Part Two

Under Fire: Urban Operations in Perspective

The Nature and Conduct of the Siege

As long as there is war and as long as there are cities, there will be sieges. Now, the word conjures up castles, drawbridges, moats, catapults and battering rams, desperate assaults up the curtain walls. As a mode of operation, the siege seems hopelessly out of military fashion, frozen somewhere deep in the Middle Ages. But the siege has shown itself to be long-lived, highly adaptable to time and place. At certain times in the history of war, the siege was preeminent, the preferred mode of operation; at other times, the siege fell so far out of favor that it was relegated to the dustiest shelves of the military art, of antiquarian interest only.

To say that the concept of a siege is antithetical to the self-image of modern military establishments is an understatement. Today, at best, the siege represents a distraction. At worst, a siege is taken as evidence of a misfired plan, an incompetent commander, an offensive ground to a halt, initiative lost, a loss of control. Modern armies prefer to act as if they have outgrown the siege, but even as this line is being written, a siege is under way in the Transcaucasus, well into its third month. Its operational and tactical sequences would have been understood thousands of years ago, even before history began. And that is why we will begin there.

Ancient walls did not only protect their cities. Walls, even the flimsiest, aided the regulation of trade and customs, the control of traffic, the maintenance of public order, the protection (or the containment) of certain inhabitants—and other functions as well. But walls were also the means by which the city could defend itself when nothing else could, or would, defend it. Perhaps the city's defenders were real, full-time soldiers, a heavy garrison, well trained, fully provisioned, well led. Or perhaps not. Perhaps those who claimed the city as their own decided they would rather spend their surplus on walls rather than a permanent garrison that produced nothing but idlers when they were not fighting. If the walls were thick enough, high enough, well designed, protected by extra curtain walls or moats or some other device, perhaps those defending the city need only know how to fight

just well enough to hold on. Perhaps the walls could take the place of good training, even good leaders. With these advantages, perhaps the city could hold out just long enough for the enemy to lose so many of their own soldiers that they would lose heart for the fight, too. Then the city could return to normal. Rarely did events run such a course.

Cities bring out the worst in armies, and armies bring out the worst in cities. To an army, a city in the way offered the prospect of unopposed violence and plunder. To a city, an army was a monster, beyond the reach of sentiment and therefore to be treated as such, to be kept out if possible or, if not, to be killed without mercy. Of course, to a city, it was always better that the attacking army be destroyed then and there, for fear it would return later, stronger, less-easily dissuaded from its purpose, less merciful should it succeed where once it had failed.

As the record of warfare makes plain, these were prevailing attitudes, not in the least exceptional; in the clash between city and army, these attitudes could be depended upon, even hoped for. Perhaps they will seem extreme, but if we look carefully at our own century's record of one hundred million war deaths, we should not be so shocked. Human behavior has always been equal to the savagery of war, no matter how extreme. And in the beginning, no other form of early combat posed the test of intense, prolonged, unremitting violence as did combat in and against cities.

The sight of an approaching army ranked almost on a par with such natural disasters as famine, pestilence, flood, or earthquake. If the oncoming army did not seem quite so disastrous, that was only because it was possible to negotiate with an army. Most often, however, armies did not behave much differently from an element of nature, for the fact always remained that the city had no bargaining power and that in these transactions the city was always on the defensive and the army always enjoyed the initiative. It was possible, theoretically, for a city to fight off an attacker, and there are records of heroic, steadfast resistance that simply wore down the besieger's will. The great king Nebuchadnezzar, legend has it, besieged the city of Tyre for thirteen years without success, but such cases are remarkably few.[1] Better always to assume that, sooner or later, one's city would fall and be rendered prostrate before the enemy, the most dangerous of all times in combat.

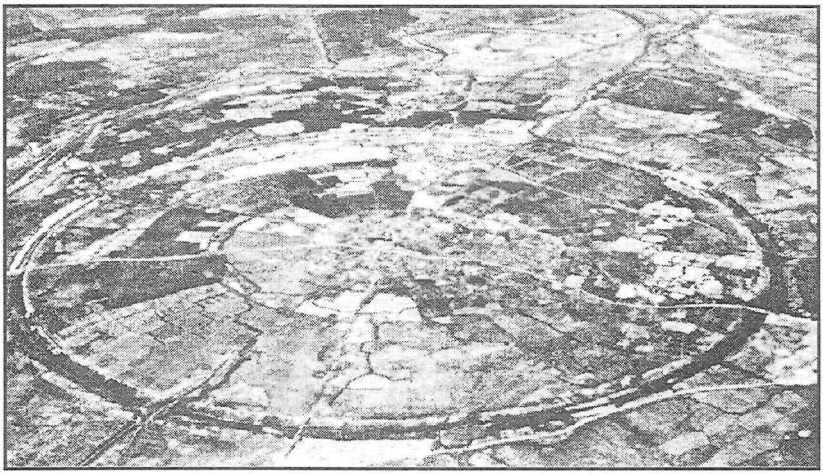
Under these circumstances, the courses of action open to a city were few and all unappealing. An immediate capitulation, offered well before the arrival of the enemy's main body, was the most ingratiating of courses. Throwing the city on the mercy of the attacking army was always a highly dubious proposition. Not wanting to cast honor

completely to the winds, the next course was to resist for the sake of face, pride, or self-respect, to force the attacking army into the inconvenience of deploying and arraying for the fight and suffering through a few assaults before giving up. Of course, this tests the enemy's capacity for forgiveness a little more, and the city might be made to pay for its impertinence.

A city confident of its power and the vitality of its citizens might elect to fight, however. Here, at least, there was the possibility of survival, not so much winning as not losing. From the attacking army's point of view, this was the least desirable of options. Not only might it mean a long siege, but it might also mean increasing vulnerability to a relieving army. If the city would not move, neither could the army. And once the army began to take root along the siege lines, its own vitality began to decline as well.

The final option for the city was tantamount to suicide—fighting to the bitter end. This was a course of action not quite so irrational as it might seem. The consequences of defeat were hardly more appealing; indeed, there was not much one could lose.

The victorious army essentially had three options, however. First, the army could kill everyone in the city. The ancient Assyrian king Ashurnasirpal II (883-859 B.C.) took twenty-one cities in six different campaigns during his reign. In nine of these, his imperial scribes recorded, all the inhabitants were killed. In six others, they wrote, "many were slain."[2] This was an option often followed. Attempts at completely destroying a city are found throughout history on virtually every continent. In 614 B.C., everyone in Jerusalem, all 92,000 people, were either killed or carried off. The Roman legions may have killed as many as 70,000 in London in 200 B.C. In the Christian Era, the number of attempted city killings goes up, especially during the Mongol depredations of Asia Minor and Persia during the thirteenth and fourteenth centuries: first in Turkestan came Bakasaghum—40,000 killed, then Samarkand, 30,000, and Merv, which is noted as "completely destroyed," as was Kirovobad, in Armenia. In 1258, Baghdad itself, with perhaps 100,000 residents, was destroyed, and thirty-nine years later, all of Damascus's 100,000 inhabitants were either killed or enslaved. Those who survived the massacres were sent to Samarkand as slaves, but only half of those managed the thousand-mile walk. The town itself was abandoned. Toward the end of the fourteenth century, another spasm of warfare broke out in the region: Tamerlane's massacre of Isfahan in 1390 has already been noted; three years later, his army took the city of Balkh. "All" were



Courtesy of the Oriental Institute of the University of Chicago

Ruins of the ancient fortress of Gur (in what is now Iran)

killed, the record notes grimly. Farther to the east, India was not spared the ravages of invasion either but, in addition, frequently suffered from sectarian wars unequaled for their viciousness. In the city of Chittor, 30,000 males were killed in one day of fighting between Hindu and Moslem in 1303. Twenty years later, at Warangal, 50,000 defenders of the city killed their own women and children for fear they would be taken by the attacking Moslem army. Then, they fought to the death.[3]

As the men of Warangal seemed to fear, even if the victors put the city's men to the sword, there was no assurance that their wives and children would be spared. That was the second possible course of action: a city's defenders, having acquitted themselves honorably, could hope at least that their survivors would not be abused. But that was the most desperate of hopes: the contrary was more likely—a slower death by all the means imagined in a savage and unforgiving world. Better above all, doubtless reckoned the men of Warangal, that their families not die by a stranger's hand. If the survivors were not immediately massacred, then slavery and relocation always played a part in the defeat of a city. Indeed, the customs of war told the general and his troops that once a resisting city had been taken, no scruples of mercy were required. Every outrage against person and property was possible in the fullness of victory. This is how King Ashurnasipal dealt with one rebellious city and its leaders:

> In the valor of my heart and with the fury of my weapons I stormed the city. . . . I built a pillar over against . . . [the] city gate, and I flayed all the chief men who had revolted, and I covered the pillar with their skins; some I walled up within the pillar, some I impaled upon the pillar on stakes, and others I bound to stakes round the pillar; many within the border of my own land I flayed, and I spread their skins upon the walls; and I cut off the limbs of the officers, of the royal officers who had rebelled. Ahiababa I took to Nineveh, I flayed him, I spread his skin upon the wall of Nineveh. . . .[4]

Faced with the prospect of taking or defending a city, an army could always pray for a quick solution, but the uncertain consequences mitigated against a favorable outcome for the defeated. Soldiers defeated on a field of battle always had the choice of running—a choice almost never available in an invested city. Knowing full well that trapped soldiers fought harder, to the death if necessary, the ancient master of war Sun Tzu advised the general when attacking a city to provide for a "Golden Bridge," leaving one's enemy an avenue of escape as a last resort. Otherwise, wrote the Master Sun, "this is no strategy."[5]

All too often, however, strategy had less to do with city fighting than other, more fundamental objectives. In all likelihood, a survey of most sieges and assaults on cities would reveal how fast, militarily expedient operations are pushed aside by the passion for plunder or revenge or any number of other motives. Here is how one siege was consummated, just at the outbreak of the Peloponnesian War:

> . . . .when [the Plataeans] realized that the Thebans were inside their gates and that their city had been taken over in a moment, they were ready enough to come to an agreement. . . . But while negotiations were going on they became aware that the Thebans were not there in great force and came to the conclusion that, if they attacked them, they could easily overpower them. . . . They decided therefore that the attempt should be made, and, to avoid being seen going through the streets, they cut passages through the connecting walls of their houses and so gathered together in number. They made barricades by dragging wagons into the streets, and arranged everything else in the way that seemed likely to be most useful in their present position. When their preparations were as complete as could be, they waited for a time just before dawn, when it was still dark, and then sallied out from their houses against the Thebans. Their idea was that if they attacked in daylight their enemies would be more sure of themselves and would be able to meet them on equal terms, where in the night they would not be so confident and would also be at a disadvantage through

> not knowing the city so well as the Plataeans did. They therefore attacked at once, and fighting broke out immediately.
>
> As soon as the Thebans realized that they had fallen into a trap, they closed their ranks and fought back wherever they were attacked. Twice and three times they succeeded in beating off the [enemy but they eventually lost] heart and turned and fled through the city, most of them having no idea, in the darkness and the mud, on a moonless night at the end of the month, of which way to go in order to escape, while their pursuers knew quite well how to prevent them from escaping. The result was that most of them were destroyed.... Such was the fate of those who entered the town.[6]

This account of the siege of Plataea, given to us by Thucydides, is the single most detailed description of a siege up to this time. So, if Plataea is important to us because it has been written about so famously, as a city at war it was important enough to attract Thucydides' keen eye in the first place. There are things to be learned in Plataea.

