in instances, that what persons said and did has been accurately recorded and is reflective of past thought and activity, that "history" still can provide meaning when it provides the basis for "grand theorizing" (e.g. Hegel, Marx, Spengler, Mumford, Polyani, Braudel).

For the most part, speculative history (grand theorizing) during the "progressive" twentieth century was actually quite conservative and modest. Most twentieth century theorists and historians were content to work from within the great speculative traditions of the nineteenth century. Even new approaches to knowledge production such as the history and sociology that focused on the everyday, the social, political and economic for example, rather than on "history" comprised of great man narratives—the grand doings of the nation-states which ostensibly embodied historical progression—worked within paradigms developed earlier.

Much of the speculative history and grand theory produced during the century was Marxist-inflected, for example Braudel, Adorno, Genovese, Thompson, Tawney, Beard and Hobsbawn. And, of course, much of this work was similar in that it was justified by appeals to empirical veracity and in that it attributed causation in history to non-agentic structural factors like "modes of production" or "urbanization," "patriarchy," or in *Annales* history, to geography and material technological conditions such as the amount of ground a donkey could cover in a day's walk, or the effect of the introduction of new plant species or patterns of crop rotation. As a result, Aristotelian "great man" theories, while finding a huge popular audience, fell into

academic disfavor. Indeed, "names" came to be used metonymically and metaphorically to "stand in" for discursive fields and sets of practice.[3]

Recently, however, those grand histories have been attacked from left and right—from the particularist empiricist historians who produce contemporary micro-history, and by poststructuralist theorists who contend that "history" no matter how "factual" and detailed cannot but be a fabulation ripe for deconstruction. Such criticisms of empiricist and narrative traditions, and there were many, were closely tied to literary criticism, language studies and anthropological and sociological studies, all of which colluded to produce knowledge wherein it was recognized that the "past" was a confabulation that in aspects could not but be ideological.

This work is placed at this point, an intended integrated articulation that does not pretend to history proper, but to a cultural study intended to apprehend hidden or perhaps even silenced historical relationships between sets of discourses and practices. As Foucault (1978, 27) reminds us, silence is active communication, not simply a site for the irrelevant, illogical or unknown: "There is no binary division to be made between what one says and what one does not say;. . . There is not one but many silences, and they are an integral part of the strategies that underlie and permeate discourses."

Yet, how can conventional method that assumes some "natural space" beyond the discursive, that assumes reality (res gestae) can be co-extant with its linguistic and semiological representation, be reconciled with method that regards the past as always already only approachable historia rerum gestarum (subjective comprehension of events)? Can these seeming opposites be blended? ₀

Fredric Jameson, the preeminent cultural critic working in the U.S., has addressed these issues and many more since the 1960s. Jameson employs a materialist cultural(ist) critique that incorporates forms of thought sometimes considered opposed and contradictory, affirming the validity of Marx's understanding that the cultural rests upon the material, while at the same time foregrounding a "relativist" dialectical process. His is a full system of thought that goes beyond cultural analysis, formal aesthetics and literary criticism. It provides a reference for this work, not the least in the articulation of method.

Jameson's work is programmatic in its interpretation of the cultural as a function of the economic, and his concepts of "symptom," "theorizing," "totality," "irony," "estrangement," "dialectical reversal," and "dialectical thinking" are employed to read culture as symptomatic of a particular form of material existence (capitalism). While this work uses those concepts, it parts with Jameson in that it views war, education and the economy as co-constitutive, as mutually-determinative in the social production of "reality," or, to use Althusser's (1962) concept, "reality" is overdetermined by these social practices/systems.

Instead, this work follows Weber, Sombart, Giddens, Mumford and Elias in privileging war as formative in the constitution of "history," education, subjectivity and prevailing existential conditions (reality). In this work, the relationship between war, education, capitalism (and technology and science) are synchronously gathered together within a hybrid narrative. This attempt to comprehensively theorize and collapse various historical moments and phenomena is, of course, by its nature, open to wide-ranging criticism. Yet it is only by this means that the pervasive but hidden interconnections between war and other facets of life in the West can be apprehended (historicized).

Dialectical Thinking

Such an approach to knowledge production requires a method that encourages speculation and novel syntheses, at its most ambitious the exhumation of historical gaps and silences, lacunae and paradoxes. Such a method stands in opposition to conventional "methodology" based in unproblematicized representation and in the easy acceptance that there is such a thing as "history." Perhaps anti-method—or counter-method— provides a more adequate description of the "method" employed in this work. Ironically, that method—dialectical thinking—may be no more than a form of pattern re-cognition that was formalized as pedagogy by the U.S. military. Indeed, in this work, method may be nothing more than a quasi-militarist discursive exercise in pattern recognition employing "open source intelligence." However, most academic work, in one way or another, is a quasi-militarist hunt for "information," that can come into being only by being imprinted (constituted), by being formed into patterns (patterned).

Serres (1983, quoted in McCoy 1997, 492) wrote: "From Plato and a tradition of knowledge which lasted throughout the classical age, knowledge is to hunt. To know is to put to death. . . To know is to kill, to rely on death." Such a proviso certainly does little to inspire confidence in the production of positive knowledge; however, there is good reason. The twentieth century saw the equation between knowledge and death intensify exponentially, move much beyond any metaphoric quality to the actuality of the academic production of mass death (e.g. the weapons of mass destruction produced in the world's best universities).

Bringing this counter-intuitive equation to the fore is a fraught task. Fortunately Jameson's concept of "dialectical thinking" provides a suitable "anti-method" to produce such a "counter-narrative." This method is

grounded in inversion and reversal—finding the narrative in dialectical reversion. Jameson (1971, 309):

The basic story which the dialectic has to tell is no doubt that of the dialectical *reversal* [in original], that paradoxical turning around of a phenomenon into its opposite of which the transformation of quantity into quality is only one of the better known manifestations.

Such a project by its nature is one of "defamiliarization"—of making the ordinary strange (Brecht's *Verfremdung*). And, as Jameson explains, rhetorical devices, especially irony and dialectical inversion, the performative aspect of the production, figure prominently in "dialectical thinking" (52):

> Let the subjects of some of them—the relation of titles to works,
> sensitivity to punctuation, the uses of interlarded foreign words and
> phrases, the physical impression books make—illustrate the working
> method itself: they imply dialectical self-consciousness, a sudden
> distancing which permits the most familiar elements of the reading
> experience to be seen again strangely, as though for the first time,
> making visible the unexpected articulation of the work into
> determinable parts and categories.

Such thinking "pulls itself up by its bootstraps." In this instance, it entails an understanding that the templates that discursively form "history," the "ages," or, better yet, supply the means for the "conjugation of the world" (Winthrop-Young, in Kittler 1999) are social heuristics, explanatory abstractions. Marx's "modes of production," Foucault's "regimes of truth," Derrida's "metaphysical and post-metaphysical eras," Heidegger's enframing, Kuhn's "paradigms," Ong and MacLuhan's "ages of media," Williams "emergent, dominant and residual cultures," are only conceptual templates—discursive patterns stamped upon cognition, the reification of which denies the possibility of "dialectical thinking."

This denaturalizing of received knowledge and thinking is by its nature an unsettling process resisted at every step by the knowledge producer.

Jameson brings this to the fore in another landmark text, *The Political Unconscious* (1981, 283-84):

> What this impossibility of immanence [working within a realm of discourse assumed as a natural space beyond question] means in practice is that the dialectical reversal must always involve a painful "decentering" of the consciousness of the individual subject, whom it confronts with a determination (whether of the Freudian or the political unconscious) that must necessarily be felt as extrinsic or external to conscious experience. It would be a mistake to think that anyone ever really learns to live with this ideological "Copernican revolution," any more than the most lucid subjects of psychoanalysis ever really achieve the habit of lucidity and self-knowledge; the approach to the Real is at best fitful, the retreat from it into this or that form of intellectual comfort perpetual.

This taxing and imperfect method is self-consciously performative and self-reflexive, predicated upon finding "new ways of seeing." It is ideally suited to the goals of this work, to estrange (teach) by providing a conceptualization of education *as* war and the unacknowledged mutually determinative relationship between war and education. Traditional concerns as regards method as a process of defining and then narrowing a problem, either inductively or deductively, to arrive at a prescriptive moment, at recommendations, solutions, and thereby at narrative resolution, for this work, are themselves considered problems.

Dialectical thinking problematizes "fact" and "problem," turns them into taking-off points for thinking on another level or in a different register. For example, if the "problem" is "terrorism," this method would immediately deny address in the received context. It would consider how "terrorism" is socially (textually) constructed, who gains and loses through this construction, what economic interests are promoted, what economic interests are silenced, why "freedom" is provided discursive and political privilege with "terror" thrown into a binary with it (in this regard it is similar to "immanent critique)." It would invert the term, asking for example how "freedom" may

be "terror" and how "terror" may be "freedom." Jameson explains (1971: 307-308):

> Faced the operative procedures of the nonreflective thinking mind (whether grappling with the philosophic or artistic, political or scientific problems and objects), dialectical thought tries not so much to compete and perfect the application of such procedures as to widen its own attention to include them in its awareness as well: it aims, in other words, not so much at solving the particular dilemmas in question, as at converting those problems into their own solutions on a higher level, and making the fact and the existence of the problem itself the starting point for new research.

Of course, this procedure is not novel; it is the way philosophy, history and theory have always proceeded. This dialectical ratcheting up of the levels of one's thought is predicated upon forming hitherto unacknowledged or unpopular historical linkages in order to produce, at its most ambitious, a new picture or perspective. Any such process by its nature requires self-reflectivity; as Jameson explains, unless thought is self-conscious, it cannot be dialectical (1971, 340):

> Dialectical thought is in its very structure self-conscious and may be described as the attempt to think about a given object on one level, and at the same time to observe our own thought processes as we do so: or to use a more scientific figure, to reckon the position of the observer into the experiment itself. . . dialectical thinking thus proves to be a moment in which thought rectifies itself, in which the mind, suddenly drawing back and including itself in its new and widened apprehension, doubly restores and *regrounds* its earlier notions in a new glimpse of reality: first, through a coming to consciousness of the way in which our conceptual instruments themselves determine the shape and limits of the results arrived at; and thereafter, in that second and more concrete movement of reflection which is the specifically Marxist form, in a consciousness of ourselves as at once the product and the producer of history, and of the profoundly historical character of our socio-economic situation as it informs both solutions and the problems which gave rise to them equally.

As Jameson (333) states: "for a genuinely dialectical criticism, indeed, there can be no preestablished category of analysis: to the degree that each work is the end result of a kind of inner logic or development of its own content, it

evolves its own categories and dictates the specific terms of its own interpretation." Could this not supply a very adequate definition of the best of educations, of transformative thinking?

The Ideological Moment

Dialectical thinking as method can be dismissed out-of-hand as programmatic and ideological and therefore illegitimate. Throughout his texts, Jameson is very aware of this, and of how his concept of dialectical thinking differs from what he terms Anglo-American empirical realism. From *Marxism and Form* (367-368):

> For the dominant ideology of the Western countries is clearly that Anglo-American empirical realism for which all dialectical thinking represents a threat, and whose mission is essentially to serve as a check on social consciousness: allowing legal and ethical answers to be given to economic questions, substituting the language of political equality for that of economic inequality and considerations about freedom for doubts about capitalism itself. The method for such thinking in its various forms and guises, consists in separating reality into airtight compartments, carefully distinguishing the political from the historical, so that the full implications of any given problem can never come into view; and in limiting all statements to the discrete and the immediately verifiable, in order to rule out any speculative and totalizing thought which might lead to a vision of social life as a whole.

Dialectical thinking as an academically productive technique and rhetorical performance is predicated upon speculative and totalizing thought even if the resulting "totalization" does not follow Jameson in being singularly Marxist. This method relies on synthesis and integration, creative analysis, conceptual transgressions, discursive leaps that do not necessarily abide the rules of empirical realism. Such thought by definition must proceed outside received categories; it is premised on questioning the validity of those categories and of the process of categorization generally.

Foucault's concept of genealogy is perhaps the most successful way in which "history" has been reformed by an author who developed his own categories

and dictated the specific terms of interpretation. Foucault expends a book, *The Order of Things* (1970) doing that, historicizing categorization itself to provide examples of the various ways in which subjective "mental machinery" (Sloterdijk, 1987) is overdetermined by various forms of categorization that form "cognitive templates." Foucault's (1977) explanation of his historical work, which he still termed "archaeology" in 1970 (later genealogy), stands in contradistinction to history, in effect offering a Nietzschean counter-history, a form of the narrative constitution of the past that foregrounds arenas previously left inarticulate when passed through the "historical" process. This work, however, is not Foucauldian genealogy or archaeology; it does not examine the minutiae of the previously silent quotidian, concentrating instead on pulling exemplars out of the past that are readily available and that, when hooked together, form a coherent picture.

The rationale for the method, then, is the value of a novel disclosure of a systemic and historical nature—approached necessarily through descriptive and theoretical speculation as opposed to particularist history or Foucauldian genealogy. In this regard, the work follows not only Hayden White (1987) who demonstrates how the narrative form itself in part determines what is called "history," but theorists who claim the "media is the message," especially the (post)materialist analysis of Jean Baudrillard (cf. *Critique of the Political Economy of the Sign*, 1981). Hayden White provides text/context for the condition in which such a work of synthesis is positioned (1987, 190):

> I call ideology the central problem of intellectual history, because intellectual history has to do with meaning, its production, distribution, and consumption so to speak, in different historical epochs. But in the West at least, the question of meaning—or more precisely that of the meaning of meaning—has evolved against the background of a conviction of the irreconcilable opposition between science (conceived of a some kind of objective view of reality) and ideology (conceived as

> a distorted, fragmentary, or other wise deformed view, produced to
> serve the interests of a specific group or class).

White characterizes the battle between science and ideology as a "Manichean struggle" that could "only end" with subscription to the scientific view of reality. Again apparent is the "battle of assumptions" that has flavoured various forms of knowledge production for the last century. White (192) goes on to explain the way in which the conceptualization of "the problem of characterizing the ideological aspects of a given text, discourse or artifact" became a central issue in "history":

> . . . the ideological aspects of a text are specifically those
> "metalinguistic" gestures by which it substitutes another sign system
> for the putatively extralinguistic referent about which it pretends to
> speak or of which it pretends to be a straightforward, objective or
> value-free description. A semiological approach to the study of texts
> permits us. . . to regard ideology as a process by which different kinds
> of meaning are produced and are reproduced by the establishment of
> a mental set towards the world in which certain sign systems are
> privileged as necessary, even natural, ways of recognizing a "meaning"
> in things and others are suppressed, ignored or hidden in the very
> process of representing the world to consciousness. This process goes
> on in scientific discourse no less than in fictional and legal-political
> discourse.

This point is important for this thesis; the establishment of a "mental set," or more broadly, of specific forms of subjectivity via "privileged signs" constitute education, or for that matter history. To follow White and Jameson, such constitution cannot but be an ideological undertaking. Importantly for the rest of this work (see Chapter 4 especially), the ideological moment is inherent in the process of "meaning-making" through books, newspapers or electronic media for example—rather than a product of it. Though there certainly is a difference between deliberate misinformation (propaganda) and the ideological moment that necessarily accompanies any cultural production, this difference is not as absolute as a binary distinction between "truth" and "lies" would have it, but a difference in degree and

intent. Indeed, post-realist narratives may hold more truth than their realist equivalents (see Chapter 3).

All that said, history is not a novel, a fabulation comparable to a work of fiction. For example, this work does not invent characters or present "false evidence," and while it does not subscribe to "metaphysical" historiograhy, it still answers to "fair representation" as it is formulated within that register.

The work is not naively mimetic, does not view history as a given—but as an academic production that can change quickly. However, this does not preclude the understanding that there is indeed a very real past even though it is only in the "telling," in its *always already* interested narrative constitution that it acquires intersubjective meaning (history as we know it is a modern invention). This claim is not to be confused with academic license as some would have it (cf. Marwick, 2001). That the past is emplotted, narratively constituted in the terms dictated by the present, does not suggest that one historical narrative is as valid as another. It does suggest, however, that any history, no matter how ostensibly empiricist, is always interested (ideological).

To refer to White once again (1987, 87-88):

> In order to read appreciatively the kinds of works produced by the majority of modern historians, amateur or professional, one must assume the mental stance of the subjectivity that believes in these notions not only as values but also as the categories best suited to the conceptualization of the "reality" one lives. Such a subjectivity is prepared to adopt a specific morality as the criterion for endowing the events of history with whatever meaning they can be construed "objectively" to possess. When this morality is identified with the actual practices of the society to which the reader belongs, these notions and the representational practices that project them as the basis for understanding "reality" correctly can be labeled "ideological" in the broader, analytical sense in which Althusser has presented this concept.

Althusser, of course, famously defined ideology as "the imaginary relationship of individuals to their real conditions of existence" (*Lenin and Philosophy*, 1971, 162). However, those "real" conditions are themselves individual and social "acts of interpretation," ways in which persons justify privilege and marginality.

And here is where the recent "history" of war, economics, knowledge production and politics gets very interesting. As already mentioned in Chapter 1, the U.S. government after World War II employed many Nazis to spy on the U.S.S.R. and actively colluded in resettling Nazis outside Europe (as did Canada) (cf. Tom Bower's (1987) *The Paperclip Conspiracy: The Hunt for the Nazi Scientists*, Howard Margolian's (2000) *Unauthorized Entry: the Truth about Nazi War Criminals in Canada, 1946-1956* and Russ Bellant's (1991) *Old Nazis, the New Right, and the Republican Party*). Martin A. Lee's (2001, section 1) in *The CIA's Worst-Kept Secret: Newly Declassified Files Confirm United States Collaboration with Nazis* provides these details:

> "Honest and idealist . . . enjoys good food and wine . . . unprejudiced mind . . ." That's how a 1952 Central Intelligence Agency (CIA) assessment described Nazi ideologue Emil Augsburg, an officer at the infamous Wannsee Institute, the SS think tank involved in planning the Final Solution. Augsburg's SS unit performed "special duties," a euphemism for exterminating Jews and other "undesirables" during the Second World War. Although he was wanted in Poland for war crimes, Augsburg managed to ingratiate himself with the U.S. CIA, which employed him in the late 1940s as an expert on Soviet affairs.
>
> Recently released CIA records indicate that Augsburg was among a rogue's gallery of Nazi war criminals recruited by U.S. intelligence agencies shortly after Germany surrendered to the Allies. Pried loose by Congress, which passed the Nazi War Crimes Disclosure Act three years ago, a long-hidden trove of once-classified CIA documents confirms one of the worst-kept secrets of the cold war—the CIA's use of an extensive Nazi spy network to wage a clandestine campaign against the Soviet Union. The CIA reports show that U.S. officials knew they were subsidizing numerous Third Reich veterans who had committed horrible crimes against humanity, but these atrocities were overlooked as the anti-Communist crusade acquired its own momentum. For Nazis who would otherwise have been charged with

war crimes, signing on with American intelligence enabled them to
avoid a prison term.

While the "real winners" of the war were no doubt others, according to these
revelations and others like them, the U.S. government, certain of its
agencies, and the U.S. military had reason to hide links to Nazi Germany and
to the Nazis they, after the war, employed and assisted.[4] These "untold
tales" about various previously hidden aspects of World War II have become
common recently. *Day of Deceit: The Truth about FDR and Pearl Harbor* by
Robert Stinson (1999) provides another example. Stinson demonstrates that
the Japanese attack on Pearl Harbor that drew the U.S. into World War II
was provoked by the U.S. and was not unanticipated. Outside of the great
difficulty of accessing the "historical record" in the first place, and the fact
that portions of that record have been withdrawn from the U.S. naval archive
because of Stinson's revelations, his work or the work of others pursuing
"truths" have yet to change "history."

In this instance, and in the others, veracity has little to do with history.
Indeed, too often, historical veracity is written off/out as "conspiratorial."
Further examples of recent revisionism include Edwin Black's (2001) IBM and
the Holocaust: The Strategic Alliance between Nazi Germany and America's
Most Powerful Corporation. Black reveals that IBM ran the information
functions for the administration of German extermination camps.
Christopher Simpson's (1993) *The Splendid Blond Beast: Money, Law, and
Genocide in the Twentieth Century* reveals that both the current U.S.
President's grandfathers were financial backers of Adolf Hitler, and provided
crucial support for the Nazis to consolidate power. And Richard Sasuly's
groundbreaking work *I.G. Farben* (1947) provides unassailable evidence of
the close relationship between the research university and warfare. Sasuly,
who was a highly placed U.S. administrator in postwar Germany, documents
the crimes of the German petro-chemical cartel I.G. Farben, which were

made possible through the co-operation of U.S. capitalism, in this instance the Standard Oil Company of New Jersey.

Anthony Sutton's (1976) *Wall Street and the Rise of Hitler* documents the way in which the most respectable of U.S. banking houses financed the Nazi takeover of Germany. Another book on the same theme, Pool's (1997), *Who Financed Hitler: The Secret Funding of Hitler's Rise to Power, 1919-1933* documents the crucial role played by U.S. bankers and industrialists in Hitler's rise to power. Britain's culpability is documented in Neil Forbers' (2000) *Doing Business with the Nazis: Britain's Economic and Financial Relations with Germany 1931-1939*. As for the military support the German Regime received from the U.S. automobile industry, the following is excerpted from a 1974 report of the United States Senate Committee on the Judiciary (*Henry Ford was no Oskar Schindler*, n.d.):

> The activities of General Motors, Ford and Chrysler prior to and during World War II . . . are instructive. At that time, these three firms dominated motor vehicle production in both the United States and Germany. Due to its mass production capabilities, automobile manufacturing is one of the most crucial industries with respect to national defense. As a result, these firms retained the economic and political power to affect the shape of governmental relations both within and between these nations in a manner which maximized corporate global profits. In short, they were private governments unaccountable to the citizens of any country yet possessing tremendous influence over the course of war and peace in the world. The substantial contribution of these firms to the American war effort in terms of tanks, aircraft components, and other military equipment is widely acknowledged. Less well known are the simultaneous contributions of their foreign subsidiaries to the Axis Powers. In sum, they maximized profits by supplying both sides with the materiel needed to conduct the war.

This is not to suggest that perfidy is more common to one geographic location than another, only that historical veracity is extremely important, not least because it provides the basis by which historial connections can be ascertained, in this instance between capitalism, imperialism and war, even

to the point of demonstrating that they are self-reinforcing. This work relies on "out-of-the-way" evidence and the connections it can ground to claim that capitalism, war, the state and education have been mutually constitutive since the rise of the state and capitalism in the sixteenth century. As Hacker (1989, 11) says, "No institution, including military, is monolithic. Interaction between military and society produces change in each."

The way in which twentieth century AngloAmerican "history" has ignored long-standing systemic issues such as the formative influence of warfare on contemporary society demonstrates that voluntary filtering and outright censorship often as not inform what comes to be taken as History. This is not necessarily a matter of intended or unintended "false representation" as is the the case in histories that purposely ignore information, but of "silence," socially imposed through external and self-censorship, through the historial models (templates) brought to bear that endow "a specific morality as the criterion for endowing the events of history with whatever meaning they can be construed 'objectively' to possess" (White, 1987, 88). In all likelihood this work is no exception.

Chapter Notes

1   This is not to suggest reality can be reduced to "text." It is to suggest, however, that reality is not fully independent of observation (perceptual apprehension), that two are mutually constituted (overdetermined by a host of factors). Sean Cubitt (1999, 132-133) writes:

> But mediation is not representation: media serve to mediate, not between subjects and objects [as the theory of representation would have it], but between subjects [intersubjectivity, intertextuality]. This conclusion, already adumbrated in the theory of suture whereby the viewer is constituted as a presence by the absences (silences, gaps) in the text, film, images on TV, music, etc. Looking, listening is a process of "filling in the blanks," whereby the human constitutes the message through reading it— through filling in the gaps; ergo everyone hears/sees/feels differently but through the same [i.e. genetically-encoded](servo)mechanisms. Thereby the human is an active/act of process/interpretation, never a passive viewer/listener/receptacle. On such a reading it cannot be. If it is, it cannot see/hear as these processes, by definition, always are acts of interpretation and of constitution], provides us with the grounds for a social theory of mediation. Screen-theoretical work argues that identity, individuality and subjectivity are constructed, in a mediated society, through mediation. Individuality is then an end product of the mediation process, not is foundation [the is humanism turned upside down]…What is being lost in the acceleration of communication is only a historically specific mode of subjectivity, not subjectivity as such. It is only the individual— along with such perquisites as freedom and privacy—which disappears, faced with the new necessity for a blurred boundary between the public and, for lack of the private, the intimate sphere of what we can still perhaps refer to as the unconscious. This unconsciousness, however, is framed less by the individuation process [another inoperative concept in a posthumanist world] of the bourgeois family, and more by the interactive, fluid subjectivities of online communities [emphasis added].

2   Smart (1993, 17) synopsizes Jameson's generative understandings bring the depth of the change to the fore:

> The distinctive features attributed by Jameson to postmodernism include the following: a new depthlessness and a consequent weakening of historicity; the 'waning of affect', a fragmentation of the subject; the omnipresence of pastiche and prevalence of a 'nostalgia mode'; and a breakdown of the signifying chain following the collapse of the referent and associated crisis of representation

This crisis of representation, the crisis being the point of epistemological break down is described by Jameson in his introduction to Lyotard's (1984, viii) *The Postmodern Condition: A Report on Knowledge*. Stating that the crisis is usually perceived as an "aesthetic one, although it has relatively immediate philosophical and ideological analogues," Jameson writes:

> I am referring to the so-called crisis of representation, in which an essentially realistic epistemology, which conceives of representation as the reproduction for subjectivity, of an objectivity that lies outside it—projects a mirror theory of knowledge and art, whose fundamental evaluative categories are those of adequacy, accuracy, and Truth itself.

Lyotard (1993, 27) describes this change economically, the cultural conditions for which were forming in the 1920s:

> The decisive feature of what is called the postindustrial [Touraine, Bell], is that the infinity of the will invades language itself. The big deal of the past twenty years, to speak in the extremely dull phraseology of political economy and historical periodization, has been the transformation of language into productive commodity. This takes two forms. First, phrases are considered as messages, to be encoded, decoded, transmitted, and arranged (packaged), reproduced, preserved, kept accessible (memories), combined and concluded (calculations), opposed (games, conflicts, cybernetics). Second, the unit of measurement—which is also the unit of price—is established: information. The effects of the penetration of capitalism into language are only beginning. Under the guise of an extension of markets and a new industrial strategy, the coming century is that of the investment of the desire for infinity, according to the criteria of optimum performance, in matters of language.

3   Michel Foucault calls Freud and Marx "initiators of discursive practices" (*Language, counter-memory, practice*, 131) as "they cleared a space for the introduction of elements other than their own within the field of discourse they initiated."

4   The titles listed in this work are only a representative sample. Books addressing the "untold stories" of World War II and the Cold War have become numerous recently.

CHAPTER 3:

WAR MACHINE

Introduction

This chapter addresses the history, discourse and social practice of warfare by employing 1870 as a jumping off point. It takes the reader through recent war history and war critique and as well as war literature. It provides a historical tracing of the contemporary "war machine," and provides theory to place warfare in a context that emphasizes its impact on everyday existence, not only in periods of war, but in periods of ostensible "peace." It places "counter" or "anti-war machines" based in the theory of Deleuze and Guatarri on offer, suggesting that these "war machines" that are not for war provide a site of resistance to it. It provides a number of exemplars of twentieth century literature and culture that reflect the material and psychological prevalence of war throughout the century. Finally, it points to significance of 1870 as a year when great change became evident, where the impact of the industrial revolution on both material and immaterial production came to world attention because of the war of 1870.

Franco-Prussian War

In December 1851, some forty years after the first Napoleonic empire ended with the Battle of Waterloo (1815), the Emperor Napoleon's nephew Louis (b. 1808) staged a *coup d'état* in Paris, and following in his uncle's imperial footsteps, installed another. This "second empire" of post-revolutionary France proved only slightly more durable than the first, and it too ended in war, the Franco-Prussian War of 1870.

Goaded into attack by the media strategy of the Prussian Prime Minister
Bismarck (see Chapter 4), Louis' armies were forced to engage the enemy
much before they were prepared to do so.[1] The armies of France, which
were considered much the most powerful in Europe, were defeated in six
weeks, before they could mobilize fully. All the empires of Europe, especially
the British Empire, were shocked into the awareness that a new geopolitical
era was upon them. The social, political, military, industrial and educational
developments in Prussia following the devastating defeat of its armies by
Napoleon I (1806-1807) had proven their martial worth.[2] The Prussian
"national development strategy" carried tremendous influence from that
point; the importance placed on education did not go unnoticed.

The import of the war was recognized in even so remote a region of the
British Empire as the interior of the colony of British Columbia, which was to
join the Canadian confederation in 1871. From the August 6, 1870 *Cariboo
Sentinel* newspaper in the "gold rush" town of Barkerville, Williams Creek,
Cariboo (*War in Europe*, August, 1870):

> The whole of Germany, comprising a population of forty millions will
> probably regard the attack upon Prussia as an aggression upon the
> Fatherland, and as demanding common resistance, Austria, at least
> her government, will probably look on with indifference, but the bulk
> of the German people will regard the quarrel as their own. The Thirty
> Years' War, by which France carried her boundary into Germany,
> conquered and retained Alsace and other Germanic territory, will sway
> the German sympathies, if as is reported by telegraph, Prussia aims at
> restoring to Germany those lost provinces. Here we have an
> illustration of the endless fruits of war. Two centuries have passed
> since the termination of the Thirty Years' War between France and
> Germany and today France is to be held accountable for her spoliation
> of the Fatherland.

Shortly after the *débâcle* of France's war effort, Louis, fashioned now as
Emperor Napoleon III (d. 1873), followed in his uncle's Napoleon's footsteps
once again, though into commodious exile in England compared to the exilic
conditions enjoyed by his uncle on St. Helena.[3] Historical revenge, to some

degree, had been exacted. More importantly, the pattern of military, statist, capitalist, secular development formalized by the Peace of Westphalia in 1648 (the modern nation state system) continued unbroken.

While the "second empire" of post-revolutionary France has been read since as the precursor of twentieth century fascism, its prescience lay not only in its installation but also in its defeat.[4] The abrupt Teutonic closure of the *opéra bouffe* of Napoleonic empire the second time around presaged/prestaged not only the mass wars of the twentieth century, but also the strained peaces.[5] The military historian McNeill describes the Prussian planning that grounded the global aftershock (1982, 251-252):

> In speed of supply, the French fell far behind the Prussians—a weakness that proved irremediable. So Prussian planning defeated French élan and, as a result, citizen-soldiers easily overwhelmed Europe's best professionals, to the amazement of all the world...The application of reason and intelligence to the waging of war was not in the least new in nineteenth-century Europe; but seldom had is been carried out so systemically by a circle of men with the authority to put their ideas into practice without delay...Indeed, extension of radical rationality towards the bottom of the chain of command was just as important for Prussian successes as was the strategic control from the top that Moltke, Bismarck and the king exercised with the help of the telegraph and railroads.

This radical rationality, a new form of organizational control, spoke presciently of the preferred means for subjective formation in industrial nations during the twentieth century. In a similar way, the industrial technologies evidenced in electrical telegraphs, railways, harder metals, higher explosives—and in the instructional technologies employed by von Moltke to construct a readily trainable soldierly—bespoke "total war," just as the Peace of Frankfurt, the treaty which ended the Franco-Prussian War, and the formal military alliances that followed quickly thereafter, bespoke the "total peace" (latent warfare) of the next century.

