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Through a Glass, Darkly

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Some Reflections on the Future of War

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The purpose of this article is to offer a brief, late-twentieth-century account of what has happened to war during the last millennium and where it may be going in the near future. To this end, the article is divided into four parts. The first provides a very brief outline of the development of major war from about A.D. 1000 to 1945. The next part explains how that development was affected, not to say interrupted, by the introduction of nuclear weapons. The third part shows how, even as major war began to retreat and wane, the period since 1945 has witnessed the growth of forms of war that are simultaneously old and new and that now threaten to take over many countries all over the planet. Finally, we conclude with observations on the consequences of all this for the future of air forces, navies, armies, and even war itself.

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THE DEVELOPMENT OF WAR, 1000–1945

Looking back, the outstanding characteristic of war since A.D. 1000 or so has been its progressive consolidation.[1] As might be expected, this consolidation took place more or less simultaneously in all possible fields: namely the political, the economic, military, and the technological. The following paragraphs will attempt to provide an outline, however brief, of the main developments in each of those four spheres.

First, the political: In A.D. 1000, Western, Central, and Northern Europe were divided into thousands, if not tens of thousands, of small political organizations. Most of the organizations in question were secular, but others were ecclesiastical. Most were of the type known as

feudal, but some (particularly in the relatively undeveloped north) belonged to an older type that is best characterized as tribal. Still others consisted of urban communities that, resting upon various legal principles, contained within themselves the seeds of future political power.[2] To one extent or another, all had this in common: they possessed the legal right to defend themselves, weapon in hand. This right they exercised by setting up and maintaining armed forces of some kind, be they retainers, feudal warriors, or mercenaries; by manufacturing or purchasing defensive and offensive arms; and, the most visible symbol of all, by building fortified walls, of which they were often inordinately proud.

For reasons beyond the scope of the present article, the number of political units that possessed the right and the ability to wage war tended to decline over the centuries. To be sure, the process was not unilineal, nor did it proceed with equal speed during all periods and in all countries. There were many ups and downs, particularly in France during the Hundred Years' War, which was as much a civil conflict as it was a war with England. The same was true of England during the so-called Wars of the Roses, and of Germany during the Thirty Years' War. Nevertheless, the direction of development appears clear in retrospect. Some political organizations developed into big fish and, swallowing others, expanded. Others were fated to serve as bait and, having been swallowed, disappeared. Some acquired the quality known as "sovereignty," whereas the majority lost it.[3] The number of war-making political units decreased, and the power of the remaining ones increased.

Again for reasons that cannot be explored here, the most important agglomerations of power appeared in Europe;[4] indeed, such was the discrepancy in power between European-type states and the political organizations that formed themselves on other continents that by the late nineteenth century the former were capable of taking over most of the remaining world almost as an afterthought.

The process of political consolidation was supported by, and in turn supported, growing economic power. Even during the late Middle Ages, feudal lords, kings, and even emperors were not necessarily much richer than their vassals—one remembers, for instance, how Emperor Maximilian died penniless (during the last days of his life, no inn could be found that would lodge him and his followers) and how Charles V's election was brought about by the money provided by the Fuggers family. Later, the situation changed. In England, Henry VIII, having changed his religion and confiscated church lands, was able to increase his revenue by a factor of three and thus become the first monarch who was richer than all his lords put together; in France, between 1523 and 1600 the royal income quadrupled.[5] Once the Thirty Years' War had ended, the economic power first of rulers and then of states vis-à-vis their own subjects continued to

grow. By the second half of the eighteenth century, the personal resources of even the monarchs themselves were being dwarfed by those of the political organizations over which they ruled.[6]

The industrial revolution that began in England around 1750, the transport revolution that followed it, and the communications revolution that accompanied helped reinforce these trends. Throughout the nineteenth century, the economic power of the state grew and grew; not only that, but the first successful experiments were being made to decouple money itself from bullion and turn it into a state-manufactured commodity.[7] By the time World War I broke out, states had become richer and more powerful than ever.

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Thanks to new administrative techniques, such as the systematic registration of entire populations and the collection of statistics of every kind, states were also in a position to take away as much as 85 percent of their citizens' wealth for the purpose of making war—a figure never thereafter surpassed, though not infrequently approached.[8] To provide a contemporary example, Microsoft's Bill Gates, with a hundred billion dollars at his command, is reputed to be the richest man who ever lived.[9] Still, his business empire is dwarfed by the U.S. government, the annual budget of which is on the order of two trillion dollars, and the assets of which, built up over many generations and including everything not owned by private individuals and corporations, are simply impossible to calculate.

Expanding political and economic power provided the foundation for a corresponding growth in military might. During the Middle Ages, hardly any territorial lords were, and not a single city was, in a position to raise more than a few thousand troops. The majority had to content themselves with far fewer; not seldom, the contingents that they sent to their lords' aid numbered in the hundreds or even the mere dozens. By the middle of the sixteenth century, the most important armed forces, now consisting mainly of mercenaries rather than feudal warriors or urban levies, already numbered in the tens of thousands. By the eighteenth century the forces had grown into the low hundreds of thousands. These forces, moreover, consisted of long-service regulars. Consequently, they were now available not only in war but in times of peace as well.

During the years between 1793 and 1815, following the declaration of the *levée en masse* by the French National Assembly and the subsequent adoption of the principle by other countries as well, the expansion of armed forces continued. After the battle of Waterloo there was a temporary return to professional armies, and growth tended to level off, only to be resumed after 1860 or so. By

this time it was supported by the railways and the telegraphs, the twin instruments that made it possible to mobilize hundreds of thousands of people. It culminated during the period 1914–39, when the main belligerents called up between them over a hundred million men (as against perhaps two million women), put them into uniform, armed them, trained them, and sent them to slaughter each other on battlefields that stretched from Leningrad to El Alamein, and from the North Atlantic to the South Pacific.[10]

Finally, the enormous growth in the political-economic-military power of the state could never have taken place without corresponding technological progress, both military and civilian.[11] To focus on the main developments only, from A.D. 1000 to 1945, the tank replaced the horse as the most powerful weapon on land. At sea, the size of capital ships grew from perhaps a hundred tons to as much as fifty thousand tons; entire media, notably the deep sea and the air, were invaded for the first time, by means of the submarine and the aircraft, respectively. Many of the most important developments of this era took place during the period of the industrial revolution, specifically during the twentieth century, but others, such as gunpowder, firearms, and the full-rigged sailing man-of-war, came earlier. All made possible vast increases not only in the power of weapons but in speed, range, rates of fire, and accuracy; in turn, they were supported by vast advances in such fields as communication, transportation, and production.