Plataea was an ancient city, protected by 1,500 yards of wall, holding between 1,000 and 500 citizens. The town lay eight miles south of Thebes, the capital of Boetia, along the road to its ally Sparta. Plataea was in the Athenian camp.[7] This particular division of allegiances made Plataea important: the city thwarted the line of communications between Sparta and one of her most important allies.

The art of siegecraft in ancient Greece was certainly not the equal of that of the Persians, nor would their experience in this long war much improve it. Plataea appeared to be a formidable place to the Thebans, and so they decided to take the city by treachery, suborning certain anti-Athenian elements inside the city. At the proper time, in the dead of night, traitors would open the town's gates to an advance guard of 300 Thebans. The traitors hoped, of course, that their competitors would be killed in their sleep by the Thebans, but the Thebans would not go so far. Instead, the *fait accompli* they had planned for dawn, they thought, would prevent any resistance from breaking out. In modern terms, this action was to be a "decapitation."

The anti-Athenian traitors had seriously miscalculated. Because they were oligarchs, and thus despised the democratic party that held power in the town, they believed that killing just a few of the leaders would cause the entire city to surrender. But it appears that Plataea was more genuinely democratic than the anti-Athenians thought. When the Thebans refused to kill the city's leaders outright, the traitors were put in a very vulnerable position.

Before long, all the Thebans and their allies were vulnerable. The Thebans had assumed the whole business would be finished by dawn, which was when the main body of their army was to have arrived. But it rained. The main body was delayed. And that is when the population of the city mobilized against the invader, with the results duly noted by Thucydides. Perhaps half of the Theban advance guard survived for the moment. Later, they would all be executed, along with the Plataean traitors, too, one assumes.

The fate of the Thebans at Plataea underscores one of the abiding dangers of fighting in a city: the initiative, made even more tentative by a poorly conceived plan, slipped away from the Thebans during the night. The Theban advance guard may have entered the city as one, but they died one by one before the night ended.

Of course, the story does not end here. From then on, Plataea was in danger; it was now a place where revenge must be taken. Within two years, Archidamus, the king of Sparta, would stand outside the walls of Plataea with his army, and eventually Plataea would fall. None inside would survive.[8] Plataea, at least, enjoyed a momentary triumph. Most cities were not that fortunate.

Five hundred years and many sieges later, Roman legions fought one another at the northern Italian city of Cremona. The convoluted politics and internecine warfare in the "Year of the Four Emperors" need not concern us here. Suffice to say, it was easy to choose the wrong side and often just as dangerous to choose the right one. The art of siegecraft had advanced considerably; now cities were even less safe than they had been. And there were more cities. Taking and sacking cities—even large, well-defended ones like Cremona—had become more commonly a part of war. The fighting at Cremona would not have warranted even a footnote had the event not been recorded in some detail by none other than Tacitus.[9] It is this detail that permits us to see a premodern siege with extraordinary clarity.

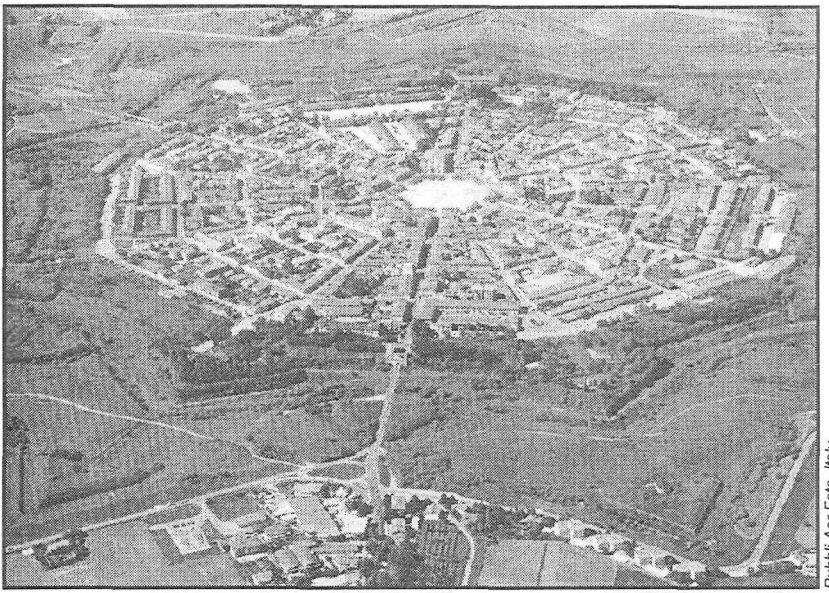
Cremona had been established in 118 B.C. by Rome as one of its colonial towns along the Po River. Rome had settled 6,000 families here originally, but by the time of the civil war in 69 A.D., Cremona was a mature city with perhaps as many as 50,000 residents.[10] Toward the end of this particular year, the tides of war had washed up elements of as many as sixteen different legions, each professing allegiance to one warring faction or another. Several skirmishes and approach battles had brought legions loyal to Emperor Vespasian to the outskirts of the city. His commander on the spot, the veteran Antonius, implored his fatigued troops to rest before taking on Cremona.[11]

But his troops, having routed two rebel legions already, were in a riotous mood. The legions in these times were brittle instruments of power, ferocious on the field of battle when they were so inclined, mutinous when they were otherwise engaged. They elected their own commanders sometimes, and more often deposed them when they pleased.

Antonius' legions outside Cremona were in a hurry to capture the city before negotiations could ruin the chance for spoils: ". . . the soldiers have the plunder of a city that is stormed, the generals of one which capitulates," argued the soldiers. When one of their commanders tried to address them, the troops struck their weapons against their shields so that no one could hear him.[12]

In the end, Antonius' legionnaires took Cremona. Led by the eagles of the veteran 7th and 18th Legions, 40,000 of them broke into the city after heavy fighting. They were followed by 40,000 more in the form of camp followers, hangers-on, and contractors of one sort or another. The massacre lasted four days and proceeded with such abandon that all Italy was said to have reacted with shame. For months afterward, no one would buy slaves from Cremona.[13] For Tacitus, the explanation of the savagery lay in the tribal composition of the troops. "In an army which included such varieties of language and character, an army comprising Roman citizens, allies, and foreigners, there was every kind of lust, each man had a law of his own, and nothing was forbidden." Nothing but a shrine outside the city walls was left standing after the fight. "Such was the end of Cremona," Tacitus writes, "286 years after its foundation."[14] But Tacitus wrote Cremona's epitaph too soon. The Emperor Vespasian ordered the city rebuilt a few years later. In the seventh century, the city would be destroyed again, and again rebuilt. From the sixteenth through the nineteenth century, Cremona would change hands repeatedly. In 1990, the population of Cremona was more than 75,000.[15] Cities tend to persist.

Fortified towns and field armies battled with one another for supremacy all the way into the nineteenth century. When the invention of gunpowder blew away the old curtain walls of masonry in the fifteenth and sixteenth centuries, low-slung earthen bastions in star-shaped configurations—the *trace italienne*—became a genuine military fad. Being able to withstand the most powerful artillery of the day, the *trace italienne* extended the duration of sieges and made fortified cities anchors of a military world in which the defense was the stronger form of war. Towns—even small towns—mattered more than open-field battles. Battles could still be won, but they meant less, as one



Pubbli Aer Foto, Italy

A modern city of ancient Roman design, Palmanova, Italy

soldier saw at the time: "One good town well defended sufficeth to ruyn a mightie army." Experienced soldiers assumed that no fortified town of much consequence could be taken by any means other than a blockade. Starvation, not firepower or maneuver, held the balance of power in the warfare of the day.[16]

Those inside the city were not the only ones in danger of starvation, however. In one notorious siege from this time, those conducting the siege were less-well provisioned that those inside. The German city of Magdeburg had held out for nearly six months while the besiegers (an imperial army under Count Pappenheim) had stripped the surrounding countryside of sustenance. By May 1631, the nearest provisions were inside the city. When Magdeburg fell to a general assault, perhaps 20,000 or more of its 30,000 citizens were massacred. The laws of the siege had not changed in 2,000 years: Magdeburg was entirely at the mercy of its captors, and they showed none. Afterward, as usual, there was much insincere clucking about the barbarity of war, but this war would not abate for another seventeen years.[17]

For all practical purposes, the *trace italienne* was the last real fortification fad. Forts built as late as the nineteenth century were

indistinguishable from their sixteenth century predecessors. Gradually, as cities grew in number and dimension, there arose the suspicion that it was possible for cities to become too big and too complicated to protect themselves by the traditional means of walled enclosure. Cities would be protected by battle, or not at all.