In hindsight, 1870 proved a benchmark year in the history of the Western world. Daniel Pick (1993, 111), in his study titled *War Machine: The Rationalisation of Slaughter in the Modern Age*, addresses the discursive significance of 1870. He claims it was the year that Enlightenment sensibilities were challenged because of the defeat of the French by the Prussians. That war, to paraphrase slightly, "broke the spell and fragmented the picture" in Britain. This was the case elsewhere as well, in France of course, but even in Canada, where the sheer shock of the defeat of the French with such dispatch, disabused prior notions of the supreme security of the British Empire.

British hegemony had been challenged, and the Ottoman Empire, as well as the empires of France, the United States, Germany, Russia and Italy suddenly took on new prominence for the British. The effect of that war likely was similar to the dislocation felt in U.S. populations when the U.S. lost the Vietnam War (cf. Spanos, 2000), or more recently, when airplanes were flown into New York's World Trade Center. In 1915, the British sociologist Patrick Geddes highlighted the significance of the war of 1870, a significance that has lived on for almost a hundred and fifty years (from the Sociological Review as quoted in Pick, 1993, 194):

> It will not be denied that the peace of the past generations, especially since 1870-71, has been no peace, but one of latent war. So plainly, so fully, has this been the case, that there are many to whom the extreme state of war preparation has seemed, if not the very norm of human existence, at any rate its inevitable burden. . . Grant by all means, that we in our lifetime have practically only known wars and rumours and preparations of wars—that, when not in patent war, we have lived in latent war.

The novel state Giddes termed "latent warfare" became, of course, a naturalized condition of existence for industrialized populations in the twentieth century when they were not actually engaged in "patent war."

James Beniger (1986), in his remarkable book *The Control Revolution*, details the way in which the "control revolution"—which was coincident with the emergence of "latent warfare"—affected every aspect of life in industrial jurisdictions from 1870 onward. These two related phenomena—latent warfare and systems controls—provided defining moments in the development of subjectivity.

Though Beniger does not address war or education expressly, the control revolution was a function of the material technologies that for the most part appeared between 1870 and 1910. These technologies, in turn, were themselves often a function of warfare. Beniger (1986, 12) explains the profound impact the control systems developed from 1870 as the "engine" or the machine that runs contemporary existence:

> Identifying the crisis of control [which was necessitated by the size
> and complexity of new industrial processes] and the resulting Control
> Revolution has helped me to answer. . . why the period from 1870 to
> 1910. . . seems so decisive for society as we know it today. . . .The
> Information Society, I have concluded, is not so much the result of any
> recent social change as of increases begun more than a century ago in
> the speed of material processing technology. Microprocessor and
> computer technologies, contrary to currently fashionable opinion, are
> not new forces only recently unleashed upon an unprepared society,
> but merely the latest installment in the continuing development of the
> Control Revolution.

When Beniger's novel history is combined with the historical insights of the British polymath Keith Hoskin (1988, 1993a, 1993b), the interconnections between the organization of the industrial capitalist economy (the control revolution) and warfare are brought to the fore. In "Education and the genesis of disciplinarity" (in Messer-Davidow, Shumway & Sylvan (Eds.)., 1993, 285), Hoskin traces that which Beniger termed the "control revolution" to the "disciplining of the world." He links this "disciplining" (i.e. the imposition of the disciplines onto the undisciplined classical academy) to the field education and, importantly for this argument, links the contemporary

control systems detailed by Beniger to the U.S. military, specifically the national military academy located in West Point, New York. Hoskin (296) asks:

> Why did the modern business enterprise, as the work of Alfred Chandler (e.g., *Visible Hand*) clearly demonstrates, get invented in the United States, beginning in the 1830s and 1840s, in such unlikely sites as a U.S. armory and a few small railroads? Why not in Europe, as part of the Industrial Revolution, at the hands of industrial entrepreneurs? It now appears that Chandler's pioneers of modern business were all graduates of the U.S. Military Academy at West Point, after 1817, when Sylvanus Thayer as superintendent introduced the new educational practices of writing, grading, and examination.

At the same time however, Hoskin locates the genesis of these new educational practices of *writing, grading* and *examination* in late eighteenth and early nineteenth century Europe. In another work, "The Genesis of accountability: The West Point Connection" (1988), Hoskin traces the way in which the military training offered at West Point during Sylvanus Thayer's tenure grounded the development of U.S. business practices which amounted to *the military/industrial capitalist restructuring of time, space, subjectivity and the socius* (see reterritorialization below). Talking of the way West Point graduates fanned out across the educational landscape, Hacker (1989, 64, quoting Dupuy, 1958, 14) characterizes the influence of West Point graduates as "Thayer's direct and indirect 'pedagogical insemination of the country' through Thayer's system and West Point graduates." The system was that which we take to be the process of education itself—writing, grading and examination, practices that were apparently absent in educational institutions that are invariably described as undisciplined and lax.

Hacker (1989, 65) writes, "West Point transferred models to industry as well as to education. Although early developments in business management were attributed to the advances and reforms achieved by the railroad industry, now we learn that these nineteenth century administrative innovations had

military roots." However, this militarization/industrialization/capitalization of existence, of time, space and the *socius* was by no means unique to the U.S. Though the modern business enterprise is a U.S. invention (the granting of personal rights to a private enterprise dates to 1897 when the state of New Jersey enacted legislation to that effect), by 1870, full blown Paleotechnic (coal-fired) industry was evident in France, Germany, England, Italy, Austro-Hungary, Belgium, Spain, the Netherlands, the U.S., Russia, Sweden and Canada, even if the way it was "controlled" had not yet evolved into the impersonal form it was to take later (the imposition of managerial accounting, impersonal ownership and so on).

At the same time as this new form of discipline was being built into mechanical manufacturing, the military and transportation systems, full blown systems of compulsed statist nation-ist education engineered along the same lines were developed in every industrializing nation. This new form of *education*, together with the new form of discipline being built into knowledge itself (the disciplines), saw to the production of a new way of being human (*mentalité*), to the military/industrial colonization of preindustrial subjectivity.

By 1870, high-speed rotary printing presses and electrical telegraphs allowed newspapers to produce and disseminate "news" even thrice daily to consumerizing literate populations in growing urban industrial centers. By 1870, railways, statist bureaucracies, continuous flow material production in armaments factories, the Bessemer process for iron production, the vulcanization of rubber, organic chemistry, steam ships, telecommunications cables (the first transatlantic cable dates to 1866) and mass industrialized militaries were becoming common in industrial countries in Europe and North America.[6]

By 1870, warfare exhibited the characteristics Wright (1942, 294-313), identified as modern in *A Study of War* (a landmark text synopsizing research conducted at the University of Chicago over a period of twenty-five years). The study identified the following phenomena as characteristic of modern warfare: use of firearms, professionalization, capitalization, mechanization, massification, militarization of national populations, nationalization of war effort, intensification of operations, and total warfare. Professionalization, massification, mechanization, militarization, nationalization, capitalization and intensification, at the same time, characterized the *military/industrialization of existence* for the millions located in the new urban centers. If the processes of *nationalization* and *educationalization* are included, a comprehensive picture of *industrial control systems* emerges (see Chapter 4).

Total War

Total war was enabled by the control revolution. While intimations of this form of warfare were visible in Napoleonic France and in the Franco-Prussian War, the coordination, mobilization and deployment of *all* the resources, civil or military, available to modern, imperial states could not be fully realized until the control revolution made such vast mobilization possible. While full "total war" awaited industrialization, the theoretical and organizational framework for this form of warfare had been developed in Napoleonic France. Porter (1994, 134) writes: "Napoleon consolidated the three main gains of the Revolution: rationalization, centralization, and secularization. All were characteristic of modernity; all derived from the *inexorable calculus of the military state* [italics added].

This "inexorable calculus of the military state" soon found theoretical expression in the work of the Prussian general and military philosopher Carl

von Clausewitz (*On War*, 1832).[7] A prisoner of the French for some time during the Napoleonic Wars, and one the great heroes of the Battle of Waterloo, Clausewitz (b.1780) began to write his massive treatise in 1816. The work grew out of his understanding of philosophy combined with first-hand observation of the first "people's war," notably the effect of conscription (the *levée en masse*) enacted in France in 1793. Porter writes:

> Article I of the decree [of *levée* en *masse]* of August 23, 1793, says it all:
>
> From this moment until that in which the enemy is driven from the territory of the Republic, all Frenchmen are permanently requisitioned for service in the armies. Young men will go forth to battle; married men will forge weapons and transport munitions, women will make tents and clothing, and serve in hospitals; children will turn linen into bandages; and old men will be carried to the public squares to arouse the courage of the soldiers, while preaching hatred of kings and unity of the Republic.

Accounting for 1,169,000 men under arms by 1794, at that time the largest military force yet seen in Europe, this generative use of national conscription suggested that intense martial effort could be sustained only if that newly formed grouping, the "people" (*les citoyens*)—physically and psychically— were involved massively and intensely in the production of warfare. In his treatise, Clausewitz developed a trinitarian model with war comprised of three levels—the state, the leaders and the people—and conducted through three channels—of reason, strategy and chance.

The military theorist Kaldor (1999, 21) states that Clausewitiz's concept of absolute or "total war" is "best interpreted as a Hegelian abstract or ideal concept; it is the inner tendency of war that can be derived from the logic of the three different levels. War has its own existence, which is in tension with empirical realities." In warfare, as Clausewitz read it, an "inner tendency" exists independent of the material realities that circumscribe its expression, thus creating a "tension" when the independent logic of war rubs against the

material world. On this model, the state is one of three protagonists in an all-consuming drama that, as the modern era developed, increasingly emphasized state control and enhancement of the role of the "people" through "domestic policy" rather than emphasizing "foreign policy" and "armies" (Deleuze and Guatarri, 1987, 147).

Entropy

Clausewitz's work modeled a particular human social activity (war) as a flow or a process that proceeds according to its inner tendency (inherent developmental logic). Anticipating by a hundred years the systems theory developed by the U.S. during the Second World War and the structural-functionalism of Talcott Parsons, on Clausewitz's model this inner tendency is frustrated by "friction," for example inadequate information or organization, this abrasive abstraction explaining why wars "slow down." In what may be the first comprehensive sociological theory of modernization, Clausewitz in effect produced a highly abstract martial *and* civil operations manual.[8] Perhaps inadvertently, Clausewitz provided the state with a theoretical model to structure and mobilize its monopoly on violence (and taxation) through the formation of a "military/industrial complex."

For Clausewitz (Kaldor, 1999, 22), "war" was a " "resistant medium" in which uncertainty, inflexibility and unforeseen circumstances all play their part. Real war was the outcome of the tension between political and practical constraints and the inner tendency to absolute war." His work presaged entropy—which, broadly, is a measure of disorder within a system—a concept developed by the German theorist Clausius (1858, 1865).

The concept, simply high entropy means low organization or systemic disorder—and that all systems, living or non-living, tend to increased entropy, held important implications not only for physics where it could

explain a wealth of phenomena that did not fit Newtonian physics, but for applied science (engineering) as a means to measure the efficiency of steam engines—and social theory. Once that concept was in play, it was only a matter of steps from entropy, to systemic randomness and chaos.

It may be coincidental that Clausewitz's sociological modeling of war was in aspects analogous to the modeling of the physical universe as expressed in the Second Law of Thermodynamics (entropy); nonetheless, the affinity is striking, and in hindsight this affinity presaged the close connections between academic research and development in the physical and social sciences that developed during the twentieth century, and the martial ends to which that work was put. Throughout the century, the Western academy developed the means to organize and control violence, overt and covert, on an ever larger scale—to control or manage systemic entropic tendencies—through the massive application of education, for example.

The Second Law of Thermodynamics allowed measures to be developed by which molecular disorder could work more productively in a steam engine (closed system). Control of this closed system in order to produce energy more efficiently was paralleled by Parsonian structural functionalism (e.g. homeostasis) and early systems theory—and later by modernization and development theory, which when combined with military force, provided the U.S. with a strategy of "counterinsurgency" to contain social movements hostile to capitalism.[9]

While these theorists may not have recognized their debt to Clausewitz, his concept of war as an interplay of forces held together by dynamic tension between three players (the people, the state and leaders) lent itself admirably for use in conditions of informal warfare. Success was determined by a combination of reason, strategy and chance (war was fought in a "fog" and subject to "friction"). An inherently unstable (and nonlinear) flow, his

concept of war not only suggests early "closed systems theory," but a non-linear, fractal universe, even chaos theory, and information as unstable data that "wears out" (von Neumann).

Lenin (1916) was the first to recognize the more general application of Clausewitz's conception of war. He wedded it to Marxism to form Marxist-Leninism, the official ideology of the Soviet state. This is the familiar Marxism of ideological offensives led by a "vanguard," fomenting disruption (high entropy) and ultimately to the displacement of an existing social order (low entropy). Bost (1998) writes:

> Lenin joined Marxist philosophy with the ideas of the German military theorist Carl von Clausewitz. Clausewitz treats war as a policy instrument to achieve political goals. Lenin adopted Clausewitz's "paradoxical trinity" for characterizing the major components in a state's use of war. The trinity consists of (1) national popular sentiment, (2) the "fog of war" (Clausewitz's terminology for chance and probability), (3) the attempt of government to use war rationally to achieve ends. In Clausewitz, Lenin found a theory that would combine the role of leadership with the vast and problematic nature of political struggle.

Destabilization of an existing order was a strategic goal, while at the same time a new system was prepared at least theoretically to take advantage of the high state of entropy deliberately induced. Simply, chaos was structured out of order, as was wont, while order came out of chaos, this reflexive dynamic explaining much more, for example, than the progressive laws of Hegel or Marx. Such strategic usage of disorder also marked U.S. geopolitical strategies following the Second World War. Entropy has been complemented by other physics, chaos theory in particular, since the Second World War (cf. Smithson, M. 1989, Prigogine I. and Stengers I. 1984). Like entropy, chaos theory was deployed in the social sciences; however the paradigmatic employment of entropy in physics or social theory has yet to be found redundant.

Even the poststructuralist social theorists Deleuze and Guatarri have put the concept to use in their analysis of "social life forms" or ecologies. Chaos out of order, order out of chaos—from high entropy to low entropy—a "law" or model on a very different order from dialectical progression. The idea of the dissipation of energy, in this instance, energy produced over and above that socially needed, produced only because of the logic of capitalism, provides a key concept in Deleuze and Guatarri's theory of the social processes of coding/decoding, reterritorialization/deterritorialization. Deterritorialization and decoding dissipate organized social energy, lead to high entropy, while reterritorialization and coding put energy back to work in the terms provided by a system predicated upon this movement.

A striking example of the process deterritorialization and reterritorialization, or of the move from a state of high social entropy to low entropy, is provided by the Enclosure Acts in England and Scotland that denied peasants access to what was then a grazing "commons" and thus to their traditional economy. In Deleuze and Guatarri's formulation, as the peasants were deterritorialized, were unbound from the land, they were at the same time reterritorialized as abstract labour—and ultimately formed into citizens, provided with abstract "rights" and thereby recoded.[10]

Deleuze and Guatarri (1987, 456) describe this process:

> The natal or the land, as we have seen elsewhere, implies a certain deterritorialization of the territories (community land, imperial provinces, seigneurial domains, etc.), and the people, a *decoding of the population*. The nation is constituted on the basis of these *flows* and is inseparable from the modern state that gives consistency to the corresponding land and people. It is the flow of naked [waged] labour that makes the people, just as it is the flow of capital that makes the land and its industrial base. In short, the nation is the very operation of a collective subjectivation, to which the modern State corresponds as a process of subjection.

Today again, the process is evident. Collective subjectivation is being transferred to a more polyglot assemblage wherein military/industrial subjectivity human is being recoded. Contemporary change and reform theories and processes (e.g. leadership studies, educational change) can be read symptomatically as formalized discourses that, like the Enclosure Laws, manage the deterritorialization/reterritorialization, coding/decoding that mark the production of subjectivity at the global level. Equivalent laws are those of the North American Free Trade Agreement (NAFTA) and the General Agreement on Trade in Services (GATS).

The Origination of the Military Industrial Complex

Clausewitz's tripartite model captured almost perfectly the outcome of the tensions between practical and political constraints and the inner tendency to absolute war acted out in the Great War (1914-18)—the deterritorialization and reterritorialization that accompanied the introduction of a new form of social economy—total warfare.[11] The conditions that developed during that *real war* transformed what began as *limited war* into *total war*. Until that time, the possibility of waging that type of war had been delimited by various regulatory technologies such as the Papal decrees regarding civilized warfare (*jus in bello*), but most importantly by the limitations imposed by localized and non-industrial technologies and systems of control. De Landa (1991, 108) writes: "World War I marks a turning point in the *history of logistics*. The first global conflict was not a confrontation between tactical innovations (tanks, deep infiltration tactics) or between strategic ideas (the Schlieffen Plan), but a clash between the industrial might of entire nations."

As it progressed, this *real war* began to approximate the ideal form Clausewitz termed absolute war. By 1917, real total war, not its theoretical abstract, had turned the domestic economies of the three European powers still running the war upside down.[12] Whole nations were transformed into

"home fronts," discrete theatres of militarized operation that as Clausewitz had foreseen, required militarized management if they were to be engaged fully in war. The initiators of the war seemingly had little control of the type (mode) of war they engaged; however, by war's end, the societies that had engaged it were changed to the point where it was possible only to simulate the previous state of affairs (cf. Tuchman, 1962, Smart, 1993, McNeil, 1982). Virilio (1989, 16) writes:

> After several months of trench warfare—that is, of position warfare, since the armies could no longer move—they [politicians, generals, planners, manufacturers] realized that their current war production...could no longer meet the demands of military consumption...And this was on both sides, for Germany as well as the Allies. This was the "technical surprise," as it was called, of World War I. So all of a sudden there was tragic *revision of wartime economy* [in original]. They could no longer say that on the one side [of the economy] there was the arsenal which produced a few shells, and on the other civilian consumption and the budget. No, they noticed that they needed a special economy, a wartime economy. This wartime economy was a formidable discovery, which in reality announced and inaugurated the military-industrial complex.

This "complex," however, already was visible in the U.S. by the end of the Civil War (1861-1865). This war by 1864 had become the first mass industrial war of attrition that enlisted all the resources of the antagonists (it bears mentioning that European commentators rarely recognize the revolutionary nature of U.S. Civil War). Unlike the U.S., however, where a war economy was built while the states were engaged in warfare, the foundations for "total war" already were visible in Prussia and France before the wars Bismarck initiated during the 1860s.

The "blended" industrial infrastructure built in the German states after the Napoleonic Wars placed military concerns alongside the more strictly commercial. The strategic military placement of new waterways (canals) and railways evidenced the process of the military/industrialization of the landscape (as did the Northerly placement of the Rideau Canal in present day

Canada, which allowed travel from Montreal to the Great Lakes without use of the St. Lawrence River which was in range of U.S. cannon at certain points). As well, the "new" (post-Napoleonic) economy in Prussia even then concerned the organized and deliberate production of strategic knowledge, evidenced for one in the academic production of organic chemistry, the backbone of German capitalism and warfare (see Chapter 5).

The British military historian McNeill (1983) comments on the military/industrial concerns that were taken into account during the industrialization of both Prussia and Russia. In these countries industrialization proceeded quite differently than in Great Britain where military concerns had not been "built into" the national industrial complex originally. As well, McNeill (262) relates how the "military/industrial complex" was inaugurated in Great Britain, in a way that, like the War of 1870, eerily presaged/prestaged twentieth century warfare:

> Just as the industrialization of war can be dated to the 1840s, when railroads and semiautomated mass production together with Prussian breech-loaders and French efforts to exploit steam to the detriment of British naval supremacy began to transform preexisting military establishments, so, too, one can date the intensification of interaction between the industrial and military sectors in European society to a naval scare promulgated in Great Britain in 1884. A Clever journalist, W.T. Stead, and an ambitious naval officer, Captain John Arbuthnot Fisher, were the protagonists of the affair, though other men also played a part in manipulating British public opinion from behind the scenes.

Like the "missile gaps" of the Cold War, and the "security gaps" that accompany the contemporary "war on terror," so the naval "gun gap" and the "ship gap" between the U.K. and Germany especially, but also its other naval competitors, the U.S., France, Russia, Japan, Italy, Austria and Turkey, saw the British economy start to develop in a way that was generalized in the U.S. economy during the Second World War. The way in which new communications technologies lent themselves to the strategic deployment of

fear to prepare a populace for warfare was as evident as it had been in the instance of the "Ems telegram" (see Chapter 4).

Naval officer Fisher "leaked" a story to the newspaper reporter Stead regarding the unpreparedness of the British navy to answer the technological challenge from abroad. Armed with that information, Stead published a series of "inflammatory articles" (268). With public opinion marshaled (fear created), the government of the day (Gladstone's Liberals) answered the concern by turning away from the publicly owned military production facilities, which until then had produced most military *matériel*. It contracted with private suppliers for research, development and production work to address the "gun gap," and other technological gaps as well, and thus allow the British navy to maintain, at least ostensibly, the supremacy it had enjoyed since the Battle of Trafalgar (1805).

Of course, privatized production of publicly financed military *matériel* continues to this day, and, as will be argued, is in large responsible for the developmental trajectory of military/capitalist societies from that point onward. Large scale processes for strategic knowledge production (i.e. academic research and development) was "built-into" the industrial infrastructure (McNeill, 357, 369) so that separating out military from civilian research and development by the end of the twentieth century had become meaningless—as had separating out peace from war.

Permanent Warfare

In hindsight, it seems a few steps only to move from World War I to World War IV; once the genie was out of the bottle, once the *continuous flow processes* (systems) for material and theoretical production had been developed, their geopolitical use seemed to follow.[13] Describing the impact

of technology on war and peace in the twentieth century, the military historian Mary Kaldor (1982, 276) writes:

> The mode of warfare underwent an incredible transformation (which was begun at the end of World War I) from a system which combined the products of nineteenth century industry—heavy engineering and shipbuilding—with the military relations of an even earlier era, to a system which built upon and speeded up the techniques of mass production, the technology of the internal combustion engine, and the growing application of science to industry, that were emerging in the immediate pre-war period. Thus the outcome of World War II was the release of accumulation from the limits imposed by an earlier era, so that any increase in demand merely served to absorb the excess capacity which developed in the 1920s and 1930s. World War II also involved a process of military innovation that subsequently helped boost technology in the civilian sphere.

World War II (1939-1945), which according to Kaldor, released "accumulation from the limits imposed by an earlier era" began twenty years after World War I ended.[14] As the war progressed, Russia, now the lead state in a federation of socialist republics (USSR), found itself engaged after German invasion, as did the American federation after U.S. navy ships stationed in the Hawaiian islands were bombed by the Japanese empire.

However, unlike the World War I (the Great War), which ended with a conditional peace of sorts (Treaty of Versailles, 1919), World War II followed the Clausewitzian script to its conclusion, ending with unconditional or absolute surrender, the *raison d'être* Clausewitz originally provided for total war.[15] Kaldor (1999, 25) writes:

Clausewitz could not possibly have envisaged the awesome combination of mass production, mass politics and mass communications when harnessed to mass destruction. Nevertheless, war in the twentieth century has come as close as can be conceived to Clausewitz's notion of absolute war, culminating in the discovery of nuclear weapons which, in theory, could wreak total destruction without "friction."

Kaldor (26) continues: "as war involved more and more people, the justification for war in terms of state interest became increasingly hollow, if it ever had any convincing validity." This hollowness found expression in the military, though not necessarily economic failure of late twentieth century land-based relatively lengthy warfare (e.g. Afghanistan, Vietnam). Since Vietnam, military policy in the U.S. has favored short, intense war "at a distance." *Virtual war*, first in Iraq and then Serbia, provided a "hi-tech" way to wage "post-heroic" war. This mode of war perhaps was a necessity if militarism, the culture and economics of war, was to be maintained in light of changed material and cultural conditions.[16] The loss of cultural meaning attached to individual bravery that the industrialization of death entailed, and the fact that non-combatants formed the overwhelming majority of casualties in the era of post-heroic war—as well as the sheer scale of the world wars—no doubt contributed to "war aversion" (cf. Luttwak, 1995, *Towards post-heroic warfare*).[17]

This virtualization of massified violence extended Baudrillard's concept of "hyperreality" into actual shooting war.[18] For example, the ability of automated missiles to carry ultra-high explosive warheads to distant targets accurately—and the ability of the blended military/civilian communications infrastructure (e.g. CNN) to deliver "real time" images of exploding "payloads" to the home front—provides an exemplar, or paradigmatic example of virtual war.

War as information, a concept that runs perilously close to Sun Tzu's (1963) concepts of warfare developed 2500 years earlier, is evidenced variously, for example in that access to war is no longer provided primarily via human beings—the news reporter in the field or the long-distance runner reporting the Grecian victory at Marathon. War, reduced to the electronic perception of it, is constructed on computers and then supplied the viewership as digital

imagery transmitted directly from the field of overt activity to televisions and computers. Now, more than ever, war is information, as is the inverse, information is war. New age warriors, whether Slobodan Milosevic, Subcommandante Marcos, Ariel Sharon, Vladimir Putin, George Bush or Osama Bin Laden fight on and over information, which is not only the theatre of operation—*but is itself a form of warfare*.[19]

Subcommandanate Marcos, leader of the Zapatistas based in the state of Chiapas in Mexico, was the world's first real time virtual warrior, the first warrior to combine social theory, politics, the Internet and real (shooting) violence. His use of novel information technologies to spread his message, is, however, entirely unexceptional. The use of new communications technologies for warfare has an ancient provenance. The Ayatollah Khomeini used cassette tapes smuggled from France during the Iranian revolution in the 1970s to promulgate his orders. Written battle orders, then a novel idea, were central to Napoleon's military success, as they were to Grant's during the U.S. Civil War. Newspapers, of course, were called into the front lines soon after they were invented (see chapter 4). Sexual pornography has been deployed more than once to demoralize populations; dropping pamphlets from airplanes is still popular. Wireless radio communications allowed German tanks a huge advantage at the beginning of the Second World War. And, this is to say nothing of "electronic eavesdropping" and "code-breaking."

Therefore, Marcos' most prescient contribution to warfare may have been his social theory. Marcos calls the Cold War the *Third World War* "both in the sense that it was a third global war and because it was fought in the Third World...really a hot war, made up of 149 localized wars [limited war] that claimed 23 million lives"°(Coronil, 2000, 359).[20] To Marcos (360), what is theorized here as *virtual war* actually is *World War IV*, "a conflict waged

between metropolitan financial centers and the world's majorities taking place with constant intensity on a global scale."[21] Indeed, World Wars III and IV can be blended. The current "Bush Doctrine" (2001) simply substitutes "terrorism" for the "communism" of the Truman Doctrine (1947), both discursive diversionary instruments deployed to impose a religio/ideological frame upon World War IV, the "struggle waged with constant intensity on a global scale between the world's majority and global financial centers."

On such a reading, bankers, managers of multinationals, religionists, specialists in financial instruments, trade experts, policy-makers, and even the educationists and TV executives operate the "new world order." These functionaries comprise a new global bourgeoisie, "new age" warriors reterritorializing the globe without using mass material armies, but invading various terrestrial geographies and cyberspaces by employing new forms of time/space/speed to accomplish that which in electromechanical times was done more slowly and less comprehensively.

Imperial virtual warfare today polices an integrated global state comprised, not so much of independent states following their own inclinations (within international law), but of internationalized "holding areas" for raw (relatively fungible) labour and natural (relatively unprocessed) resources (e.g. wheat, wood, oil, coffee, nickel, copper, zinc, uranium, natural gas, potash, rice, diamonds, bauxite,) that are "branded" (e.g. Colombian coffee, Canadian lumber) and thereby identified with certain countries or regional trading areas.

Coronil (360) writes, "According to Marcos, neoliberal globalization must be understood for 'what it is,' that is, as 'a new war of conquest of territories'…World War IV has fractured the world into multiple pieces…what he calls the *rompecabezas* [puzzle] of neoliberal globalization." Religious

overtones mark aspects of this war. However, these overtones are themselves aspects of the war. New rightist Islam and new rightist Christianity are not so much revivals of "fundamentalisms" seemingly built-into these doctrines. Rather, these "fundamentalisms," while drawing on established doctrine, are new hybrid discourses, unique responses to "globalization" (*assemblages*) built in response to particular geo-political, economic and military developments.[22]

On its home fronts, in the *perceptual jurisdictions* of the imperial "west," this postindustrial war (*World War IV*) serves many functions, not the least of which is the regeneration of a politics of fear, or of *ressentiment* to use the concept developed by Nietzsche (cf. Brown, 1995). Now millions are invited via cable and satellite, as generals and politicians used to invite a select few, to a virtual picnic to watch the "ultimate spectacle of battle" (combat to the death). War is access and control of "prime time," the formation of common (mass)perception, as it has been since that force arose with the invention of industrial media.

World War IV is fought on at least four fronts simultaneously. This is possible only because the problems of production of necessities (and necessity) for life have long since been solved by industrialization, and, in an ironic inversion, the maintenance of overproduction to sustain select wants is now the basis for postindustrial capitalism (cf. Postone, 1993).

This form of warfare is conducted in at least five ways simultaneously: *strategic material neglect* (e.g. mass poverty, starvation, disease), *strategic ignorance* (e.g. the global institution of edutainment, restricted access to literacy, numeracy), through *strategic trade and finance* (e.g. International Monetary Fund (IMF), World Bank, WTO, NAFTA), through the *strategic formation of common perception* by means of the electronic mediation (constitution) of reality, and through actual *strategic violence* (e.g. the wars

of imperialism and resistance that accompany *Pax Americana*). These strategies comprise entropy as a "weapon of mass destruction" (deployed daily on a global basis).

This "totally blended" form of mass warfare on a mass scale, as compared to specific militarist societies (e.g. Sparta), is grounded in an economy based in the erasure of these distinctions. De Landa (1991, 111) writes:

> ... by the time of World War II, distinctions between a purely civilian and a purely military area of the economy were impossible to draw... But perhaps what signaled the merging of the two sectors was the mathematical procedures used by the military to organize the mobilization of a nation's resources, the discipline of OR [operations research], becoming an integral part of large civilian undertakings under the name of "management science."

While the end of the Cold War saw military budgets cut in all western nations, these cuts actually accelerated the globalization of militarism. The export of military goods and services from the home states of industrial militarism, the United States, France, Russia and the United Kingdom especially, was officially encouraged so that military contractors could compensate for their loss of internal markets. Along with this increased emphasis on exports and increasing competition for export markets, many of the goods produced are even more "dual purpose" than was the case during the Cold War.[23] The most impressive blended good (assemblage), the one that operationalizes postindustrial capitalism, is the *command, control, communications, computer, intelligence, surveillance,* and *reconnaissance* system (C^{4}ISR) that grounds global entities as McDonalds and Wal-Mart.[24]

The roots of scientific management (Taylorism), and its continuing global influence and development in various forms (Lenin was captured by scientific management and thought it capitalism's great gift to socialism) are located in militarism, specifically in the post civil war US armories where Taylor was first allowed/encouraged to try out his theories (see Chapter 5).

De Landa (1991: 109) writes: "Indeed, a century ago, historian Werner Sombart was already arguing in his book *Krieg und Kaplitalismus* that industrial society itself was a direct product of centuries of military conflict." And further (138):

> The military process of transforming soldiers into machines, as well as the related campaigns to organize the management of human bodies (in military hospitals, for instance), generated much knowledge about the body's internal mechanisms. The "great book of Man-the-machine" [Foucault] was both the blueprint of the human body created by doctors and philosophers, and the operating manual for obedient individuals produced by the great Protestant military commanders— among them Maurice of Nassau, Gustavus Adolphus and Frederick the Great.

—and Oliver Cromwell (Weber, 1968, 1150-1157).