The climax of these developments was reached during the era of the world wars, above all World War II. Seven mighty states, the least of which had a population of approximately forty-five million people, battled each other for six years on end; the Soviet Union alone called up almost thirty-five million men.[12] Servicemen in that conflict were armed with literally hundreds of thousands of heavy war machines—guns, tanks, aircraft—and manned thousands upon thousands of naval vessels of all sorts. Waging "total war" against each other, the states undertook operations so large and so ferocious that in the end, forty to sixty million people were dead, and the best part of a continent lay in ruins. Then, dropping out of a clear sky on 6 August 1945, came the first atomic bomb, changing everything forever.

THE IMPACT OF NUCLEAR WEAPONS

Whereas during the thousand years before 1945, the size of war had grown and grown, after that year the trend reversed itself. From the beginning of history, political organizations going to war against each other could hope to preserve themselves by defeating the enemy and gaining a victory; now, assuming only that the vanquished side retained a handful of deliverable weapons ready for use, the link between victory and self-preservation had been cut. On the contrary, at least the possibility had now to be taken into account that the greater the

triumph gained over an opponent who was in possession of nuclear weapons, the greater the danger to the survival of the victor.[13]

Appearing as they did at the end of the largest armed conflict ever waged, it was a long time before the stultifying effects of nuclear weapons on future war were realized. During the immediate post-1945 years, only one important author seems to have understood that "the absolute weapons" could never be used;[14] whether in or out of uniform, the great majority preferred to look for ways in which the weapons could, and if necessary *would*, be used.[15] As is always the case in human affairs, inertia and "lessons" (in this case, of World War II) played a part. So long as the number of available nuclear weapons remained limited, their power small (compared to what was to come later), and their effects ill understood, it was possible to believe that they would make but little difference. To the people who had gone through the world war and whose job it was to look into the future, the outstanding characteristic of twentieth-century "total" warfare had been the state's ability to mobilize massive resources and use them for creating and deploying equally massive armed forces.[16] Hence it was not unnatural to assume that similar resources, minus of course those destroyed by the occasional atomic bomb, would continue to be thrown into combat.[17]

At first, possession of nuclear weapons was confined to one country only, the United States, which used them to end the war against Japan. However, the "atomic secret" could not be kept for very long; in September 1949, five years earlier than the West had expected, the USSR carried out its first test.[18] There were now two states capable of inflicting "unacceptable damage" on each other, as the phrase went. More and more weapons were produced. The introduction of hydrogen bombs in 1952–53 opened up the vision of unlimited destructive power (the most powerful one built had about three thousand times the destructive force of the fission weapon that had demolished Hiroshima) and made the prospect of nuclear war between the superpowers even more awful. At the end of World War II there had been just two bombs in existence; now the age of nuclear plenty arrived, with more than enough "devices" to "service" any conceivable target.[19]

To focus on the United States alone, the number of available weapons rose from perhaps less than a hundred in 1950 to some three thousand in 1960, by which time each Hiroshima-sized target on the other side of the Iron Curtain was being targeted by fifty times the explosive power that had destroyed that unfortunate city. There were ten thousand warheads in 1970 and as many as thirty thousand in the early 1980s, when, more for lack of suitable targets than any other reason, the expansion of the arsenal was brought to a halt. The size of the weapons probably ranged from under one kiloton (that is, a thousand tons of TNT, the most powerful conventional explosive) to as much as fifteen megatons (fifteen million tons of TNT); because the introduction of new computers and

other navigation aids as time went on permitted more accurate delivery vehicles to be built, there was a tendency in the United States for the yields of "strategic" warheads to decline, from the megaton range to as little as from fifty to 150 kilotons. With some variations, notably a preference for larger warheads and a greater reliance on land-based delivery vehicles as opposed to air and sea-based ones, these arrangements were duplicated on the other side of the Iron Curtain. At its peak during the mid-eighties, the Soviet arsenal probably counted some twenty thousand warheads and their delivery vehicles.

By basing them on the ground, at sea, and in the air, as well as greatly increasing their numbers, the superpowers could protect the nuclear forces themselves against attack, at any rate enough to deliver the so-called "second strike." However, the same was not true of industrial, urban, and demographic targets on both sides of the Iron Curtain. During World War II, a defense that relied on radar and combined fighters with antiaircraft artillery had sometimes brought down as many as a quarter of the bombers attacking a target (for example, in the American raid against Schweinfurt in 1943). Should an attack be made with nuclear weapons, though, a defense capable of shooting down even 90 percent of the attacking aircraft would be of no avail. A single bomber getting through would destroy the target just as surely as Hiroshima and Nagasaki had been, to say nothing of the damage that radiation, fallout, and electromagnetic pulse were capable of doing to entire geographic regions.

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In the absence of a defense capable of effectively protecting demographic, economic, and industrial targets, nuclear weapons presented policy makers with a dilemma without precedent in history. Obviously, one of the weapons' most important functions—some would say their only rightful function—was to deter war from breaking out. Not considering deterrence to be part of war, previous military theorists (with Clausewitz at their head) had seldom even bothered to mention it; now, however, it became a central part of "strategy," and entire libraries were devoted to it. On the other hand, if the weapons and their delivery vehicles were to be capable of deterring an aggressor, they had to be capable of being put to use if necessary. What was more, they had to be employable in what came to be called a "credible" manner—one that would not automatically lead to all-out war and thus to the user's own annihilation in a nuclear holocaust.