But that begged the question of where the battle for the city would be fought? When the Plataeans recalculated their chances, the enemy was already inside the gates. Having little choice, the Plataeans made the best of the advantages they had—including a knowledge of their own city, so intimate that they more easily could fight at night. So the battle, such as it was, played out in the dead of night, in the streets, alleyways, and (literally) dead-ends. When the enemy was finally able to concentrate his forces, the units were at about 50 percent of original strength, and the only options were surrender or a last stand.

As early as Aristotle, thinkers had considered the military advantages conferred by certain city designs, and street designs as well. Aristotle thought that irregularity worked to the defender's advantage, whereas regularity worked to the attacker's. Renaissance architects took up Aristotle's ideas anew. Ancient and irregular town patterns appealed not only to Leon Alberti's aesthetic sense but to his military sense as well, when he argued that "if an enemy comes into them he may be at a loss, and be in confusion and suspense; or if he pushes on daringly, may be easily destroyed."[18] Walls and other elaborate fortifications were expensive to build and maintain and served fewer and fewer practical functions as the years went on. If one assumed that the battle would be fought *inside* the city, one could integrate defensive functions with the city's design.

Napoleon III may have had this in mind when he commissioned the Baron Haussmann for the reconstruction of Paris in the mid-nineteenth century. Almost from the beginning, Paris' growth rate and growth patterns defied being confined to the existence of a mere military town. The town's first wall, enclosing the twenty acres of the *Ile de la Cité*, dated from A.D. 250. The next wall, built in the thirteenth century, was put up as much to watch over a newly enlarged market as for defense. The newest wall—the fifth system of fortification in its history—was put up in 1840-41, and again it was aimed at policing the inhabitants. In effect, Paris has always been defenseless against invaders, defenseless against internal disorder too.[19] When Baron Haussmann deftly isolated the most rebellious of the eastern neighborhoods by filling in a canal that had figured largely in the revolt of the June Days in 1848, Napoleon

III was ecstatic: now, said the emperor, faubourg St. Honoré could be taken from the rear.[20]

No city has ever been free from attack simply because it was fortified. What one would call the deterrent effect of fortifications seems to have always been slight. Despite its long career with walls and other fortifications, Paris has been a much besieged and often captured city. On the eve of the Franco-Prussian War of 1870, Paris had been besieged eight times since it suffered its first Viking raid in the ninth century.[21] So it seems somehow fitting that the siege of Paris in 1870-71 introduced the modern age of siege warfare.

That siege began in earnest after the German Army had routed the French in a series of field battles immediately after the outbreak of the war. By September, Napoleon III had been deposed by a popular uprising, mainly in Paris, his dictatorship replaced by a republic. While the German Third Army and the Army of the Meuse methodically surrounded Paris, the rest of the German army attended to Metz, where the remainder of the French army had concentrated.

General Helmuth von Moltke, the chief of the Prussian Great General Staff, never had any idea of storming Paris. He meant instead to bottle up the seething social unrest inside the city until the cork popped. It was a wonder that the French had not capitulated already. By all the standards of modern war, they should have: a national leader captured on the battlefield, a national government in flight, an army in disarray—any of these should have been sufficient reasons for surrender. To Moltke's surprise, and everyone else's, the French showed no signs of being reasonable. Before long, German lines of communication were under attack by French irregulars (the *francs-tireurs*), and inside Paris, General Louis Trochu, the nominal commander on the spot, was laying plans of a sort for a long and self-denying resistance. The defending garrison of Paris was optimistically counted as 400,000 men. Only one-fourth of these were regular soldiers of the French Army. The rest were a hodge-podge that included the highly combustible "republican" force, the *garde nationale*, armed civilians of various political coloration, and no small number of refugees who had been displaced by the German advances—all in all, a mixture that always seemed on the verge of riot and mutiny and sometimes crossed the line.[22] The putative *chef d'etat,* Leon Gambetta, had escaped the city by balloon and hoped to organize national resistance from Tours. Throughout the ordeal, however, the question persisted: who could say authoritatively for France that France was ready to negotiate?

What was beyond question, at least for the Germans, was that this war would be decided by negotiation, not by battle. General Trochu wanted to lure the Germans into the city itself in order to create, he said—referring to the quagmire that had entrapped Napoleon's forces in Spain earlier in the century"—another Saragossa." No one on the German side was having any of that, from the crown prince on down the chain of command. The siege was already a month old when the Prince gave his opinion on whether the city would be taken by *force majeur*: "All persons in authority, I at the head of them, are at one in this, that we must use every endeavour to force Paris to surrender by hunger alone."[23]

As time passed, it became clear that hunger would take too long. No one in the German high command seemed enthusiastic about the prospect of bombardment, but perhaps it would hurry things along. A leading officer of the staff, Bronsart von Schellendorf, was adamantly opposed. Bombardment had already been tried at Strasbourg, he argued, and that had just wasted ammunition, turned the civil population against them, and had not brought surrender one day closer.[24] All the same, on the grounds of "attacking the morale" of the Parisians, the Germans turned on the guns just after the new year began. No strictly military reason for this could be found. Inside the city, rations were low and starvation was threatening by the end of the year, but time, the German high command believed, was against them.

The bombardment of Paris lasted the better part of a month, with shells coming in at the rate of three to four hundred a day, causing little damage but doing much to improve morale—French morale. While the guns were going, General Trochu managed to mount several attacks against the German siege lines but to little avail. All around Paris, in the provinces, remnants of the French army and irregulars were in more or less constant action against the German main bodies and their lines of communication. None had a chance of rescuing Paris by breaking the siege, much less of reversing the German success, but these operations worked to the advantage of French morale and the detriment of German official will. The longer the war dragged on, the more European opinion turned against Germany and in favor of France. Among modern nations at arms, morale seemed to count for more than battlefield results; indeed, it almost seemed that France was staying in this war by force of morale alone.[25]

In the end, however, General von Moltke was right: winning the old way, on the battlefield itself, was beyond the reach of armies under the conditions of modern warfare. Now, the purpose of an army was to

create the conditions in which the objectives of the war could be won at the tables of diplomacy. In late January, an armistice was declared, and on 1 March 1871, German troops marched into Paris.[26]

The siege of Paris was not important merely because it was peculiar—which, compared to earlier sieges, it was—but because it was more like those sieges that followed it. In important respects, the siege of Paris was the first of the modern sieges, for sieges in the twentieth century were going to take on some unique characteristics.[27]

The Typology of a Siege

The fundamental design of the classic siege had long since been formed during the wars of antiquity, and it was a design that would not be substantially changed until the twentieth century. Even today, though in modern uniform, the classic siege is easily recognizable. Viewed from the perspective of the offense, the siege is composed of several stages, stages that are progressive and sequential—if all goes well for the attacking force:

- The Approach
- The Investment
- The Preparation
- The Assault
- The "Dog Fight"
- Domination and Occupation
- Withdrawal.

The approach to a siege belongs as much to the realm of strategy and operations as any other aspect of siegecraft. Whether an army deliberately intends to lay siege to a city as part of a general campaign—as in the case of Plataea—or whether actions on the battlefield develop in such a way as to require an attack on a city will influence what happens next. An army that had no intention of besieging a city—as in the case of Cremona—will see, once faced with the prospect, that an army is not automatically prepared to conduct operations against a city that means to defend itself.

How elaborate the next stage, the investment, will be again depends upon the operational intent of the attacking army and whether the city in question is the point of the campaign or is beside the point. The length

of time and the amount of energy invested in this stage could be as little as a few hours or as long as several months. The nature of the investment depends also upon whether or not the attacking army is opposed by an enemy field army and whether that army is bound to attack the besiegers directly or whether they are content to remain a vague threat, just beyond the horizon. It was for this reason, early in the history of siegecraft, that commanders and their field engineers learned the art of protecting their own positions while laying down entrenchments to encircle the besieged city—techniques known as circumvallation and countervallation.

Once the city was more or less invested, quarantined from any sort of relief, another decision awaited the besieging commander. Should the city be starved into submission or be taken by main force? As we have seen, this decision is not always a straightforward one for the commander to make. The operational and tactical momentum of the attacking force might carry it promptly against the city's defenses with little or no preparation so that the elapsed time of the siege proper was only a few hours. On the other hand, the record is replete with armies that were more than happy to settle down in their siege lines, building what amounted to a kind of mirror city to watch over the city under siege.

If the city falls of its own weight, by means of treachery or because of the hardships of those trapped inside the city, no assault is required, and the besieging troops will enter the city in a triumphal march. In any such situation, no doubt some citizens of the city will acquiesce to the occupation, while others will not, and what form resistance—if any—takes will be determined in large measure by the division of sentiments. The occupation may be a quiet or a riotous one. In this case, if there is fighting to be done, this is the stage at which it will break out.

Besieging armies commonly lose more casualties during the investment and preparation phases than any other. The enforced immobility, the generally wretched conditions in the siege lines, and the tactical disadvantage of having an enemy always on the "high ground"—all combine to test the besieging army as severely as any test by combat. After the improvements in fortification design necessitated by the appearance of gunpowder, aggressive circumvallation (the gradual tightening of the investing lines) in the preparatory phase became harder and more dangerous than ever before. Besieging armies mined approaches more confidently as well, and trenches took forms that we recognize today. The stages of investment and preparation were the most difficult thus far for a besieging army and were usually the

point at which armies gave up their sieges or in which sieges were broken by relieving armies.

The preparations completed, the timing and method of assault are determined by the immediate tactical circumstances, including the design of the fortification under siege. The immediate objective of the assault, of course, is the breaching of the wall, and more than once, armies have failed here. Repeated assaults are not at all unusual in siege warfare, and it is at the wall that the power of the two combatants find their fullest expression, where victory or defeat is found in classical siege warfare. A successful *escalade*, in fact, is the main objective of any besieging army in the classical way of siegecraft. There are, indeed, subsequent stages, as shall be seen, but these have less to do with the winning of victory than the consequences of it.