Though full-scale statist war may be passé at present, the formalities of this mode of war, Clausewitz's concepts for example, still are taught in policy programs and military schools the world over (and considered difficult). They are used in Singapore and Scandinavia to organize the *five pillars*— psychological, social, economic, civil and military—of *total defense*. They are used—metaphorically and operationally—in sports, total soccer and hockey— in commerce, total economic war, or as Virilio calls it, *globalized economic warfare*—in theatre, especially in its mass, commodified form (advertising, popular music)—in politics, in total electoral campaigns waged in the air (electronic advertising) and on the ground (getting out the vote or strategically blocking it)—and in the academy, not least in the development of contemporary war and war theory (strategy, tactics). Derrida (1984, 20-31), in another of the periodic cold war crises, wrote:

> For the "reality" of the nuclear age and the fable of nuclear war [a fable because there has not been absolute nuclear war, and if there was, there would be no one to read or write about it] are perhaps distinct, but they are not two separate things. It is the war (in other words the fable) that triggers this fabulous war effort, this senseless capitalization of sophisticated weaponry, this speed race in search of

> speed, this crazy precipitation which, through techno-science, through
> all the techno-scientific inventiveness that it motivates, structures not
> only the army, diplomacy, politics, but the whole of the human socius
> today, everything that is named by the old words—culture, civilization,
> *Bildung, scholè, paideia.*

This military industrial "structuring" of not only the army, diplomacy and politics—but of "the whole of the human socius"—of education at its most accomplished limits—of *Bildung, scholè, paideia*—this strategic organization of thought and thought processes and the larger social environment that contains them is militarism unconcealed (revealed).

Derrida's sensibility may be uncharacteristically romantic in this instance. As this work demonstrates, "culture, civilization, *Bildung, scholè, paideia*" along with material and immaterial technologies—postindustrial speed for example—are a function of warfare (Chapter 4).

Regarding modern education specifically, the transformation *Bildung, scholè, paideia* into codified nation-alized knowledge began in earnest with Napoleon, though it was emulated quickly in the U.S. and Prussia. Porter (1994, 136) writes: "The man [Napoleon] who founded the University of France five months after Austerlitz [overwhelming French defeat of Austria] and three months after the crushing of Naples well understood that in the modern age an educated society is as much a pillar of military success as a prosperous society." This perception has only increased since Napoleon reformed—in the ideology of late capitalism "modernized"—France's educational system (see Chapter 5).

Napoleon established the École Polytechnique in 1794, which soon after was devoted to training military engineers, and the *lycées* to replace the civic—though not martial schools of the Directory. Hacker (1989, 61) says, " . . .

the engineering schools were military schools, which became the great polytechnics of Western Europe." Napoleon (the discursive field) put into place a system of national military/industrial education before the Prussians, who did so after their defeat by Napoleon at Jena (1807).

This imbricated military/industrial trajectory continued unabated wherever industrialization saw implementation, and each global war added a new set of institutions to those in place already (e.g. League of Nations, International Monetary Fund, Breton Woods, United Nations, World Bank). At the national level, however, many new institutions were directed to theoretical production as much as to material production, to schooling, mass motivation, censorship, propaganda, research, education, military-psychological operations (psyops), mass training technologies and the development and use of mass media.

By 1917, economic and social production in the United Kingdom effectively had been rolled into one, the first totally integrated system for the theoretical and material production of warfare. The U.S. and Canada followed this development model. Interestingly, Hitler admired the propaganda techniques first developed in England and the U.S. during World War I (Jowett and O'Donnell, 1999, 211). Porter (1994, 192) captures this "total machinic assemblage" when he writes: "The mass state, the regulatory state, the welfare state. . . is an offspring of the total warfare of the industrial age."

Ubiquity and pervasiveness—and seeming inevitability—conceal the existence and impact of contemporary militarism (i.e. running an economy "as if" total war was imminent), *its very visibility hiding its success/excess.* As Virilio (1998, 26) writes: "All of us are already civilian soldiers without knowing it. And some of us know it. The great stroke of luck for the military class's terrorism is that no one recognizes it. People don't recognize the militarized part of their identity, of their consciousness."

War Machine Inverted

According to Deleuze and Guatarri (1987, 119):

> Total war itself is surpassed, towards a form of peace more terrifying
> still. The war machine has taken charge of the aim, worldwide order,
> and the [nation] states are no longer anything more than objects or
> means adapted to that machine. This is the point at which
> Clausewitz's formula is effectively *reversed*; to be entitled to say that
> politics is the continuation of war by other means, it is not enough to
> invert the order of the words as if they could be spoken in either
> direction; it is necessary to follow the real movement at the conclusion
> of which the States, having appropriated a war machine, and having it
> adapted to their aims, reissue a war machine that takes charge of the
> aim, appropriates the States and assumes increasingly wider political
> functions.

On this reading, the state-operated war machine as conceived by Clausewitz has mutated, has self-organized once again, into an independent social practice whereby war is no longer "politics by other means" but politics "war by other means." However, Deleuze and Guatarri's machinist imagery was meant literally as well as metaphorically.[25]

The war machine, the one that appropriated the state function, is an abstraction of very real social processes which can be studied in the same way as other phenomena and social practices, for example, governance, education or medicine.[26] Like other social practices (assemblages), the war machine can be read (constructed) in a "solicitous" manner (Derrida) whereby no *essential* problematic can be obtained but whereby various exposures—manifestations—of a particular social practice (war) are apprehended, in this instance, in "realist" and "post realist" fashion.

On such a reading, realist productions are those that constitute and provide endogenous critique of the theory and practice of war—critique that does not question or challenge fundamental epistemological, ontological, ideological presuppositions and perceptions—as does "immanent critique" as developed

by Adorno and Horkheimer, or dialectical thinking as theorized by Jameson. Realist productions include the work of the policy makers, scientists, researchers, teachers, "realist" novelists, politicians, administrators and technicians, strategists and theorists like Clausewitz, those who develop and impart the means and manage the practice of war, those who Virilio calls the global, military class. Realist productions include the military policy analysis provided by organizations critical of warfare such as the Institute for Policy Studies in the U.S. and Project Ploughshares in Canada, the work of the great twentieth century critics of modernity, for example Weber and Polyani, and the work of Marxists from Engels to Lenin to E. P. Thompson, each of whom addressed war and imperialism and their relation to capitalism.[27]

In addition to this "realist" work, a new theoretical tradition has developed since World War II—French and feminist technology critique—that might be termed "postrealist," or to flagrantly violate discursive boundaries, magic realism. The developing tradition, directly and indirectly, addresses war and the militarization of existence. Like magic realism proper (a term originally developed in the 1920s to describe a school of painting that "heightened reality"), it is not that this theoretical work isn't intended to or doesn't apprehend "reality." Indeed, "postrealist" theory does so in ways denied "realist" approaches. However, like magic realism, it does so in ways that may be foreign to the "realist" traditions of rationalism, empiricism, scientism, narrative structure premised on linear time and geographic space (Heidegger's age of the world picture) and the theories of "realist" representation including the correspondence theory of language.

Postrealist theory as it is constructed here fundamentally differs from realist theory. Not only does it involve a presentation that denies the possibility of language acting as neutral medial device between reality and observer (reader), it also replaces realist discourse with a discourse that operates

according to a different model-in-theory as well as in-practice. Thus, it is not a matter of *re-placing* a *re-form* in the old economy of (realist) images, symbols and practices, but a matter of developing new concepts and perceptions (Heidegger's bringing into presence). By this means, new analytical tools are placed on offer, new ways provided, in this instance, to comprehend the nature and extent of contemporary warfare.

Postrealist Fabrications

For those unused to the world of cyborgs (and simians), the posthuman self, virtuality, pure war, dromology, nomadology, simulacra and war machines, entering this theoretical work might be like following Gabriel Gárcia Márquez into the cycles of coup and counter-coup that have for so long plagued so much of Latin America (*One Hundred Years of Solitude,* 1970, *Love in the Time of Cholera*, 1988), watching Joseph Heller's wheelerdealer Milo Mindbender sensibly sell a bombing raid by a squadron in the US Air Force on its own airfield (*Catch-22*, 1961), or following Slothrop through wartime Europe in *Gravity's Rainbow* (1973).

Derrida (1984, 20-21) divides writing somewhat similarly to this realist/postrealist division, between the *theoretico-informative* and *poetico-performative*, applying the contemporary nuclear epoch to conjugate the division:

> ...it would rather be of a sudden "synchronous" appearance, of a cohabitation of the two formations: on the one hand we have the principle of reason (interpreted since the seventeenth century according to the order of representation, the domination of the subject/object structure, the metaphysics of will, modern techno-science, and so on)...and on the other hand we have the project of literature in the strict sense...Literature [because its "inscription is the very possibility of its effacement"] has always belonged to the nuclear epoch, even if it does not talk "seriously" [i.e. realistically] about it. And in truth I believe that the nuclear epoch is dealt with more seriously in texts by Mallarmé, of Kafka, or Joyce, for example, than in

present-day novels that would offer direct and realistic description of a "real" nuclear catastrophe.

On such a reading, the *poetico-performative* offers an appreciation of the contemporary situation that may be denied its "realist" counterparts. Contemporary French social theory stands in an interesting position in this regard, as it places on offer both forms of apprehension simultaneously. The performative moment is evident throughout; provocations, the tongue-in-cheek approach, are no doubt meant to estrange the realist reader and no doubt have succeeded in doing so beyond the wildest hopes of these philosophers.

The purposeful transgressions, the array of new words, or of old words used to capture new concepts—are employed to demonstrate how different contemporary technological societies of compulsive consumption are from previous societies. Arthur Kroker (1992, 2), another *poetico-performative* theorist captures this dual-purpose theory, what he terms "French bimodernism."

> Indeed, what might be called the key impulse of French "bimodernism" has been to explore the mutation of technology within a series of critical discourses: technology as pure speed (Virilio), technology as simulation (Baudrillard), the rhetoric of technology (Barthes), technology as desiring-machines (Deleuze and Guatarri), technology as aesthetics (Lyotard) and technologies of subjectivity (Foucault). . . .

> What emerges from the French mind, then, is an account of technological society that can be immediately and massively influential because it is a mirror of technology in the postmodern scene. This means that the reception of French thought in the outmoded form of post-structuralism has always been a trompe l'oeil deflecting attention away from the key contribution of French thinkers as theorists of technology par excellence; that is, as brilliant interpreters of the virtual phase of technological society. Thus, for example, while American thought is trapped in a pragmatic description of technology as liberation, the French discourse on technology begins with a violent exteriorization of the self, actually producing an eerie account of cynical technology.

This study of the mutation of technology has led each of those theorists, and Derrida as well, into the study of war and militarism. When combined with U.S. feminist posthumanist theory and interpretation (cf. Brown, 1995, Butler, 1997, Haraway, 1991, Hayles, 1999), the two scholarly traditions work together, not necessarily with intent but more likely out of common interest, to explore/expose the contemporary social practice of war (and militarism). Machined apocalyptic imagery is prevalent in these constitutions of cynical (militarized) technology. Foucault's panopticon (the watching machine) is based in part on the effect of the barracks (military life) in constructing the modern (self-regulating) subject. The effect of Virilio's *dromology* (the study of movement) employs *pure speed*, whereby speed itself overdetermines spatial and human relations, while his concept of *pure war* captures the "exhausted logic" (Kroker, 1992) of war as total offence, and of the supercession of actual real total war by continual war preparation.

Deleuze and Guattari's *nomadology* (the study of social geomotion) reinvents total war as a *war machine* that arises from two generative social pulses—the sedentary (e.g. cities, settlements) and the nomadic (the raiding of cities, settlements). Baudrillard addresses the political and symbolic economies (of death), and more than any other media theorist exposes the interconnections, indeed the mutually-constitutive relationship of media and war, Friedrich Kittler (1999) excepted.[28] Derrida in *Spectres of Marx: The State of the Debt, the Work of Mourning, and the New International* (1994) addresses death, capitalism and a Marx whose spectral presence is still intimately involved in the production of knowledge and of "history," neo-liberal economic theory and history notwithstanding.

It is as if these theorists are lifting a veil from the "not-to-be-spoken" (from what Foucault terms the "outside discourse"), from the impermanence and violence of existence covered (papered) over by positivist (and positive)

knowledge (e.g. ideologies of progress, promise, technology, the conceit of "reality" thoroughly apprehended). These theorists "bring into presence" the previously inarticulate, the previously incomprehensible. In doing so, they have developed thought that complements other formative discourses, perhaps especially the themes of moral regulation, self-formation (identity) and the social constitution of reality addressed in feminist, postcolonial and cultural theory.[29]

Haraway engages war critique, employing her hydra-headed *cyborg* to examine the possibilities of residing within a subjectivity that exists outside patriarchal militarism (or militant patriarchy). Hayles provides the history of hypertechno *autopoiesis* (self-making) and, in doing so, indirectly provides a genealogy of postindustrial *autopoiesis*. Though less directly than Haraway, Hayles too addresses potentially expansive possibilities that could attach to "self-making" located outside the thrall of organized symbolic (and actual) violence (i.e. postindustrial economies informed by militarism).

Butler provides a genealogy of subjectivation—of the *always already* political process of self-formation—while Brown offers a philosophical excursus into postliberal authoritarianism as an effect of twentieth century capitalism (and the patriarchy embedded therein). Brown, by redeploying Marx and Neitzsche, especially the concept of *ressentiment*, Nietzsche's mechanism for the production of human meanness (in both senses), takes apart classical liberalism. She too provides a positive moment, a postliberal notion of freedom. Virilio and Derrida, too, address a "place/space beyond" by employing the concept of "justice."

Some of the imagery these philosophers and scientists employ, at first sight anyway, may seem fantastic (excessive). Yet seeming linguistic excess may be required if the influence of militarism (and war) is to be apprehended, especially in those jurisdictions that sponsor but rarely experience war

directly. As war and war/science become (cyber)fiction, so it may be necessary to draw upon an expansive *poetico-performative* arsenal to tell new war stories.[30].

Paul Virilio (2000, 23) writes: "My aim was to understand the notion of "Total War." As I have said many times before, I was among the first people to experience the German Occupation of France during the Second World War."[31] Armitage (2000) explains:

> A child of Hitler's *Blitzkrieg*, Virilio has theorized *the cultural logic of contemporary militarism*...Revealing the dromological and political conditions of the twenty-first century, Virilio interprets modernity in terms of military conception of history and the endo-colonization of the human body by militarized technoscience.

Virilio's construct "dromology"—the study of the logic and impact of speed—is interpreted by Kroker (1992:21):

> That's the empire of immediacy: speed and communication where the self mutates into a classless cyborg, half-flesh, half-metal, where living means quick circulation through the technical capillaries of the mediascape, where culture is reduced to the society of the spectacle, and where power is generalized in the form of the predatory logic of the war machine.

And of Virilio (28):

> Virilio is the French Clausewitz: a theorist who, working in the spectral terrain of the late twentieth century, analyzes "the tendencies and flows" of the war machine to discover its underlying tactics, ("the intelligence of the hunt"), strategy ("the logic of politics") and logistics (where "war is less than about actual episodes of war, than about lengthy preparations for war"; or, as Virilio quotes the Pentagon: "logistics is about the transferal of a nation's potential to its military machine."

Foucault speaks of a war machine as well, and puts a dialectical reversal on offer. Though his model is based in his concept of a *disciplinary society* that has been theoretically displaced, or, at the least, augmented by Deleuze's

concept of *societies of control*, nonetheless his work is instructive, not the least because it again offers a reconceptualization and generalization of warfare as a prevailing existential modality. In *Discipline and Punish* (1979, 168), Foucault provides a historical sketch of the way in which warfare invaded the socius to work formatively to inscribe what Foucault terms *disciplinary society*:

> It may be that war as a strategy is a continuation of politics. But it must not be forgotten that "politics" has been conceived of as a continuation, if not exactly and directly of, at least of the military model as a fundamental means of preventing civil disorder. Politics, as a technique of internal peace and order, sought to implement the mechanism of the perfect army, of the disciplined mass, of the docile, useful troop, of the regiment in camp and in the field, on manoeuvres and exercises. In the great eighteenth century states, the army guaranteed civil peace no doubt because it was a real force, an ever-threatening sword, but also because it was a technique and a body of knowledge that could project their social schema over the social body. If there is a politics-war series that passes through strategy, there is an army-politics series that passes through tactics. It is strategy that makes it possible to understand warfare as a way of conducting politics between states; it is tactics that make it possible to understand the army as a principle for maintaining the absence of warfare in civil society.

In *Power/Knowledge* (1977, 90), Foucault goes much beyond the specific historical situations that accounted for the imposition of rational discipline upon the socius. His conceptualization becomes more abstract and begins to approach the concept of the "war machine" as developed by his contemporaries, Deleuze and Guattari:

> ...if power is properly speaking the way in which relations of forces are deployed and given concrete expression, rather than analyzing it in terms of cession, contract or alienation, or functionally in terms of its maintenance of relations of production, should we not analyse it primarily in terms of struggle, conflict and war? One would then confront the original hypothesis, according to which power is essentially repression [liberal interpretation], with a second hypothesis to the effect that power is war, a war continued by other means.

> This reversal of Clausewitz's assertion that war is politics continued by other means has a triple significance: in the first place, it implies that the relations of power that function in a society such as ours essentially rest upon a definite relation of forces that is established at a determinate, historically specifiable moment, in war and by war. Furthermore, it is true that political power puts an end to war, that it installs, or tries to install, the reign of peace in civil society, this by no means implies that it suspends the effects of war or neutralizes the disequilibrium revealed in the final battle. The role of political power, on this hypothesis, is perpetually to reinscribe this relation through a form of unspoken warfare; to reinscribe it in social institutions, in economic inequalities, in language, in the bodies themselves of each and everyone of us.

This statement captures the "effects of war" and "disequilbrium" revealed in the final battle (the entropic moment) that continue into the "reign of peace," indeed mark it. In this regard, Foucault echoes Virilio's "total peace" as well as Deleuze and Guatarri's "peace more terrifying still than war." As well, Foucault's concept of the political as reinscription echoes Deleuze and Guatarri's "reterritorialization." French "bimodernists," and this includes the Baudrillard, present a similar theoretical image, that of a war saturated socius.

Foucault (92) however, did express reservations about forcing the polity into a "schema of struggle-repression" and thereby about his generalization of war. Yet this was a hesitant caveat. Deleuze and Guatarri (1987, 7), on the other hand, displayed no such hesitations. They again performed a dialectical inversion of Clausewitz's war machine, but to different analytical effect. In their construction termed nomadology—the study of militarism outside of state power—they explain:

> The State has no war machine of its own; it can only appropriate one in the form of a military institution, one that will always cause it problems. This explains the mistrust states have towards their military institutions, to the extent that the state inherits an extrinsic war machine. Carl von Clausewitz has a general sense of this when he treats the flow of absolute war as an Idea which States partially appropriate according to their political needs, and in relation to which they are more or less good "conductors."

The abstract Idea of war existing separate from the State places the state in an exterior position as concerns warfare, similar to its position as concerns capital. Deleuze and Guatarri (118) write:

> The factors that make State war total war are closely connected to capitalism: it has to do with the investment of constant capital in equipment, industry and the war economy, and the investment of variable capital in the population in its physical and mental aspects.

Finally (17), explaining the implications of the *exteriority* of this *expanded* war machine, of this tendency to war that can now be read economically and militarily as a "diffuse" and "polymorphous" war machine beyond state control:

> But the war machine's form of exteriority is such that it itself exists only in its own metamorphoses; it exists in an industrial innovation as well as in a technological invention, in a commercial circuit as well as in a religious creation, in all the flows and currents that only secondarily allow themselves to be appropriated by the State. It is not in terms of independence, but of coexistence and competition in a perceptual field of interaction, that we must conceive of exteriority and interiority, war machines of metamorphosis and State apparatuses of identity, bands and kingdoms and megamachines and empires.

Is not the contemporary "war on terror" powerfully captured by Deleuze and Guatarri's "war machine," the one that exists "only in its own metamorphoses?" As they point out, the war machine exists in industrial innovation, technological invention, commercial circuits and religious creation.

The Crusader zeal and millenarianism that marks rightist U.S. Christianity, the industrial innovation that marks new U.S. military technologies, the commercial circuits of the financing of this capitalist warfare state (e.g. the increasing U.S. national debt), the warfare corporation (e.g. the Carlyle Group), and the way these developments collude seamlessly to produce the "war machine" evidence such metamorphoses.

In the realist narrative, this diffuse and polymorphous power, the *total influence* (C⁴ISR) attributed to the military-industrial complex, realizes the concept of (diffuse) power articulated by Foucault. It appears, materializing like the predatory war machine formulated by Deleuze and Guatarri. Seymour Melman (1997, 2) provides specifics of this machinic metamorphosis, the way the war machine continued to appropriate the state after Eisenhower publicly labeled the "complex:

> The creation of the state-management [complex] marked the transformation of President Dwight Eisenhower's "military-industrial complex," a loose collaboration, mainly through market relations, of senior military officers, industrial managers, and legislators. Robert McNamara, under the direction of President John Kennedy, organized a formal central management office to administer the military-industrial empire.

Melman continues: "This is a new imperialism . . . The methods of the new imperialism included the direct wielding of military, political and economic power to checkmate leftist nationalism and to take direct political control of the entire nation. . ." Living within this war economy, if only "virtual," under the constant "real" threat of war, is "second" nature for those who grew up with or after Virilio.³² The economy of generalized violence institutionalized in western industrial jurisdictions during World War I is the rewoven cloth of postindustrialism, its warp and woof, not a pattern printed on it.³³

However, this economy of total violence, symbolic and material (of *pure war* and *pure speed*), is so naturalized as to be all but invisible (apperceptionally inassimilable), its "total influence" outside the sphere of common comprehension, perhaps most especially to residents of jurisdictions constituted by the war machine but affected by material warfare least directly.³⁴ Melman (13) writes:

> ...despite the acknowledged weight of conventional ideology,
> thoughtful people have wondered how something so huge [the military
> industrial "complex"] could remain so hidden, especially from the

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> ...despite the acknowledged weight of conventional ideology,
> thoughtful people have wondered how something so huge [the military
> industrial "complex"] could remain so hidden, especially from the

> consciousness of the Left, with their history of critiquing ideas that support the establishment. At this writing [1997] the managers of America's military and civilian economy have joined in a grand consensus to omit from public discussion—notably during major elections—all references to the civilian infrastructure decay and the relation of all this to the prospect of the new $1,450 billion [one trillion four hundred fifty billion] commitment to new weaponry.

In the post cold war period, the military-industrial complex did not fade away. It simply changed outfits. Military spending in the US, the home the war machine adopted, continued to be maintained following the cold war, but recently, like a cancer that lay dormant, has begun to spread and to grow again luxuriantly.[35] Indeed, even before the current "war on terror," more than 50% of the discretionary U.S. federal government budget was dedicated to "defence" (Vidal, 2001, 448).

Current war spending in the U.S. is of course more profligate than when Vidal provided this documentation.[36] The war machine being built to fight "terror" (World War IV) is proving more intrusive than the one in operation until the Cold War ended.

War Machine Conversion

For Deleuze and Guatarri, the war machine is not about actual warfare, but about deterritorialization/reterritorialization, the various machinisms that take the social form of resistance or of repression in terms of smooth and striated social spaces and of social flows and blockages. While the war machine at this particular time is emblematic of a military/capitalist process of subjective delimitation (reterritorialization of the self—of subjectivity) within ever changing parameters, for Deleuze and Guattarri, the war machine also offers a way out of, as they put it, this "axiomatic process."[37]

According to Deleuze and Guatarri, while all power societies deterritorialize of necessity, capitalism differs from despotism in that it decodes representation

altogether. This is the genius of capitalism; one of its most "fundamental rhythms" is "its reduction of all phenomena to the present," the way in which capitalism constantly recodes already encoded phenomena and knowledge in terms of the "market" (Jameson, 2002, 194). This process was identified at least in part by Marx in his concept of *commodity fetish*. That term, however, does not do the process full justice.

For example, under the regime of capital, the focus of desire moves from the *regus* or god—as was the case in pre-capitalist societies, to abstracted wealth—money.[38] Deleuze and Guatarri say that instead of over-coding, as was done when Christianity coded-over (overwrote) pagan celebrations of the vernal equinox (Easter), capitalism *axiomatizes*. As Eugene Holland (1991, 58), one of the major interpreters of Deleuze and Guatarri in the U.S. puts it:

> Capitalism differs from despotic power society in that it is an economic power society: it deterritorializes not by over-coding via representation, but by de-coding representation altogether: by substituting a calculus of abstract quantities for the codes and over-codes that defined concrete qualities under savagery and despotism. Instead of over-coding, capitalism axiomatizes: it conjoins first of all the deterritorialized and de-coded flow of pure liquid wealth henceforth invested as capital in means of production with another deterritorialized and de-coded flow: pure labor-power henceforth disciplined or "skilled" to match its pre-given object of investment on the assembly-line or some other manufacturing process. The tendency of the rate of profit to fall will then force the addition of additional axioms: production processes are continually transformed by the input of technical information flowing from the hard sciences. Crises of mass over-production will in turn force the addition of still other axioms: advertising programs the taste informing purchasing-power to match the commodity production of labor-power, so that consumption is re-territorialized onto the pre-existing objects of production and thereby realizes profit on invested capital. In this context, reterritorialization is the "dead hand of the past," as Marx said, "that weighs upon the living. . . ."

Deleuze (1995, 172) describes the "war machine" as he and Guatarri invented it. Speaking of the major "lines of flight" in contemporary society,

and with Deleuze and Guatarri "lines of flight" are emblematic of resistance, of what for Marx were the manifestations of the "contradictions of capitalism," Deleuze describes the war machine as a "third major direction":

Then, finally, a third direction, which amounts to finding a characterization of "war machines" that have nothing to do with war but with a particular way of occupying, taking up space-time, or inventing new space-times: revolutionary movements (people don't take enough account, for instance, of how the PLO has had to invent a space-time in the Arab world), but artistic movements too, are war-machines in this sense.

This formulation—and in this sense feminism, in terms of the new space it has opened, is a war machine—is a politicized version of Heidegger's "coming into presence," or that which Deleuze and Guatarri term "becoming."[39] Thus various "avant-gardes" that actually live up to their appellation come into existence. Such "avant gardes," for example late nineteenth century Paris, Vienna at the beginning of the twentieth century, or New York in the 1950s are "war machines" *par excellence*. As Deleuze's translator explains (1995, 185):

> The "war machines" of *A Thousand Plateaus* are not "machine for war,"
> but free arrangements oriented along a "line of flight" out of the
> repressive social machinery that configures or codifies all processes
> and production within the extrinsic ends of a transcendent state
> oriented along the single "static" line of a unitary history. In
> *Capitalism and Schizophrenia* the free interplay of all the machines,
> arrangements, flows, processes, becomings, events into which a given
> thing (component, variable) enters is intrinsically desiring, productive,
> and disruptive: Creative, artistic, and revolutionary.

Again an inversion; suddenly the war machine is a site for freedom, the *splace* (place/space) where the bounds of existence are pushed at, the point of "becoming"—the agonistic point of creation whereat new forms of existence are imaginable and may even be tried on.

Along with the war machine, assemblages and axiomatization, "de" and "re" territorialization are needed to make sense of Deleuze and Guatarri's reformulation of the socius. "De" and "re" territorialization are expressions of the capitalist axiomatic based on the production of various forms of excess. For example, the "axiomatic" evidences in a subjective economy that produces subjectivity delimited by a specific coding, for example contemporary "consumerism," which *produces anti-production* as a by-product. That "subjective wastage," such as "criminal" behavior, is a function of the system, that, like a perpetual motion machine for the production of value, must then be reterritorialized back into the economy. This constant movement is the means for new wealth production, in this instance the expansion and privatization of statist incarceration. Again, this is the genius of the system, to deterritorialize and reterritorialize precisely that which is reterritorialized in the first place. It is the system's logic (axiomatic).

In terms of material production, this reterritorialization is evident in the recent global imposition of marketable "pollution credits" that are being "earned," "sold" and "bought." In the subjective economy, this reterritorialization is evident in education whereby the ruin of the statist system is given back to the *socius* as an investment opportunity, as is the *operation of the state* itself. However, this seemingly perpetual dynamic whereby capitalism moves from crisis to crisis, creating crises and their *always partial* resolution, is most often taken at face value.

Thus there is the confusion of symptoms with problems, for example the confusion regarding the current beggaring of public education in Canada, the beggaring itself as the issue or problem without regard to the systemic logic that underwrites it. Thus, it is not a matter of contradiction, but of flows, of flood and ebb tides, of low and high entropy—of becomings, war machines

and the formation of new assemblages. The contemporary capitalist economy since its inception in North West Europe has functioned as a deterritorializing/reterritorializing machine, moving constantly from place to space, most always employing warfare. This description of contemporary existential conditions places war and education in an unfamiliar context. Deterritorialization and reterritorialization then are descriptive of the capitalist process—and explain the role of education during the period of capitalism as a reterritorializer *par excellence*.

However, Deleuze and Guatarri are not alone in striving to find new ways to conceptualize capitalism and warfare. For example, Haraway (1991, 72) locates her cyborgs—which contain liberationist possibilities—in this new space determined by a war machine "for war" that eerily describes the war machine being (re)built in the U.S.: "From one perspective, a cyborg world is about the final imposition of a *grid of control* on the planet, about the final *abstraction* embodied in a Star Wars apocalypse waged in the name of defense, about the final appropriation of women's bodies in a masculinist orgy of war."

In turn Kroker's "spectral terrain" provides the grounds upon which a "grid of (perceptual) control" is imposed (through the Internet and TV, for example), much like the barbed wire running around and through Europe during both World Wars that controlled that spectral (and material) terrain and thereby "occupied" not only the geography (territory) but its inhabitants.

In effect, Foucault, Haraway, Deleuze, Guatarri, Virilio and Baudrillard, took warfare—and its relationship to capitalism—out of its closeted/cosseted theoretic surrounds. They forced war onto the academic stage in a manner that in some respects resembles the cold stare of Benjamin or Adorno, certainly a reminder of Adorno's felicitous phrase that the Second World War was "capitalism making war on its own future." Their schemas, with the

exception of Virilio, are not, however, trapped within the binary of subjective autonomy/heteronomy whereby the free subject is "for itself" and "in itself"; rather the subject constituted in these narratives is an effect of power.

Thus power, while it is both repressive and oppressive in that it cannot but delimit human possibility, a zero sum game at best, is at the same time *positively formative*—a form of reterritorialization to employ Deleuze and Guatarri, endocolonization to use Virilio, or a process of subjectification to use Foucault and Butler. Perhaps, it may not be too much to suggest that the "people" controlled (formed) by the confluence of contemporary capitalism and war are *themselves* a form of constant "low-grade" warfare. Virilio (2000a, 55), who very muck focuses on World War I as the point where the "future" first became evident, provides this comment:

> (The press anticipated)... a first world war which, by its very universalism, would become the first total war of humanity against man thanks to the deployment of a military-industrial arsenal of mass destruction, which was soon to encompass a scientific complex ranging from physics to biology and psychology.
>
> It was merely a question of time, then, for the transfer of the West's *expansionist drives* from the *exhausted geography* of the *terrestrial* to the *human body*—that last, still-unexplored corner of the planet, relatively protected by the last cultural, social and moral prohibitions.

Literature has proven prescient in apprehending the existence of this total war machine, articulating its function as a total control system long before it was fashionable. Nicholas Spencer (1999, 31) points out the groundbreaking way in which Pynchon's postrealist "novel" anticipated French war theory. Importantly, his reading of *Gravity's Rainbow* against French theory points to the postwar development of the civil "security state" that now marks all postindustrial jurisdictions, the "realization of practices of social control that are irreducible to war [in its conventional formal aspect]":

In its treatment of war *Gravity's Rainbow* shares many features with poststructuralist theory, especially that of Paul Virilio and Jean Baudrillard. Pynchon articulates the poststructuralist notion proffered by Michel Foucault, Felix Deleuze, Felix Guattari and others that modern societies are disciplined by military structures rather than being ruled by law. Much of *Gravity's Rainbow* depicts the end of the Second World War as a significant moment in a process whereby military relations and realities are being extended into the post-war era. This view coincides with the arguments of Virilio, who coins the term "pure war" to denote how the military extension portrayed by Pynchon is inaugurated and maintained by the idea of deterrence. However, at times *Gravity's Rainbow* portrays the Second World War as a preparatory moment in the realization of practices of social control that are irreducible to war.