The West, owing to the numerical inferiority of its conventional forces, believed it might be constrained to make "first use" of its nuclear arsenal. The search for an answer to this problem started during the mid-1950s, when it became clear that the Soviet Union would not be left behind in the arms race. The

search went on for the next thirty years, involving very large numbers of analysts in government, the military, and various think tanks. Of the numerous theories they proposed, not a single one ever showed the slightest promise of achieving its goal. Meanwhile, however, a series of acute confrontations culminating in the Cuban missile crisis of October 1962 caused the superpowers to become notably more cautious. There followed such agreements as the Test Ban Treaty (1963), the Nuclear Nonproliferation Treaty (1969), the two Strategic Arms Limitation Treaties of 1972 and 1977, and the cuts in medium-range missiles and warheads that were achieved in the late eighties by President Ronald Reagan and Chairman Mikhail Gorbachev. Needless to say, each agreement was brought about under specific circumstances and reflected the problems of the moment. All, however, reflected the two sides' willingness to put a cap on the arms race, as well as the growing conviction that should a nuclear war break out, there would be neither winners nor losers.

By the time the Cold War came to an end, the number of nuclear states, originally just one, had reached at least eight. From Argentina and Brazil through Canada, Western and Eastern Europe, all the way to Taiwan, Korea (both North and South), Japan, Australia, and probably New Zealand, several dozen others were prepared to construct bombs quickly; at any rate, they were capable of doing so if they put their minds to it.[20] One nation, South Africa, preened itself on having built nuclear weapons and then dismantled them—although, understandably, both the meaning of "dismantling" and the fate of the dismantled parts remain somewhat obscure.

The entry of new members into the nuclear club was not, of course, favorably received by those who were already in it. Seeking to preserve their monopoly, the latter repeatedly expressed their fears of the dire consequences that would follow any expansion. Their objective was to prove that they themselves were stable and responsible and wanted nothing but peace—and that, whether for ideological, political, cultural, or technical reasons, this was not the case elsewhere.[21] Some international safeguards, such as the Nonproliferation Treaty and the London Regime of 1977, were set up to prevent sensitive technology from falling into undesirable hands—which in practice meant those of third-world countries. However, the spread of nuclear technology proved difficult to stop. If, at present, the number of states with nuclear weapons in their arsenals remains limited to eight, on the whole this is due less to a lack of capability than to a lack of will on the part of potential proliferators.

The time since the Soviet Union tested its first atom bomb suggests that the fears of nuclear proliferation proved to be greatly exaggerated. Instead of leading to war, let alone nuclear war, the world's nuclear arsenals have tended to inhibit military operations. Nor has the effect been limited to nuclear war only. Instead,

the fear of escalation has become stronger with the passage of time, with the result that nuclear countries and their major allies were progressively less able to fight each other directly, seriously, or on any scale. Today, in fact, a strong case could be made that wherever nuclear weapons have appeared or their presence is even strongly suspected, major interstate warfare on any scale is slowly abolishing itself. What is more, as we have noted, any state of any importance is now by definition capable of producing nuclear weapons. Hence, such warfare can only be waged either between or against technologically third and fourth-echelon countries.[22]

Since 1945 first and second-order military powers have found it increasingly difficult to fight each other, so it is no wonder that, taking a global view, both the size of armed forces and the quantity of weapons at their disposal have declined quite sharply. In 1939 France, Germany, Italy, the USSR, and Japan each possessed ready-to-mobilize forces numbering several million men. The all-time peak came in 1944–45, when the six main belligerents (Italy having dropped out in 1943) between them maintained some forty to forty-five million men under arms. Since then the world's population has almost tripled, as has the number of states, and international relations have been anything but peaceful; during over forty years of Cold War, one "crisis" followed another. Yet the size of regular forces fielded by the most important states has declined.[23]

To adduce a more specific example, in 1941 the German invasion of the USSR—the largest single military operation of all time—made use of 144 divisions out of the approximately 209 that the Wehrmacht possessed; the forces later deployed on the Eastern Front by both sides, particularly the Soviets, were even larger. By contrast, since 1945 there has probably not been even one case in which any state has used over twenty full-size divisions on any single campaign, and the numbers are still going nowhere but down. In 1991, a coalition that included three out of five members in the UN Security Council brought some five hundred thousand troops to bear against Iraq; that was only about a third of what Germany used—counting field forces only—to invade France as long ago as 1914. As of the late nineties, the only states that still maintained forces exceeding a million and a half were India and China—and of these, the latter has announced that half a million men are to be sent home. What is more, the forces of both countries consist mainly of low-quality infantry, some of which, armed with World War I rifles, are more suitable for maintaining internal security than for waging serious, external war.

While the decline in the number of regular troops—both regulars and, especially, reservists—has been sharp indeed, the fall in the number of major weapons and weapon systems has been even more precipitous. In 1939, the air forces of each of the leading powers counted their planes in the thousands; during each of the years 1942–45, the United States alone produced seventy-five thousand

military aircraft on average. Fifty years later, the air forces of virtually all the most important countries were shrinking fast. The largest one, the U.S. Air Force, bought exactly 127 aircraft in 1995, including helicopters and transports;[24] elsewhere, the numbers were down to the low dozens, or nil. At sea, the story has been similar. Of the former Soviet navy, built by Admiral Sergei Gorshkov in order to project the power of the state, little remains but rusting surface vessels and old, poorly maintained submarines that allegedly are liable to leak nuclear material into the sea. The U.S. Navy is in a much better state, but it has seen the number of aircraft carriers—the most important of its weapon systems, around which everything else revolves—go down from almost a hundred in 1945 to as few as twelve in 1995. The United States apart, the one country that still maintains even one carrier capable of launching conventional fixed-wing combat aircraft is France. That aside, the carriers (all of them decidedly second rate) owned by all other states combined can be counted on the fingers of one hand. Indeed, it is true to say that with a single major exception, states no longer maintain oceangoing navies at all—and even the exception, the largest navy of all, that of the United States, has been cut by almost half since the late eighties.