A successful breach of a defended wall did not necessarily signal an end to the fighting. The "Dog Fight" consists of minor tactics at their most intense, perhaps as intense a form of combat as any, with the possible exception of jungle combat. Undirected and uncontrolled street fighting might well go on for days after the enemy has penetrated the city. Here, too, the siege is often transformed into a quite different form of action. Here is where the looting, plundering, and wanton violence are most likely to be found. Indeed, it is more than possible that in the history of siege warfare, more inhabitants of the city have been killed here than at any other stage. As we have seen, massacres are sometimes inadvertent, unplanned results of the frenzies generated by hard fighting. Sometimes, of course, commanders simply have no control over troops after they break through city defenses. Sometimes, massacres of cities are planned from the outset of the campaign, when the object is annihilation.

As with the other stages, the nature of the occupation and the withdrawal take their cue from the nature of the operations that preceded them. Occupations can run the gamut from the benign to the savage, and often within the same war, the same army can adopt very different policies: the German occupations of Paris and Warsaw during World War II would never be confused with one another, for instance. By the same token, one might think an army always withdraws voluntarily from a city it has occupied, but there is more than one way to leave a city: one army can be ejected by another. In World War II, this process was often referred to as a "liberation," a highly dubious term subject to considerable interpretation, as when the Imperial Japanese Army "liberated" the Chinese city of Nanking at the cost of more than 200,000 noncombatant casualties.

From the point of view of the defense, that is from the view of the city itself, modern developments have been most unkind. For the longest time, cities had been capable of defending themselves. On the approach of an enemy, a city might raise an army from its own reservoir of manpower and launch a preemptive attack in open field battle, well away from the city. In fact, this, not a classical siege, is what happened at the Troy of legend and history. Or if it proved impossible to keep the enemy at arm's length, a city might defend itself on the walls. There, the defenders enjoyed the advantages of superior observation, force protection, and even what would come to be called "interior lines," since defenders could always rush from one point to another faster than their enemies. If the city was well provisioned, the defenders along the walls had the advantage of immediate support of all kinds and categories. And finally, in the age of manpower-intensive warfare, it was clear that fewer men were required to defend a city than were required to take it—by a ratio of at least 1 to 3.

But as the Plataeans showed as well as anyone, even if defenders lost the battle of the walls, it was not a foregone conclusion that the day was lost. Exhausted attackers could be lulled by their success at the wall into thinking—hoping—that their battles were over. Perhaps the victory at the wall was followed by a period of quiet, in which the conquered inhabitants might appear to be acquiescent. Indeed, there might be a significant lapse of time between the apparent victory and the outbreak of the Dog Fight. The lapse of time might be such that the original army had been replaced by administrators, come to manage an easy occupation. The outbreak of resistance then takes on something of the nature of a revolt or uprising, with all the tactical advantages and disadvantages accruing to this form of action.

This uprising could conceivably lead to forcing the enemy to withdraw summarily, but there are many more cases in which the withdrawal is ordered because military fortunes elsewhere have turned against the original attacker. In the sixteenth century, particularly in the Low Countries, there were many cases in which relief armies invested the original besiegers or forced a retirement by means of an open-field battle. This was exactly the threat that General von Moltke faced when he tightened his siege lines around Paris nearly three hundred years later.

The Modern Siege

The same social and technical advancements that altered the face of modern warfare in general changed the art of the siege as well. The

advancements did not so much change the nature of warfare as how that nature would manifest itself. The commonest principles, values, and actions of war took on different meanings after the nineteenth century and often manifested themselves differently than before. The simplest of factors, that of scale, changed so radically that its effects reverberated throughout the whole art of war. Under the new regimes of the nations-at-arms after the French Revolution, the whole idea of "mass" had to be thought of differently. "Mass" became not merely of local value but of operational and strategic value as well. And, so, a geography of battle that had not changed since antiquity was redrawn, extending the reach of war beyond the narrow tactical confines of old toward a truly global reach, with weapons and military technology to match.

Not surprisingly, the geography of the siege would change along with these larger developments. Armies grew, and the space they required to function grew as well, and when such armies met, the space consumed by their actions was several magnitudes greater than the space taken up by previous battles. In the same way, whereas forces conducting the siege once operated within close proximity to their objective, in the twentieth century, the tyranny of physical mass—the necessity for big numbers to do big things in war—began to lose its power. From the First World War onward, the instruments of force dispersed, even as their application focused more precisely on its objective. In this paradoxical development, no technical factor was so dramatic in its effect as the airplane. Beginning with its introduction in the First World War, the old assumption that weapons must be massed in order to mass their effects would be gradually less and less tenable.

The Aerial Siege

Within one decade of the airplane's debut as a weapon of war, military theorists were imagining how a war might be won by means of air power alone. Even though the airplane was still technologically crude, little effort was required to conjure up scenarios in which an entire nation might be subdued by means of aerial warfare alone.[28] The only question was when technological developments could execute what the early theorists had imagined. By 1940, the divide between technology and theory seemed to have narrowed sufficiently to produce what had long been promised, and London, the world's largest city, was about to become the world's largest target. The first aerial siege in history—and one of the longest—was about to begin.[29]

When 900 German aircraft launched their first raids on London in September 1940, there was already a small store of experience ready to comfort the skeptical, if any could be found in Nazi Germany by then. Earlier that year, the *Luftwaffe* had staged a raid on the Dutch port of Rotterdam, and although this operation could not be classed a siege, the actual destruction and the psychological effect of the raid were sufficient to encourage a Dutch surrender. Nearly a thousand citizens were killed, and 20,000 buildings destroyed. No doubt the Rotterdam raid was inspired by the results of the *Luftwaffe's* attack on Warsaw during the Germans' offensive the previous year. In those operations, however, the German High Command did not expect that any sort of decision would be won as a result of air action alone. The air siege against Great Britain, and London, in particular, was to be a different matter. If Warsaw and Rotterdam were more properly operations in support of ground offensives, there was the expectation that the Battle of Britain would be fought and won or lost in the air entirely, after which a seaborne invasion would consummate the victory already won.

The German High Command did not come around to this concept right away. The air siege of London and its counterpart against Berlin and the other German cities were stumbled into by a series of escalating reprisals following an accidental bombing of London. Reprisals were quickly transformed into national policy, and the air war against the cities of Germany began in earnest by early September 1940.

Throughout the interwar years, military theorists, strategists, and war planners had been fed a steady diet of optimistic forecasts on the effect of aerial bombardment on defenseless civilians, forecasts that were based as much upon an uncomplimentary view of civilians as on technological realities. And during these years, a few aerial operations—such as those of the German Condor Legion during the Spanish Civil War—had contributed to the optimism. The celebrated destruction of the Spanish city of Guernica may have been occasion for a humanitarian outcry in some quarters, but aviators saw in Guernica a ray of hope that cities could be brought to their knees solely by means of air attack.[30]

London would check this untested optimism. For five weeks, the *Luftwaffe* dropped about one hundred tons of explosives on London every night. In all, the Germans flew 12,000 sorties over the city. Far from ceasing to function as a city, London and Londoners quickly adapted to even the most destructive raids, day or night. On both sides of the siege, what quickly became apparent was the great distance between predictions and actual experience under fire.[31]

Before the war, the British Ministry of Health had forecasted 20,000 to 30,000 dead on the first night of a massive aerial bombardment, eventually reaching a total of 600,000 killed and 1,200,000 more casualties during a hypothetical war. In April 1939, the Ministry of Health had sent local officials one million burial forms and half a million papier-mâche coffins. Expecting three times as many psychiatric casualties as those physically wounded, London hospitals organized a triage plan and added 10,000 more beds to accommodate surges in casualties.[32] These preparations proved to be overdrawn. The first attacks produced 300 casualties. Refugees from the East End did need relocation assistance, but they were not the thousands of hysterics, traumatized by the bombs that had been feared.

Other forecasts were equally mistaken: gas was expected to play a leading role in aerial attacks, but in the event, the greatest problems were fire and unexploded bombs, both of which hampered the mobility of emergency services and public traffic. Even at the height of the raids, in mid-September, one million people came into the city to work. As time passed, the raids became less episodic and more nearly constant. Deep underground shelters had not been provided for, however, and in this case, the Londoners found a ready and practical solution: a subway ticket, which admitted one to the relative safety of the underground "Tube" stations. Sensibly, officials began improving seventy-nine stations to accommodate several tens of thousands of people, night and day. The usual number taking shelter nightly was estimated at 100,000 people. Even with the Tube stations running more or less smoothly, estimates were that 60 percent of Londoners still slept at home.[33] Interpreting the progress of the aerial siege as generously as he could, Hitler was heard to hope that "Britain might yet be seized by mass hysteria." In fact, the number of hospitalized mentally ill actually declined.[34]

The gap between expectation and reality closed in early October, when Hitler finally ordered the cancellation of invasion plans. The *Luftwaffe*, driven by Goring, continued to hold out the possibility that London might be defeated by unceasing night raids, although Goring seems to have had no factual basis for his optimism. The siege continued at varying degrees of intensity until early May 1941. London's fundamental cohesion, the city's capacity to function as a highly integrated metropolis, was not irreparably damaged by the German air campaign for one reason: physical destruction was not the same as systems destruction. The infrastructure of urban support systems—public order, power, water, medical facilities, emergency

services, public transport—never collapsed. All the fatuous predictions of social disintegration were proved wrong—and wrongheaded.

But Allied bombers were sent against German and Japanese cities with the same objectives in mind, that somehow enemy morale could be moved to work in favor of Allied aims. For all that London and other British cities had suffered during the Blitz, German and Japanese cities suffered much worse. By one accounting, 79 percent of Bremerhaven was destroyed by Allied bombing; 75 percent of Hamburg; Kiel, 69 percent; Munster, 65 percent. Numerous other major German cities were 50 percent destroyed. In such company as this, Berlin, with 33 percent destroyed, seems fortunate.[35] By the end of the air campaign against Japan in the spring of 1945, fully 60 percent of the civilian population of Japan had left their cities and were trying to live in the countryside—but what of the 40 percent who did not leave the cities? Tokyo suffered the single most destructive aerial attack of the war, in which more than 83,000 were killed and more than fifteen square miles of the city center destroyed, but the city continued to function and was functioning after a fashion when Allied occupation forces arrived.[36] In all of World War II, no city was ever completely subdued by air attack to the point of breakdown—even Hiroshima and Nagasaki.