Another theoretical "double-bind" is apparent—the irresolvable contradictions between the "will to technology" as Kroker (1992) put it—and the "will to life." Yet both indifferent registers allow the apprehension of the pervasive control system that is contemporary war as it manifests in the hyperreality of postindustrial jurisdictions and in the real time mass suffering in many places outside those exclusive premises. This is the point—though they are contradictory in part, both concepts must be employed simultaneously for the apprehension of the global(ized) *socius*.

The realist narrative, Virilio's "pure war," must remain in play, for example, in the statistics of war expenditures, the history of warfare, its theory, the continuing encroachment of the national security state, the "totally-blended" economy of postindustrialism. Yet, at the same time, the socially constructed nature of these elements of warfare must be brought to the fore, especially how they are grounded in electronic mediation, the way in which the "real" is constituted in the era of postindustrial war. Each, in its way, is part of the same "axiomatic," the means by which deterritorialization and reterritorialization now proceed globally.

The incursion of the phantasmagoric into actually existing reality, the one that exists prior to and outside of consciousness, must be respected if the

incursion of the "actual war machine," the social *economy of war*, in its economic, political, technological, moral, social, semiotic, symbolic, imagistic and axiological avatars, is to be accounted for materially.[40] With that caveat, poststructuralist theory and its literary equivalents, nonetheless point to an understanding of the ways in which war penetrates every aspect of life in postindustrial jurisdictions. Daniel Bell (1961), the progenitor of the term "postindustrial society," described it as a "mobilized society" with a "preparedness economy" (as quoted in Noble, 1991, 18).

This form of theory allows the theoretical and political-economic apprehension of World War IV, the contemporary war trivialized as terrorism, the war that more than ever before, is being fought on both realist and postrealist fronts simultaneously. The extent of this war remains largely invisible, usually manifest only in events designed to capture electronic mediation; but it is nevertheless broadly engaged in all aspects of quotidian existence in every postindustrial jurisdiction, and, of course, in other locations that happen to be sites of material warfare, of actual killing.[41]

The war theory outlined above may seem a long way from the social practice and discourse (the assemblage) termed education. The next two chapters will demonstrate that this is not at all the case, that education can be decoded on a historical and encompassing level by employing the concepts outlined in this chapter.

Chapter Notes

1   The "Ems telegram" reported the happenings of a meeting between the King of Prussia and the French ambassador to the Prussian chancellor Bismarck. Bismarck made available an edited version of the document that omitted the courtesies exchanged by the two participants. This edited version, which was published in France and the German states, further exacerbated the ill feeling between France and Prussia and led to calls for war in Paris and Berlin. France declared war on Germany on July19, 1870. With the French as apparent aggressors, Bismarck was successful in enlisting the southern German states in the ensuing war. The unification of all the German states (except Austria) into modern Germany ensued shortly thereafter. After 1870, Germany was Europe's leading military, commercial, cultural, technological, educational and scientific power. Hegel's history appeared to be unfolding.

2   Weber (1968, 1463-1466) discusses the "epochal importance" of Bismarck and the wars of German unification. He too attributes great historical importance to the events highlighted here.

3   Unlike fifty years earlier when England had been allied with Prussia against Napoleonic France, the country this time was lining up with France against a resurgent Prussia (and a uniting Germany). Therefore, the deposed Emperor Napoleon III (after being captured and released by the Prussians) and the deposed Empress Eugenie were provided luxurious sanctuary in England, though the former Emperor died shortly after going into exile.

4   A resurgent Prussian triumphalism, itself a comic opera of sorts with the crowning of a pan-German Kaiser (Caesar) at Versailles, the return of French republicanism in the form of the "third republic", the rise and defeat of the Paris Commune, the contractual reinvestment of hostilities between historic continental rivals (the Peace of Frankfurt that saw France cede Alsace-Lorraine to Germany and pay war reparations), and perhaps most of all, the concentrated, intense, industrialized violence of the Franco-Prussian War itself—saw the closing as well as the opening of the (melo)drama of the second empire as a preview of what was lying in wait in the next century.

5   This is not to suggest that the Franco-Prussian War is comparable to World War I in terms of magnitude. More shells were expended in a single day on the Western Front in World War I than in the entire Franco-Prussian War. However, the speed of German troop movements and the concentration of their violence evidenced the changed nature of war. A full-blown industrialized war economy, not realized until 1916 or 1917, provided the basis for total war.

6   Van Creveld, (1991: 102) in *The transformation of war*, writes:

> As almost every function of civil society came to be duplicated in the army, the old haphazard administrative machinery for mobilizing the forces and supervising their operations no longer sufficed. A new supervisory institution was needed and this new institution duly appeared in the shape of a general staff.

Generals staffs consisted of bodies of specifically selected, specially trained, experts. Their preferred place of work was not the field but the office. Instead of fighting, they planned and administered...

This planning and administration formed the basis for contemporary systems based management theory. It is another manifestation of the "control revolution," a technology of control that was from inception militaristic.

7   Bassford (http://www.clausewitz.com/CWZHOME/Complex/Proposax.htm) writes:

Carl von Clausewitz's magnum opus *On War* (Berlin, 1832) is unquestionably the most important single work ever written on the history of warfare. The principal importance of Clausewitz's approach to theory is his realism. By this I do not mean realism in its usual sense of mere cynicism about politics and naked power, although this is not lacking in On War. Rather, Clausewitz's approach is profoundly realistic in that it describes the complex and uncertain manner in which real-world events unfold, taking into account both the frailties and the complexity of the physical and psychological world.

8   In *Jomini and Clausewitz: Their Interaction* (paper presented to the 23rd Meeting of the Consortium on Revolutionary Europe at Georgia State University, 26 February 1993), Bassford writes:

Aside from their differing relationships to Napoleon, the fundamental differences between Clausewitz and Jomini [a competing war theorist] are rooted in their differing concepts of the historical process and of the nature and role of military theory. Clausewitz saw history in relative terms, rejecting absolute categories, standards, and values. The past had to be accepted on its own terms. The historian must attempt to enter into the mindsets and attitudes of any given period, the "spirit of the age." History was a dynamic process of change, driven by forces beyond the control and often beyond the comprehension of any individual or group. This historicism is particularly obvious in two key themes of *On War* that are missing in the 1812 *Principles of War*. These are the famous notion that "War is a continuation of politics with an admixture of other means" (i.e., organized violence) and the recognition that war can vary in its forms depending on the changing nature of policy and of the society within which it is waged.

9   See Simpson (1998) for a history of the theoretical development of U.S. foreign policy based in modernization, development and counterinsurgency theory. Irene Gendzier (Simpson, 1998, 78-79) in *Play it Again Sam: The Practice and Apology of Development*, an essay included in Simpson's book, describes a system "in balance," as one where existing relations of power are not threatened, which was preferable to an unstable system where, by definition, homeostatic relationships were challenged because of entropy such as "insurgency" that was theoretically manageable because the system was "closed." Gendzier documents how academicians worked closely with the military to develop foreign policy in the 1960s.

10 Wendy Brown (1995, 106) writes:

> In Marx's account, the ruse of power peculiar to liberal constitutionalism centers upon granting freedom, equality and representation to abstract rather than concrete subjects. The substitution of abstract political subjects for actual ones not only forfeits the project of emancipation but resubjugates us precisely by emancipating substitutes for it—by emancipating our abstracted representatives in the state and naming this process "freedom." The subject is thus ideally emancipated [in original] through its anointing as an abstract person, a formally free and equal human being [as free as anyone else to sleep under the bridge], and is practically resubordinated through this idealist disavowal of the material constituents of personhood, which contain and constrain our freedom. Thus, because we are in this way subjugated by the very discourse of our freedom, liberal freedom is structurally, not merely definitionally, ambiguous. The notion of "representative" and the process by which according to Hobbe's Leviathan, we "author" the state exemplify this condition and Rousseau makes a similar point in his critique of representative government in the "Discourse on Inequality" and the Social Contract. Marx himself develops this point through an analogy between the state and Christianity:

> Religion is simply the recognition of man in a roundabout fashion; that is, through an intermediary. The state is the intermediary between man and human liberty. Just as Christ is the intermediary to whom man attributes all his own divinity and all his religious bonds, so the state is the intermediary to which man confides all his non-divinity and all his human freedom ("Jewish Question," p. 32).

11 World War I was the primary generative event of the twentieth century. The destabilization that followed its outbreak led to the success of Bolshevism in Russia, of Nazism in Germany, World War II (the second phase of the global warfare that plagued the century), the Cold War (phase three), and the constant "limited" warfare that accompanied it. The effect of war in the twentieth century cannot be overstated. Perhaps only the Protestant Revolution (reformation) and the Thirty Years War (1618-1648), that provided founding events for the modern period, might be comparable in terms of recent Western history (the system of five hundred years).

12 In 1917, Czarist Russia sued the German Empire for peace and the US entered the war. The Germanic, Ottoman, Russian and Austro-Hungarian Empires disintegrated during World War I, and France and Great Britain emerged from the war as ostensible victors but much diminished. By the end of the war in 1918, the US was playing a lead role, in which, outbreaks of (symbolic) isolationism aside, it continues.

13 The development of theories of "determinism" and "indeterminism" have marked social theory since Hegel and Marx. For the most part, they are of the chicken and egg sort, for example, does language determine consciousness or the other way round, do media determine social relations as McLuhan and Kittler posit, or simply reflect relations of power as is the case according to Stuart Hall.

14   Marshal Foch, the French military commander, stated at the signing of the Treaty of Versailles in 1919: "Ce n'est pas un traité de paix, c'est un armistice de vingt ans." This is not a peace treaty, it an armistice for twenty years.

15   Since the end of World War II, real total war seems to have lost much of its appeal, perhaps especially because the ostensible benefits attached to its employment have been superceded by an indiscrete socialization of its costs (i.e. nuclear war that over time would impact equally on all regardless of their wealth or station in life).

16   Keeley (1996, 164) addresses this cultural reconsideration of warfare:

> This general change in the Western appreciation of war can be seen in two areas of popular and academic culture. The war stories, novels, and poems of the nineteenth century celebrated the adventure, heroism, and glory of war. Those produced between the world wars treated war and soldiers' experience of it as an epic tragedy that, if lacking in any pretense to glory, nevertheless provided the stage for stoic heroism and comradely self-sacrifice. The literature of the past fifty years, by contrast, has tended to treat war as a brutal bedlam in which humans merely struggle, usually unsuccessfully, to preserve their lives and sanity. Postwar American war novels, for example, portray men as the dazed neurotic victims of psychotic officers, the petty tyrannies and stupefying boredom of military life, and the mindless cruelty of war itself. War had changed in literature from an uplifting melodrama, to a elegiac tragedy, to a surrealist black comedy.

17   Nietzsche (and Marx) noted the end of heroism because of its incompatibility with bourgeois values and industrialism at about the same time as the Franco-Prussian War demonstrated its increasing martial obsolescence. This is not to suggest that individual acts of courage no longer marked warfare—only that industrial war and the slaughtering of combatants by the millions made such acts increasingly meaningless. Van Creveld points out that no "utilitarian calculation can justify risking death...heroic justification is needed to...kill and risk being killed." (Kaldor, 1999, 25-26). This justification is difficult to maintain when contemporary technologies are employed to indiscriminately kill people by the millions.

18   Virtual reality is a highly unstable concept, undergoing radical shifts in meaning. Michael Heim devotes a book to its explication (1993, 321). He writes:

> Duns Scotus [medieval logician] used the term virtual to bridge the gap between formally unified reality (as defined by our conceptual expectations) [according to Scotus, the real thing already contains its manifold empirical qualities in a single unity] and our messily diverse experiences. Similarly, we use the term virtual to breach the gap between a given environment and a further level of artificial accretions. Virtual space—as opposed to natural bodily space—contains the informational equivalent of things. Virtual space makes us feel as if we were dealing directly with physical or natural realities. As if . . . .

Baudrillard's term hyperreality captures the disappearance of the "real" altogether, the replacement of reality by the "as if." He writes (1983: 25) "it is

no longer a question of a false representation of reality (ideology), but of concealing the fact that the real is no longer real, and thus the saving of the reality principle."

19   Kittler (1999/1985: xli) writes:

> And since 1973, when Thomas Pynchon's *Gravity's Rainbow* was published, it has become clear that real wars are not fought for people or fatherlands, but take place between different media, information technologies, data flows. Patterns and moirés of a situation that has forgotten us . . . .

With *Gravity's Rainbow*, once again the postrealist narrative provided critical apprehension long before the realist one (information warfare, both in the sense of propaganda and in the sense of information itself as the means and end of war are commonly held views now).

20   Robert Higgs provides some indication of the scale of warfare:

> The end of World War II blended into the beginning of the Cold War. In 1948 the government reimposed the military draft, and over the next 25 years conscription was extended time and again. After 1950 the military-industrial-congressional complex achieved renewed vigor, sapping 7.7 percent of GNP on average during the next four decades—cumulatively some $11 trillion dollars of 1999 purchasing power.

from http://www.independent.org/tii/news/990700Higgs.html.

21   If this be considered fanciful, please consider contemporary U.S. foreign policy. This is the official U.S. strategy for fighting World War IV. See *The National Security Strategy of the United States of America, Section III, Strengthen Alliances to Defeat Global Terrorism and Work to Prevent Attacks Against Us and Our Friends*, September 17.2002 http://www.whitehouse.gov/nsc/nss3.html:

> The United States will continue to work with our allies to disrupt the financing of terrorism. We will identify and block the sources of funding for terrorism, freeze the assets of terrorists and those who support them, deny terrorists access to the international financial system, protect legitimate charities from being abused by terrorists, and prevent the movement of terrorists' assets through alternative financial networks.

> However, this campaign need not be sequential to be effective, the cumulative effect across all regions will help achieve the results we seek. We will disrupt and destroy terrorist organizations by:

> direct and continuous action using all the elements of national and international power. Our immediate focus will be those terrorist organizations of global reach and any terrorist or state sponsor of terrorism which attempts to gain or use weapons of mass destruction (WMD) or their precursors;

> defending the United States, the American people, and our interests at home and abroad by identifying and destroying the threat before it reaches our borders. While the United States will constantly strive to enlist the support of the international community, we will not hesitate to act alone, if necessary, to exercise our right of self defense by acting preemptively

against such terrorists, to prevent them from doing harm against our people and our country; and denying further sponsorship, support, and sanctuary to terrorists by convincing or compelling states to accept their sovereign responsibilities. We will also wage a war of ideas to win the battle against international terrorism. This includes:

using the full influence of the United States, and working closely with allies and friends, to make clear that all acts of terrorism are illegitimate so that terrorism will be viewed in the same light as slavery, piracy, or genocide: behavior that no respectable government can condone or support and all must oppose;

supporting moderate and modern government, especially in the Muslim world, to ensure that the conditions and ideologies that promote terrorism do not find fertile ground in any nation;

diminishing the underlying conditions that spawn terrorism by enlisting the international community to focus its efforts and resources on areas most at risk; and

using effective public diplomacy to promote the free flow of information and ideas to kindle the hopes and aspirations of freedom of those in societies ruled by the sponsors of global terrorism

22 The concept of assemblage is taken from Deleuze and Guatarri (1987). An assemblage can be comprised of various seemingly unrelated processes and artifacts that are assembled with a particular context. An assemblage brings about effects which are multifaceted, polyglot and polymorphous, at once productive, consumptive, creative, destructive, aesthetic, pragmatic, etc. The concept of the assemblage allows Deleuze and Guatarri to neutralize "effects" that other theorists would consider negative, positive or ideological (e.g. Althusser). It is of great value to this work in that it allows the material and discursive, theoretical and pragmatic to be integrated into a "machine" of sorts. This concept can allow expression of social dynamics that are actively written out of discourse when it is constructed within the confines of conventional binaries, most especially those of logocentrism.

23 Ken Epps in New Welfare to Arms (1995) writes:

Many products developed with DIPP monies [the Defence Industry Productivity Program, a multi-billion dollar Canadian government program to subsidize military production that dates to the Defence Production Sharing Arrangements (1959) recently replaced by Technology Partnerships Canada which has a broader mandate] are "dual-purpose" goods for both civilian and military markets. These are goods, such as aero-engines, in which the difference between a military and a civilian product may be no more than the difference between some components (with, typically, components of the military version having to conform to tougher specifications), or where the same product may be supplied to both commercial and military customers. Recently, the government has indicated a preference for dual-purpose products in DIPP eligibility, even pointing to "the priority given to projects exhibiting dual use technologies" as evidence of the use of DIPP funds for military-to-civilian conversion.

24 Even when particular goods such as the transistor and the silicon chip had a civil provenance (William Shockley and Jack Kirby, respectively), their development was sponsored by the military. De Landa (1991, 150-151) provides a history of the imbrication civil and military technologies.

25 Kroker writes (1992, 107) writes:

> Deleuze and Guattari are the world's first systematic theorists of technological fascism. Foucault was correct only in part when he said of Deleuze and Guattari that they had written an ethics of resistance. For this is not just an ethics of resistance, but something more indefinable and valuable: a howling scream cut across the "white wall" of signification and through the "black hole" of dead subjectivity. In their theory machine, the fateful encounter of Kant and Nietzsche in the nineteenth century explodes across the social field in an indefinite series of reterritorializations.

26 To view war as a discourse in its own right and to critique war as a social practice is not to trivialize suffering. The intent is the reverse—to understand how profoundly war pervades every aspect of contemporary existence, reaching into human bodies, human thinking and social institutions in ways that are largely ignored. Copjec (1996, xii) captures the (un)ethical warp of "all out war" and the double bind that faces those who try to come to terms with it when she writes:

> what I want, he wants too...is the common motif of all-out and perpetual war that initiates modern struggles for 'pure prestige', in which individual subjects and nations seek the absolute elimination of their rivals. Yet what has been obscured by contemporary thought is the fact that this relativization of our desire is no less an incitement to war when we decide not...to define our wants as the same...but as irreducibly different. The celebration of the plurality of cultures and hence the relativity of our desires is, in Kant's terms, no less an indication of wickedness and corruption of the human heart than is the coveting of all our "brother" holds dear. This is, 'to each his own desire' is no less dangerous a sentiment than 'what I want, he wants too'

Copjec finds no way to address this double-bind (of liberal pluralism), and at the end of the article, addressing the way in which the Kantian concept of radical evil has become modern evil, and sounding much like a Frankfurt School critic, she writes: "The greatest post-Enlightenment danger has turned out to be not our capacity to make reason an instrument of our will, but reason's capacity to make instruments of us."

27 Melman (1997) writes: "The U.S. currently deploys warheads with the power of some 2.3 billion tons of TNT. 188.2 million tons of TNT, enough to destroy both Russia and China, is merely 8% of the active U.S. nuclear arsenal's power. The rest 92%, represents an outrageous excess of killing power and spending overkill."

Juxtapose such a "factual" interpretation with Jean Baudrillard's "postrealist" The Gulf War did not happen. Its publication was greeted with praise and outrage. French postmodernists have employed Brechtian strategies in their works. Barthes was first a Brechtian scholar, and Brecht is central as well to

Derrida. However, les agents provocateur of the virtual age may be becoming mainstream, perhaps especially in the application of Derrida's supplementarity (the hierarchy of binaries), Barthes concepts of the text and reading, Foucault's conceptualization of power/discourse/truth, Lacan's destabilization of signification and Deleuze and Guattari's desiring machines.

28   Kittler's work pulls out the way in which industrial/postindustrial communications technologies are products of warfare. His periods are the Gutenberg, Edison and Turing worlds. Each encompasses one of the three recent mediatory social states. The Gutenberg universe is grounded in the typewriter, which, interestingly was developed in the U.S. by the Remington Firearms Co. of New York, then the mass broadcast radio that came directly out the use of wireless communications during World War I, and, of course, computers based in the Second World War work of Turing. Gramophone, Film, Typewriter (Kittler, 1999) is a complex work of philosophy and theory, and though education is not his central concern, he does address it, especially as concerns the limitations inherent in the concept of Bildung.

29   Megill (1997, 109) claims that Foucault and Derrida "are a continuation of and confrontations with a Nietzschean and Heideggerian perspective. Both theorists have confirmed the generative influence of Heidegger.

30   The all-consuming machine (Frankenstein) as developed by Mary Shelley (Wollstonecraft) continues to return to haunt literature, theory, popular culture and policy. This cultural disquiet suggests that popular resistance to "science and technology," perhaps expressed first in the figure of Prometheus, has not abated in spite of centuries of scientific and technological "advance." The machined human has re-emerged in cybernetic literature and film (see *The Terminator*, *Robocop* and *Bladerunner*; these films incorporate a saving (humanist) remnant when the machines develop "human feelings," and in the case of *Bladerunner*, a conscience not exhibited by the humans who formed the cyborgs existence).

31   Douglas Kellner compares Virilio to Baudrillard, writing "for Baudrillard reality disappears in hyperreality, for Virilio new technologies provide a substitute reality, a virtual reality which becomes more powerful and seductive than ordinary reality" Virilio can be described as materialist humanist (and a practicing Christian) whose project it is, Kellner writes: "to describe the losses, the disappearances, of the substitution, describing how technology displaces human faculties and experience, subjecting individuals to ever more powerful modes of technological domination and control." from http://www.uta.edu./huma/illuminations/kell29.htm

32   This is not to suggest that jurisdictions participate more or less equally in maintaining militarism and war readiness. The degree to which the contemporary war machine is an American construction is documented by the Center for Defense Information, World Military Spending. from http://www.cdi.org/issues/wme.

The United States and its allies—NATO, South Korea and Japan—possess a vast qualitative military advantage over any other nation or group nations in the world. And while such superiority doesn't come cheap, when compared to the

rest of the world the amount the United States alone spends on its military is simply staggering.

At $305 billion, the U.S. military budget request for FY'01 is more than five times larger than that of Russia, the second largest spender. It is more than twenty-two times as large as the combined spending of the seven countries traditionally identified by the Pentagon as our most likely adversaries (Cuba, Iran, Iraq, Libya, North Korea, Sudan and Syria).

It is more than the combined spending of the next twelve nations.

The United States and its close allies spend more than the rest of the world combined, accounting for 63% of all military spending. Together they spend over thirty times more than the seven rogue states [emphasis added].

33 Ernst Mandel (1975) was the first economist to subject the permanent war economy to political economic analysis. His analysis remains remarkably prescient. As he explains (274-275), sounding like Weber, there is nothing "peculiarly new about the production of weapons and military expenditure," weapons production was "one of the most important midwives of early capitalism." However, on Mandel's thesis, the role of war related production has changed qualitatively since World War II. Mandel (274) considers it a "hallmark of late capitalism."

Mandel (308) considers it "nonsensical" not to include the production of weapons as commodity production, and that investments in this [military] sector must be considered as "accumulation of capital." In other words, warfare is fully economically integrated under late capitalism, not some extraordinary expenditure, no matter how many declarations of putative "emergencies." For Mandel (309), the permanent arms economy provides the ultimate expression of the "parasitic nature of monopoly capitalism," for "how else can one regard a system which for 25 years (now 50) has constantly squandered such a substantial part of its available economic resources of the production of the means of destruction?"

34 The Polish war correspondent Ryszard Kapuściński (1990, 200) writes about the incommensurable experience of real war: "A person who lived through a great war is different from someone who never lived through any war. They are two different species of human beings. They will never find a common language, because you cannot really describe the war, you never cannot share it." The Canadian writer, Pierre Berton (Vimy, 1986).made similar point, saying that Canadian soldiers returned from the Great War could not speak of their experiences; they were unspeakable.

35 From WORLD TRIBUNE.COM November 15, 2002:

House and Senate conferees have reached agreement on the $393 billion defense budget for fiscal 2003 that places new emphasis on missile defense and marks the largest overall increase since the early years of the Reagan administration.

House Armed Services Committee chairman Bob Stump, a Republican from Arizona, said the $7.8 billion authorized for missile defense—$814.3 million of which is allocated for the Defense Department for counterterrorism—marks the fifth straight year of real increases in defense spending.

> Stump said the fiscal 2003 defense budget is the largest increase in nearly 20 years. "Rogue nations such as North Korea, Iran, and Iraq are actively seeking or testing ballistic missiles capable of striking the U.S. homeland, and U.S. allies and U.S. forward deployed troops already face a growing threat from shorter range ballistic missiles," the conference report of the National Defense Authorization Act for Fiscal Year 2003 said.

36 Vidal (2001, 438) provides these details: "from 1949 to 1999 the U.S. spent $7.1 trillion on "national defense." As a result, the national debt is $5.6 trillion, of which $3.6 trillion is owed to the public, and $2 trillion to the Social Security-Medicare Trust Funds, all due to military spending and servicing the debt thus incurred."

37 Deleuze and Guatarri in their use of the term "axiomatic" fall in with Marx's analysis of capitalism. For them, the axiomatic—a set of equations based on fixed relationships among variables—is the decoding and deterritorializing process of capital. Yet the genius of the system is that it does not succumb to the "contradictions" inherent in the capitalism because of the falling rate of profit. Instead, the system is premised in "new answers," new manifestations pf this fundamental contradiction. Thus, there is no inexorable march into the future, there is no necessary "revolution"; rather there is constant systemic adjustment, the process of breaking down and self and systemic reinvention (though it appears the vectors in the equation may be getting tighter).

38 Deleuze and Guatarri (1987, 399) elaborate on the relationship between desire and its effectuations which differ in time/space depending upon the particular assemblage in place at a particular time:

> But if it is true that all assemblages are assemblages of desire, the question is whether the assemblages of war and work, considered in themselves, do not fundamentally mobilize passions of different orders. Passions are effectuations of desire that differ according to the assemblage: it is not the same justice or the same cruelty, the same pity, etc. The work regime is inseparable from an organization and a development of Form, corresponding to which is the formation of the subject. This is the passional regime of feeling as "the form of the worker."

39 "Becoming," like "axiomatic," is a difficult and fraught term when employed by Deleuze and Guattari. As with so many terms its meaning changes from text to text and as the texts develop. "Becoming" is identified initially as a process that is generative of a new way of being (Deleuze and Guatarri, 1987). The "war machine" is expressive of this process. These new ways of being are not, however, arrived at through a progressive process (such as the dialectical process). They form by molecular reorganization, by the arrival of new combinatory possibility, recombinant processes.

40 It is important to point out that the "electronification of existence" is grounded in a very material technology, the generation of electrical power. No electrical power, no hyperreality once the "effect" has worn off. The concepts deployed by the French poststructuralist must be understood as performative devices (heuristics) in their own right, that they are deployed with considerable irony that seems to escape many "literalist" English readings.

41   The current U.S. Vice-President R. Cheney coined the term "new normalcy" to describe the state of constant low-grade warfare. " 'The way I think of it, it's a new normalcy,' said U.S. vice president Richard Cheney in late October. With the war itself such 'that it may never end, [at] least, not in our lifetime,' Cheney warned that the post–September 11 conditions 'will become permanent features in our way of life'." See "The New Normalcy" by Simon Serfaty (2002) *The Washington Quarterly* 25(2), 209.

CHAPTER 4:
TEACHING MACHINE (ASSEMBLAGE)

Introduction

This chapter addresses the development of the Teaching Machine, the making of contemporary perception, again from the vantage point of 1870. More specifically it addresses the political engineering of perception that began as soon as the technological means to do so were available. Again the work provides a brief historical excursus, taking the reader to the mechanization of perception that began with the invention of perspective during the Florentine Renaissance. The chapter addresses the processes of militarization, nationalization, industrialization and capitalization.

The concept of assemblage taken from Deleuze and Guatarri (1987) is employed as a "conceptualizer," a discursive construct that captures fully integrated and recursive qualities of social formations and processes. An assemblage can be comprised of various seemingly unrelated processes and artifacts that assemble within a particular context. An assemblage brings about effects which are multifaceted, polyglot and polymorphous, at once productive, consumptive, creative, destructive, aesthetic, pragmatic, "passional" and "desiring," the latter two terms exemplifying the literally hundreds unorthodox terms and expressions developed by Deleuze and Guatarri.

Tele-graphic Warfare

When Bismarck in 1870 so effectively goaded the second empire of post-revolutionary France into declaring war on Prussia, he was employing at least

three new technologies simultaneously. As Bismarck recounted, the "Ems telegram" was calculated to enrage the French "not only on account of its contents," a "national" insult, "but also on account of the manner of its distribution" directly to the populace of France and the German states through newspapers *at the same time* as it was diplomatically communicated to the French government. As Bismarck related in his memoirs, it was delivered in this deliberately provocative way so that the telegram, "before midnight" would "have the effect of a red rag upon the Gallic bull" on the same day it was sent

"Fight we must"—said Bismarck—"if we do not want to act the part of the vanquished without a battle. Success, however, depends essentially upon the *impression* which the origination of the war makes upon us and others; it is important that we should be the ones attacked."[1]

The desired effect the telegram produced so quickly was contingent upon mass literacy, the rotary (high-speed) printing press, the electrical telegraph—and the *mentalities* of populations exposed to nation-ism from the time the *ancien régime* was overthrown in France (1789), and in the German states, at least from the time of the Napoleonic invasion (1806).[2] The telegram's transmission—and the great military victory that followed so quickly—signaled the electro-mechanical (industrial) extension of warfare into the new industrially formed and industrially accessible theatre (field) of human *perception*.[3]

The war that followed evidenced, albeit in primitive form, the energy generated when the social formation termed the "people" (*les citoyens*), the leaders and the form of social organization termed the nation-state colluded with capital to produce war. This new social formation, the newly industrialized and nationalized socius, grounded the ability of armies to conduct wars of ever greater lethality ever more indiscriminately.

The telegram's release signals a change in existential conditions, marking a point at which the electromechanical construction and mediation of existence for the "people" in industrial societies comes to be common (normative). Bismarck, in effect, was engineering (machining) perception, and with that machining affect. As Deleuze and Guattari (1987, 400) put it: "Affects are projectiles just like weapons; feelings are interoceptive like tools . . . Weapons are affects and affects weapons."

"By striking out words, but without adding or altering anything" Bismarck (*Memoirs*, n.d.) changed the meaning of the telegram sent him by the soon-to-be pan-German Kaiser Wilhelm, his revised version was reproduced *en masse* and distributed. As Bismarck said, "Success, however, depends essentially upon the impression which the origination of the war makes upon us and others." This industrial dissemination of a manufactured *casus belli* (just cause) spoke of the medial manufacturing of consent (perception) that was a hallmark of the twentieth century.

Writing in 1930, Jünger (Wolin, 1991), perhaps better than anyone, understood Bismarck's strategic temporal location between two ways of being—and the way in which he assisted the transition from one to another. Jünger's concepts of "partial mobilization" and "total mobilization" explain the transition. His binary captures the transformative process Weber accounted for with the distinction between *Gemeinschaft* and *Gesellschaft*, and with Durkheim's *organic* and *mechanical* society. For Jünger (Wolin, 1991, 125), "partial mobilization corresponds to the essence of monarchy."

Almost instinctually (126), a monarch cannot *conceive* of committing the full resources of the state to warfare, for to do so would undermine the existential conditions that support dynastic rule itself (something akin to *Gemeinschaft*). At the same time, the monarch, in Bismarck's time in the German states, had to accommodate the "abstract forms of spirit, money,

'folk'—in short, the forces of growing national democracy—as part of the preparation for war." For Jünger, a society could reach "total mobilization" only after the vestiges of organic society had been replaced by a purely secular state with a singular capability and allegiance.