In fact, the majority of countries that have gone to war [since 1945]—or against which others have gone to war—have been quite small and relatively unimportant.

In part, this decline in the size of armed forces reflects the escalating cost of modern weapons and weapon systems.[25] A World War II fighter-bomber could be had for approximately fifty thousand dollars. Some of its modern successors, such as the F-15, come at a hundred million dollars apiece, when their maintenance packages (without which they would not be operational) are included; that, even when inflation is taken into account, represents a thousandfold increase. Even this does not mark the limit on what some airborne weapon systems, such as the "stealth" bomber, AWACS, and J-STARS—all of them produced, owned, and operated exclusively by the world's sole remaining superpower—can cost. It has even been claimed that the reluctance of the U.S. Air Force to use its most recent acquisition, the two-billion-dollar B-2 bomber, against Iraq stemmed from the absence of targets worthy of the risk;[26] should one be shot down or lost by accident, the storm of criticism would be hard to withstand.

Even so, one should not make too much of the price factor. Modern economies are extraordinarily productive. As the histories of both world wars show, they could certainly devote much greater resources to the acquisition of military hardware than they do at present. Thus, the cost of modern weapon systems may appear exorbitant only because the state's basic security, safeguarded as it is by nuclear weapons and their ever-ready delivery vehicles, no longer appears

sufficiently at risk to justify them. In fact, this is probably the correct interpretation; it is supported by the tendency, which has now been evident for decades, to cut the size of any production program and to stretch the length of any acquisition process almost indefinitely. For example, to develop the Manhattan Project—which besides the application of revolutionary physical science included the construction of the largest industrial plant ever built up to that time—and build the first atomic bombs took less than three years; nonetheless, the designers of present-day conventional weapon systems want us to believe that a new fighter-bomber cannot advance from drawing board to deployment in less than fifteen. The development histories of countless modern weapon systems prove that usually only a fraction of the numbers initially required are produced, and then only after delays of years.[27] The reason is that in most cases by the time the system can be fielded, the threat—which would have made rapid mass production necessary and, incidentally, have led to a dramatic drop in per-unit cost—is no longer there.

Yet another explanation for the decline in the quantity of weapons produced and deployed is the very great improvement in quality; this, it is argued, makes yesterday's large numbers superfluous.[28] There is in fact some truth in this argument. Especially since precision guided munitions have replaced ballistic weapons in the form of the older artillery and rockets, the number of rounds necessary to destroy any particular target has dropped very sharply; as the 1991 Gulf War and the 1999 air campaign against Serbia showed, in many applications a one-shot, one-kill capability has been achieved. Thus a single mission flown by a fighter-bomber is said to be capable of inflicting an amount of destruction that once required hundreds, if not thousands, of such sorties.

On the other hand, it should be remembered that for every modern weapon—nuclear ones only excepted—a counter may be, and in most cases has been, designed. However simple or sophisticated two opposing military systems may be, if they are approximately equal in technological terms the struggle between them is likely to be prolonged and result in heavy mutual attrition.[29] Expecting as they did more accurate weapons to increase such attrition—as in fact was the case both in the 1973 Arab-Israeli War and the 1982 Falklands War, each in its time the most modern conflict in history—late-twentieth-century states ought logically to have produced and fielded more weapons, not less. The fact that this did not happen almost certainly shows that states were no longer either willing or able to prepare for wars on a scale larger than, say, Vietnam and Afghanistan; even those two conflicts came close to bankrupting the two largest powers, the United States and the USSR respectively.

To look at it in yet another way, during World War II the capitals of four out of seven (five out of eight, if China is included) major belligerents were occupied

by the enemy, and two more (London and Moscow) were heavily bombed. Only one (Washington, D.C.) escaped destruction of any kind. Since then, no first or second-tier power has seen large-scale military operations waged on its territory; the reasons for this are obvious. In fact, the majority of countries that have gone to war—or against which others have gone to war—have been quite small and relatively unimportant. In this period, Israel fought against the various Arab states; Iran against Iraq; the United States first against North Korea, then against North Vietnam, and then against Iraq; Peru against Ecuador (before the two states decided to resolve their differences by making the disputed territory a national park); and, for two months in 1999, "the most powerful alliance in history" against Serbia. Conversely, when the countries in question have not been unimportant, as in the recent case of India and Pakistan, military operations have invariably been confined to border incidents, never even coming near the capitals.

As the twentieth century approached its end, major interstate wars appeared to be on the retreat. In terms of numbers, they were becoming quite rare;[30] in terms of size, neither the armed forces that they involved, the magnitude of the military operations they witnessed, nor (in almost all cases) the threat that they posed to the belligerents' existences even approached pre-1945 dimensions. From the Middle East to the Straits of Taiwan, the world remains a dangerous place, and new forms of armed conflict appear to be taking the place of the old.[31] Nevertheless, compared to the situation as it existed even as late as 1939, the change has been momentous.

THE RISE OF INTRASTATE WAR

While the proliferation of nuclear weapons appeared to put an end to major war between major states, war as such not only did not disappear but began to be supplemented by a different kind of armed conflict, one that, as these lines are being written early in 2000, has already to a large extent replaced the old.

Perhaps the best way to approach the problem is this. From the middle of the seventeenth century until 1914, the armed forces of "civilized" governments—primarily those of Europe, but later North American and Japanese ones as well—were more than a match for whatever could be put up against them by either societies of their own kind or others in different parts of the globe. Over time this advantage tended to grow; the greatest discrepancy was probably reached toward the end of the nineteenth and the beginning of the twentieth centuries. Thus, the "scramble for Africa" engaged only a few thousand Europeans; at Omdurman in 1896, a handful of Maxim guns enabled the British to wipe out entire columns of dervishes as if by magic.

During the years 1918–39, the difficulties that the various European powers experienced in trying to hold on to the various colonial empires increased appreciably. In some places, such as the Sahara, it took years and tens of thousands of troops to put an end to uprisings; in others the imperialists were compelled to forge alliances with local elites, which were then co-opted into the lower echelons of government. Frequently the Europeans hid behind a variety of treaties that conceded the appearance of power while preserving the reality; that was the case throughout the Middle East and also, to a growing extent, in India. Still, while the direction of change was quite clear, its extent should not be exaggerated. When World War II broke out in 1939, not a single Asian or African country had yet rid itself of its real masters—in other words, troops that were either white or organized and run by whites.