Was it possible to kill a town? Yes, so long as it was not too big or complex. In retaliation for the assassination of Nazi Governor Reinhard Heydrich by Czech partisans in 1942, Hitler chose the village of Lidice for a Carthagenian-style eradication. All of the nearly 500 residents were either executed immediately (199 men), deported to concentration camps (198 women), or sent to prison orphanages (98 children). Lidice was a small village, but the effort to kill it was not small. The whole site was bulldozed, a nearby river was rerouted, and what remained was "landscaped" to erase any trace of its existence. No military advantage whatever accrued from Lidice's murder. The destruction of the village was not an act of war but an act of policy.[37]

But as we have seen, the great combatant cities of World War II had advantages that a village like Lidice did not enjoy. First, sheer size enters into the matter. London, Berlin, Tokyo—all these were simply too large for the weapons of the day to bring down. The worst of the air raids on London and Tokyo focused on the center of the city, yet even with the substantial destruction suffered by both—Tokyo's far worse than London's—only a small part of the whole metropolis was affected in each case. Second, the complexity factor demonstrated that it had a real military effect, for urban complexity was clearly bound up with urban redundancy: those who were organized into London fire brigades

were well placed to assist in the location and disposal of unexploded bombs, a function that had no real peacetime counterpart. Those who were organized to run the London Underground system were well placed to assist in providing for the tens of thousands who sought refuge during the night raids. Any city so accustomed to moving large numbers of people every day, as all these cities were, would not easily be prevented from continuing to do so by the partial destruction of one small part of a transport system: in London's case, one million workers commuted *into* London every day during the German blitz. At the same time, two million Londoners decided for themselves that they would evacuate the city, but this was done so gradually and without difficulty that few noticed at first. Before the war, the expectation was that at the beginning of aerial attacks, the roadways and subways would be choked with hysterical refugees. After Hitler canceled the invasion in October, the battle of London was no longer a siege but a punitive operation—no different in kind, surely, from the operation against Lidice—and no more effective in the end. Without hope of winning a victory, the *Luftwaffe* was a means without an end.

"A Continuation of Policy by Other Means"

The lack of proportion between military commitment and military result that became obvious to General von Moltke during the siege of Paris was to be duplicated many times over in the twentieth century. But what Moltke saw at Paris in 1870 was not a novel development in war making. Paris, a national symbol in peace, served the same role in time of war. The city was not simply another place on the map: its importance transcended any of its physical attributes, its political or economic or even its military value. One might even say Paris was—and is—a spiritually critical element of France. Not many places can claim this sort of spiritual importance. Merely being a capital city is not quite enough to excite such depths of feeling. Few Americans could ever have been accused of feeling so strongly about their national capital or, indeed, about any of their cities.

Before 1916, the town of Verdun could hardly be said to have been one of these places, although it certainly had a history as one of France's frontier forts since the ninth century.[38] But this place, above all others on the trace lines of the Western Front of World War I, purchased a new, intensely spiritual identity in that year. That was when both Germany and France invested this old fortified town with strategic importance and, in the process, made the siege of Verdun one of the most famous sieges of the twentieth century. Chief of the German General Staff

Erich von Falkenhayn's deliberate use of the siege for strategic ends is of particular interest here.

By the end of 1915, Falkenhayn had concluded that Germany could not win the war on the battlefield. In his eyes, Great Britain was the centerpiece of all Allied power, and it was beyond the reach of Germany's power. The only possible way for Germany to get at all-important British power was by attacking the alliance itself, and this he meant to do by crafting a new strategy that, in effect, would separate France from the allies by convincing the French that "in a military sense they have nothing more to hope for."[39] The technique Falkenhayn chose for the execution of his strategy was an old one, known even to the ancient Greeks as *epiteichismos*: attacking a place so valuable to the enemy that he is obliged to defend it. Verdun was important only because it would elicit the reaction from the French that Falkenhayn desired.

Falkenhayn depended upon the French to defend Verdun at all costs. It was essential that they should, for his strategic objective was to use the battle to pile up so many casualties that France would sue for a separate peace. It was a strategy designed, as one scholar has written, "to turn the domestic flank of France . . . ."[40] And it might win the war: if France were to sue for a separate peace, Great Britain would have no choice, then being isolated, but to do likewise.

The town of Verdun proper was only the garrison town and anchor for a larger region that in early 1916 formed a salient along the front-line trace. The operation against Verdun was planned in such a way that, if the strategic ends were achieved, tactical objectives would automatically be taken care of along the way. On 21 February, after an intense bombardment, the German Fifth Army assaulted along an eight-mile-wide front. Of course, the French counterattacked, retaking a few of the early German gains in ground. The Germans retaliated, and so the grind began. From February to December, defending or attacking Verdun was the main effort of the German and French armies. By the close of the campaign, the siege had consumed nearly one million casualties. The original trace of the front lines had changed very little. The Allies were not so close to defeat as Falkenhayn had assumed. Verdun did not drive a wedge between them, even after the equally disastrous Allied offensive on the Somme began in the summer.[41] Verdun was not war so much as militarized policy; indeed, it is difficult to disagree with the assessment of one informed analyst:

> The questionable strategy of pounding the enemy to the negotiation table was matched with operational plans that did not fit the strategic goal, and was executed with tactics that were self-defeating. The battle was fought in the most traditional manner of nineteenth-century offensive land warfare at a point of attack where the old guard of professional strategists would have avoided battle at all costs. . . . More than any other battle, Verdun showed the military impasse of World War I, the complete disjuncture between strategy, battle design, and tactics, and the inability to use the modern means of war.[42]

Armed with the tools of the Industrial Revolution, the combatants of Verdun took ten months to produce nearly one million casualties—among them, 600,000 killed. No one on either side pretended for a moment that Verdun or even the operational area it anchored was worth this price, especially before the battle commenced. Later in the battle, naturally, the casualties already suffered were invoked by both sides as a way of ennobling even more sacrifices in advance, but there was a sort of weight-bearing limit of such rhetoric—as the great mutinies of 1917 would show. Whatever value Verdun might have had was merely a product of what the combatants themselves invested in it.

Verdun was chosen quite deliberately to act as a theater-level slaughterhouse. But it is easy enough to find considerable towns or cities in history that were enlisted, so to speak, for a strategic or operational purpose, not because they had any intrinsic quality worth defending to the last soldier.

Stalingrad was one such place. The Second World War battle that now epitomizes the modern siege was fought over a city that was certainly no crown jewel in anyone's empire. The battle lasted from the end of August 1942, until the end of January 1943, and before it was over, Stalingrad and its immediate surroundings would attract well over a million soldiers, fighting for or against the city, or, perhaps in the end, fighting only for their own survival.

Stalingrad was also unplanned. One could not say that it was selected as an element in a broad strategic and operational scheme by one national military staff or the other. It was not. When the Germans and the Russians began their calculations for the summer campaigning season, neither assigned much military importance to this Volga River town. The major question facing the German High Command was where on the vast Eastern Front the army's main effort should be fixed.[43] As for the Russians, the major problem was how to combat what the Germans finally decided, for in the early summer of 1942, the

Photograph not available.

This picture was taken between 23 and 29 August 1942 by a group of Soviet military cameramen headed by V. Orlyankin during the mass bombardment of Stalingrad undertaken by the 4th German Air Fleet commanded by Rikhtgoffen. At that time the Soviet troops were retreating toward Stalingrad from the west.

Germans still had the strategic and operational initiative on the Eastern Front.

And that is how the summer began: the German armies resumed their offensives in May and rapidly created a new geography of the front. Retreating elements of the Soviet army and advance elements of the German army drew toward Stalingrad. By July, Stalingrad had come to be visualized as the anchor of two German army groups swinging southeastward for the Caucasus. For the Russians, Stalingrad had become the center of a line of national defense stretching from the Baltic to the Black Sea.[44]

Much was made, then and later, of Stalingrad's "central position," as if centrality itself conferred some positive military value upon a place. A central point also divides parts, and in this case, that is what happened on both sides. For the Germans, Stalingrad lay on the seam between Sixth Army and Fourth Panzer Army. Two Russian armies likewise divided—literally—at Stalingrad: the 62d Army held everything in the sector north of the Tsaritsa gorge, while the 64th held everything south of it. Stalingrad's "central position" belongs in the same category as the "guards the gate to the steppes" argument or "guards the Volga River line" argument. Cities no longer were capable of guarding river lines or

steppes or anything else under conditions of modern industrial war. Not even themselves.[45]

Eventually both nations and their leaders convinced themselves that Stalingrad was a place of paramount importance. The Russians were not going to give up the city, whatever the cost, and the Germans were resolved to take it from them, whatever the cost. All summer long, forces seemed to converge upon Stalingrad as if drawn by a magnet. The more Hitler was disappointed by the slow progress of his forces toward the Caucasus, the more he fixated upon Stalingrad. Success here could compensate for shortcomings elsewhere. Stalin—for his part, equally intransigent—made withdrawal from Stalingrad tantamount to a crime against the Soviet state.[46]

If Stalingrad had no intrinsic strategic or operational value as a place neither contributing to nor detracting from strategic or operational objectives—one might well ask what the armies were doing there in the first place, fighting a form of war so far removed from the doctrines these armies had imagined for themselves. One can only note the result: few places if any concentrated as many combatant forces in such close proximity to one another as at Stalingrad. One way or another, the city had become an excellent place for the killing of large numbers of the enemy, and both sides saw the potential value of the situation.

The commitment to fight *à outrance* at Stalingrad had been made by both sides by the end of July. That done, the city seemed to promise another advantage to the combatants: it attracted and fixed in place units that would not otherwise be there. Both the Germans and the Russians came round to the idea, at different times, that Stalingrad could serve as a pivot on which to maneuver huge offensive operations. Hitler saw this possibility during the early summer, when he was apportioning forces for the coming offensives. The Russians came to the idea later, when it was clear that the Germans' operational maneuverability was impaired by the commitment they had made at Stalingrad. Then the Stavka planned several operations, one of them the successful Operation Uranus, that actually did the work of victory by cutting off the Sixth Army and trapping it in a pocket.