The crux of the transition between preindustrial and industrial perceptual regimes is evident in Jünger's (126) understanding: "The manner in which it [recognition of the new social forces] was incorporated [into political life] represents the real essence of nineteenth-century statecraft. These particular circumstances explain Bismarck's maxim that politics is the 'art of the possible'."

For Weber (1978, 1392), Bismarck "left behind him a nation *without any political sophistication* [italics in original], far below the level which in this regard it had reached twenty years before [i.e. in 1870]." For Weber, Bismarck's authoritarianism infantilized the German population, left it ripe for exploitation by unscrupulous leaders who could impose their will on a "nation *without any political will of its own* [italics in original]." Yet Weber's idealist construct of a national will explains little; for with electromechanical mass mediation, the "national will" could be constructed *on-demand*.[4]

Like Bismarck, Lincoln, Gladstone and John A. MacDonald engaged electromechanical mass media to construct a "national will" in their jurisdictions. Electromechanical subjective mediation allowed for the transition between politico-medial epochs. By this means the *énergie potentielle* of the "people" recognized by Clausewitz was actualized through various industrial processes. (In Canada, this actualization of the *énergie potentielle* of the "people" was evident during the World War I, and then again from 1939 when the Canadian Parliament created the War Supply Board and appointed C.D. Howe to run it).[5]

David Hume (1741) in an essay titled *Of the First Principles of Government* already had pointed out the intimate relationship between "opinion" and statist governance:

> Nothing appears more surprizing to those, who consider human affairs with a philosophical eye, than the easiness with which the many are governed by the few; and the implicit submission, with which men resign their own sentiments and passions to those of their rulers. When we enquire by what means this wonder is effected, we shall find, that, as force is always on the side of the governed, the governors have nothing to support them but opinion. It is therefore, on opinion only that government is founded; and this maxim extends to the most despotic and most military governments, as well as to the most free and most popular.

Hume, however, could not have witnessed the efficient way in which industrial technologies colluded to provide an electromechanical means for the formation not only the public opinion but of "the public interest."[6] However, from its beginnings in prehistory, "public opinion" always had been imposed, at least in part. Thus the constant academic interest in rhetoric, come to us today in very different form as "communications" and "marketing."

However, nationalism was as much an artifice as was public opinion; indeed it may be its ultimate expression. Porter (1994, 131) writes:

> The much vaunted nationalism of this enlarged French army (the army based in universal conscription, the *levée en masse*) was hardly a spontaneous phenomenon. From the beginning the state fostered and manipulated the nationalism that sustained it . . . the mass mobilization of 1793-94 portended the manipulation of nationalism that would become commonplace in the twentieth century.

While Bismarck cannot be accused of being the inceptor of militarist nationalism, he may have been among the first political leaders to understand that "the governors have nothing to support them but opinion." As well, his understanding that language was comprised of form that in part

determined content augured well for its military-industrial (and commercial) deployment. Though guile (lies, deception) had been employed for centuries (if not millennia) to whip up war fever, the means Bismarck used to incite/excite the French *citoyen* and its counterpart in soon-to-be Germany proved as prescient as the war (and the peace) his electromechanical mediations precipitated.

The mechanical reproductions of his electrical dissemination (the newspaper articles based on the telegram) placed the *industrial* (i.e. standard, mechanized, uniformly regulated) *production* of *perception* beside the *industrial* (i.e. standard, mechanized, uniformly regulated) *production* of *space*, *time* and *movement*.[7] Napoleon III, spurred to action by a whipped-up nation, declared war against Prussia on the same day Bismarck sent the telegram. Effectively, the war was over in six weeks.

The U.S. Civil War (1861-1865), as noted previously, had demonstrated the range of characteristics that comprise industrialized warfare. Indeed, the federal President Lincoln used the mechanical press to industrialize public opinion before Bismarck; as well, commonly accessible books such as the worn example of *Uncle Tom's Cabin* (1852) by Harriet Beecher Stowe, had demonstrated how mass affect could be created through literary mediation, in this instance anti-slavery sentiment.

Some time later, Randolph Hearst's newspapers in the U.S. were credited with instigating the first "newspaper war," the Spanish American War of 1898. That war provides an exemplar of the way in which "public opinion" can be a war resource as vital as guns or battleships, and of the way in which that "opinion" can be formed by officially sanctioned lies and disinformation, in that instance the fabrication regarding the sinking of a U.S. warship in Havana harbor (recently declassified materials have shown the Gulf of Tonkin

resolution, the "legal basis" for the U.S. war in Vietnam, to be a similar fabrication.)

Bismarck's use of an incipient "military-industrial-educational-entertainment complex"—railways, telegraphs, armies, newspapers, literacy, education, the constitutional state, steam-powered factories—is one of the first instances of the simultaneous deliberate deployment of industrialized movement (speed), time (mechanically synchronomous) and space (mapped, industrially-placed) as an integrated war weapon. The railway moved *matériel* and armies, the telegram and high-speed printing presses moved information, the urbanizing literate populations of the German states and France moved *en masse*— producing for themselves homogeneous affect at the same time in disparate geographic locations.

The global effect the war produced may first have been theorized by John Henry Cardinal Newman (1854/1959, 108) in his understanding that mechanically distributed knowledge may have little if anything to do with "enlightenment":

> What the steam engine does with matter, the printing press is to do with mind; it is to act mechanically, and the population is to be passively, almost unconsciously enlightened, by the mere multiplication and dissemination of volumes. Whether it be the school boy, or the school girl, or the youth at college, or the mechanic in the town, or the politician in the senate, all have been the victims in one way or other of this most preposterous and pernicious of delusions.

No doubt, there was no necessary relationship between the "mere" reproduction and dissemination of books and "enlightenment," there was a relationship between the (electro)mechanical reproduction and dissemination of books and "affect." Bismarck proved this (as Lincoln had earlier). These leaders *weaponized the Unconscious*, to employ Freudian figural representation. They employed new media to form a new, a

capitalist/militarist form of reserve subjective energy, Heidegger's "standing reserve" (*Bestand*).

The dissemination of mass hostility (the selling of a perception) was based on the industrial formation of the other as radically different (Other).[8] This strategic military-industrial *deployment of differentiation*—of developing purposeful heterogeneity—speaks to the opportunistic opening of a "popular front" soon after the technical means to do so were invented.[9] As such, the "Ems telegram" marks the launching of mass electromechanical perceptual offences (and defenses), whereby the imperialism of "radical alterity" is technologically/psychologically re-inscribed/re-vested. Like the industrialization of war (and commerce) more generally, industrialized wars of perception (for the minds [and hearts] of the "people") were developed more fully forty years after Bismarck won the Franco-Prussian war so decisively.

The propaganda offences of the Great War (1914-1918), especially the almost instant reduction of whole nations to demon monoliths—in concert with exhortations to work, to sacrifice and buy bonds—evidenced the industrialization and intense capitalization of war and of perception (i.e. total teaching—at that time the terms advertising and propaganda were synonymous).[10] Virilio (1994, 13):

> The year 1914 not only saw the physical deportation of millions of men to the battlefields. With the apocalypse created by the *deregulation of perception* came a different kind of diaspora, the moment of panic when the mass of Americans and Europeans could no longer believe their eyes, when their *faith* in *perception* became slave to the faith in the *technical sightline*: in other words the *visual field* was reduced to the line of a *sighting device*.

Electro-mechanization of Subjectivity

Manufacturing, in this instance, their own subjectivity (autopoiesis), subjects in industrial capitalist states constantly deterritorialize and reterritorialize. Under capitalism, unlike previous regimes, the process whereby the least deterritorialized element reterritorializes the most the most deterritorialized element is on-going throughout a subject's lifetime. Indeed, a case can be made that the process operates in ever shrinking cycles, in constantly tightening vectors (consumerism).

This is not to suggest that there are not "essential" aspects of the human that reside outside this machinic subjective process, albeit they too may be socially formed initially. As Deleuze and Guatarri (1987, 175) put it: "As a general rule, relative deterritorialization (transcodings) reterritorialize on a deterritorialization that is in certain respects absolute [sedimented, overcoded]." Thus, a subjective "kernel" or irreducible remainder always remains "overcoded"—colonized once—and placed outside the de and re-territorializing process (cf. Sloterdijk, 1987).

Regardless, the reduction of the *visual field* to a *technical sightline* opened visual perception to constant (instrumental, commercial, political, military) deterritorialization/reterritorialization. Poster (2001, 55), in his explanation of how Virilio's concept of war and communications technologies differs from the negative critique provided by Adorno, inadvertently perhaps articulates how this "reduction" differs from either liberal or Marxist interpretations of change that retain a humanist element. Speaking about the war film (*The Great Man*, 1957), Poster writes:

> Like Adorno, the film depicts war and communications technologies as "dehumanizing," instead of understanding the process, as Paul Virilio does in *War and Cinema*, as a process of reconfiguration, not one of "pure loss." "*For men at war, the function of the weapon is the function of the eye*" [italics in original]. It is therefore quite

> understandable that, after 1914, the air arm's violent cinematic
> disruption of the space continuum, together with the lightening
> advances of military technology, should have literally exploded the old
> homogeneity of vision and replaced it with the heterogeneity of
> perceptual fields.

In effect, human visual perception had been technologically (militarily) reconfigured—not expanded as in conventional progressive narratives or subject to "pure loss" as per conservative concepts such as "alienation" or "anomie" (i.e. pure loss that can be found again).[11] Though the process was initiated on the battlefields, like so many war inventions in the twentieth century, the process was extended to industrial populations regardless of their particular geographic location or occupation.[12] Martin Jay's (1993) extensive history of perception, *Downcast Eyes: The Denigration of Vision in Twentieth Century French Thought*, details and explicates this imposition of visual heterogeneity. He (211) expresses thought very similar to Virilio's:

> The interrogation of sight hesitantly emerging in certain prewar works
> of philosophy and art was given an intense, often violent inflection by
> the war, which also helped disseminate an appreciation of its
> implications. The ancien scopic régime, which we've called Cartesian
> perspectivalism, lost what was left of its hegemony, and the very
> premises of ocularcentrism themselves were soon being called into
> question in many different contexts.

While the perceptual maelstrom (deregulation, deterritorialization) Virilio identified may have been quickly and violently set off, the epistemological modification (loss of faith) that Virilio equates with violent perceptual deregulation was not so abrupt or militarily induced as Virilio suggested. It was part of a larger historical process of a process that can be theorized productively as the decoding and axiomatization (a new operating architecture) of the overcoded feudal world.

According to Virilio (1994, 16) himself, this change to perception (sensible apprehension of the world) "was simply the progressive disintegration of a

faith in perception founded in the Middle Ages, after animism, on the basis of the unicity of divine creation, the absolute intimacy between the universe and the God-man of Augustinian Christianity [overcoding]." Jay (1993, 29) details this progressive disintegration of *faith* in Western perception. He places the "problem of perception" in a deeper historical context than Virilio. To follow Jay (192), Henri Bergson (1896), more than Feuerbach, Marx and Nietzsche, all of whom "had developed a materialist notion of the practical rather than the contemplative subject," philosophically put perception back in a body and re-activated it. Jay writes: "Bergson helped redirect philosophical inquiry back toward the body as intertwined with consciousness before the separation of mind from matter."

Jay explains that the epistemological reconfiguration of perception gained momentum throughout the twentieth century, to the point where vision as perception was destabilized completely. Since the 1960s, idealist models whereby the mind is a reservoir for a contemplative *self* separate from its active embodiment (for example, the *res cogitans* and *res extensa* of Descartes) and the subject/object distinction integral to it have been challenged in virtually every field of conceptual endeavor, in art, science, philosophy and literature.

In the scientific mode, autopoiesis as developed by Varela (Hayles, 1999, 155-156) develops the concept of "enaction" to explain how perception is constituted through human engagement in the world:

> Perception must not be understood through the viewpoint of a "pre-given, perceiver-independent world . . . enaction sees the organism's active engagement with its surroundings as more open-ended and transformative . . . sees cognitive structures emerging from "recurrent sensory motor patterns" . . emphasiz[ing] the links of the nervous system with the sensory surfaces and motor abilities that connect the organism to the environment.

In effect, contemporary philosophy and science turned the Cartesian humanist universe upside down, or, more correctly, inside out. To continue with this brief excursus, Lowe (1982, 12) tied perception to mediation, the means by which the world is construed or constructed by and for the ap-perceiver:

> The horizontal field [that which is seen "out front" and taken for the world itself] is constituted by the perceiver, the act of perceiving, and the content of the perceived. In each period, the culture of communications media frames the act of perceiving; the subject is delimited [formed] by a different hierarchical organization of sensing; and the content of the perceived is ordered by a different set of epistemic rules. Therefore, the perceptual field constituted by them is a historical formation, which differs from one period to the next.

Thereby perception itself is denatured, provided a materiality, a history and contingency that was denied it until recently (consciousness itself has been subjected to the same denaturing process). Jay (1993, 275) goes on to explain that the Cartesian form of looking that assumed the subject/object division crumbled when these philosophers situated the viewer "*within* a *visual field*, not *outside it*."

During the twentieth century, the viewer and the viewed, perhaps for the first time since the development of perspective 400 years earlier, was reintegrated. The "nobility of sight" (ocularcentrism) was philosophically deprivileged and various options proffered throughout the twentieth century. However, the sight/site of language and its relation to the sight/site of vision, was most forcefully addressed by Derrida (*Of Grammatology*, 1967). He provided the means by which perception can be related to language, thereby allowing the contingency of perception to be placed alongside the contingency of the "word."[13]

Derrida's work recognizes and provides the means to deal with both the "breakdown of the signifying chain following the collapse of the referent"

(Jameson, 1979) *and* the interested—the ideological character of the contemporary regime of vision/metaphysics (*logocentrism*). The naïve linkage between the word, vision and reality whereby the "word" really apprehends "vision" was defused during the century and with that the human rendered radically contingent.[14]

Breaking this epistemological relay between the word, vision and reality (the assemblage) meant denying that sentient experience could comprehensively apprehend "reality" (e.g. Benjamin Franklin's notion of common sense). To challenge the relay meant to challenge the longstanding hegemony of the Cartesian person, and with that, scientism. Jay (1993, 503): "How, it must be asked, does writing relate to visual experience? Aren't marks of the page just as evident to the eye as pictures, photographs, or the visible manifold of "real objects"? He explains that Derrida's response is a "double reading":

> Although the figurative, ideographic dimension of writing should not be forgotten, Derrida, argued, neither should it be made its essence. "I have often insisted on the fact," he told interviewers in 1971, "that "writing" or the "text" are not reducible *either* [in original] to the sensible or visible presence of the graphic or the "literal." Their hidden workings should themselves be understood in terms of an invisible materiality.

"Invisible materiality" skirts close to "cultural materialism." It captures the influence of "immaterial technologies" like those for subjective regulation. As such the term hovers in the background of this work, the author constantly addressing the "invisible materiality" of schooling, organizational technologies and the military. This *materialist interpretation* frames this deconstruction.

The regime of *ocularcentrism*—whereby the metaphysics of vision (ideologically) disallows the contingency of perception, or, in spite of phenomenology, the refusal of the recognition that ocularcentrism is a metaphysical product—Jay explains, can be dated to a *precise invention*, one that is considered so significant that it stands as a marker for modernity.

With the imposition of *perspective*, Jay writes: "the unicity of divine creation, the absolute intimacy between the universe and the God-man of Augustinian Christianity" came to be lost, when in the work of the Florentine architect and theorist Leon Battista Alberti:

> the *visual field* now replaced the *visual world*. The ocular potential to privilege synchronic stasis, which we've seen Jonas claim was the key to Greek metaphysics, here achieved explicit visual expression. Now the participatory moment in *theoria* (theory), the specular intertwining of likenesses in viewer and viewed withdrew entirely from the seen (the scene), separated from it by Alberti's shatterproof window.[15]

The philosophical (and pragmatic) implications drawn from Alberti's invention and accompanying theory were enormous.[16] The great historian of art, Arnold Hauser (1952, 64):

> He [Alberti] is the first to express the idea that mathematics is the common ground of art and the sciences, as both the theory of proportion and the theory of perspective are mathematical disciplines. He is also the first to express to give clear expression to that union of the experimental technician and the observing artist.

The means for this separation, the regulative technology termed perspectivalism, dominated theory/sight/philosophy from the Florentine Renaissance until the twentieth century. This *regime of specular unity* assumed an accessible and wholly comprehensible reality that could be captured fully (*mirrored*) through *sight, sound* and *language*.[17] It proved the most powerful tool for knowledge development yet invented.

Ostensible transcendent perception and an accompanying belief in one on one correspondence between perception and its mediation (exhaustive capture) provided the *modus operandi* for Western global expansion and colonization, for those practices that have come to be called modern (circa 1550-1950). It provided the means by which *space, time* and *movement* were reconceptualized and mechanically measured (were mathematized and

rationalized). It was this *imperial vision* (way of looking/seeing/thinking) that was *deregulated* and *reregulated*, deterritorialized/reterritorialized, early in the twentieth century.

David Harvey (1990, 244), one of the first theorists to identify the "postmodern" with changes to *movement*, *space*, *time* and *perception*, attributes as much importance as Jay does to Alberti's "shatterproof window." He states that the rules of perspective developed by Brunelleschi and Alberti "which dominated until the beginning of the twentieth century, was a fundamental achievement of the Renaissance; it shaped our ways of seeing for four centuries."

Ong and McLuhan, of course, keyed on the "site/sight of vision" to trace changes to mass perception. Their work in part concerned changes to what may be metaphorically considered the human "operating platform" or "wetware" (the sensorium), the processing (means of interpretation) of stimuli at the monadic (subjective) level. Ong (1982, 221) writes: "With the shift in the sensorium by print, the large scale campaigning for the 'clear and distinct' soon began, led by Ramus and focused by Descartes—a campaign for a *visually conceived cognitive enterprise.*"[18] That this campaign was most successful is evidenced in contemporary systems of perceptual/conceptual control and formation, for example tele-vision and ac-counting.[19] These perceptual technologies provide the operating systems, the hidden cognitive architecture for contemporary organizations, including the *organization* still referred to as the "individual."

Industrialization

By providing the combuŝtible Bismarck used to ignite the war of 1870, the "people" as an expression of nation (and industrialization, capitalization and

militarization) were *performing a role others had written*. By launching the "Ems telegram," Bismarck, a most conservative politician, provided the state with another means besides schooling, work or religion to control/form the people, to engineer, however imperfectly, more or less uniform perception and with that mass disposition (this formative work was carried out by the populace; this auto-endocolonization, this auto-reterritorialization came to be called *leisure* during the twentieth century).

During the First World War, this theatre of perceptual operation was amalgamated/welded to the theatre of warfare. In effect, a statist industrialized "perceptual front" that complemented the more general industrialization of war was obtained through schooling, education, religion and media—the *teaching machine* of the industrial period. And with perception emerging from World War I reduced to a technologically mediated "sightline," the common perceptual field became subject to deliberate regulation. After that war, the technological means by which massed, nationalized populations could be governed (regulated) effectively were readily available to leaders (the ruling class) in every industrial jurisdiction.[20] Virilio (1994, 23):

> To admit that for the human eye the essential is invisible and that, since everything is an illusion, it follows that scientific theory, like art, is merely a way of manipulating our illusions, went against the political-philosophical discourses then [1920s] evolving in tandem with the imperative of convincing the greatest number, with its accompanying desire for infallibility, and a strong tendency to ideological charlatanism. Publicly to point out how mental images are formed, including the way their pyschophysiological features carry their fragility and limitations, was to violate a state secret of the same order as a military secret, since it masked a mode of mass manipulation that was practically infallible

A comprehensive history of this "mode of mass manipulation" is provided in *Propaganda and Persuasion* (Jowett and O'Donnell, 1999). U.S. President Wilson's Committee on Public Information, the "Creel Commission," provides

a paradigm example of this new mode of subjective formation. After the war, the U.S. Congress attempted to suppress Creel's reportage of his committee's work—of which he was proud—and indeed about the lies and deception industrially disseminated as a part of the war effort (see Chapter 5).

However, while specific "content" (the propaganda) may have been suppressed and denied, the techniques developed during the war continued to flourish. The electromechanical phonic and optical activity that followed the First World War—radio, magazines, newspapers, billboards—the informal perceptual control vehicles—and on the other side of the theoretical economy—the expansion of the formal vehicle, common schooling—formed *ground zero* for the contemporary *aesthetic economy* of perceptual and conceptual regulation.

The German social theorist and poet Hans Magnus Enzensberger (1974) was one of the first academicians outside of the Frankfurt School to critically examine the burgeoning "consciousness industry," the primary growth industry of the twentieth century. As Enzensberger (62) foretold:

> With the development of the electronic media, the industry that shapes consciousness has become the pace-setter for the social and economic development of societies in the late industrial age. It infiltrates all other sectors of production, takes over more and more directional and control functions, and determines the standard of the prevailing technology.

Since his critique, the industry developers—the marketers, educationists, computer programmers, hardware designers, actors, film producers, TV producers, radio programmers, music producers, population control experts, publishers, psychologists, sociologists, public relations practitioners—have turned the "consciousness industry" into much the largest industry in the world. However, *schooling and education is not set in opposition to the*

"consciousness industry." They are integrated into it, a component part of the subjective production apparatus. Further, the products of the consciousness industry produces, affect (disposition) and knowledge, are themselves too often weapons. However, before developing that theme further, it is necessary to search out the roots of contemporary education (as defined in Chapter 1), to trace the militarization of education.

Militarization

The teaching machine—the consciousness industry—like all social inventions, carries with it a provenance (history). Though the industry—the industrialization of subjective formation—is very much a function of specific industrial (and postindustrial) technologies, it roots much predate industrialism. It can be traced back at least to the invention of mechanical printing, a technology whose development coincided with the development of Protestantism, the modern state, the modern military and statist education.

That militarization was "built-into" the teaching machine from its inception is evidenced by highlighting and contextualizing select aspects of the work of various modern educational "fathers." While evident most certainly in Bismarck's Kulturkampf (the culture war) that accompanied the establishment of the German empire after the war of 1870, militarization was not unique to Germany. Statist education, English, French or German, was militarized from its beginnings. However, statist education—which forms only one aspect of the teaching machine, albeit an important one—had already been assigned the right to form militarized subjectivity in sixteenth century Protestant Germany. At this point in time and space, the social practice of education began to come in its own as a great technology for the formation of human subjectivity *en masse* and in accord with uniform predetermined formulae (modern pedagogy as developed by example by the systematizers

Comenius and Pestalozzi). This generative social development was reinforced, indeed mutually determined by another generative development in the same place and time, namely the invention of the Book (the mechanical reproduction of text imprinted on paper). Indeed, state schooling may well be a function of the book; at the least it is based in "bookish" knowledge.

The book, the greatest advance yet in educational technology, provided the technological means for the great Western project of deliberate subjective formation as we still know it (cf. Eisenstein, 1980, Ong, 1982). Consider the generative case of Martin Luther (1483-1546), the progenitor of Christian Protestantism. Luther embodies the mass, statist educational revolution. He employed the mechanical reproduction of text to disseminate his vulgar German bible. This bible, the Gutenberg Bible, stands as a great discursive marker in its own right, as does Luther; but Luther's influence was much more than religious.[21] Luther looked to the State—to secular power—to ground his form of religion. This statist inclination, as much as his theology, separated him from Catholic authority (Weber, 1978, 1175).

Luther, after he publicly denied the hegemony of the Catholic Church, was placed under the authority/protection of the independent German states that his form of Protesting Christianity informed and supported. Secure in this setting, he continued with his generative political and religious work. In 1524 he wrote a justly famous letter called *To the Councilmen of all Cities in Germany that they Establish and Maintain Christian Schools* (LW 45:341-378). It reads in part:

> I maintain that the civil authorities are under obligation to compel the people to send their children to school. . . .If the government can compel such citizens as are fit for military service to bear the spear and rifle, to mount ramparts, and perform other material duties in time of war, how much more has it a right to compel the people to send their children to school, because in this case we are warring with

> the devil, whose object it is secretly to exhaust our cities and
> principalities of their strong men.

Here already, children are offered up to the State rather than the Church as chattel, though still for religious reasons—to deal with the materialism that, according to Luther, was running rampant among the otherwise Godly German peasantry (here again the Platonic pedagogical moment).[22] However, whether it was the devil (Mammon) or another form of difference (alterity) that motivated Luther's appeal for *statist education*, in one way or another education in the West has been at war since then.[23] Luther, the religionist, proved to be the great European secularizer, a great warrior, conservative politician and secular leader in his own right.

Weber (1978, 1175) writes:

> The Catholic church has tenaciously resisted caesaropapist tendencies;
> in spite of some temporarily necessary concessions, it eventually
> succeeded. . . Luther was completely indifferent toward the
> organization of the church, as long as the Word could spread in its
> purity. This indifference, deriving from the individualist nature of his
> piety and also from the eschatological streak in his person faith, in
> effect surrendered his church to the caesaropapism of the secular
> power. This was facilitated by the political and economic conditions in
> the territories in which Lutheranism originated.

On this account as well, Luther's protesting form of Christianity provided a vehicle by which changes—to war, the state, the economy and education— came to fruition (the "model armies" of the era were all Protestant statist organizations that deployed a new form of education, rote drill and mechanical training *en masse* of those drawn and sometimes led by those from outside the warrior class (aristocracy). *Luther reduced the church to an instrument of state and in the process did so with education* (the Protestant theocracies that did arise after Luther had very limited and temporary success in maintaining any independence from secular, statist governance).

With Luther, the politically conservative religionist, education—not just schooling but education—that vast project of deliberate subjective formation—became a "tool of state" in early Protestant capitalist Germany.[24] Education as an instrument of state was a constituent of hegemonic subjectivity, of capitalism, and, much later, of nation—and of war (this instrumentalized use of education was advocated as well by Francis Bacon a few decades after Luther, though as much to war with a devil called "nature" [empiricism] as to form the "English hegemon").

The assemblage (educational system) in place globally today rests of these generative developments. While mass compulsed schooling and higher education have been examined critically many times, the best example perhaps the numerous studies of Pierre Bourdieux (cf. 1990), both these long standing social practices—and they are more alike than different—still remain unexamined as *overdetermined* by the processes of nation-ism and nationalism, statism, industrialism, capitalism, war and militarism, with this work of course intended as a corrective. Ramirez and Boli (1987, 2) write:

> During the later eighteenth and nineteenth centuries, national states constructed mass schooling systems that eventually came to encompass their entire population of children. State authorization, sponsorship, funding, and control of mass education first developed in Western Europe (Collins 1977) and later became a central feature of national development throughout the world (Ramirez and Boli, 1982). Yet, most comparative studies of education entirely overlook the historical origins of state systems of schooling, thereby ignoring the sociological institutionalization of the social innovation.

Perhaps it is time to look back at some of the fathers of statist education that followed Luther and examine their work for connections to warfare. Locke (1632-1704), one of the generative theorists in the construction of modern education and the modern state, in his *Second Treatise on Civil Government* (1690) provided this apologetic for war:

> The state of war is a state of enmity and destruction: and therefore declaring by word or action, not a passionate and hasty, but a sedate settled design upon another man's life, puts him in a state of war with him against whom he has declared such an intention, and so has exposed his life to the other's power to be taken away by him, or any one that joins with him in his defence, and espouses his quarrel; it being reasonable and just, I should have a right to destroy that which threatens me with destruction: for, by the fundamental law of nature, man being to be preserved as much as possible, when all cannot be preserved, the safety of the innocent is to be preferred: and one may destroy a man who makes war upon him, or has discovered an enmity to his being, for the same reason that he may kill a wolf or a lion; because such men are not under the ties of the common law of reason, have no other rule, but that of force and violence, and so may be treated as beasts of prey, those dangerous and noxious creatures, that will be sure to destroy him whenever he falls into their power.

It seems that Locke, a generative liberal educational and political theorist, was at the same time, like the Greek educational fathers who were also educational and political theorists, at the same time a war theorist.

Bacon (1561-1626), a more neglected progenitor of modern education than Locke, may have thought even better of war than his philosophic successor (quoted in Wright, 1965, 1399): "Wars are the highest trials of right when princes and states shall put themselves upon the justice of God for deciding their controversies." In this instance, might making right seems perilously close to God.

A hundred and fifty years after Locke, Spencer (1820-1903), the most widely read Anglophone academic of his time, addressed war extensively in his mammoth *Principles of Sociology*, written between 1876 and 1896. He developed a thesis of enduring if not recognized impact, dividing society in two types, the military and industrial (see Chapter 1). Reflecting the positive tenor of his times, he argued that industrialization, science and the evolution of the human species renders warlike states obsolete, a retrograde organizational form (see Chapter 1). Of course, this matched better with

Rousseau's innately peaceable human as compared to Hobbes's characterization of the species as naturally warring.

Though Spencer renounced his warless future in volume III of *Principles of Sociology*, referring to a tragic return to war which would constitute extinction not progress, his progressivist ideology that equated industrialization with progress and progress with peace was generalized in the Anglocentric academy, notwithstanding the mass of contradictory evidence provided by World War 1. Spencer's work provided the prevailing paradigmatic framework for Anglo sociology until recently, and laid the discursive groundwork for the scientization, and with that the psychologization (and militarization) of mass compulsed schooling during the twentieth century (cf. Egan, 2002).

Spencer's contemporary Ruskin (1819-1900), the most influential art critic and social commentator of the Victorian Age, was a champion of universal art education, and for imperial aesthetic reasons, a champion of war as well. From a lecture titled "War" (1865) presented at the Royal Military Academy, Woolwich (quoted in Pick, 1993, 68-69):

> all the pure and noble arts of peace are founded on war; no great art
> ever yet rose on earth, but among a nation of soldiers. There is no art
> among a shepherd people if it remains at peace. There is no art
> among an agricultural people, if it remains at peace. Commerce is
> barely consistent with fine art . . . There is no great art possible to a
> nation but that which is based on battle.

While Ruskin and Spencer are all but forgotten, they were central to the development of industrial (contemporary) education, as was Matthew Arnold, one of the first theorists of contemporary liberal education. He advocated using English-language literature in the way that Fichte had advocated the use of German-language literature in the disunited German states about fifty years earlier.[25] Arnold envisioned a "national literature" employed

strategically to form "nation-ism" and "national-ism" in England, in this regard echoing the more generative nation-builder Bacon.[26]

In the U.S. as well, John Dewey, the country's leading liberal philosopher and philosopher of education, strongly supported the elitist minority in the U.S. against prevailing public opinion in advocating U.S. involvement in the First World War. At the same, however, Dewey renounced aspects of German philosophy that he had relied upon initially and by war's end was warning of propaganda as a threat to democracy. Until his death in 1952, Dewey remained actively involved in issues warfare, writing about it and working to prevent its recurrence. Again the point is that war occupied a prominent position in the thinking of the leading contemporary father of education. From *Democracy and Education* (1916):

> It is not enough to teach the horrors of war and to avoid everything which would stimulate international jealousy and animosity. The emphasis must be put upon whatever binds people together in cooperative human pursuits and results, apart from geographical limitations. The secondary and provisional character of national sovereignty in respect to the fuller, freer, and more fruitful association and intercourse of all human beings with one another must be instilled as a working disposition of mind. If these applications seem to be remote from a consideration of the philosophy of education, the impression shows that the meaning of the idea of education previously developed has not been adequately grasped. This conclusion is bound up with the very idea of education as a freeing of individual capacity in a progressive growth directed to social aims. Otherwise a democratic criterion of education can only be inconsistently applied.