In the event, perhaps the first to find out that the nature of war had begun to change were the Germans. During the last years of the nineteenth century the Germans had participated in the scramble for Africa, gaining territories and holding them by means that were as ferocious as those employed by anybody else. Having lost their empire in the wake of World War I, during World War II they found renewed occasion to show their prowess in counterinsurgency campaigns. Beginning already in 1941, and steadily more so thereafter, the German occupations of Yugoslavia and Russia in particular were so ruthless as to resemble genocide; yet even these methods did not lead to peace and quiet. On the contrary, the greater the atrocities the occupiers committed, the fiercer, by and large, the resistance they encountered. Some countries and some populations were slower off the mark than others, but resistance spread to virtually every nation that was held by the Germans; by the second half of 1944, much of occupied Europe was ablaze.

The Germans soon discovered that it was precisely the most modern components of their armed forces that were of the least use. Hitherto their tanks, artillery, fighters, and bombers had experienced little difficulty in tearing to pieces the rest of the world's most advanced armies—including those of three world powers with combined forces considerably larger than their own;[32] now, however, confronted by small groups of guerrillas who did not constitute armies, did not wear uniforms, did not fight in the open, and tended to melt away into the countryside or surrounding populations, they found themselves almost entirely at a loss. Like other conquerors after them, the Germans learned that for counterinsurgency purposes, almost the only forces that mattered were those that were lightly armed—police, light infantry, mountaineers, special forces, signals units, and above all, intelligence personnel of every kind. All had to operate on foot or travel in light vehicles. Outside the towns they could be reinforced by reconnaissance aircraft, and on such comparatively rare occasions that the

opposition allowed itself to be caught in strength, by small detachments of artillery and tanks. There was no room in these operations for the Wehrmacht's pride and joy, its armored and mechanized divisions—indeed, since the scale of these operations was usually very small, for any divisions at all.

The discovery made by the Germans—and to a lesser but still significant extent, their Japanese counterparts—during World War II was later shared by virtually every other major armed force. Among the first to encounter guerrilla warfare during the immediate postwar years were the French and the British. In point of ruthlessness, their operations were very far from matching those of the Germans; still, particularly in the case of the French in Indochina and Algeria, they were ruthless enough. The French attempts, supported by every modern weapon they could bring to bear, to regain control of the colonies led to the deaths of hundreds of thousands and the destruction by fire and sword of entire villages, even districts. The British did not go as far; the largest number of native victims in any of their colonial campaigns seems to have stood at ten thousand (in Kenya); nonetheless, they too made routine use of capital punishment, torture, and the uprooting of entire villages.[33] Like the Germans, the British and the French armed forces learned that their most powerful weapons were worthless in such warfare. Against enemies so dispersed and so elusive that they could barely be found, the most powerful weapons of all, nuclear ones, were simply irrelevant.

Thereafter, the Dutch, Belgians, Spanish, and Portuguese were all forced to evacuate their colonies. The Americans, seeking to take the place of the supposedly demoralized French in Vietnam, sent first advisers, then special forces, and from 1965 on, huge conventional forces into that small, backward, and remote country.[34] Eventually the total number of Americans who served there exceeded 2.5 million, and the troops present in Southeast Asia numbered at one point in excess of 550,000. They were backed up by the most powerful military technology available, including heavy bombers, fighter-bombers, aircraft carriers, helicopters (the number of helicopters lost reached 1,500), tanks, artillery, and the most advanced communications system in history. The number of Viet Cong, North Vietnamese, and civilian dead probably stood at between one and two million. All to no avail—after eight years of fighting and fifty-five thousand dead, the Americans gave up.

From Afghanistan (where the Soviet army was broken after eight years of fighting) through Cambodia (where the Vietnamese were forced to retreat) and Sri Lanka (which the Indian army failed to bring to order) to Namibia (granted its independence by South Africa after a long and bitter struggle) to Eritrea (which won its independence against everything that the Ethiopians, supported by the USSR, could do) and to Somalia (evacuated by most United Nations forces after their failure to deal with the local warlords), the story was always the

same. Each time modern (more or less), heavily armed, regular, state-owned forces took on insurgencies, they were defeated.

The above examples could easily be reinforced by many others. They show that from 1945 on, the vast majority of the larger guerrilla and terrorist campaigns in particular have been waged in third-world countries—where people were either trying to form states of their own or where established states had failed to assert monopolies over violence. Still, it would not be true to say that the developed countries have remained immune to terrorism or that the problem does not exist within them. Germany, France, Italy, Spain, Britain, even Japan—where Tokyo in 1995 witnessed two deadly poison-gas attacks—have witnessed terrorist acts on their territories. Often the attacks have been deadly, with dozens, even hundreds, killed or wounded; the number of people killed by, or in operations against, the Irish Republican Army stood at three thousand in early 1996, before the organization wounded two hundred in a single explosion (in Manchester) in May of that year. In these and other countries, the list of people and targets attacked includes prominent politicians, railway stations, railway tracks, buses, hospitals, shopping centers, office blocks, hotels, beer gardens, airports, aircraft in flight, ships, and of course foreign embassies and diplomatic personnel.

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Some of the attacks have represented spillovers from struggles that were taking place in other countries. For instance, Kurds fought Turks on German and Swiss territory, and Palestinian guerrillas and Israeli secret agents chased each other in places as remote from the Mideast as northern Norway and Latin America. In other incidents the terrorists, though probably not without foreign connections, have been native born or at least native bred. Good examples are the late German and Italian Red Army Factions, which maintained ties with each other; the IRA, with its links to the United States and Libya; ETA (representing the Basques) in Spain and France; and the various Moslem organizations that have been operating in France and that in early 1996 made Paris look like a fortress. Often they are rooted in the ethnic minorities that, whether legally or not, have entered the countries in question—in France, Germany, and Britain together there are now approximately ten million persons whose faith is Islam.