The city was long and narrow, befitting its location: its population of 500,000 spread itself almost thirty miles along the western bank of the Volga, but edges of the city were rarely more than 4,000-meters wide and sometimes as narrow as 1,500 meters. Only three terrain features of any significance were noted on the tactical maps: the river bank, which was high enough in places to afford some protection for troops just landed; the river Tsaritsa, which bisected the city; and the *Mamayet*

Kurgan, an old Tartar burial mount some 102-meters high. In the southern half of the city, only a massive concrete grain elevator stood out.[47]

The city possessed other, special tactical attributes, not the sort usually noted on standard military maps. Strung out, one after another, for five miles north from Mamayet Kurgan were four massive factories and their surrounding complexes. The first of these was the Lazure Chemical Plant. Slightly north of that came the Red October metal works, which was followed in turn by the *Barrikady* weapons plant and, finally, the Stalingrad Tractor Factory, which had long been converted to tank production.[48]

By the end of August, there were good reasons for the Russians to leave Stalingrad. Russia's 62d Army counted only 20,000 soldiers at the time. The 62d had retreated into the city, herded eastward by the Sixth Army's advance across the Don River. Just as it took refuge inside Stalingrad, the 62d would be assigned a new commander. Sixth Army was then in the business of becoming the single largest formation of the entire *Wehrmacht*, with a strength approaching one-third of a million men. Its commander, General Friedrich Paulus, estimated that his army would need ten days to take the city and then fourteen days to regroup and cross the Volga to the steppes beyond.[49]

The main body of the German offensive jumped off early in the morning of 24 August. Starting from its lodgment on the eastern banks of the Don River, 16th Panzer Division meant to race the thirty-five miles between the Don and Volga River and capture Stalingrad by coup de main. The night before, elements of the 79th Panzer Grenadier Regiment had made their way to the Volga, digging in along the river near the northern suburb of Spartanovka. All day long, the German advance was covered by the *Luftwaffe's* 8th Air Army, part of *Luftflotte IV*, which also staged saturation raids against the city. By the end of the first day, much of Stalingrad was wrecked. The systems for sewage treatment and water and much of the power were destroyed by the bombing, although somehow the power station in the southern part of the city managed to continue operating. The main hospital and all the major factory complexes suffered numerous direct hits. The streets were already full of rubble, and those inhabitants who could still function began burrowing into any protection they could find. Because Stalin had initially refused to let the citizens of the city evacuate, civilian casualties were already high. Stalin insisted, however, that the local militiamen would fight that much harder if they knew their fellow citizens were still in the city.[50]

Neither side had committed wholeheartedly to the idea of fighting to the last man for this city. For the Germans, Stalingrad was only a way point at the moment, a river town marking the boundary between the southernmost of their army groups and those in the north. The almost casual manner in which the city became important is belied by the speed with which it became important. Each side began to see in Stalingrad what they had not seen before—a place where one could do important damage to the enemy. Within two weeks of first contact, both sides had made their commitment, and the buildup began. By early October, the Germans had nine divisions in the area, some 90,000 men in all, with 2,000 guns, 300 tanks, with about 1,000 aircraft in support. At the same time, inside Stalingrad, the Russians had 55,000 men, supported by 950 guns and 500 mortars, 80 tanks, and about 180 aircraft.[51] Only by early December did Sixth Army reach its uppermost strength; the Sixth Army's *Quartiermeister* reported a ration strength of 275,000 men.[52]

The German troops that had collected at Stalingrad, it should be emphasized, were troops that could not be employed elsewhere. For the Russians to succeed, all that was required was to keep as many German troops tied up at Stalingrad as possible. Over a quarter of a million troops sounds like success. In the meantime, the Russians were able to assemble more than a million troops for their December counteroffensive, Operation Uranus. The effect of Uranus would be to cut 6th Army's lines of communication and thereby isolate it from the sustenance of the whole German army. Not for the first time was a besieger himself besieged, and at the end of January 1943, the Germans remaining in the Stalingrad pocket surrendered.

Of all the battles of the Second World War, Stalingrad was one of the most decisive. The battle produced results, permanent results, that Russia could not have achieved elsewhere at the time. The Germans' defeat here impaired their capacity to prosecute the war as they preferred and challenged their material and psychological balance. No less important, the defeat called into question Hitler's strategic wisdom even more seriously than had the defeat of the *Luftwaffe* over Great Britain.

For sheer scale of destructive savagery, few modern battles could match that of Stalingrad. Some writers have seen a new form of warfare emerging from the rubble and cellars of this battle.[53] Of course, it was not so new after all, but it was special, and it certainly was new to those who fought there (as it is always true that battle itself is new at some point to those who fight in them). In the half-light between knowledge and experience, the truth of the matter sometimes goes astray, that's all.

Stalingrad's inherent drama is so intense that it impaired judgment then and still does.

Stalingrad was certainly a siege but not a particularly well-conducted one, as sieges go. At no time was Stalingrad ever completely isolated. The city's line of communication to the rear was tenuous, always in danger. But it was never closed. In this respect, the Volga River was a very real asset for the defense. The river posed enough of a barrier to discourage adventurous enemy sorties, but not such a barrier that it could not be crossed by its defenders. Beyond the river, the village of Krasnaya Sloboda functioned as an immediate rear support area and fire base. This is where General Vasili Chuikov's 62d Army kept its heavy guns—to its credit and to its benefit. Simply finding a place in the city proper for gun lines, not to mention protecting them, were problems solved by the river. Chuikov was smart enough—and tough enough—to refuse when his artillery commander begged him to allow the gunners to fight alongside the men.

So, there was the lifeline across the river that could not be—or was not—cut. On the eve of one of the largest German assaults, *Luftflotte IV* was flying 3,000 sorties a day over Stalingrad. How many sorties were directed toward the river crossings and Krasnaya Sloboda and everything else that moved on the east side of the river is not known. Accounts agree that the *Luftwaffe* concentrated on direct support for the troops in the city proper, although even the pilots themselves wondered at the good that was being done by repeatedly bombing rubble.[54] By this time, Stalingrad had been *Luftflotte IV's* primary mission for more than six weeks.

The Red Army fired more ammunition in the battle of Stalingrad than in any other operation of the war.[55] Part of this dubious record derives from the sheer length of the siege. The siege of Leningrad was longer, but it was a classic investment, like the siege of Paris, in which the assailants did most of the shooting, but never broke into the city proper. The enemy broke into Stalingrad right away, established lines of investment, and sortied at will into the city. The Germans rarely had much difficulty getting into Stalingrad; staying there was the problem.

The difference between the two sieges is telling. Stalingrad was part of an operational plan that aimed to project German power well beyond the Volga. From the German perspective, a secure Stalingrad was important, perhaps even critical. At Leningrad, the prospects for a follow-on offensive after the siege were a good deal more problematic. Hitler's ambition to cut the Soviet line of communications from Murmansk-Archangel could not compare as a strategic priority with the

Caucasus oil fields—although perhaps it should have. Leningrad and Stalingrad looked different because, among other reasons, of what each side needed from victory.

"The Prestige Objective"

The interaction between strategic ends and means is no more obscure when cities are concerned than in any other form of warfare. Sometimes, this interaction is much faster, more intense, and more immediate than it might be if a city were not involved. The battle for Berlin in early 1945 illustrates this interaction as few other city battles could.

Some questioned whether there should be a battle for Berlin at all. The British were interested in taking the city and were not timid about saying so. Prime Minister Churchill pressed General Eisenhower and anyone else who would listen about Berlin's importance as a prize. General Montgomery did the same. The Soviets, too, wanted the city badly, but were not about to reveal their intentions too soon—even to the point of lying about it. On 1 April, Stalin cabled Eisenhower that the Soviet Union was not particularly interested in Berlin and considered the city a secondary target for his advancing armies.[56] Eisenhower was happy to let the Soviets have the "honor" of taking Berlin, if they wanted it; he did not see in a US effort to reduce the city any value that would outweigh the 100,000 casualties that it was estimated such an operation would incur. The British and the Soviets saw the taking of Berlin as the consummating act of the European war, while the Americans thought the destruction of the German armed forces would lead to the ultimate surrender of Berlin and every other city not yet occupied by the Allies. To the Americans, Berlin was a "prestige objective," not a military one.[57] To the British, Berlin was a prestige objective, too, but worth the effort to seize before the Soviets did. Eisenhower, however, would not agree with Montgomery's request for extra divisions so the British field marshal could try his hand against the city. Allowing for troops to be taken from the present lines to be used against Berlin might weaken the advance and place American troops at risk. The Soviets—in the person of Joseph Stalin—were not interested in being conservative where Germans were concerned, then or later. On the day when he denied being much interested in Berlin, the Soviet dictator ordered the date for the attack on Berlin: 16 April. Inside Berlin, the code name for commencement of this inevitable Soviet attack was "Clausewitz."[58]

When 1945 began, Berlin's population was estimated at 2.5 million people. Between the first of the year and March, however, the city suffered through no fewer than eleven massive air raids, driving perhaps as many as 200,000 people out. But to where? Soviet army advances were driving ever-larger streams of refugees toward Berlin and other western cities so that during the time when so many Berliners were supposed to have left, another half a million arrived in the city. About two million of Berlin's population, it was said, were women.[59]

The city proper covered 321 square miles and was bisected by the river Spree, which intercepted the river Havel in the western districts. From the southeast to the northwest, central precincts of the city were further divided by canals. The most important of the canals at the time, the Teltow, bypassed the center of the city and connected the Havel and the Spree. The canal formed a natural line of defense in the southern half of the city. The *Tiergarten* was the physical epicenter of the city, a great park laid on an east-west axis, fed into by the great *Unter den Linden* avenue, which was itself fronted by most of the important political and military headquarters. This district was the lair of the beast, as one Soviet officer put it. Only here could the beast be killed.

The lair was unprotected until late. Hitler would not countenance talk of fortifying Berlin until February, when the Soviets crossed the Oder-Neisse River line.[60] For the next three months, the rhetoric of denial clashed with ever-more insistent realities. The illustrated weekly *Das Reich* had taken to referring to Berlin as *Festung Berlin*, or "Hedgehog Berlin." When the newly appointed military commander of Berlin, Major General Hellmuth Reymann, took command on 6 March, he found little had been done to render Berlin defensible.