However, mass democracy—the basis for any "democratic criterion"—that form of social organization theorized by various of these fathers of modern education, by Rousseau, Locke and Dewey for example, is itself a product of warfare. In *War and the Rise of the State*, perhaps the definitive recent Anglophonic theoretical exposition of war, Porter (1994, xvi) states:

> But the mobilization imperative of war does not always culminate in total state power; in certain circumstances it can actually foster

> democratization. This occurs when the state's demand for war-fighting resources gives bargaining leverage to the holders of these resources. Max Weber, despite his hyperbole, captures the crux of this process: "The basis of democratization is everywhere purely military in character . . . Military discipline meant the triumph of democracy because the community wished and was compelled to secure the co-operation of the non-aristocrat masses and hence put arms, and along with arms political power, into their hands."

Just as military discipline meant the triumph of democracy, so too it meant the triumph of education (note, each father of education was also a theorist of liberal democracy). The processes of militarization, capitalization, (liberal) democratization, massification and industrialization were synchronous with the *educationalization* of existence.

Nationalization

During the nineteenth century, "objective knowledge" and the institutions dedicated to it came to assume a new form (assemblage). The research university developed as a key component in the assemblage termed the "teaching machine." This new institution produced a "fully legitimated subject of knowledge and society," (*Bildung*) that was itself a weapons system (i.e. the producer of objective knowledge that was itself a form of warfare). The Kindergarten, invented in the 1830s by the German educator Froebel, saw to the final components in the assemblage termed the "teaching machine." With that, and the introduction of "lifelong learning" in the 1880s, the formation of subjectivity from cradle to grave had been regularized, brought into statist alignment, dedicated to the production of the "mental machinery" that was itself the essential component in the military industrial complex.

Hegel's theory of statism, along with the University of Berlin, became the model for higher learning and academic knowledge production throughout

Europe and the United States, and throughout the world during the twentieth century. The goal Wilhelm and Alexander von Humboldt, the founders of the Univeristy of Berlin (1810), was nothing less than the "spiritual and moral training of the nation." *Bildung*, the term von Humboldt's used to describe the dispositional set ostensibly imparted by this "training." This elevated concept for the formation of an ideal (bourgeois) type was based in teaching a subject to search out "truth" and relating it to "equality," the end product being a subject who complement the concept of State as developed by Hegel (cf. Readings, 1996; Lyotard, 1984). Massumi writes (Deleuze and Guatarri, 1987, xii):

> The end product would be "a fully legitimated subject of knowledge and society"—each mind an analogously organized mini-State morally unified in the supermind of the State, Prussian mind meld. More insidious than the well-known practical co-operation between university and government (the burgeoning military funding of research) is its philosophical role in the propagation of the form of *representational thinking* itself, that "properly spiritual absolute State" endlessly reproduced and disseminated at every level of the social fabric.

The "propagation of the form of representational thinking itself" is perhaps the greatest conservative strategy ever invented. Representational thinking grounds the universalization of the Western conceptual schema (truth, validity, etc.); it grounds stable subjectivity (liberal humanism), privileges "realist signification" (naïve representation) and ultimately grounds contemporary relations of power. It is the most important product the teaching machine (assemblage) produces. *All* academic programs/discourses/fields cannot be apprehended without apprehending the (interested) system of representation in which they are written.[27]

The introduction to Kittler's *Film, Gramophone, Typewriter* (1999, xxi) provides this description of the official subjectivity production machine:

> texts as Lessing's family dramas or Goethe's *Bildungsromane* have to
> be read as instances of a *cultural inscription program*: German
> literature around 1800, so often hailed as the apex of Germanic
> cultural output culminating in the twin peaks of Goethe and Schiller,
> becomes a means of *programming people*, part of the overall *recoding
> enterprise* [reterritorialization] that ushered in an age that saw not
> only the spread of the nuclear family but also the growth of literacy,
> the notion of authorship as the expression of ineffable individuality and
> *Innerlichkeit* [contemplation leading to "sublimity," located in religion
> before Kant], and the *preindustrial mobilization* of the modern state on
> all ideological, administrative and military levels [italics added].

The machine assemblage that came together in the German states provided the prototype for the world system. The teaching machine, including the operating system and hardware—the system of representation it employs and thereby justifies—is in itself a recoding and reterritorializing exercise dedicated to the formation of specific forms of subjectivity. Deleuze and Guatarri (1987, 457):

> it was the modern State and capitalism that that brought the triumph
> of machines, in particular motorized machines (whereas the archaic
> state had simple machines at best); but what we are referring to now
> are *technical machines* [in original], which are defined extrinsically.
> *One is not enslaved by the technical machine but rather subjected to
> it.*

Foucault too pointed to this form of subjection/subjectification that became apparent during the modern period of social/technical development in Northwest Europe (*circa* 1700-1900). The forms of space, time, subjectivity, production, warfare invented then still form the official and unofficial components of the contemporary teaching machine.

In the instance of nineteenth century Germany, "culture" is understood in its secular, bourgeois form; its state-sanctioned imperial imposition by Bismarck was called *Kulturkampf* (culture struggle, 1873-1878).[28] It formed a primary engine for German imperialism, as popular culture does today for U.S. imperialism, though with much less effectiveness. This formal statist

perceptual offensive was conducted through the implementation of compulsory state-funded education with a legislated curriculum, a "nationalitarian" (bourgeois Germanic) literature and history arrayed against the remnants of the feudal order as evinced by the Catholic Church (the overcoded, not axiomatized, world where God still functioned as transcendental signifier). This Germanic initiative—this particular machinic assemblage—formed the model for state education and nation building in most every jurisdiction around the world during the twentieth century.

Without the monopoly the state enjoyed on taxation, the ability to tax the landed, martial class (Junkers) to pay for compulsory education for example; without the state monopoly on violence, for example the means to enforce the removal of Catholic functionaries (school inspectors) from the school system and replace them with state-salaried bureaucrats, Kulturkampf could not have happened.[29] The teaching machine—this machinic assemblage— provided the means for this operation, for the reterritorialization of a population within a new set of operating parameters.

However, it should not be presumed that the machine operated upon a "natal landscape" (*tabula rasa*) in wait of development (subjectification, subjection). Informal systems of schooling already had provided high rates of literacy and higher education throughout Northwest Europe and North America. In the nineteenth century, these systems were overwritten, and not for educative reasons (cf. Lawton and Gordon, 2002; West, 1965, 1975). Statist education was not written on a *tabula rasa*, but on well developed systems of education that worked within preindustrial parameters. The statist system of education was imposed, in Prussia sometimes at the point of a bayonet, in New York City in the midst of riots, on already developed educational systems that had been effective in constructing literate populations, albeit not literate

certainly not enlightened distributors of uninterested knowledge to previously benighted populations. Cubberly, Mann, Harris and Dewey were the champions of the pedagogy of rational militarist capitalist statism much more than they were developers of sites/sights of liberal freedom. The psychologizers of education, for example Thorndike and Kirkpatrick, figure importantly in this process, as do the pedagogical reductionists (technologists), most especially Tyler (1949) and Bloom (1956).

The developers of the machinic assemblage include Ryerson in Canada and his U.S. counterpart William Torrey Harris, the systematizers (and Prussianizers) of North American education. Most importantly, the financial and political heads of the U.S. plutocracy, the U.S. capitalist monopolists of the era, especially Carnegie, Ford and Rockefeller, and many politicians, especially U.S. President Woodrow Wilson, led the development of the assemblage that is still considered to be "education" *per se* (cf. Cremin, 1976; Green, 1990; Hlebowitsh 1993; Lawton and Gordon, 2002; Melton, 1988, Pinar *et al.*, 1995; Schleunes, 1988; Spring, 1989, 1998).

These men and their functionaries, the owners and managers of large segments of capital, institutionalized plutocratic capitalism through the development of education as the primary system for subjective control (formation). The role of the large charitable foundations, organizations granted tax exemption by the U.S. congress, especially the Ford, Mellon, Rockefeller and Carnegie Foundations, in determining what constituted education during the twentieth century cannot be overemphasized. While this plutocratic power was mitigated by the formative influence of the state during the Second World War and the Cold War (*circa* 1940-1990), with the rise of "skills discourse" in the 1980s, the influence of the capitalist plutocracy again became evident.

In effect, at the beginning of the twentieth century and then again at the end of the century in North America, "business" (capitalism) defined education as much as the state or the military (they formed an irreducible whole). John Taylor Gatto (2001), in his "hidden history of American education," laid out a case for this conclusion.[31] From the early twentieth century, in North America and Europe, education took on its contemporary role as a *co-manager of capitalism* (251-257). Education—not schooling—but the "School" as Althusser puts it—provided the means by which plutocratic capitalism came to be defined as democracy (and freedom).

During the twentieth century, education as a social practice and discourse, as a doctrine and as a set of institutions, was reduced to a comprehensive theory for the provision and regulation of credentials. This system provided the formal means for subjective formation and management, whether the issue at hand was the formation of elites or masses, lawyers or dishwashers, the inculcation of gender or class position. By the mid-twentieth century, this credentialing system itself, a person's place within it in, largely determined existential possibilities for the great majority of industrialized persons (the growth of the "professions" was symptomatic of this process).

Education provided the vehicle of choice for the great monopolists of the late nineteenth century; education—not schooling--provided the means by the industrial and financial oligarchy could gain and maintain legitimacy and stability. From the conclusions of a U.S. congressional commission created in 1913 to investigate the influence of the "new foundations" (252): "The domination of men in whose hands the final control of a large part of American industry rests is not limited to their employees, but is being rapidly extended to control the education and social services of the nation."

The industrialist Carnegie had understood the requirement for this "safety valve" early on if monopoly capitalism was to be protected. He deliberately

planned this credentialing system to control access to plutocratic power so that it could continue relatively unmolested (cf. Carnegie, 1902). By the end of the 1930s education in North America most especially, had become an economy of subjective formation based upon *virtual* achievement designed to control (channel) the production of "socially-useful" consciousness and of consciousness surplus to the needs of production (cf. Bahro, 1978).

The "progressivists," notably Dewey, Rugg and Kilpatrick, under whose banner the educational system was designed according to the parameters supplied by monopoly capital, knowingly or unknowingly, developed an educational system (machinic assemblage) that matched the requirements of industrial capitalism. Rugg (1933, 3), an associate of Dewey's at Columbia Teachers College, an institution which like the University of Chicago, was heavily endowed by the Rockefellers, captured the "progressive tenor" in this famous quotation taken from his aptly titled book *The Great Technology*:

> A new public mind is to be created. How? Only by creating tens of millions of new individual minds and welding them into a new social mind. Old stereotypes must be broken up and new "climates of opinion" formed in the neighborhoods of America.

Rugg (278) also supplied the way in which this was to be done:

> First and foremost, the development of a new philosophy of life and education which will be fully appropriate to the new social order; second, the building of an adequate plan for the production of a new race of educational workers; third, the making of new activities and materials for the curriculum.

This process was described in Chapter 2 as the forced breakdown of a "structured milieu;" education provided the technology *par excellence* with which to do this. A massive psychological campaign (psyop) resulted from the work of the "progressives" that initially had been funded, directly and the indirectly, by the major "non-profit foundations." This operation changed the face of education in North America as well as the type of subjectivity

produced by it. By this means, the production of consciousness surplus to systemic needs was contained (this is an-going struggle often approached dialectically, and in this instance through the "war machine" offered by Deleuze and Guatarri).

Categorized disciplinary knowledge, the hierarchal graded school, the university of regularized progression and a workplace that subscribed to the credentialing ethic, ensured that mass subjectivity would be produced according to the "virtual" needs of capitalism. This educational system (machinic assemblage) by controlling class access and forcing those who change class to emulate preset behaviours and affect, effectively policed (regularized) subjectivity (cf. Apple, 1982; Willis, 1977; Bourdieux, 1990; Bowles and Gintis, 1976; Goffman, 1959). This massive educative infrastructure (assemblage) provided the generally accepted route to reward. It provided the foundation for advanced capitalism. As the German philosopher Peter Sloterdijk (1989, 97) writes:

> There are within the psyche processes that are blatantly analogous to those that are involved in the accumulation of capital—and not just in a metaphorical sense. Producing subjects have to a great extent been organized in the form of subjective capital or learning mental machinery; subjective capitalism is the physic reality of intellectual subcultures. Perhaps this is the source of the desolate lack of solidarity perceived by those who try to communicate with the intellectual public in a language that remains unwieldy in the face of the compulsions toward accumulation and the self-armament characteristic of combative and self-exploitive intellects.

This *aesthetic economy* of perceptual and conceptual regulation and control as developed in the 1920s remained in place almost unchanged well into the latter half of the twentieth century. At that time, it again changed, and again according to parameters determined by (postindustrial) military/capitalism.

Capitalization

The capitalization (privatization) of the statist educative "assemblage" is a recent phenomenon. Beginning in the 1970s, and escalating until the end of the twentieth century, education was transformed into a market good valued not so much for its ontological promise to change the world as for its market potential. Education itself—not its products (human subjectivity)—but the process/practice itself became the primary economic driver in all postindustrial jurisdictions during that period. The constant unrelenting (24/7) production of knowledge and learning is a primary way in which post-industrial economies differ from their industrial predecessors.

The Organisation for Economic Co-operation and Development (OECD), the World Bank and the World Trade Organization (WTO), three leading ultra-national institutions of global governance, in the last several years have concentrated on the development of education as a vehicle for the market development of persons and as a marketable commodity. The General Agreement on Trade in Services (GATS), an agreement under constant negotiation in a non-public WTO forum, extends ultra-national market jurisdiction into the education "service industry" that has been under almost exclusive statist control in all industrial jurisdictions since the nineteenth century. It should be pointed out that the state has voluntarily relinquished its authority over the determination and dissemination of former "public goods," often without the awareness or in spite the fierce opposition of citizens.

KPMG Consulting, one of the transnational consulting firms increasingly charged with redesigning former public goods within the parameters of Market, recently produced an influential report addressing the contemporary commodification of knowledge and education. From *Transforming Higher*

Education: At the Gateway of the Knowledge Economy (KPMG Consulting, 1999):

> We are entering a new economy, where knowledge is the primary
> basis of exchange and wealth creation. Higher education stands at the
> gateway of this economy, as the "treasury" that mints the new
> "currency"—knowledge—on which it runs.

This formal repositioning of education within parameters defined by postindustrial capitalism is based in the marketization of knowledge and education without the regard for the concept of "national interest," the integrity of nation-state, or indeed of the liberal humanist concept of the person, regulatory concepts that have defined educational practice since its massification in nineteenth century Europe and North America. Decrying the displacement of "education" by "training" or the "vocationalization" of the university does not address the profundity of the change in process, the global realization of the process that Heidegger some fifty years ago identified as a crisis of the university and of knowledge.

Though formal electronic reportage of these changes has been limited, the *GuardianEducation.co.* in the United Kingdom (U.K.) and the *Chronicle of Higher Education* in the U.S. have documented the privatization and marketization of education for a number of years. *The Guardian* reported (Kalaftidés, L., 2001):

> Total spending on education amounts to $2 trillion, or one 20th of
> world GDP. As Glenn R Jones sees it: "Education is one of the fastest-
> growing of all markets. Private training and the adult education
> industry are expected to achieve double-digit growth throughout the
> next decade."
>
> Jones, CEO of virtual university Jones International Inc, is head of the
> Global Alliance for Transnational Education, one of the principal
> lobbying groups offering consultation to the WTO in its efforts to
> eliminate barriers to trade.

> No wonder GATS is attracting so many covetous eyes, and no wonder
> funding for state education is being cut back. In the words of the
> OECD's Moyoto Kamiya: "Massive reforms are taking place in the state
> education sector, oriented towards and guided by the market."

Education reconceptualized ideally and reformed materially is the world's leading industry (2 trillion $US). However, not only the means, but also the ends to which education is put have been privatized, especially since the end of the Second World War. Nikolas Rose (1999, 161), one of the West's leading theorists of pastoral power (governance of mind/psyche/soul), describes the subject formed and reformed by the contemporary educative process:

> The new citizen is required to engage in a ceaseless work of training
> and retraining, skilling and reskilling, enhancements of credentials and
> preparation for a life of incessant job seeking: life is to become a
> continuous capitalization of the self.

While the "capitalization of the self" has been evident *en masse* since the embourgeoisment of Northwest Europe, the "banking" model of education has been subject to significant recent reform [recoding]. The ability of the subject to invest in learning and live off its interest has been significantly disrupted, with the contemporary progressive human (*homo economicus redux*) exhibiting characteristics that might well have been considered retrograde or even pathological in the era of humanistic psychology and education. Indeed, it is questionable if normative concepts as individuation and dissociation can maintain psychological currency in a subjective economy geared to the constant destabilization and reconstruction of the *marketable self*.

A one-time capital self-investment has been modified so that constant reinvestment, or the appearance of it, is required if an individual is to profile appropriate skills, dispositions, competencies and knowledge. The concept of "skill decay" is employed in training and policy literature to account for this

built-in technological redundancy, capturing the increasingly short shelf life allotted any particular "skills set" when set in a framework provided by human capital theory (cf. Moe, H. & Blodgett, D., 2000, 229). Immaterial consumptive goods (Derrida's "invisible materiality" now emulate the obsolescence or redundancy built into material consumptive goods, in this instance the human and its education (the cannibalization of the self).

In North America, the educational discourse to promote the development of the socially malleable self was legitimized through studies conducted by the American Society for Training and Development (Carnevale, Gainer, and Meltzer, 1990) and by the Secretary's (Office of the U.S. Secretary of Education) Commission on Achieving Necessary Skills (SCANS, 1991). Interestingly, the Kellogg and Carnegie Foundations funded much of the subsequent work in the development of "skills discourse" in the U.S.[32] In Canada, the country's premier business lobby, the Conference Board of Canada, assumed a similar role (Conference Board, n.d.):

> The Conference Board helps leaders work together to develop a skilled and innovative society that will prepare Canadians for today's knowledge-based economy. We conduct leading-edge research, facilitate dialogue, recognize excellence and communicate results, creating maximum impact and change in Canada's educational practices and policies.
>
> In 1990, The Conference Board established the National Business and Education Centre (NBEC) to work with member organizations in developing and promoting Canada's education and learning systems. NBEC member organizations participate in the National Council on Education and the Employability Skills Forum.

In the U.S., this educative reconfiguration of subjectivity developed in a climate of urgency, even moral panic. Induced by the Japanese "economic challenge," the U.S. loss of the Vietnam War, the 1972 "oil crisis," by falling rates of corporate profit, and a federal government without moral authority (Watergate), a "productivity crisis" symptomatic of the fundamental

contradiction of capitalism (overaccumulation, see Chapter 5) was blamed on an ill trained work force and statist regulation (the efficiency discourse, the theory of "lean and mean" for all but the wealthy).

Well funded work involving the chief officers of the largest corporations domiciled in the U.S. and the most senior bureaucrats charged with labour force oversight resulted in the imposition of a variety of educational reforms throughout the 1980s and 90s. This included the abolition of the Adult Education Act of 1964, which had provided U.S. federal government support for those enrolled in Adult Basic Education in the U.S. A revised Perkins Act of 1998n(Academic Innovations, n.d.) focused U.S. federal educational effort more directly on ostensible labour market requirements through legislating educational accountability and standards and, ironically as always, providing state subsidy for business, though workforce training in this instance:

> Perhaps the most significant change in the re-authorized Perkins Act is the emphasis placed on academic standards. Where the 1990 Act focused solely on the integration of academic and vocational proficiencies, the 1998 Act identifies development of rigorous academic standards and accountability as additional priorities. The Secretary of Education will not be involved in the development of state performance measures, as each state will determine its own. However, power is given to the Secretary to impose sanctions on states that fail to meet performance levels for 2 or more consecutive years.

The Act also outlines various opportunities for states and local areas to integrate the vocational education and workforce investment systems. However, new and strict barriers are placed on linkages between vocational education and School-to-Work programs.

Official statist rhetoric emanating from the U.S. Department of Education had inflamed educational discontent in the U.S. for at least a decade before the full-blown initiative to dėvelop and impose "skills discourse." Similar rationalization efforts already conducted under the banners of social accountability and relevancy had laid the groundwork for more substantial

reformation. Systemic efficiency had been an issue since the 1970s, evidenced for example in the imposition of "performance indicators" in at the state level. The development and institutionalization of competency based education (CBE) and outcomes based education (OBE) was well established already when rhetorical (virtual) educational warfare was declared in the U.S.

In one regard, this reformatory effort was unremarkable. Prussia, France, England, Japan, Turkey and Egypt all employed education when faced with economic and military defeat and challenge. The U.S. itself had employed this strategy only twenty five years earlier (*National Defense Act of 1958*, n.d.). The Act reads in part: "The Congress finds that an educational emergency exists and requires action by the federal government. Assistance will come from Washington to help develop as rapidly as possible those skills essential to national defense."

In 1983, William Bennett, U.S. Secretary of Education in the Reagan administration, again employed the strategy to rhetorically fuel the "panic." From *A Nation at Risk*, an "open letter to the American people," published under Bennett's auspices (National Commission on Excellence in Education, 1983)

> If an unfriendly power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. We have even squandered the gains in achievement made in the wake of the Sputnik challenge. Moreover, we have dismantled essential support systems that helped make those gains possible. We have, in effect, been committing an act of unthinking, unilateral educational disarmament.

This "letter" was echoed at the same time by the Carnegie Forum on Education and the Economy *A Nation Prepared: Teachers for the Twentieth First Century* (1986).[33]

In the United Kingdom, the educational system was changed at the same time through a series of Education Acts declared throughout the 1980s and 1990s. By century's end, the purpose and means for education as laid out in the Education Act of 1944 had been altered radically. The act of 1944 had brought British educational practice in line with that of other industrial jurisdictions by raising compulsed attendance at school to age 15 and supplying expanded forms of "free" schooling. The reform acts instituted in the 1980s and 1990s took a global lead in using education as a primary means with which to institute a new subjective (moral) economy of education that differed quite considerably from the moral economy that expressed the liberal political consensus that had been in place in all Anglophonic jurisdictions since the Second World War.

Soon after the first initiatives in the United Kingdom, New Zealand reformed its educational system more radically than any other Anglophonic jurisdiction, for example introducing its version of a National Council for Vocational Qualifications (NCVQ's) that destroyed the integrity of that country's system for vocational credentialing. As in the U.K., this system was reworked several years after its introduction, but not before the educational terrain had been reformed by privatizing much of the cost, the benefits, the contents and the means that together constitute educational practice.

While education by its nature is a highly political project, nothing so much signaled the end of the postwar political consensus (social contract) in Anglophone jurisdictions as the way in which education was openly politicized in every neo-liberal jurisdiction. In this regard, the concept "lifelong learning" proved particularly attractive to educational planners. While the term had been in use for at least a hundred years, it was employed in the 1980s as means to reinvest the individual with sole moral responsibility for the *self*, while at the same removing the limited moral—and financial—

responsibility for the *self* assumed by the state in Anglophonic jurisdictions since the Second World War.

In 2001, a new education ministry again was established in England, this time the Department for Education and Skills "with the purpose of creating opportunity, releasing potential and achieving excellence for all." Significantly, any reference to education, schooling or learning is absent from this statement of purpose; opportunity, potential and excellence are neo-liberal code words for forming the student according to the parameters of postindustrial capitalism. Three objectives ostensibly focus systemic effort (*Education and Skills*, n.d.):

> Give children an excellent start in education so that they have a better foundation for future learning
>
> Enable all young people to develop and to equip themselves with the skills, knowledge and personal qualities needed for life and work
>
> Encourage and enable adults to learn, improve their skills and enrich their lives.

Such clichéd codings (recoding) provided the preferred vehicle by which neo-liberal educational reforms were instituted in many different parts of the world. Canada, the U.S. and Australia all launched "lifelong learning" initiatives in the 1980s, ostensibly in order to upgrade the work force and make those nations more economically competitive, that is more attractive to trans-national capital.[34]

Today, total learning systems in all postindustrial jurisdictions engage the contemporary subject in a learning project stretching from womb to tomb. These systems are emblematic of postindustrialism. These systems, the curriculum and, increasingly, the knowledge (content) they disseminate are proprietarily held (e.g. Thomson Learning Corporation, Reed Elsevier, Microsoft eLearn, the University of Phoenix, *Universitas 21*). *The E is for*

Everything: E-Commerce, E-Business, and E-Learning in Higher Education
(2000) by Jossey-Bass Publishers and EDUCAUSE exemplifies the sea change
in the field of education (*circa* 1950-2000). The title and the companies that
produced it speak equally to the change that still is less than obvious to
many practitioners. Jossey-Bass Publishers, one of world's largest publishers
of education-related titles, was "taken over" by John Wiley and Sons in 1999.
Wiley itself "had gone public" in 1962 and was listed on the New York Stock
Exchange in 1995. To quote from the corporate website (*About Wiley*, n.d.):

> Wiley is a global publisher of print and electronic products, specializing
> in scientific, technical, and medical books and journals; professional
> and consumer books and subscription services; and textbooks and
> other educational materials for undergraduate and graduate students
> as well as lifelong learners. Wiley has approximately 22,700 active
> titles and about 400 journals, and publishes about 2000 new titles in a
> variety of print and electronic formats each year.
>
> With about 3,150 employees worldwide, Wiley has operations in the
> United States, Europe (England and Germany), Canada, Asia, and
> Australia. The Company has U.S. publishing, marketing, and
> distribution centers in New York, Colorado, Maryland, New Jersey,
> Illinois, Indiana, and Ohio. Wiley's worldwide headquarters are newly
> located in Hoboken, New Jersey, just across the river from Manhattan.
>
> Wiley content travels well. Approximately 40% of the company's
> revenues are generated outside the United States.

And to quote from the EDUCAUSE website (*About EDUCAUSE*, n.d.):

> EDUCAUSE is a nonprofit association whose mission is to advance
> higher education by promoting the intelligent use of information
> technology.
>
> Membership is open to institutions of higher education, corporations
> serving the higher education information technology market, and other
> related associations and organizations. EDUCAUSE programs include
> professional development activities, print and electronic publications,
> strategic policy initiatives, research, awards for leadership and
> exemplary practices, and a wealth of online information services. The
> current membership comprises more than 1,800 colleges, universities,
> and education organizations, including over 180 corporations.
> EDUCAUSE has offices in Boulder, CO, and Washington, D.C.

The most prestigious of educational institutions in thirty-five of the world's wealthiest countries are EDUCAUSE members. Interestingly, EDUCAUSE is currently involved in "hardening" electronic education in the U.S. per the U.S. president's Executive Order in Critical Infrastructure Protection issued on October 16, 2001. From the press release of September 18, 2002 announcing the postmilitary/industrial strategy proposed by EDUCAUSE (*Higher education helps*, 2002):

> Higher education will play a major role in advancing the cybersecurity of America. In remarks at Stanford University today, where the White House released the National Strategy to Secure Cyberspace, EDUCAUSE Vice President Mark Luker said, "The advanced computer networks of higher education represent the emerging systems of the future...and successful security solutions in this sector can serve as models for the nation at large."

At the same time as delivery has been electronified, the dissemination of the academic technical knowledge has been split between Reed Elsevier (£8.5B in fiscal 2001), an amalgamation of a Dutch and British publishing conglomerates, and Thomson Corporation of Canada. Reed Elsevier's self-description (*About us* [Reed Elsevier], n.d.):

> Reed Elsevier is a world leading publisher and information provider, operating in four core segments: Science and Medical, Legal, Education, Business
>
> Its principal activities are in North America and Europe and the company employs approximately 37,000 people.
>
> Reed Elsevier's key objective is to be the indispensable source of information-driven services and solutions to its target customers, through the delivery of highly valued and demonstrably superior and flexible solutions, increasingly via the internet.

Thomson Corporation (*Thomson Corporation, About Us*, n.d.), the other monopolist purveyor of knowledge, sells the same product—information in health care, science, business, law and regulation and education ($7.2 Billion U.S. in fiscal 2001).

Universitas 21 was a market leader in that it was one of the first electronic purveyors of knowledge to employ its exclusive "brands" to market its product From its self-description (*Universitas 21, Introduction*, n.d.):

> *Universitas 21* is an international network of leading research-intensive universities. Incorporated in Guernsey, it has 17 member universities in 10 countries. Collectively, its members enrol about 500,000 students, employ some 44,000 academics and researchers, provide over 700,000 Internet addresses, have over 2 million alumni, and have a combined operating budget of about $US9.5 billion.
>
> The Company's core business is provision of a pre-eminent brand for educational services supported by a strong quality assurance framework. It offers experience and expertise across a range of vital educational functions, a proven quality assurance capability and high brand value.

And Microsoft eLearn (*Welcome to Microsoft eLearn*, n.d.):

> Learning Resource Interchange (LRN) is Microsoft's implementation of the Instructional Management Systems Global Learning Consortium (IMS) Content Packaging 1.1 and Metadata 1.2 Specifications, an industry standard for the interchange of online learning content. LRN also supports the Sharable Content Object Reference Model (SCORM) 1.2 reference model developed by the ADL. Microsoft is partnering with industry leaders to deliver standards-based online learning content to assure customers that their investment in content and technology is protected.

An understanding of the technologies referenced is not needed to make sense of the argot. The protocols for electronic on-line delivery have been standardized (IMS); LRN is the Microsoft Corporation system for on-line content delivery that respects those protocols. Microsoft is working with other large corporations concerned with data delivery to deliver a technically uniform product that can ensure the customer, for example a university with an on-line distance education program, will be protected at the macro-level of data dissemination in terms of proprietary content and local level technology—and to ensure it can protect its monopoly position in data delivery architecture.

In market vernacular, this is an example of the "shakedown" that occurs as industries "mature." The concurrent processes of technological standardization, industry rationalization, re-regulation and ownership concentration are evidenced in these and many other sites on the Internet. Common and select education in formal, non-formal or informal form has been overhauled, uniformly redesigned in terms of technology and content. It is now a saleable commodity in its own right and rededicated to the production of an equally saleable (i.e. employable, flexible, adaptable, generically skilled, *tacitly* [not explicitly] knowledgeable) human marketed (proudly most often) as just one more capital input.

An unstable *self* (subject) who can change or appear to change *on-demand* and *just-in-time* provides the "ideal type" (Weber) in this finely engineered "total education" model regardless of any actual economic need for this new socioeconomic amalgam, the "posthuman", again an ideal type (Weber, 1968), similar to the human occupying Heidegger's "standing reserve" (*Bestand*).[35] As Deleuze and Guattari (1987, 399) so aptly put it: "Undoubtedly, whenever a State appropriates the war machine, it tends to assimilate the education of the citizen to the training of the worker to the apprenticeship of the soldier."

Recent educative developments, whether or not directly war related, are by-products of war and the preparation for it, and indeed postindustrialism itself is predicated on war, or more correctly, on the preparation for it. The "information age" is itself a "spin-off" of U.S. military research and development. For example, the U.S. armed forces recently spent approximately \$1B developing *elearning*.[36] Indeed, *postindustrialism*—the select reterritorialization of the human, the naming of the electronification of the human as a machinic assemblage—is itself—as is the human it produces

(reterritorializes)—a *byproduct* of the blended economy, of capitalism/war/militarism.

Chapter Notes

1   In his memoirs (*Memoirs*, Otto von Bismarck, n.d.), Bismarck describes the way in which he precipitated war with France. The Prussian king was at Ems, a well-known European watering hole, when the French ambassador approached him and demanded that the king should pledge himself not to allow the Hohenzollern (a powerful Germanic "royal house") prince to become a candidate for the Spanish throne once again (the much contested Spanish imperial succession was the galvanizing event for the war of 1870, much like the assassination of an Austro-Hungarian archduke was for the First World War twenty-five years later, symptomatic perhaps of the [residual, symbolic] last gasp of dynastic empire). The Prussian King William [the soon-to-be pan-German Kaiser] refused to do this, and sent word to the French ambassador that he would not see him again. He telegraphed the news of this to Bismarck, and gave him permission to publish the telegram in newspapers if he wished. Regarding the telegram, Bismarck wrote:

> All considerations, conscious and unconscious, strengthened my opinion that war could only be avoided at the cost of the honor of Prussia and of the national [i.e. pan-German] confidence in her. Under this conviction I made use of the royal authorization communicated to me through Abeken [Councillor of the Legation of the North German Confederation] to publish the contents of the telegram; and in the presence of my two guests [General Moltke and General Roon] I reduced the telegram by striking out words, but without adding or altering anything . . . .