If only because they have to make a living, terrorist organizations are likely to engage in ancillary criminal activities like drug smuggling, arms trading, and, from the early nineties on, dealing in radioactive materials, such as uranium and plutonium. They have proven repeatedly that they are capable of commanding fierce loyalties; in the Middle East and Turkey, it has not been very difficult to

find even people willing to commit suicide (and go to heaven as their reward). The attacks by foreign-bred terrorists on the World Trade Center in New York in 1993 and by native ones on the federal building in Oklahoma City in 1995 showed that not even the two largest oceans on earth can protect a country against terrorists—with the result that at the Atlanta Olympic Games, security officers outnumbered athletes two to one.[35]

From Washington's White House to London's Downing Street, changes have taken place that are obvious even to the casual tourist. Entire city blocks in which presidents and prime ministers live and work, and that until not so long ago were open to pedestrian and vehicular traffic, are being sealed off and turned into fortresses; their protection is entrusted to uniformed and, especially, nonuniformed personnel with every imaginable technological device ready to hand. From Sweden to Israel, leaders who once walked the streets freely and without escorts have long since ceased doing so. They are now seen by the public, if at all, only when they are whisked from one place to another in their curtained, heavily armored limousines; the places they are expected to visit are routinely sealed off and searched, sometimes for days or weeks before the event. It is the kind of security of which a Cesare Borgia might have been proud—and that not long ago was considered necessary only to protect the world's worst dictators.

So far, those measures seem to have done little to eliminate the problem. What they have done is turn private security into a growth industry par excellence worldwide.[36] Thus, in Germany the years from 1984 to 1996 saw the number of private security firms more than double (from 620 to 1,400), while employment in that field increased by 300 percent.[37] In Britain, the number of security employees rose from ten thousand in 1950 to 250,000 in 1976;[38] since growth has continued thereafter, the number of private guards must have exceeded that of the state's uniformed, active troops (237,000 in 1995) years ago. (As for developing countries, in many of them the internal threat is such that armed forces have never been able to turn their attention exclusively outward in the first place.) In the United States, as of 1972 the private security industry had almost twice as many employees, and 1.5 times the budget, of all local, state, and federal police forces combined.[39] Its turnover stood at fifty-two million dollars a year and was expected to double by the end of the century.[40] If present trends persist, the day is in sight when American citizens will pay more for private security than for their country's armed forces; the ratio between the two, which in 1972 stood at 1:7, has since declined to 1:5 and is still going down. The number of employees in the field, about 1,600,000, already exceeds that of uniformed troops.

Clearly, the impact of these developments differs sharply from one place to another, and some places remain much safer than others. Still, the prospect is that the use of armed violence—which since at least Thomas Hobbes has been

recognized as the most important function of the state—will again be shared out among other entities, as it was during the Middle Ages.[41] This is already the subject of science fiction, as well as computer games.[42] Some entities will be territorial but not sovereign—that is, communities larger than states; others, perhaps more numerous, will be neither sovereign nor territorial. Some will operate in the name of political, ideological, religious, or ethnic objectives, others with an eye purely to private gain.

In many so-called "developing countries," the situation just described already exists and indeed always has. Whether acting on their own—mounting private guards, even setting up entire armies—or by forming agreements with local insurgents, people and corporations are trying to safeguard their property and their operations; it is a situation often known as neocolonialism.[43]

It is true that most citizens of most advanced countries are still able to sleep safely in their beds, but their beds are increasingly likely to be protected by weapons and surrounded by walls. In Britain alone, there are probably some two million illegal firearms.[44] As of 1997 the United States had some two hundred million firearms in circulation, as well as thirty thousand gated communities, which latter number was expected to double in a few years. Not surprisingly, there is already some evidence that the residents of these communities are disengaging from public affairs.[45] Both for them and for their less fortunate countrymen, future life will likely become less secure, or at any rate more obsessed with security, than the life that was provided by the most powerful states of the past.

On the positive side, as we have seen, those same states are much less likely to engage each other in major hostilities—let alone in warfare on a global scale—than was the case until 1945. The bargain that was struck in the seventeenth century, in which the state offered its citizens much-improved day-to-day security in return for their willingness to sacrifice themselves on its behalf if called upon, may be coming to an end. Nor, considering that the number of those who died during the six years of World War II stood at approximately thirty thousand people per day, is its demise necessarily to be lamented.

THE FUTURE

The implications of everything we have said so far are perfectly clear. Confronted with its own supreme product, nuclear weapons, large-scale interstate war as a phenomenon is slowly but surely being squeezed below the historical horizon. To be sure, the process has been neither easy nor smooth. Since 1945, even in regions and between countries where nuclear weapons made their presence felt, there have been plenty of crises and scares. Nor should one overlook the wars between nonnuclear states, which, as in the Middle East and South Asia, went on fighting to their hearts' content.

By 1970, if not before, it had become clear that any state capable of building modern conventional armed forces—of operating, say, a number of armored divisions or maintaining a flotilla of major warships—would also be capable of developing a nuclear program. Indeed, to judge by the experience of some countries (such as China, India, Pakistan, and, of course, Israel), building nuclear weapons is actually easier than producing some advanced conventional ones. Israel, according to the most recent accounts, appears to have built its first nuclear weapon in 1967.[46] It was a decade later, however, before Israel unveiled its first tank, the Merkava I, and even then 60 percent of its parts had to be imported. From then until the present day, Israel has not produced a first-line fighter aircraft, and its latest missile boats are being built in American shipyards.

While interstate war was going down, intrastate war was going up. Literally entire continents, hundreds of millions if not billions of people, found themselves living under different regimes as a direct result of such wars. Judging by this criterion—which, being political, is the only one that is in some sense "correct"—the difference between the two kinds of war can only be called monumental.