Of course, in a manner of speaking, Berlin was defensible, and had been so since 1941. That was when, in response to Allied bombing attacks, the first of six so-called Flak Towers had been erected. Berlin was not, and never really was, a fortress city. These towers represented the only form of defense it was believed Berlin required in the modern age, and why not? The city was last taken by foreign troops during the Seven Years' War.[61] At Humboldthain, Friedrichshain, and on the grounds of the Berlin Zoo, these leviathans were essentially antiaircraft forts, perfect expressions of Nazi tendencies toward gigantism and grandiosity. At the Zoo, at the southwest corner near the bird sanctuary, stood the most formidable of the Flak Towers. Two rooftop towers, L tower for communications, and G tower for main guns, dominated the structure, 132 feet high, covering a city block. Its walls of reinforced concrete were eight feet thick, and protecting its windows and firing

embrasures were shutters of three- to four-inch-thick steel plates. Each corner of the tower was a gun tower in its own right, with multiple antiaircraft cannon. An ammunition elevator shuttled shells from a ground-floor magazine to the emplacements. Each tower served as an air raid shelter on the two lowest floors, a ninety-five-bed hospital, and warehouse. One of the floors at the Zoo Tower had been used to store art treasures from the Berlin museum, and another had been set aside for the headquarters of the *Deutschlandsender*, the national radio broadcasting system. The ordinary garrison was set at 100 men, but the Zoo Tower could hold 15,000 in an emergency. The garrison believed the Zoo Tower could hold out for a year, no matter what happened outside.[62]

Stalin did not give the Soviet Army a year to take Berlin. He gave it two weeks.[63] For this task, he authorized the use of three Soviet Fronts—the Second Belorussian, the First Belorussian, and the First Ukranian. The last two of these were commanded by marshals of the Soviet Union—Zhukov and Koniev—who were as much in competition with one another as with their duly authorized enemies. The three Fronts disposed more than 1.5 million men. Including other supports, the force dedicated to taking Berlin numbered 2.5 million men.[64]

The precise strength of German forces defending Berlin, either from behind the Oder-Niesse line or from behind the fringe of Berlin itself, cannot be determined, even today. Judging from later reports of military casualties or military prisoners, the number could have been as much as 500,000 in all, but between these numbers lay a great variance of soldierly skills, from the hardened veteran to the *Hitlerjugend* with their *panzerfausts*, or as the Russians called them, the *faustniki*.

Whenever military skills are at a premium, some physical additive is always called for, and here that meant field fortifications. By April, Soviet aerial reconnaissance photographs showed that Berlin had been encircled by three great defensive belts.[65] The first of these was sixty miles around and roughly followed the city edge. The second belt was much less broken than the first and integrated dominant buildings, railway cuttings, canals, bridges, and other urban terrain features, as well as the elevated railway system's lines. The final belt enclosed "the Citadel," which lay between the Spree River and the Landwehr Canal and was tied into the several Flak Towers. Inside the Citadel lay the *Reichstag*, the Ministry of the Interior, the *Reichskanzlei*, and Hitler's own bunker as well. From the center of the Citadel, designated sector "Z," eight other defense sectors radiated outward, each assigned a

letter. The second ring was the place for soldiers to be if they had a choice; the Citadel was the place for the fanatical last stand.[66]

The Citadel was some seventy-five miles from the nearest Soviet forces and the point where they would begin to execute their plan. The Soviets' concept—written on the quick by Zhukov and Koniev over a twenty-four-hour period—was straightforward: beginning on 16 April, they would fight to encircle the city; penetrate it from the northeast, east, and southeast; and pass forward as many forces as possible to join with advancing Allied forces as they crossed the Elbe River to the west. This operation was not to be a leisurely siege: Stalin wanted it concluded by the end of the month.[67] And that, in effect, is what happened.

The main axis of the Soviet attack was to begin from Marshal Zhukov's bridgehead on the Oder River at Kustrin, which was due east and pointed directly at Berlin. As circumstances permitted, the two other Fronts, the Second Belorussian and the First Ukranian, would converge on the city from the northeast and south, respectively. On 16 April, Zhukov's artillery—with a density of 250 guns per kilometer—commenced the advance.[68]

In keeping with the slow collapse of national command and control inside Berlin, the forces meant to defend the city were unable to formulate any sort of unified plan of defense. The closer the Soviet offensive pressed on Berlin proper, the faster German formations disintegrated. Between the city and the Soviet advance lay the so-called "Army Group Vistula," nominally composed of the German Third and Ninth Armies, under the command of Colonel-General Gotthard Heinrici. One of the few professional soldiers left who were capable of commanding large formations, Heinrici hoped to keep the coming battle out of the city, but the weight of the Soviet offensive was too great. Heinrici's main task was to try to control the crash, but even that would prove too much. Within four days of the commencement of the offensive, the Soviets were on the fringes of the city. Within a week, nine Soviet armies were driving directly at the center of Berlin. The *Reichstag* was their aiming point, and on 30 April, two Soviet rifle divisions secured the above-ground part of the building only after fighting until midnight. Below ground, a much larger collection of Germans still would not surrender, some waiting until the last moment.[69] At 1500 on 2 May, Soviet forces officially ceased firing.

After two weeks of fighting, much of Berlin was demolished but not destroyed, and the distinction is important. None of the standard sources on the battle for Berlin detail precisely how much of the city

suffered as a direct result of the battle. If one follows the trace of the Soviets' advance into the city, the western districts of Spandau, all the way down to Potsdam and perhaps even parts of Charlottenburg, seem to have escaped the maelstrom of battle that hit the city's center, "sector Z."

The human destruction can only be guessed at. As usual, noncombatants—that is, civilians unlikely to return fire—were at much greater risk than soldiers after the Dog Fight began. By one estimate, 100,000 civilians died, including 20,000 of heart attacks and 6,000 suicides. Almost all of the latter would have been women who meant either to preempt being raped or to punish themselves for having been raped. Where this particular crime was concerned, the conduct of the second and subsequent Soviet echelons added to the Red Army's already fearsome reputation, but it must be said that their much-criticized behavior was in keeping with ancient military traditions.[70]

The Soviets claim to have destroyed seventy infantry divisions, twelve Panzer divisions, and eleven motorized divisions, in the process taking some 480,000 prisoners. Within the city, Zhukov's and Koniev's armies took 134,000 prisoners. Operations against Berlin cost the Soviets 304,887 casualties from 16 April to 8 May. By the most conservative estimate, the battle for Berlin cost half a million casualties in all.[71]

The battle fought for Berlin was as close to total war as the world would come during the twentieth century. The war in Europe was not won in Berlin, nor lost there, nor indeed at any other single place. By 1945, cities alone no longer possessed the power to start and finish wars as they once did, and wars were no longer kept within strict geographical boundaries. During this birth of global war, other cities—many other cities—would suffer as much or more destruction, as many or more casualties, but being a victim of military attack is quite a different matter than being a battleground—and being a great symbolic battleground is even more different. At this remove, the battle for Berlin seems wholly gratuitous, pointless, but that is only the distortion of retrospect affecting our sight. The battle cannot be seen very clearly if one only analyzes costs and benefits. Seen from that perspective, the battle for Berlin evades reason altogether.

A Prussian from a different time would have understood Berlin as an example of what results when reason loses its grip over war. Carl von Clausewitz described "primordial violence, hatred and enmity" as one of three complex engines that by means of constant interaction move

war.[72] By April 1945, all other considerations were subordinated to the impulse for revenge, creating a final campaign that was to be conducted without remorse. Stalin gave his two leading marshals little time to conceive how they might take Berlin, and some commentators have complimented how much they achieved in so short a time. But taking Berlin was hardly a great military puzzle. The most difficult part of the planning had more to do with accounting than with great strategy: it entailed the management of large bodies of armed force—bodies that were set for an ultimate convergence at the center of Berlin. There was no point in providing for contingencies because the *Wehrmacht* was in no condition to do much more than collect where they could and defend. Were it not for the assuaging of vengeance, Berlin might have been beside the point, too, but powerful motives of state were now directly entangling themselves in military operations. These had little to do with Berlin except as a symbol.

General Eisenhower's approach to the Berlin question was the reasonable one, of course. For him, Germany's power to resist still lay in the few viable military formations remaining. Once those formations were destroyed, Nazi Germany would be destroyed, regardless of what transpired in Berlin. Nothing in Berlin could change this proposition. This being so, as far as Eisenhower was concerned, there was no reason to carry the battlefield into the city. Of course, not everyone on Eisenhower's side felt the same way, Winston Churchill and Bernard Montgomery among them. The need for some sort of retribution naturally burned brighter in London than in Washington, but in Moscow it burned white-hot. None of the other Allies had such a claim on vengeance as the Russians, and when they broke into Berlin at the end of April, their uniforms stank with the joy of it.

What then, after all this time, does the battle of Berlin have to teach the modern military professional? As the inherent violence of war escalated in the twentieth century, the robustness of the city seemed to keep pace. If wars were more destructive, cities seemed capable of absorbing more destruction. No city was killed in the Second World War—neither Hamburg nor Dresden, Tokyo, Hiroshima, or Nagasaki. Since 1940, Berlin had been subjected to aerial attack, and yet five years later, only one-third of the city had been destroyed. In the remaining two-thirds, one assumes, city life continued with the requisite degree of cohesion. In early 1945, two and a half million people still lived in Berlin. Even if one assumes that *all* of the casualties from the battle of Berlin were taken from the resident population of the city, that would still leave two million souls, functioning more or less in

concert with one another. Without that concert, Berlin would not have been possible. That the city continued to function reveals the strength of any great city's human and material superstructure—its cohesion as an urban entity. In the half-century since Berlin was last fought for, great cities of the world have been subjected to all manner of stresses. Not one has collapsed.

The place of the city in the world of war changed in the past two centuries. The power of decision in war lies elsewhere at the moment. The fortunes of a state no longer rise or fall on the fortunes of its cities. Cities play a part in modern war, but it is no longer a decisive part—at least, not for the moment. Is this perhaps about to change?