> After I had read out the concentrated edition to my two guests, Moltke remarked: "Now it has a different ring; in its original form it sounded like a parley; now it is like a flourish in answer to a challenge." I went on to explain: "If, in execution of his Majesty's order, I at once communicate this text, which contains no alteration in or addition to the telegram, not only to the newspapers, but also by telegraph to all our embassies, it will be known in Paris before midnight, and not only on account of its contents, but also on account of the manner of its distribution, will have the effect of a red rag upon the Gallic bull.

> "Fight we must if we do not want to act the part of the vanquished without a battle. Success, however, depends essentially upon the impression which the origination of the war makes upon us and others; it is important that we should be the ones attacked, and the Gallic insolence and touchiness will bring about this result if we announce in the face of Europe, so far as we can without the speaking tube of the Reichstag, that we fearlessly meet the public threats of France."

Bismarck once already had tried to convince the Prussian oligarchy to declare war on France and failed. His telegram played to various audiences simultaneously.

2   Speed itself has always been a war weapon, or, as Deleuze and Guatarri say, a "weapons system." And speed itself is a primary component of the contemporary aesthetic economy generally and the teaching machine

specifically. As Virilio (1994, 1998) pointed out, it is speed generated by technologies—speed as the medium, speed as the message, speed tamed by the State that provides the crucial reterritorializing variable. Speed in transmission and reception (though there are absolute limits) allows perception to be produced in tighter vectors, with greater attention to both form and detail (the dialectical process whereby quantitative change becomes qualitative). For Deleuze and Guatarri (1987, 398) the "war machine" assemblage is the cause of "weapons." As such weapons differ from tools in that: "from the point of view of force, the tool is tied to a gravity-displacement system, weight-height system, and the weapon to the speed-perpetuum mobile [in original] system (it is in this sense that it can be said that speed in itself is a "weapons system.)"

3   Donald Lowe (1982), following Merleau-Ponty, writes:

> Perception as the crucial connection includes the subject as the perceiver, the act of perceiving, and the content of the perceived…The act of perceiving unites the subject with the perceived. And the content of the perceived, which results from that act, affects the subject's bearing in the world [i.e. subjectivity]…This perception is bounded by three factors, namely: (i) the communications media which frame and facilitate the act of perceiving; (ii) the hierarchy of sensing [i.e. the sensorium]…which structures the subject as an embodied perceiver; and (iii) the epistemic presuppositions which order the content of the perceived. The three are related, interacting with each other. Together they constitute a field of perception, within which specific knowledge becomes possible . . . the perceptual field constituted by them differs from period to period."

Integral to Merleau-Ponty's project is the foundation of the Cogito. Merleau-Ponty (1964, 3f) writes:

> The perceiving mind is an incarnated mind. I have tried, first of all, to re-establish the roots of the mind in its body and in its world, going against doctrines which treat perception as a simple result of the action of external things on our body as well as against those which insist on the autonomy of consciousness. These philosophies commonly forget—in favor of a pure exteriority or of a pure interiority—the insertion of the mind in corporeality, the ambiguous relation which we entertain with our body and, correlatively, with perceived things.

When perception conceived of this way is attached to the concept of "distributed cognition" (knowledge as always social, modal, non-discrete)—developed in a "mind" that is a "disunified, heterogeneous, collection of processes" (Varela, as quoted in Hayles 155-156), the humanist "individual" is taken out of discursive play.

4   This statement contains a good deal of hyperbole of course. As Gramsci and Foucault taught, resistance is always a part of hegemony, is itself a function of power. Yet, mass manipulation was evident with advent of the daily press; since the mid-1800s, the "manufacturing of opinion" is what politics has been all about (cf. Adorno and Horkheimer; 1972; Baudrillard, 1994; Ewen, 1976; Jowett and O'Donnel, 1999; Virilio, 1994).

5   Total mobilization under C.D. Howe saw Canada industrialize and urbanize more quickly than any country before or since. The volume of war material produced by Canadian industry was astounding. Over 500,000 vehicles, 600 ships, 85,000 heavy guns, and millions of tons of military supplies were manufactured and shipped overseas. By the end of World War II, Canada had the second largest navy in the world, the third largest merchant marine and produced 40 percent of the world's aluminum. It was a leading producer in many sectors of the world economy including petrochemicals and propaganda (the National Film Board). C.D. Howe was U.S. citizen; the Canadian and U.S. economies became integrated under to an unprecedented degree under his stewardship (*Canadians in the World*, n.d.).

6   In the U.S., James Madison, a "founding father" and president supplied this gloss on public opinion. It effectively presents the liberal conception of the relationship between the state and the people, whereby the people through the "free" dissemination of information, make informed decisions to which the government is obliged to be responsive. From Madison's 1791 essay *Popular Basis of Public Opinion* (n.d.), Papers 14, 170:.

> Public opinion set bounds to every government, and is the real sovereign in every free one.

> As there are cases where the public opinion must be obeyed by the government; so there are cases, where not being fixed, it may be influenced by the government. This distinction, if kept in view, would prevent or decide many debates on the respect due from the government to the sentiments of the people.

7   Theorists as Sombart, Mumford, Weber, Ellul and Virilio developed the relationships between time, space, movement, war, capitalism, science, technology, religion, machine and industry. Mumford ([1934], 1962, 14-18) writes:

> The clock, not the steam-engine, is the key machine of the modern, industrial age...The clock, moreover, is a piece of power-machinery whose "product" is seconds and minutes: by its essential nature it disassociated time from human events and helped create the belief in an independent world of mathematically measurable sequences: the special world of science...The modern industrial régime could do without coal and iron and steam before it could without the clock.

Regarding space, time and movement, he writes (22):

> The categories of time and space, once practically dissociated [in the Medieval period], had become united: and the abstractions of measured time and measured space undermined the earlier conceptions of infinity and eternity, since measurement must begin with an arbitrary here and now even if space and time be empty. The itch to use [in original] space and time had broken out: and once they were coordinated with movement, they could be contracted and expanded: the conquest of space and time had begun. (It is interesting to note that the very concept of acceleration, which is part of out daily mechanical experience, was not formulated until the seventeenth century).

Virilio sounds much like an updated Ellul/Mumford.

8   Keeley (1996, 131) writes:

> The social-solidarity values that oppose "us" to "them" help foment the collective violence of war from disputes between individuals of different societies. For this reason, much of the "'information" exchanged across social boundaries and frontiers may be acrimonious and include uncomplimentary ethnic epithets.

9   Robert Oppenheimer (*Transcript*, n.d.), the head of the Manhattan project, provides a basis for these statements. He once said that physicists in the U.S. built the atom bomb because they could. Interestingly, after the World War II, Oppenheimer fought against his fellow Manhattan project physicist, the expatriate Edward Teller who was lobbying U.S. President Truman for funding to produce a hydrogen bomb. Teller won out and Oppenheimer became more and more outspoken in his opposition to the use of nuclear weapons. He was declared was a security risk because of "communist sympathies" in 1953. His brother Frank, who served as his assistant, shared the same sentiments regarding building the atom bomb and provided this explanation:

> It's amazing how the technology tools trap one. They're so powerful . . . I was impressed because most of the sort of fervor for developing the bomb came as a kind of anti-Fascist fervor against Germany. But when V-E Day came along, nobody slowed up one little bit. No one said, 'Ah well, it doesn't matter now.'
>
> We all kept working.
>
> And it wasn't because we understood the significance against Japan. It was because the machinery had caught us in its trap and we were anxious to get this thing developed, from http://www.pbs.org/hollywoodpresents/copenhagen/story/transcript1.html.

10   In the ancient era, Sun-Tzu, the other theorist of war comparable to Clausewitz, had already identified war as centrally concerned with control of the "field of perception." He advocated using the "tricks of the trade" (purposive deception) to do so. Paul Virilio, in *War and Cinema, The Logics of Perception* introduced the martial "logics of perception" to social theory in 1984.

11   The Socratic narrative of "pure loss" addressed by Derrida, and following Derrida, has been superceded. "Mediated communication," whether writing on paper or electronic expression, can no longer be placed in an unequal binary with speaking. For Socrates, "pure loss" accompanied the loss of orality as the primary means of knowledge storage and dissemination. For Socrates, the memory loss that accompanied the technological overthrow of orality, far from increasing knowledge, diminished it. In this narrative, no doubt knowledge is "lost," but other knowledge is "found"—reconfiguration, not pure loss (cf. Derrida, 1981). What knowledge may be of "most worth" is moot; the knowledge worth most is the knowledge that is power.

12   Kafka similarly remarked: "the cinema involves putting the eye in uniform." (*cTheory*, vol. 23, 3, 2).

13   Jay (1993: 497) writes:

I don't know what perception is and I don't believe anything like perception exists," he [Derrida] once exclaimed—the hypertrophy of something designated vision per se could not be subjected to a critique, even if deconstruction permitted such an approach. The blind spots—"punctum caecum" was a privileged deconstructionist term—revealed by double readings were metaphors for the unknown that no amount of revelation could illuminate. However "apocalyptic" the tone of deconstruction might be, it was "an apocalypse without vision, without truth, without revelation.

14 French literature/philosophy for the last hundred years has been located between the Nietzschean question "qui parle?" and Stéphane Mallarmé's (French Symbolist poet 1842-98) response, "...the word itself—not the meaning of the word, but its enigmatic and precarious being" is speaking. With Mallarmé, the word is granted a performative autotelic that allows text to operate according to immanent conditions. As Megill (1985, 291) relates, "according to Derrida, Mallarme's *crise de vers* 'shakes up [sollicite] the very bases of literature, depriving it, in its play, of any foundation outside itself. Literature is at once reassured and threatened by the fact of depending only on itself, standing in the air, all alone, separated from being'."

15 Jay is referring to Hans Jonas, "The Nobility of Sight: A Study in the Phenomenology of the senses" in *The Phenomenon of Life: Toward a Philosophical Biology* (Chicago, 1982).

16 Heidegger (1954) also addresses formal shifts in perception:

In theoria transformed into contemplatio [the Roman colonization of Greek truth] there comes to the fore the impulse, already prepared in Greek thinking, of a looking at that sunders and compartmentalizes. A type of encroaching advance by successive interrelated steps toward that which is to be grasped by the eye makes itself normative in knowing.

This sundering and compartmentalizing, as Foucault (*Order of Things*, 1979) so meticulously laid out, constitutes much of Western knowledge, its "encroaching advance," the modernizing "effect" exposed (estranged) by Foucault that makes "itself normative in knowing." This encroaching advance, the sundering and compartmentalizing perhaps reaches a "terminal stage" in the postwar "media conflagration." Perhaps inevitably, as Foucault, Virilio and Baudrillard, in very different ways point out, it too (this division of knowledge) lead to the militarization of being during the nineteenth and twentieth centuries.

17 "Specular" unity (correspondence theory of truth, ocularcentrism, Cartesian perspectivalism) displaced the multiperspectival regime of the "middle ages" during the Florentine Renaissance. The imposition of modern ocularcentrism (the bias inherent in specular unity/sameness) dates to Alberti's development of the ocular physics that explicated Brunelleschi's aesthetics (the development of perspective in Della Pittura, Alberti's explication of Brunelleschi's concepts of perspective dating to 1435, Florence). Michelet thought Brunelleschi's work so significant that he characterized him "as the destroyer of the Gothic" (Hauser, vol. 2, 5). Perhaps significantly, the normative (scientific) explanation (Alberti's physics) of perspective was pre-figured (i.e. pre-scripted) by its aesthetic apprehension, Brunelleschi's drawings and architecture. In effect, a

"Venetian blind" (perspectivalism – an encompassing epistemology, ontology and ideology described by the conical vision allowed by Alberti's optical physics) closed over other ways of seeing and over hearing.

18   The geometrics of the sovereign observer (the fictive subject of liberal capitalism) reduce to this equation [I = eye] (Ong) whereby truth/reality evidences in the "eye of the beholder," in the instance of print, in the eye (I) of the Author.

19   Jay (1993, 57-58) writes:

> Making a strong case for the causal relationship between the invention of perspective and the rise of capitalism may be problematic, so it would be better to fall back on the term Max Weber introduced in his celebrated account of the Protestant ethic and speak instead of an "elective affinity" between the two. A number of observers have suggested its various dimensions. According to Edgerton, Florentine businessmen with their newly invented technique of double entry bookkeeping may have been "more and more disposed to a visual order that would accord with the tidy principles of mathematical order that they applied to their bank ledgers." . . . John Berger adds that more appropriate than Alberti's shatterproof window on the world would be that of a "safe let into a wall, a safe in which the visible had been deposited."

20   This theme was developed initially by the Frankfurt School, especially Adorno, Horkheimer and Benjamin (cf. Adorno & Horkheimer (1944), "The Culture Industry: Enlightenment as Mass Deception" in *Dialectic of Enlightenment*, Benjamin (1928), "One Way Street" in *Reflections*.

21   Lutheran Protestantism encouraged the development of a new kind (ideal type, Weber) of subjectivity based in direct (personal) access to a new form of God, a personal God that until then had been accessed only impersonally through Churchly-mediation (except of course for the many mystics, iconoclasts, scholars). This theological inversion threatened the basis of Roman Catholicism, and was battled by the armies of Charles V, the Emperor of the still functioning Holy Roman Empire (HRE). Ignatius Loyola's (1491-1556) newly-formed paramilitary Society of Jesus (Jesuits) joined with the HRE to supplement its military warring with a propaganda counteroffensive (Counter-Reformation), a psychological operation ("psyop" in contemporary warspeak) that employed education, science, diplomacy and high technology—the magic lantern, mass advertising, art, schooling—to (re)colonize populations and (de)limit emergent Protestantisms in Europe and "abroad".

22   Althusser (1971, 156-57) "Ideology and Ideological State Apparatuses" in *Lenin and philosophy: and other essays* explains how it is that one component of the teaching machine (the school) sets about programming people:

> [It] is by apprenticeship in a variety of know-how wrapped up in the massive inculcation of the ideology of the ruling class that the relations of production in a capitalist social formation, i.e. the relations of exploited to exploiters and exploiters to exploited, are largely reproduced. The mechanisms which produce this vital result for the capitalist regime are naturally covered up and concealed by a universally reining ideology of the

> School, universally reigning because it is one of the essential forms of the ruling bourgeois ideology: an ideology which represents the School as a neutral environment purged of ideology (because it is...lay [i.e. secular]) where teachers respectful of the "conscience" and "freedom" of the children who are entrusted to them (in complete confidence) by their "parents" (who are free too i.e. the owners of their children) open up for them the path to their freedom, morality and responsibility of adults by their own example, by knowing, literature and their "liberating" values.

23 Another Luther piece (LW 46:209-258), *A Sermon on Keeping Children in School* reads in part:

> For it is hardly likely that in so great a city with such a large population the devil will not try his arts and tempt some to despise the word of God and the schools. This is true particularly because there are many things there (especially trade and commerce) to turn the children away from the schools to the service of Mammon. The devil undoubtedly thinks that if he could cause the word and the schools to be despised in Nürnberg, his purpose would in large measure have been accomplished, for he would have set an example that would carry great weight throughout Germany and be a real blow to the schools in all the other cities. For Nürnberg truly shines throughout all Germany like a sun among the moon and stars, and what is practiced there has a powerful influence on other cities.

Does this piece not resonate with contemporary concerns regarding media—the corrupting influence of TV, consumer culture, etc? That current workplace, religious, political and educational reform projects mirror Luther's concerns almost exactly. The U.S. education policy reformation initiative of the moment, the sweeping and reactionary No Child Left Behind Act of 2001 is based in the same concerns as those which Luther so feared, namely unnamed threats to education and godliness. The U.S, act of 2001 provides enabling legislation for further *de facto* and *de jure* discrimination in U.S. schools by granting greater "local autonomy," forcing more "accountability"—holding schools to account according to tightly defined performance indicators, more school "choice" which amounts to greater class-based educational resource distribution, and an emphasis on "proven teaching methods", conservative pedagogies that emphasize the 3R's.

24 Marx addresses the question of religion and the state in "On the Jewish Question" (in Tucker, 1972, 22-36). He (33) writes:

> Political emancipation certainly represents a great progress. It is not, indeed, the final form of human emancipation, but it is the final form of human emancipation within the framework of the prevailing social order. It goes without saying that we are speaking here of real, practical emancipation.

> Man emancipates himself politically from religion by expelling it from the sphere of public law to that of private law. Religion is no longer the spirit of the state, in which man behaves, albeit in a specific and limited way and in a particular sphere, as a species-being, in community with other men. . . It

[religion] is no longer the essence of community but the essence of differentiation [italics in original].

25   Bill Readings (1996) provides a history of the development and changing purpose of the modern university, addressing its development in Germany and its role in the formation of "nation," as adjudicator and guardian of "national culture," and of the way in which that role has been rendered antique because of the recent commercialization of academic culture (the "culture of excellence").

26   The role of "nation building"—and too often war preparation—became a central mandate of educational institutions in the twentieth century—not only through the development and dissemination of "nationalized" literature, but through history, social studies and civics. At the same time, warfare became academically regulated (educationalized).

27   This discovery of cynical perception (of the understanding that language/imagery is political, partial and contingent), or put the other way, the transparency of naive perception has been theorized as a "crisis of representation, a crisis being the point of epistemological break down. It is described by Jameson (1984, viii) in his introduction to Lyotard's *The Postmodern Condition: A Report on Knowledge*. Stating that the crisis is usually perceived as an "aesthetic one, although it has relatively immediate philosophical and ideological analogues," Jameson writes, "I am referring to the so-called crisis of representation, in which an essentially realistic epistemology, which conceives of representation as the reproduction for subjectivity, of an objectivity that lies outside it—projects a mirror theory of knowledge and art, whose fundamental evaluative categories are those of adequacy, accuracy, and Truth itself."

The crisis, in turn, has been constituted and reconstituted, this particular "genealogy of the text" common to Foucault, Barthes, Derrida, Lyotard and Baudrillard. Foucault (1970, 305-307) locates its inception in the Nietzschean question (qui parle?), saying the question itself was "made possible by the fact that, at the beginning of the nineteenth century, the law of discourse having become detached from representation, the being of language itself became, as it were, fragmented."

28   The term *Kulturkampf* dates to 1873; it was in large a battle between Protestant modernists and Catholic conservatives. Bismarck's Minister of Culture (Education) Adalbert von Falk carried *Kulturkampf* into East Prussia in an effort to force state schooling and secularism on the indigenous Catholic population. The "culture war" ended in failure; however Roman Catholic control of the school system was much reduced, the religiously oriented curriculum replaced by a secular, nationalist curriculum that emphasized the study of "new subjects" such as German literature and history. State control over education resulted (the Jesuit order in Germany was dissolved during the battle and civil marriages instituted).

29   A hundred earlier the territory that formed the German nation-state in 1871 had been comprised of some thousand separate principalities, which Napoleon during the French military occupation of the German states (1807-1814) had

amalgamated into thirty or so. Bismarck, through the Ems telegram (and the resulting war of 1870), completed (Austria excepted) the nation-state building ironically begun by Napoleon.

30   The formation of U.S. Land Grant Colleges offers an exemplar. The U.S. during that country's Civil War established a federal system for education/training in three mandated areas, agricultural, mechanical and military (the Morrill Agricultural College Act of 1862). While military training has not entered the educational lexicon (that would give us Texas A,M & M), this vast college system has proven effective in providing "blended training," even credited by some theorists with allowing the U.S. to transition to a "knowledge economy." It has proven adaptable in adjusting to various forms of agriculture, industry and warfare, including the current adjustment to the establishment of select rather than mass recruitment for military officers (the number of military officers trained in the U.S. college and university system during WWII is staggering).

Though not mentioning Land Grant colleges specifically, Porter (1994, 261-62) outlines the way in which war imperatives in the early 1860s proved formative of the national institutional fabric of the U.S.:

> In addition to the Bureau of Internal Revenue, the war saw the founding of the Department of Agriculture, the Bureau of Immigration, and the National; Academy of Sciences, founded in 1863 in the hope of harnessing science to the war effort. An activist Congress passed the Homestead Act of 1862, and the Immigration Act of 1864; it also established the Union Pacific and Central Pacific Railroad companies as federally chartered corporations. All these measures had some link to the war effort.

This same process occurred in Canada during World War I. The reader may know that income tax was introduced during World War I in Canada and the U.S. as a temporary measure. This "war measure" provided the means for the development of regulatory welfare state until recently.

31   Work critical of statist education in the U.S. most often has been written by social conservatives, elitist and populist. Notable are conservatives E.D. Hirsch and Harold Bloom and notable populist critics Sheldon Richman and John Taylor Gatto.

32   The recently produced "Koret Report," (2003) Our Schools and Our Future: Are We Still at Risk? examines the progress made since the original SCANS report was produced. The report originates with two privately funded organizations, the Hoover Institution of Stanford University and the San Francisco-based Koret Foundation. It concludes that there has been little improvement in U.S. schools because of the blockage of reform by U.S. teachers' unions.

33   Here is a partial listing of U.S. "reform documents" dating to the same era (National University, n.d.):

A Nation at Risk, The National Commission on Excellence in Education, 1983.

High School, The Carnegie Foundation for the Advancement of Teaching, 1983.

Action for Excellence, Education Commission of the States, 1983.

Making the Grade, The Twentieth Century Fund, 1983.

Educating Americans for the 21st Century, A Report to the American People and the National Science Board, The National Science Board Commission on Precollege Education in Mathematics, Science, and Technology, 1983.

Who Will Teach Our Children?, California Commission on the Teaching Profession, 1985

A Nation Prepared: Teachers for the 21st Century, Carnegie Forum on Education and the Economy, 1986.

Time for Results? The Governors' 1991 Report on Education, National Governors' Association Center for Policy Research and Analysis, 1986.

First Lessons, William J. Bennett, U.S. Secretary of Education, 1987.

Caught in the Middle, California State Department of Education, 1987.

Agenda for the Twenty First Century: A Blueprint for Education, California State Department of Education, 1987.

34   Ironically, the educative system being set in place now resembles ecumenical Roman Catholic education before the Protestant revolution. A new capitalist digitized ecumenical education system is displacing the parochial textual (bookish) system that dates to Luther.

35   Weber's (1978, 21) "ideal type" is an abstraction, a useful heuristic device. He explains:

> The more sharply and precisely the ideal type has been constructed, thus the more abstract and unrealistic in this it is, the better able it is to perform its functions in formulating terminology, classifications and hypotheses.

This Weberian concept underlies the author's use of terms such as subjectivity and posthuman. They too are meant as heuristics devices, ways to formulate terminology, classifications and hypotheses. Following this method, the author elsewhere has divided modern subjectivity in three ideal types: the preindustrial, industrial and postindustrial. Those classifications provide a background for this work.

The work does not draw on Weber's "rationalization thesis" whereby the process of rationalization itself leads inexorable to the human existing in "steel cage of bureaucracy." The work reads rationalization as itself symptomatic of the social practices of war and capitalism, as growing out of those practices rather than those practices being emblematic of "rationalization."

36   The contemporary military, industrial education complex is evident in Joyce Lynn's article titled Control, fear, and the New World Order, Part 1: Carnegie Mellon University and the Federalization of Academia (*Online Journal*, Feb. 6, 2003) writes:

> . . . within the first five months of 2002, Carnegie Mellon received a huge NASA research grant, a $750,000 Centers for Disease Control grant, and, in June, G.W. Bush named the Carnegie Mellon president to a Homeland Security post.

> On February 5, 2002, NASA's Ames Research Center at Moffett Field, California, in the Silicon Valley, awarded Carnegie Mellon's School of

Computer Science a five-year, $23 million research grant to measure and improve the dependability of NASA's systems.

Last July, the National Robotics Engineering Consortium (NREC), part of the Robotics Institute in the School of Computer Science, announced a $5.5 million, 18-month "award" from the Defense Advanced Research Projects Agency (DARPA) to build and test a prototype robotic unmanned all-terrain combat vehicle. NREC researchers have been working with subcontractors Boeing Co. (Chicago), PEI Electronics (Huntsville, Alabama) and Timoney Technology (Meath, Ireland) for a year and a half to develop the crewless vehicle.

The statement of PEI president and CEO Tom Keenan makes clear the tilt toward the business of war. Carnegie Mellon's press release quotes Keenan as saying this project will "enhance the effectiveness of tomorrow's war fighter. We . . . stand ready to successfully meet the challenges associated with the future battle space."

Last fall, Carnegie Mellon announced the creation of the Center for Computer and Communications Security (C3S) and a $35.5 million five-year grant . . . . Again, the Carnegie Mellon press release tells the story: This grant will create "a new network security paradigm to tackle the challenges related to Internet security, data storage, and privacy issues stemming from America's ongoing war against terrorism." Pradeep Khosla, head of the Electrical and Computer Engineering Department and the new C3S, is cited as saying the crucial role that information technology plays in warfare and homeland security inspired Carnegie Mellon to create the new center.

The National Security Agency, one the nation's intelligence cops, has approved the Carnegie Mellon institute that will manage a graduate degree program in information security as part of the grant.

Joyce concludes, saying, "The tentacles of military federalization—as the Carnegie Mellon grants show—reach far and wide." Other examples she provides concern other prestigious academic institutions, including Ohio State University, M.I.T. and Harvard University.

CHAPTER 5:
POSTINDUSTRIAL LEARNING

Introduction

This chapter examines the "weaponization of education and knowledge," providing four exemplars of the process. This examination leads to the conclusion that the complex of educational and research institutions that comprise the contemporary academy is arguably the greatest war weapon ever invented.

Highlighting ways in which education from its inception in Ancient Greece has demonstrably intimate connections to warfare, that education *is* warfare in ways that have been left inarticulate, the author asks if education *as* warfare is a permanent condition. A brief history of education as war is developed, demonstrating ways in which contemporary education is as formatively influenced by war as by the state and capitalism.

Weaponization

If the reader remembers, Michael Mann (1988, 148) refers to a "pacific transnational sociology" being enshrined in pedagogy (see Chapter 1). Hacker and Hacker (1987, 744-745) are quoted in that same section: "That war often promotes technological change has become something of a truism since the Industrial Revolution allowed *ideas to become weapons swiftly* enough to reshape the reshape the war in progress—when, of course, money flows most freely."

These statements contain the two elements this work has been addressing, the formative influence of warfare on education and the socius more

generally, and the way in which this connection has been ignored by the AngloAmerican academy, most especially in the field of education. These observations hold once again regarding the connection between postindustrialism and education. Peter Drucker, a "business" theorist and one of the many thousands of émigré scholars driven from Europe because of Nazism, was the first theorist to identify the phenomena that later came to be characterized as "postindustrialism" or the "information age" and its dependence upon education.[1]

In *Landmarks of Tomorrow* (1957, 123-124), Drucker articulated what he termed The Educated Society and The Educational Revolution: "The higher education of a country controls its military, its technological and it economic potential. In an age of superpowers and absolute weapons, higher education may indeed be the only area in which a country can still be ahead, can still gain decisive advantage."

The greatest impact of the educational revolution is therefore on international power and politics. It has made the supply of highly educated people a decisive factor in the competition between powers—for leadership and perhaps even for survival. *The conclusion from this is as simple as it is new: Educational development becomes a priority of national policy* [in original].

Nothing so much plays out Weber's (1968, 225) assertion regarding *Gesellschaft* societies, "this means fundamentally *domination through knowledge*." Yet, the strategic value of *constant* knowledge production was known since the nineteenth century. As this work has argued, knowledge production and knowledge delivery had been weaponized at the same as it was nationalized and industrialized. The results were evident in the War of 1870 (and the U.S. Civil War). It was as early as that the conditions for postindustrialism began to become evident. As Beniger said: "Microprocessor and computer technologies, contrary to currently fashionable

opinion, are not new forces only recently unleashed upon an unprepared society, but merely the latest installment in the continuing development of the Control Revolution." He traces these forces to a period stretching from 1870 to 1910.

Four of the enabling technologies of postindustrial education are now examined as paradigmatic exemplars; all are rooted in the nineteenth century. Organic chemistry laid the groundwork for late twentieth century work in the development of polymer plastics, which contributed to the formation of the "information age" as much as the development of small scale electrical circuitry. Computers are an obvious enabler. Instructional technology and educational psychology may be less obvious. As for "propaganda" as an enabling technology (regulative technology), for one it appeared formatively in the way Bismarck created his *casus belli*. Each of these technologies, including the theoretical regulative technology termed "psychology," was weaponized shortly after its academic inception or from the very beginning.

Organic Chemistry

The enhanced power of the academy in the form of the disciplinary industrial research university was first evident in Germany, where chemists working in research universities developed the *science* of organic chemistry, though first for industrial reasons (artificial dyes), then for war reasons (munitions), this unlike the development of computer science, systems theory or communications, which from the 1940s to the 1970s, were developed first and foremost as functions of war. However, organic chemistry, as much as computer science, laid the basis for contemporary warfare. Tracing the development of organic chemistry may be instructive in as much as it demonstrates the way in which the research university, even when ostensibly

fulfilling a dual mission of *Bildung* and material power, lent itself to war right from the start.

Organic chemistry, when first developed, concerned the expansion of the material applications of coal, especially as related to the production of aniline (organically synthesized) dyes. The knowledge that concerned using coal dye, ironically, had been invented in England originally, but that nation, either because there was no understanding of the implications of the knowledge or simply because of narrow commercial concern, allowed German companies to use the technology, which then led to the development of synthetic polymers in German research institutes (e.g. synthetic rubber, gasoline, plastics).

This academic knowledge formed the technological basis for the German military and industrial penetration of the globe after the Franco-Prussian War. From this point in the late nineteenth century, academic knowledge development unilaterally grounded the institution of empire anywhere in the world. Armies and diplomats, teachers and advisors, industrialists and generals, became functions of the *state* of knowledge—of the technologies they employed for global conquest. Thus the *constant development of new knowledge*, as evidenced in the battleship race between the British and German Empires, assumed primary importance industrially and militarily (this included, of course, the development of a range of strategic materials including techniques of hygiene and medicines [e.g. sulfa drugs]).

As Germany held large accessible coal deposits within its territories, making more of coal benefited the German Empire immeasurably. These particular scientific developments were one of the primary means by which German military, industrial and financial power was developed, and the means by which Germany attracted crucial U.S. investment after World War I and subsequently redeveloped its war-making capacity after the Nazis took power

(see Salusy, 1947, *I.G. Farben*). Interestingly, after World War II, the German chemical cartel I.G. Farben, which controlled much of the world knowledge about synthetic polymers, was broken into three transnationals, Bayer, Hoechst and BASF. Its U.S. assets, which had been seized by the U.S. federal government during WWII, were sold by public auction in 1965 when Robert Kennedy was the U.S. Attorney General responsible. Today, this reconfigured corporate entity maintains, in conjunction with U.S. and Swiss firms, its global reach and power.

Yet, organic chemistry was not a form of militarized academic knowledge from the outset; it was adapted to war after its invention, as were certain forms of mathematics in the United States and Great Britain, and, of course, physics. *However, that production sequence, whereby academic "civil knowledge" was adapted to military use after its initial production, was inverted during the twentieth century.* Beginning with World War I, knowledge that was militarized in its inception was then adapted to the "civil economy." Such, of course, was the case with the "information age," the contemporary electronic systems for communications (Dizard, 1997; Hables Gray, 1997; Hayles, 1999).[2]

Propaganda

The development of "propaganda"—a new form of academic knowledge that provided the basis for "advertising" after World War I (its civil application) provides a particularly instructive instance (Jowett and O'Donnell, 1999). Delwiche:[3]

The absence of public unity was a primary concern when America entered the war on April 6, 1917. In Washington, unwavering public support was considered to be crucial to the entire wartime effort. On April 13, 1917, Wilson created the Committee on Public Information (CPI) to promote the

war domestically while publicizing American war aims abroad. Under the leadership of a muckraking journalist named George Creel, the CPI recruited heavily from business, media, academia, and the art world. The CPI blended advertising techniques with a sophisticated understanding of human psychology, and its efforts represent the first time that a modern government disseminated propaganda on such a large scale. It is fascinating that this phenomenon, often linked with totalitarian regimes, emerged in a democratic state.