When the last colonies—those of Portugal—went free in 1975, many people felt that an era in warfare had come to an end.[47] Having suffered one defeat after another, the most important armed forces of the "developed" world in particular heaved a sigh of relief; gratefully, they felt that they could return to "ordinary" soldiering, by which they meant preparing for wars against armed organizations similar to themselves on the other side of the Iron Curtain. In fact, however, the hoped-for respite did not materialize. At the time these lines are being written, of the wars in progress, all, without a single exception, are being fought inside states, and none is fought between states on both sides. Though most continue to take place in what used to be called the third world, some are unfolding in the former second one; nor is the *soi-disant* first world necessarily immune.

Since any country capable of building even moderately advanced conventional weapons should be capable of building nuclear weapons, and since experience has shown that conventional armed forces and their weapons are only marginally useful in intrastate conflicts, it is no wonder that those weapons and armed forces are being squeezed out. This process does not apply to the same extent around the world, nor are the three principal armed services affected to an equal degree. From one country to another, much depends on geographical situations, perceived threats, strategic plans, etc. In each of the three services, it is probably the heaviest weapons and systems that will be the first to go; according to a recent article in *The Economist*, during the years since 1990 the global market for them has declined by no less than 44 percent.[48]

According to the same article, however, "with some 30 small wars constantly on the boil, demand for light weapons has rattled on like a vintage Gatling gun." Many of them are copies of models first introduced by such leading arms producers as the United States, the USSR, and Israel; they are being produced in such out-of-the-way places as Pakistan and Croatia. They range from hand grenades and submachine guns through mortars and heavy machine guns, all the way to armored cars and personnel carriers. Equally brisk is the trade in devices that are used in antiterrorist operations, such as security fences and metal detectors.

To sum up, the roughly three-hundred-year period in which war was associated primarily with the type of political organization known as the state—first in Europe, and then, with its expansion, in other parts of the globe as well—seems to be coming to an end. If the last fifty years or so provide any guide, future wars will be overwhelmingly of the type known, however inaccurately, as "low intensity." Both organizationally and in terms of the equipment at their disposal, the armed forces of the world will have to adjust themselves to this situation by changing their doctrine, doing away with much of their heavy equipment and becoming more like the police. In many places that process is already well under way.

NOTES

1. For a brief account see W. H. McNeill, *The Pursuit of Power: Technology, Armed Force, and Society since 1000 A.D.* (London: Weidenfeld and Nicolson, 1982; Chicago: Univ. of Chicago Press, 1982).
2. For these organizations, see J. Anderson, ed., *The Rise of the Modern State* (Brighton, U.K.: Wheatsheaf Books, 1986).
3. M. Wilks, *The Problem of Sovereignty in the Later Middle Ages* (Cambridge, U.K.: Cambridge Univ. Press, 1963), esp. pp. 479–523.
4. On those reasons see E. L. Jones, *The European Miracle: Environments, Economies, and Geopolitics in the History of Europe and Asia*, 2d ed. (Cambridge, U.K.: Cambridge Univ. Press, 1987).
5. More detailed figures can be found in M. S. Kimmel, *Absolutism and Its Discontents: State and Society in Seventeenth-Century France and England* (New Brunswick, N.J.: Transaction Books, 1988), pp. 58–9.
6. See, by way of an example, the development of Prussia: A. Zottmann, *Die Wirtschaftspolitik Friedrich des Grosseti* (Leipzig: Deuticke, 1929), p. 21ff.
7. For this story see the author's *The Rise and Decline of the State* (Cambridge, U.K.: Cambridge Univ. Press, 1999), chap. 4, sec. 3.
8. Figure from Ursula K. W. Hicks, *The Finance of British Government, 1920–1936* (Oxford, U.K.: Clarendon, 1970), p. 380, table 2.
9. According to *Fortune*, International Edition, 25 October 1999, p. 97.
10. For a short summary of this growth see J. A. Lynn, ed., *The Tools of War: Instruments, Ideas, and Institutions of Warfare, 1445–1871* (Urbana: Univ. of Illinois Press, 1990), chap. 1.
11. For a brief summary, see the author's *Technology and War: From 2000 B.C. to the Present* (New York: Free Press, 1989).
12. See V. Suvorov, *M Day* (Moscow: AST, 1994) (in Russian), p. 476.
13. The best work about the breaking of the link between victory and survival, and indeed nuclear strategy in general, remains T. C.

Schelling, *Arms and Influence* (New Haven, Conn.: Yale Univ. Press), 1966.