With the recent work on warfare, the role of "liberal" U.S. governments in constructing contemporary forms of warfare has received much more attention (see Chapter 1). After the war, the applied science originally developed for martial application was used extensively in the civil economy. Edward Bernays, the so-called father of advertising, exposed the martial roots of the field of "public relations" and of many commercial advertising techniques in his book *Propaganda* (1928). This war weapon is, of course, still employed with great intensity.

When the technologies of human perceptual formation naively called propaganda (*perceptual pedagogy*) are combined with the technologies of lifelong learning (*perpetual pedagogy*, McLaren and Porter, 1992), both *postindustrialism* and the *mass learning systems* integral to it can be viewed as *byproducts* of war and militarism. This "learning machine" is so vast and important that without it, neither contemporary society nor contemporary warfare could exist. Both are functions of education as it is currently configured, the systemic and systematic production of specific forms of subjectivity and knowledge according to the requirements of the constantly revised material systems for knowledge and war production continually rolling out of academic universities and foundations (new generations of weapons, new learning systems, etc.)

However, to suggest that academic martial inventions and their mass application did not engender academic resistance would be to misstate the case. For example, the noted U.S. philosopher and educationist John Dewey spoke out against the constant peacetime use of propaganda by the state and private sector after the First World War. Though Dewey joined with the U.S. ruling class in promoting World War I, after that war he became a "people's champion," warning of the dangers of propaganda and arguing that citizens should be taught the methods of propaganda so that they could defend themselves against this form of *psychic warfare* (Gary, 1991, 17). Thereby Dewey came to oppose many with whom he had agreed earlier in that his definition of democracy went beyond that of the "liberal realists" (e.g. Walter Lippmann, E.L. Bernays, Harold Lasswell) who viewed democracy as a formality to be respected even while substantive decisions were made by an elite behind closed doors (Gary, 1991).[4]

Such elitist (liberal) resistance to the widespread civil use of propaganda outside periods of overt warfare led to the establishment of the Institute for Propaganda Analysis in the U.S. That institute produced *The Fine Art of Propaganda* (1939), still the basic text to understand the perception-forming techniques now ubiquitous. However, by the time academic war inventions, whether of "information bombs" (Virilio, 2000) or nuclear weapons (e.g. hydrogen bomb), the inventions always already had irrevocably altered the conditions of quotidian existence.

Educational Psychology and Instructional Technology

Experimental psychology, unlike contemporary instructional technology, educational technology and educational psychology (the three are highly interrelated), was not a function of military research and development. It was developed initially by Wilhelm Wundt and William James. When experimental psychology was applied to education, the sub-field of

educational psychology resulted. This "psychologization of education," like the initial industrialization and nationalization of education, is closely tied to the nineteenth century Germanification of education, especially the influence of the German academy in the U.S. (the state which superceded Germany in providing a global educational template).

Experimental psychology was first established in Germany by Wilhelm Wundt (1832-1920). He established the first "psychological testing laboratory" in 1875. His influence was so great that he is credited with moving the academic study termed "psychology" from the auspices of philosophy to those of the sciences (Wundt theorized apperception, an educational staple). Wundt's scientific work, like Hegel's statist philosophy, proved remarkably influential, especially in the U.S. Lionni, in *The Leipzig Connection*, (1993, 14) traces Wundt's influence:

> The first of Wundt's American students to return to the United States was G. Stanley Hall. Returning from Leipzig in 1883, he joined the faculty of Baltimore's new Johns Hopkins University, which was being established after the model of the great German universities. Hall organized the psychology laboratory. . . and, in 1887, established the American Journal of Psychology . . . In 1892 he played a leading role in founding the American Psychological Association. . . .Hall was also instrumental in furthering the career of a man who was to have an unusually profound effect on the course of American education: John Dewey.
>
> Dewey published *Psychology*, the first American textbook on the revised subject. He taught at the universities of Michigan and Minnesota. In 1895 he was invited to join the faculty of the Rockefeller-endowed University of Chicago as head of the departments of philosophy, psychology, and pedagogy (teaching).

Lionni goes on to trace the way in which educational psychology came to permeate the social practice of education through the influence of "progressivism," that confluence of nation-ism, statism and scientism. He attributes a generative role to Teacher's College (Columbia University) as the institution responsible for the establishment of scientistic progressivism

including "social efficiency" in the U.S. (and through Kirkpatrick in Canada).
There, is, of course, much more to it than this, for one the influence of the
work of William James. However, the point is that educational psychology
had entered the lexicon and practice of education; it was another of the
nineteenth century rationalization processes. The First World War provided
educational psychology a major impetus. From *The Classroom Arsenal*
(Noble, 1991, 24):

> the intelligence testing movement had its original impetus from the
> alpha and beta testing of American soldiers during World War I . . . .
> Although, in Gould's hindsight account [Stephen J. Gould, 1981], the
> alpha and beta testing represented a travesty of scientific experiment,
> a gross 'mismeasure of man', nonetheless the legitimation sought by
> its exponents was won; Gould traces the postwar influence of the
> testing movements on educators and the public schools.

Noble (24-26) traces the influence of World War II and the subsequent U.S.
government funding of experimental psychology. He notes the key role
played by Robert Gagne and Robert Glaser in promoting military technologies
in public education (i.e. learning theory, instructional design). Noble (25)
comments: "military influence on education has become invisible to most
observers, who are content to trace educational programs and technologies
to 'educational psychology'." This sentiment is expressed as well by
Jonassen (1996, 58-59):

> The influence of the behavioral theory on instructional design can be
> traced from writings by Dewey, Thorndike, and, of course, B.F.
> Skinner. In addition, during World War II, military trainers (and
> psychologists) stated learning outcomes in terms of "performance" and
> found the need to identify specific "tasks" for a specific job (Gropper,
> 1983). Based on training in the military during the Second World War,
> a commitment to achieve practice and reinforcement became major
> components to the behaviorist-developed instructional design model
> (as well as other nonbehavioristic models).

All three areas—educational technology, instructional technology (design,
programming) and educational psychology are so tightly related as to make

them almost inseparable. For example, programmed instruction was based in educational psychology (learning theory) combined with educational technology developed during World War II by the U.S. military (e.g. the use of films in classrooms, the layout for textbooks, extensive of graphs and charts, instructional design).

Again, from Jonassen's (1996, 26) brief intellectual history of the influence of war and militarism on education:

> specific military discourses entered the field at this point in time (World War II) and helped shape educational technology in the academy. Both psychological and military discourses are evident in the WWII research texts. Furthermore, we believe that the juncture of behaviorism (this time, operant conditioning, not connectionism) and military pedagogy was fortuitous (a marriage made in heaven), and together they formed a solid theoretical base for the field. The way knowledge was structured in operant conditioning and military pedagogy was quite similar.

This "marriage made in heaven" has only strengthened, however, with recent distinct differences. The "blending" evidenced now, the "man-machine" interface, the privatization of public goods (state violence, see below), the postindustrialization of education (computer based education)—the postindustrial economy itself is evidenced again by the pioneering efforts of the U.S. military. Addressing the "engineering of education," Noble (1991, 26) concludes:

> Training specialists, educational technologists and education psychologists have not been the only ones whose military endeavours have shaped and colored educational research. In military research on new weapons systems, psychologists and engineers are increasingly viewed as working on two complementary components of the same man machine system. Training, too, and the research and design of training systems, are also being perceived of as engineering disciplines.

This engineering work (see D.A.R.P.A below as well) is leading to existence as Baudrillard understood it. The digital and real are being fused to present

as "hyperreality," a totally blended operating system functioning in a "totally blended" environment. In *All but War is Simulation: The Military Entertainment Complex* (2000), Lenoir documents the military development of "man-machine" systems. He says, "I have also found that in they course of the development [machine-"man" blending] a fusion of the digital and the real has taken place, and with it the disappearance of the boundary between reality and fantasy." The present as the "postrealist" novelists and French "bimodernists" had it. Military educational work (and I'm sure the reader will agree that the term "training" does not do it justice), like the running of the military itself, is being "farmed out" (Burton Rose and Madsen, 1999). From *The Chronicle of Higher Education* (November 17, 2000), Colleges and Companies Team Up to Vie for Role in Army Program:

> Companies that have announced plans to compete for the [$600M eLearning] contract include International Business Machines, NCS Pearson (a division of the giant publishing company), and the consulting and technology-outsourcing companies PricewaterhouseCoopers [now IBM Consulting], Arthur Andersen [now Accenture], Computer Sciences Corporation, Electronic Data Systems, and Science Applications International Corporation . . . .

> Some teams include hundreds of academic institutions, of various types. I.B.M.'s team, for example, includes Georgia Virtual Technical College, the Historically Black Colleges and Universities/Minority Institutions Research Alliance, Texas A&M University at Kingsville, University of Maryland University College, and the University of Oklahoma.

> In July, Army officials announced that they would spend more than $600-million over the next six years on the new program. Last month they issued a request for proposals asking for companies and consortia to respond with plans outlining how to begin and manage the program. Military and college officials have compared the initiative to the G.I. Bill of Rights in terms of its magnitude and its impact on both soldiers and higher education.

The *Chronicle* (Army Picks Consulting Group to Run Distance-Education Effort, January 5, 2001) reports that the PriceWaterhouseCoopers (IBM

Consulting) "will lead a $453 million project to deliver distance education to soldiers all over the world."

The *Chronicle* (Navy Picks Institutions for Online-Learning Effort, November 17, 2000) also documented a U.S. Navy initiative:

> The U.S. Navy has struck deals with 16 colleges to offer distance-learning degrees for sailors through a program that will begin on a pilot basis this January. The program will likely be expanded to include additional colleges within the next few years.
>
> Mr. Danzig [secretary of the Navy] says all of the participating colleges will be offering full degree programs approved by the Navy, rather than individual courses. Navy officials formed the partnerships to help with sailor recruitment and retention, he adds.
>
> Unlike a distance-learning initiative announced this summer by the U.S. Army, the Navy's program does not involve the awarding of a contract to a single institution or consortium that would coordinate the project and receive a lump sum of money. The Navy will work directly with colleges, and will promote the colleges' degree programs to interested sailors . . . .
>
> Susan Woodward, one of the Navy commanders who helped develop the program, says the partnership approach "allows greater flexibility, as well as a more open approach to generating ideas." "These 16 new partnerships are the first step in providing sailors with opportunities to complete distance-learning degrees, she says. "The Navy will seek additional education partnerships in the spring of 2001."
>
> Mr. Danzig says a key criterion in selecting the initial colleges was "their experience in distance learning." . . . The other institutions working with the Navy on the project are: City University, in Renton, Wash.; Coastline Community College, in Fountain Valley, Calif.; Embry-Riddle Aeronautical University, in Daytona Beach, Fla.; Empire State University, in Saratoga Springs, N.Y.; Florida Community College at Jacksonville; Florida State University, in Tallahassee; Fort Hays State University, in Hays, Kan.; Old Dominion University, in Norfolk, Va.; Rogers State University, in Claremore, Okla.; Thomas Edison State College, in Trenton, N.J.; Troy State University, in Alabama; and Vincennes University, in Indiana.

What is on offer here is the "civilianization of the military," with military personnel encouraged to access a host of undergraduate programs from a

variety of suppliers. As well, this military "contracting out" evidences the continuing privatization of the public sector. Again, postindustrialism presents as "totally blended," a postmilitary/industrial/educational/entertainment complex.

Defense Advanced Research Projects Agency (DARPA)

The Defense Advanced Research Projects Agency (DARPA), the academic research coordination agency of the U.S. Department of Defense was established in 1958 in response to the "sputnik emergency." DARPA, which maintained as remarkably low profile until recently, is the exemplar par excellence of the "total influence" of the "military-industrial-university complex" on every aspect of contemporary existence.

The pivotal role of the Defense Advanced Research Projects Agency in building the enabling technologies of postindustrialism is documented in some detail in U.S. National Science Foundation Report, *Funding a Revolution: Government Support for Computing Research* (1999). As with Hughes (1998) in *Rescuing Prometheus*, this report documents the central role of DARPA in developing the telecommunications systems and computing infrastructure that allowed for the information economy (postindustrialism) and the systems theory and artificial intelligence models that allowed for research of a large scale and complexity to be carried out and managed.

Simply, this obscure U.S. government agency managed the production of *contemporary postindustrial existence*. Life as we know it (the "information age"), without exaggeration, is an *offshoot* of post World War II U.S. war weapons research and development. From DARPA publicity materials:[5]

> The Defense Advanted Research Projects Agency (DARPA) was
> established in 1958 as the first U.S. response to the Soviet launching
> of Sputnik. Since that time DARPA's mission has been to assure that
> the U.S. maintains a lead in applying state-of-the-art technology for

military capabilities and to prevent technological surprise from her adversaries.

The success of the agency in developing an array of technologies for the purposes of warfare—or simply for absorbing capital to forestall and deflect various crises of capital overaccumulation is available in a 1997 DARPA report titled *Technology Transition*.[6] The role of the agency is outlined:

> DARPA began to invest in information technology nearly thirty-five years ago. The period since then has seen significant changes in the field unlike any in the history of technology. In 1962 computers were scarce and expensive. Mainframes, the only available computers, were accessible to a few individuals who had direct access to a computation center. There was no field of computer science nor any computer science departments in our universities. There were no computer networks . . . Today, only thirty-five years later, the Internet links tens of millions of users across the world. Real-time digital communications systems link individual war fighters and weapon systems on the battlefield to their commanders and on to the National Command Authority. Nearly every office worker has a computer on his or her desk, usually linked to a network. Weapon systems such as the F-22 will have millions of lines of software to control the aircraft, its avionics, and weapon systems. The peak processing power of leading-edge computers has increased by 6,000,000 times. DARPA, more than any other government agency or any single corporation, has been responsible for this revolution.

Yet, that statement, as the full report attests, is much too modest—for not only was DARPA "more than any other agency governmental agency responsible" for the "computer revolution," DARPA's role in fueling the information revolution in its entirety has been pervasive and enduring. DARPA has been credited with "between a third and a half of all the major innovations in computer science and technology (*What Will Be*, by Michael Dertouzos, Harper Collins, 1997)."

This work was based in one funding source, the U.S. government funding of university research (Hughes, 1998, 3; U.S. National Science Foundation Report (1999), *Funding a Revolution: Government Support for Computing Research*). In Hughes' phrase, DARPA is the "military-industrial-university

complex." While these reports document the reach of U.S. Department of Defense spending, their understanding of the implications is limited to addressing the development of the enabling technologies for the "information revolution." The qualitative impact of this spending upon quotidian existence, and the social implications of a "permanent arms economy," are not examined.

However, research programs falling under DARPA's auspices that have been initiated since the September 2002 attacks on New York and Washington may have an even greater effect on quotidian existence—for they are being designed to function in the quotidian environment, in our everyday lives that are now the battlefield in the new war on terrorism (World War IV). Two of the literally hundreds of research programs currently being conducted by DARPA will be used as exemplars.

The first is the Total Information Awareness (TIA) program, one of thirteen current research projects of the Information Awareness Office.[7] It should be noted that the implementation of all the aspects the TIA program has run into resistance in the U.S. Congress. To summarize:

> The Total Information Awareness (TIA) program is a FY02 new-start program. The goal of the Total Information Awareness (TIA) program is to revolutionize the ability of the United States to detect, classify and identify foreign terrorists—and decipher their plans—and thereby enable the U.S. to take timely action to successfully preempt and defeat terrorist acts.

This total surveillance system is based in accesing and reading the everyday environment, reading the mass conglomerate of all human activity in real-time, according to various sets of "critical indicators." The Information Office Vision mission statement outlines the means for this detailed monitoring:

> To effectively and efficiently carry this out [identifying terrorism], we must promote *sharing, collaborating and reasoning to convert nebulous data to knowledge and actionable options* [italics added].

IAO will accomplish this by pursuing the development of technologies, components, and applications to produce a proto-type system.

Example technologies include:

Collaboration and sharing over TCP/IP networks across agency boundaries

Large, distributed repositories with dynamic schemas that can be changed interactively by users

Foreign language machine translation and speech recognition

Biometric signatures of humans

Real time learning, pattern matching and anomalous pattern detection

Entity extraction from natural language text

Human network analysis and behavior model building engines

Event prediction and capability development model building engines

Structured argumentation and evidential reasoning Story telling, change detection, and truth maintenance

Business rules sub-systems for access control and process management

Biologically inspired algorithms for agent control

In essence, what is happening through DARPA is the electronic machination of functions that historically comprised *Education*—defined liberally or functionally, as expert knowledge, rational judgment or critical thinking. Of necessity and by definition, these functions—the function of thinking—until recently were conducted by humans. In this instance and in many others, post-realist narrative has proven to be more reflective of actually existing material conditions than supposed reality ostensibly accessible only empirically. Indeed, this futuristic scenario, even if not realized in full by DARPA provides a constitution for postindustrial learning, a statement of education and its purposes in the age of terror as defined by the U.S.

Language as indeterminate grounds these systems, truth is rendered an effect/affect, reality comes out as a function of "evidential reasoning," total memory is machined in vast databases, information sharing is seamless, rendering human memory even more redundant than it was in oral culture after the invention of writing. Performativity is evidenced as the ultimate social ethic, a peace more terrifying than war, biologically inspired algorithms (real life simulations) provide for human systems control.

This reterritorialization, this electronic enclosure movement of the twenty-first century, even if this particular DARPA scheme doesn't work, empirically corroborates the theory of the "bimodernists"—Derrida, Deleuze, Baudrillard, Guatarri, Lyotard, Foucault. The slippery signifier reigns, the signified gone missing, the virtual is the real and the real a place of nostalgia. With *education gone virtual*—and indeed this is the case—the university and the school, those proud institutions of modernity, have been transformed, emerging into the twentieth first century as postindustrial Learning Institutions concerned less and less with Knowledge.

Education as Warfare: A Permanent Condition?

This work has argued that war has been socially formative from "pre-history," throughout "history" and until now. The work argued that the influence of war did not diminish as civilization developed and Western culture flourished, but that, contrary to the "peaceable thesis," the influence of war increased, especially its influence on the quotidian. It has argued that industrialization exacerbated rather than mitigated the European militarization of existence—in spite of the history, philosophy and theory developed in Anglophonic jurisdictions in the nineteenth and twentieth centuries that reflected the opposite.

The argument put forward purported that the collusion of industrialism, the state, education, capitalism and war led to quantity become quality, saw to a dialectical inversion whereby, in the twentieth century, war became peace and peace became war. Following Jameson (2002, 89-90), the work posited a dialectic whereby leaps from quantity to quality posited new types of differentiation, in Protestant Germany, during the onset of industrialism in North America and Europe, and, again, following World War II.

The work posited that knowledge dissemination and knowledge production became more socially significant with each transformation until, at the end of the twentieth century those processes themselves—and the subjectivity they produced—provided the basis for war and the economy. Indeed these processes themselves had been turned into primary economic and war weapons.

If any moral is to be taken from the story, it is that technologies will be used if they are developed, even if only as "deterrence." On this view, war has been "bred in the bone" of civilization, and commitment to it has been constant in spite of all oppositional rhetoric. At the same time, as Deleuze and Guatarri taught, the "war machine" can be opposed by the development of another "war machine," one, or so this author posits, whose "lines of flight" allow release from the "philosophy of state," from the *logos*, from representational thinking (that may well be happening). A "war machine" such as this would mean discarding *Education* as we know it (that may be happening too). For today education is overcoded, the transcendental signified of modernity. Yet maintaining *logocentrism* (philosophy, metaphysics) in all likelihood means maintaining warfare and its control of the socius.

Education and knowledge has been grounded in warfare from the beginning. The Homeric myths (c.8th. C. BC), those great truths of Western civilization,

were tales of warfare that still ground the cultural imaginary. Herodotus (c.484-425 B.C.E.) was not only the first "travel writer," but the "father of history" (Cicero) because of his textual (written) access to the Ancient world, most especially his histories of the wars between the Greeks and barbarians (Persia). His successor Thycidides (460-395 B.C.E.) was not only the Western world's first realist historian and historian of record for the Peloponnesian Wars (431-404 B.C.E), but also the first great theorist of war. Interested not only in realistically chronicling what he observed, Thycidides was concerned as well with the causes of the Wars.

For generations, Thycidides' history was considered the foundation of a proper (classical) education, and no doubt, some still consider it so. His chronicles and speculations formed the primary model for the study of the past in the Western academy, and proffered the binary model for historical change that is still on offer in "history" and most any other academic discipline framed by the conventions of mechanical (meaningful, linear) historical movement.

Plato (427-347 B.C.E.) wrote *The Republic*, one of the founding documents of educative discourse, in part at least in response to the defeat of the Athenian empire by Spartan warriors, who, or so the myth has it, prevailed over their archrival Athens because the Spartan fighters had been subject to rigorous physical training, good leadership and exemplary mental modeling. His most beautiful treatise is still employed as an ideological apology for the use of education in the service of select forms of power.

However, at the same time, Thycidides' history of the wars complicates any straightforward dichotomous narrative whereby history breaks down as a Manichean struggle. His "realism" has been used to temper aggressive governance for centuries. Thycidides' commentary on the political considerations that governed the Athenian ruler Pericles unsuccessful naval

strategy for the defence—and aggrandizement—of the Athenian empire have stood for millennia as a warning against unwonted ambition.

The Athenian war leader Pericles, who died in a war-related plague which destroyed more than a quarter of the population of Athens, saw to the ruin of Athens, the annihilation of its navy—the ultimate source of Athenian power in the Ancient world—the humiliating defeat of the Athenian army, and ultimately, the reduction of imperial Athens to colonial status. Thycidides supplied us that—and with it a set of imperial guidelines that have in part constituted the "educated person" (the cultured, civilized person) for centuries. As Weber (1978, 473) so offhandedly put it: "the educated Greek always remained a warrior, at least in theory"—and so the theory produced by educated Greeks retained the warrior, at least in part.

Thycidides' recording of Pericles' oration commemorating Peloponnesian war dead still provides a rhetorical model by which humans are interpellated to nation, empire and war. Indeed, Pericles' "funeral oration" can stand as the great founding document for the ideology of nation and empire. For example, Pericles' address provided the model for U.S. President Lincoln's Gettysburg Address (1863), a primary discursive foundation for the federal reconstitution of the U.S. and the national redevelopment of imperial U.S. power (cf. Wills, 1992).

During the classical period, even Aristotle (*c.* 384-322 B.C.E.), who with Plato provided many of the concepts that still constitute virtuous education, apparently thought war entirely unexceptional: "It is therefore evident that the business of war is to be considered commendable, not as a final end, but as the means of procuring it." (Wright, 1965, 140). Clausewitz sounds like a latter day Aristotle in his formulation of modern *Realpolitik* as "simply the continuation of politics [*Politik*] by other means" (*On War*, 1832). Education, of course, was the conduit for the dissemination of such "pragmatic realism."

Aristotle was teacher to the man mythologized in the West as the world's greatest warrior. Fittingly, his pupil Alexander seems to express a supposedly modern view of the relationship between knowledge and power (Popovic, n.d.):

> It would appear that Alexander received from him (Aristotle) not only his doctrines of Morals and of Politics, but also something of those more abstruse and profound theories which these philosophers, by the very names they gave them, professed to reserve for oral communication to the initiated, and did not allow many to become acquainted with. For when he (Alexander) was in Asia, and heard Aristotle had published some treatises of that kind, he wrote to him, using very plain language to him in behalf of philosophy, the following letter:
>
> "Alexander to Aristotle, greeting. You have not done well to publish your books of oral doctrine; for what is there now that we excel others in, if those things which we have been particularly instructed in be laid open to all? For my part, I assure you, I had rather excel others in the knowledge of what is excellent, than in the extent of my power and dominion. Farewell."

While Alexander's admonishment of the great Aristotle may suggest the profound suspicion engendered by the infusion of the technology of writing into oral culture, it may at the same time suggest that Alexander understood the strategic value of knowledge. Regardless, these men were progenitors of discursive fields as Foucault (1977b, 131) developed the term, as "initiators of discursive practices" as "they cleared a space for the introduction of elements other than their own within the field of discourse they initiated." They (the discursive structures that go by their names) provided much of the formative conceptual and rhetorical structure for Western education, and indeed much of the template for Western civilization and empire. However, that this template in good part was forged in war, that warfare provided a formative moment for founding documents of the "great Western project," has gone missing, or, if readily available, has been ignored almost completely.

Is not the rhetorical and conceptual structure of the West apparent when civil(ized) Athens confronted the barbaric Other (difference), or when Alexander excited the Western exoticization/eroticization of Difference—of Persia and the Indian sub-continent? Are not foundational hierarchical binaries such as good/bad, civil/barbaric, reality/appearance, even self and other, where the first element is regarded as superior to the second, this itself, as Derrida explains, a generative violence, evidenced in these foundational stories, in these myths (great truths) that ground the mythical discourse termed Western civilization? Is Western formal education at root not based in the binary conceptual control structure Derrida termed *logocentrism*, coming out of and concerned with ways to form and maintain power through the deployment of the conceptual architectures (*logos*) developed in classical Greece by figures who were themselves, in part at least, formed by and concerned with warfare?

And why Aristotle? Why not others, perhaps Diogenes (4th C. B.C.E.), the shave-headed barrel-clad "kynic" who embodied experience (use of the material self as theatre) as the means to reveal truth that may have escaped apprehension through application of more domesticated conceptual structures, such as the skepticism promoted by the domesticator Socrates and the Sophists? (cf. Sloterjidk, 1987). Why Plato, not Epicurus (341-271 B.C.E.), the progenitor of "the good life" elementally different from the triumphant classical form?

Did Epicurus' hedonistic materialism have less to offer following generations than the ascetic idealism of Plato, his interpellation of the specialized citizen (ruling class) who could lead wisely and so deal with the threat posed by warfare? Why did conservative thought prevail when other thought extant during this generative period may have provided more discursive space for

the possibility of less restricted human expression, even then perhaps education's ostensible goal?

And what of Aristotle's classificatory system that hived education into elements that privileged the theoretical over and above the practical, that privileged the labour of thought over and above labour of the manual sort? Why the elemental distinction? *Cui bono*? Who benefits? Was not Western education elementally delimited in the choice of discursive fathers, especially when other such fathers were readily available when the discourse was formed?

Was educational design not controlled from its mythical beginnings by the economically and socially privileged, those mythologized citizens of the ancient Grecian empires, to favour select rather than inclusive forms of social development? Liberal ideology aside, why is it that the history of the world remains the history of the ruling classes after 2,000 years of Hellenic educational influence and development? Could it be that these ideas have survived the ages more because they offer an apology for elite forms of power—which employs warfare as a maintenance strategy—than because of intrinsic value?

What became of the Epicurean aesthetic? Surely, it provides more solid ground for informed citizenship than Plato's educationally formed class of statist guardians, his philosophic placement of the *socius* in *loco parentis*. Did not the Epicurean Aesthetes and Decadents of the Victorian era have as much to tell us about our *self* and its formation as their contemporaries who are still employed pedagogically, for example Tennyson and Wordsworth?

And why is it that Tennyson and Wordsworth are heard in Anglophonic classrooms extolling nation and nature, rather than their contemporaries Ruskin and Morris? The four were equally admired in their lifetimes, though

Morris, unlike Tennyson or Wordsworth, rejected the position of Poet Laureate. Why is the work of two theorists who pedagogically privileged the manual as well as the academic arts lost to contemporary mass learning while work that naturalizes the prevailing social "division of labour" continues to ground "learning systems" the world over?

In addition, why has a polyglot education of the senses been given less social value than the more monolingual bodily and conceptual disciplines that constitute contemporary education? Could education possibly be meant to delimit those exposed to its strictures, to deny embodied experience and thereby constitute a specifically delimited subjective form?

And why did the educational discourse formed from war and considerate of its preservation survive the ages when alternatives were available in the formative Grecian period, in the regenerative early modern period, today, and during the regenerative period of high European imperialism (*circa* 1870-1910)?

And, finally, what of Aristophanes, the acerbic playwright who provided a generative antiwar statement in his play *Lysistrata*? Why is his work, which was so critical of aggressive Athenian foreign policy, not studied instead of Pericles funeral, oration? Why is Socrates the educational father *par excellence*, rather than Aristophanes, whose critique of Socrates' work was so powerful that it contributed to the philosopher's death sentence? Why is Aristophanes' work, in its Dionysian glory, not featured prominently in schools of education in place of the Platonic valorization of the Socratic ethos?

Could it be because a violent—war-saturated—developmental trajectory mitigated in favour of select rather than inclusive forms of social power, favoured hierarchy (and patriarchy) then and still now? Could war itself be a

primary means for generating certain types of social formations, subjectivity and power? Might war be the means by which humans have written history—not in terms of specific wars or battles—but in terms of the forms of power, governance, education and industry war fostered?

Might twentieth century historians be wrong in writing out warfare to concentrate instead on "people's history," on social and economic history, without bringing the understanding that warfare provides a formative moment for all history? Even when war inflection seems distant and distinct from everyday life and the micro-levels of power, could war be the "power behind the throne," the means by which all else—including the Western conceptual schema (instrumental thought) has been constructed? Though a seemingly retrograde concept, could it be that the denial of the formative influence of war is an ideological moment, is a learned ignorance that provides a discursive basis for organized violence as power? Could it be that the answers to these questions are becoming increasingly evident?

Chapter Notes

1　These exiles in effect were the cultural creators of late modernity (e.g. Schoenberg, Einstein, Brecht, Mann, Adorno, Arendt, Gropius).　See Anthony Heilbut's (1983) *Exiled In Paradise: German Refugee Artists and Intellectuals in America*, from the 1930s to the Present, and Mark Anderson's (Ed.). (1998) Hilter's Exiles: Personal Stories of the Flight from Nazi Germany to America.

2　The Cambridge-produced mathematicians who became the famous Bletchley Park "code-busters" ultimately defeated the power of Nazi Germany based in chemistry and physics (rocketry), just as the armies of the Soviet Union defeated the Germans on the battlefield.

This martial application of highly abstract academic knowledge occurred in spite of the resolute separation of "pure" and "applied" cultures at Cambridge University, especially in the area of mathematics.　It proved to be the rule rather than the exception as "the higher learning" was even more resolutely directed to martial imperatives during the Cold War than it had been during the Second World War.　After the war, the war work of Allan Turing, the "hero of Bletchley Park," and the individual perhaps most responsible for "Allied" war victory, was combined with U.S. war-related systems and computer research, that of Vannevar Bush, Norbert Weiner and John von Neumann to provide the material and theoretical (technological and conceptual) foundations for the contemporary "information age."

3　See http://carmen.artsci.washington.edu/propaganda/contents.htm

4　These persons were the originators of the techniques for social formation that we take for granted today—public relations, polling, information management.

5　See http://www.darpa.mil/body/overtheyears.html

6　See DARPA (1997) Technology Transition.
http://www.darpa.mil/body/pdf/transition.pdf

7　The DARPA website provides a list of programs and details regarding various research programs.　None of this, of course, is "secret information" or, by definition, relates to secret programs.　Access to website is based in the acknowledgement that the address of the accessing computer is noted for "informational purposes."　Rather than listing each specific site accessed on the DARPA website, please note that each is easily accessibly by going to DARPA home page at the address in endnote 99.

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