14. B. Brodie et al., *The Absolute Weapon: Atomic Power and World Order* (New York: Columbia Univ. Press, 1946), chap. 1; and B. Brodie, "The Atom Bomb as Policy Maker," *Foreign Affairs*, October 1948, pp. 1–16.
15. The best history of nuclear "strategy" remains Lawrence Freedman, *The Evolution of Nuclear Strategy* (New York: St. Martin's Press, 1981).
16. See, for example, J. F. C. Fuller, *The Conduct of War, 1789–1961: A Study of the Impact of the French, Industrial, and Russian Revolutions* (London: Eyre and Spottiswode, 1961; New Brunswick, N.J.: Rutgers Univ. Press), p. 321 ff. (in London edition).
17. P. M. S. Blackett, *The Military and Political Consequences of Atomic Energy* (London: Turnstile, 1948), chap. 10.
18. For the Soviet road to the bomb, see, most recently, D. Holloway, *Stalin and the Bomb: The Soviet Union and Atomic Energy, 1939–1956* (New Haven, Conn.: Yale Univ. Press, 1994).
19. See A. C. Enthoven, *How Much Is Enough? Shaping the Defense Program, 1961–1969* (New York: Harper and Row, 1971), for the kind of calculation involved.
20. See most recently Tariq Rauf, "Disarmament and Non-Proliferation Treaties," in *State and Sovereignty: Is the State in Retreat? Papers from the Thirty-first Foreign Policy School, 1996*, ed. G. A. Wood and L. S. Leland, Jr. (Dunedin, N.Z.: Univ. of Otago Press, 1997), pp. 142–88.
21. See, for instance, *Public Opinion Quarterly*, Spring 1950, p. 182 (the Soviet bomb); Roberto Ducci, "The World Order in the Sixties," *Foreign Affairs*, April 1964, pp. 379–90 (the Chinese bomb); and A. Myrdal, "The High Price of Nuclear Arms Monopoly," *Foreign Policy*, Spring 1975, pp. 30–43 (the Indian bomb).
22. For a more detailed discussion of the decline of interstate war since 1945 see the author's *Nuclear Proliferation and the Future of Conflict* (New York: Free Press, 1993), chap. 1; also E. Luard, *The Blunted Sword: The Erosion of Military Power in Modern World Politics* (London: I. B. Tauris, 1988).
23. *International Institute of Strategic Studies, The Military Balance, 1994–5* (London: IISS, 1995) gives a country-by-country overview of the armed forces currently in existence.
24. World War II figures from R. Overy, *The Air War 1939–1945* (London: Europa, 1980; New York: Stein and Day, 1980), pp. 308–9; 1995 figures from D. M. Snider, "The Coming Defense Train Wreck," *Washington Quarterly*, Winter 1996, p. 92.
25. The best analysis of cost trends remains F. C. Spinney, *Defense Facts of Life: The Plans/Reality Mismatch* (Boulder, Colo.: Westview, 1985).
26. The BBC, 25 February 1998.
27. The latest casualty seems to be the new American F-22 fighter; *Financial Times*, 28 October 1999. As a U.S. Air Force chief of staff told this writer in 1993, "The pilots who will fly the F-22 are now in kindergarten."
28. For calculations pertaining to his subject, see N. Brown, *The Future of Air Power* (New York: Holmes and Meier, 1986), p. 88; J. A. Warden III, "Air Theory for the Twenty-first Century," in *Challenge and Response: Anticipating U.S. Military Security Concerns*, ed. K. P. Magyar (Maxwell, Ala.: Air Univ. Press, 1994), pp. 313, 328; and D. T. Kuehl, "Airpower vs. Electricity: Electric Power as a Target for Strategic Air Operations," *Journal of Strategic Studies*, March 1995, pp. 250–60.
29. Cf. van Creveld, *Technology and War*, chaps. 9 and 11.
30. Since 1945 the world has witnessed some twenty interstate wars. They include the First Indo-Pakistan War and the first Arab-Israeli War (1947–49), the Korean War (1950–53), the Suez Campaign (1956), the Indian-Chinese War (1962), the Second Indo-Pakistan War (1965), the 1967 Arab-Israeli War, the so-called War of Attrition (1969–70, between Israel and Egypt), the Third Indo-Pakistan War (1971), the 1973 Arab-Israeli War, the 1976–78 war between Ethiopia and Somalia, the Chinese invasion of Vietnam (1978), the Falklands War (1982), the Israeli invasion of Lebanon (1982), the Iran-Iraq War (1980–88), the Persian Gulf War (1991), and the campaign of Nato against Kosovo. Purists might add the "war" that took place between Ecuador and Peru during the early weeks of 1996.

31. See M. Kaldor, *New and Old Wars: Organized Violence in a Global Era* (Cambridge, U.K.: Polity, 1999; Stanford, Calif.: Stanford Univ. Press, 1999).
32. See, most recently, K.-H. Frieser, *Blitzkrieg Legende: der Westfeldzug 1940* (Munich: R. Oldenburg, 1995), which shows how in 1940 the Germans were inferior to the Allies even in the number and quality of tanks.
33. For a brief history of the British attempts to hold on to their empire, see L. James, *Imperial Rearguard: Wars of Empire 1919–1985* (London and Washington, D.C.: Brassey's, 1988).
34. For the background to the conflict, see Jomo Kenyatta, *Suffering without Bitterness: The Founding of the Kenya Nation* (Nairobi: East African Publishing House, 1968).
35. CNN, 17 July 1996.
36. See, for Germany, B. Jean d'Heur, "Von der Gefahrenabwehr als staatficher Angelegenheit zum Einszatz privater Sicherheits-kraefte—einige Rechtpolitische und Verfassungsrechtliche Anmerkungen," *Archiv des Offentlichen Rechts*, March 1994, pp. 107–36; for France, F. Coqeteau, "L'état face au commerce de la securité," *L'Année Sociologique*, vol. 40, 1990, pp. 97–124; and for Italy, A. M. Ogliati-Vittorio, "La Defesa Armata Privata in Italia," *Sociologia del Diritto*, vol. 15, no. 3, 1988, pp. 47–71.
37. *Der Spiegel*, no. 46, 1996, p. 37; and Jean d'Heur.
38. N. South, *Policing for Profit: The Private Security Sector* (London: Sage, 1988).
39. J. S. Kakalik and S. Wildhom, *The Private Police: Security and Danger* (New York: Crane Russak, 1977), p. 18, table 2.1.
40. Figures from B. Jenkins, "Thoroughly Modern Sabotage," *World Link*, March–April 1995, p. 16.
41. See R. W. Mansbach, Y. H. Ferguson, and D. E. Lampert, *The Web of World Politics: Nonstate Actors in the Global System* (Englewood Cliffs, N.J.: Prentice Hall, 1976), p. 297.
42. For example, N. Stephenson, *Snow Crash* (New York: Bantam Books, 1992).
43. See C. S. Clapham, *Africa and the International System: The Politics of State Survival* (Cambridge, U.K.: Cambridge Univ. Press, 1996), esp. part 3.
44. CNN, 30 September 1997.
45. J. I. Bayne and D. M. Freeman, "The Effect of Residence Enclaves on [U.S.] Civic Concern," *Social Science Journal*, vol. 32, no. 4, 1995, pp. 409–21.
46. Shimon Peres, with David Landau, *Battling for Peace: A Memoir* (London: Weidenfeld and Nicolson, 1995; New York: Random House, 1995), p. 167 (London ed.).
47. For example, W. Laqueur, *Guerrilla: A Historical and Critical Study* (Boston: Little, Brown, 1976), p. 404ff.
48. "Only the Bangs Are Genuine," *Economist* (U.S. edition), 28 June 1997, p. 68.