The Question of Asymmetry

Cities can be taken in two ways, from the outside or from the inside—that is, by invasion or by subversion. Of course, these are theoretical alternatives only. Reality is seldom so well organized. In actual practice, the invasion of a city has frequently been supported by friends inside the gates. The reverse is also true: urban subversives have sometimes made their plans contingent on an attack from outside at just the right moment.

Whether we characterize a certain conflict as invasive or subversive depends upon the nature of the aggressor. So, if the army outside bears the burden of the campaign, sets strategic purpose and direction, one can say that the conflict is invasive and that the subversive forces inside the city are essentially conducting an economy of force campaign. Think of the resistance inside Paris awaiting the arrival of Allied forces in 1944. On the other hand, if the subversives inside provide strategic purpose and direction, if in their absence the movement will collapse, the center of gravity is likely to be found inside the city cadre. In the first case, then, we have a "regular army to the rescue" scenario. In the second case, it is more the "someday my ship will come in" approach. Or the urban subversives may operate until they see a chance for a last dash to the finish line if they receive timely assistance from the outside. Those who fought their way along the Perfume River in Hue or through the Cholon District of a city that used to be called Saigon would need no reminder of how effective these combinations can be when they are properly executed.

Cities have always been attractive to subversive operations. They were good for these operations, just as they were good for other, less warlike reasons. The social, physical, and material density of cities

lends greater effect to small actions. The killing of a policeman in a rural outstation, for instance, would produce a minor effect compared to a public assassination of that same policeman on the steps of Metropolitan police headquarters. Cities are conducive to an economy of effect. That is why they are attractive venues for unorthodox operations.

On 8 May 1945—Victory in Europe day—riots broke out during celebrations in the subprefecture of Setif in the French colony of Algeria. The violence lasted for one week, at the end of which several hundred *colons*—French settlers—were killed or injured. The official repression that followed lasted much longer and cost perhaps as many as ten times the number of Algerian lives as had been lost in the original uprising. The long-term result would not occur until almost thirty years later, when after an entire generation of revolutionary struggle, Algeria would regain its independence.

What happened in Setif had nothing whatever to do with the triumphs then being celebrated by the Great Powers. Nor did those who later came to lead the Algerian resistance, the *Partie Populaire Algerienne* (PPA), have the slightest compunction about departing from the hoary military canons of the western world—if, indeed, they were much aware of them. Over the last half century the PPA, and parties around the world of many shapes and stripes, set themselves in opposition to established order and availed themselves of any possible advantage over their enemies. In the process, these unorthodox forces have directly challenged the monopoly of military power formerly enjoyed by professional armies, sometimes to the ultimate discomfort of the professionals. Indeed, Algeria's modern history is a perfect case in point.[73]

After centuries of military history in which combat strength correlated with physical mass, professional armies are fearful that, under certain conditions, a large, highly evolved military system may be a handicap. This paradox, which has never been entirely absent from the world of war, has been given impetus by the technological progress of the last half century.[74] Truly dramatic technical achievements and their rapid diffusion around the world place power within the reach of unorthodox forces that they would not otherwise enjoy. An imagined clash between these newly empowered unorthodox forces and the forces of orthodoxy has excited no small amount of literature in professional military journals. One result has been to give rise to the notion of "asymmetry."

The career of "asymmetry" as a modern military concept is indicative of the theoretical void in which orthodox twenty-first-century military forces will be attempting to operate. In the absence of any practical theoretical foundation or any authoritative or organizing principles, military professionals are left defenseless against slogans, which, if they are not really useful, nonetheless comfort the ignorant. "Asymmetry" is a good example of what happens when an incompletely thought-out notion degenerates rapidly to slogan. Briefly, "asymmetry" is defined by those who have an equal contempt for language and fact as the relationship between widely dissimilar military forces in conflict with one another. This asymmetry, whatever its source, conveys upon its beneficiary an overwhelming advantage in the war, conflict, operation, or contest.[75]

Insofar as "asymmetry" is and always has been an ineluctable element of war, one would think it so obvious as to deserve little further comment. It would be a strange army indeed that did not seek an advantage of some kind over its enemy. In war, the idea of a "fair" or "equitable" fight is fantastic. And to suggest that seeking an advantage is in any way unusual or unworthy is evidence of a certain lack of knowledge about war itself. That asymmetric warfare would be associated with urban warfare is significant.

Cities have always been important because we have made them so, and we have always been of at least two minds about what we have made. Cities excite our pride, but they also excite our fear. Cities are seen as the embodiment of our civilization, but they are also places where humankind can act in the most uncivilized ways. For Fernand Braudel, cities were like "electric transformers . . . they increase tension, accelerate the rhythm of exchange and constantly recharge human life. . . ." Cities are all these things and more. "World history is city history," wrote Oswald Spengler in his classic, *The Decline of the West*. Max Weber, another well-known student of the city, was hardly in Spengler's class as a pessimist, but on this they agreed: cities reflected the state of civilization that sustained them.[76]

World megacities—urban agglomerations, as demographers have taken to calling them—now express the state of globalized civilization. Now, the world has more cities than ever, and more important cities than ever. The great cities of the past are greater still, and all demographic projections agree that these will keep pace with patterns of growth and distribution. Commentators and analysts who have found cause only for despair would be interested to learn that these projections are well within the compass of historical experience and that

civilization did not implode under their weight. As Braudel explained some time ago, "all major bursts of growth are expressed by an urban explosion."[77]

It is no good arguing that cities are intrinsically unstable social systems. For every unstable city, however defined, thousands more work with machine-like effectiveness. Projecting our anxieties onto the broad screen of urban globalism merely obscures the important by emphasizing the uncomfortable. However, one aspect of modern urban development that directly influences the military art has in fact attained a state of development that warrants further discussion here.

The Invisible City

Late in the twentieth century, a new kind of city was created, invisible but by no means imaginary. This is the city built by the information revolution, and it is leading to the transformation of global life. The great cities of the world are merely the first to see the consequences of this transformation, the first to experience its most far-reaching effect. For our purposes, it is enough at the moment to recognize the phenomenon and allow it a place in this discussion.

The first and most likely practical effect of this transformation will be felt on how military problems are perceived. We have no difficulty imagining how much physical space a given city occupies. When we learn that in 1945 Berlin's circumference was sixty-five miles, our imagination can at least make a start at estimating the kind, size, and shape of force that might be able to take the city at that time. Our understanding of modern cities, however, is a good deal less confident. When we consider the challenges posed by dozens of skyscrapers collected in one dense district, underground public transport systems, and suburbs reaching for mile upon irregular mile, we are on thinner ice.

And now, the professional imagination will have to contend with an even more complex challenge—indeed, more complex by several orders of magnitude. We need only contemplate the epitome of the modern megacity, Hong Kong, to appreciate just how complex that challenge can be. A great number of the world's more congested cities might well hold Hong Kong in admiration for its ability to deal with both congestion and prosperity, for the great part of Hong Kong's recent growth has not been expressed physically so much as cybernetically. Today, 85.2 percent of Hong Kong's entire economy is configured in this way. At the moment, Hong Kong's is the most highly

concentrated service-sector economy in the world.[78] But much of what occurs in Hong Kong occurs *only* in cyberspace—the invisible reflection of the city itself. The "space" not only occupied but also the space influenced by this invisible city is critical to the entire East Asian regional economy and no small part of the global economy as well. Furthermore, the correlation between evident physical prosperity and virtual prosperity is a good deal more tenuous. One would be mistaken, for instance, to draw inferences between the physical appearance of the major cities of India and their cybernetic identities: the Indian subcontinent is now regarded as "one of the world's powerhouses" in computer software programming.[79]

Any city may be seen as expressing itself in this way, which could be described as its "cybernetic signature." Two centuries ago, the number of ships anchored in the lower Thames reflected London's role in global capital expansion. Similar indicators can be seen today in the real-time reports on the World Wide Web of the "Interweather," the status of global data flow.[80] For our purposes, the birth of this new kind of city means that its place in global cyberspace—its cybernetic signature—must be included as an essential element in strategic, operational, and perhaps even tactical planning in some instances.

Now the question becomes one of the role this new city will play in future warfare, a question that is fervently discussed but still far from being answered. How do these developments in global urbanism affect military operations as the United States might conduct them in the opening decades of the twenty-first century? What are the implications for the military art, science, and above all, practice?

Notes

1. Said to have been conducted between 585 and 573 B.C.
2. Paul Bentley Kern, *Ancient Siege Warfare* (London: Souvenir Press,1999),69.
3. Tercius Chandler and Gerald Fox, *3000 Years of Urban Growth* (London: Academic Press, 1974), 80-82, 219, 223, 232-35, 247, 265.
4. Quoted in Kern, *Ancient Siege Warfare*, 68.
5. Sun Tzu, *The Art of War*, trans. with an introduction by Samuel B. Griffith, with a foreword by B. H. Liddell Hart (Oxford: Oxford University Press, 1963), 79.
6. Thucydides, *History of the Peloponnesian War*, trans. by Rex Warner (London: Penguin Books, 1988), 125-26.
7. Kern, *Ancient Siege Warfare*, 97, 103.
8. Ibid., 103-4. That is, all will be killed or sold into slavery.
9. Tacitus, *The Complete Works of Tacitus*, trans. by Alfred John Church and William Jackson Bodribb, eds., with an introduction by Moses Hadas (New York: The Modern Library, 1942), 543-58. R. Ernest Dupuy and Trevor N. Dupuy, *Encyclopedia of Military History from 3500 B.C. to the Present* (New York: Harper & Row, 1970), 127-28.
10. Mumford, *City in History*, 209.
11. Tacitus, *The Complete Works*, 549.
12. Ibid.,549.
13. In which cases, being unsalable, the slaves were killed if their families would not pay ransom.
14. Tacitus, *The Complete Works,* 550-58.

15. Dupuy and Dupuy, *Encyclopedia of Military History*, 619. N.a., "Cremona," *Microsoft Encarta Encyclopedia 99*, p. 1, CD-ROM.

16. Geoffrey Parker, *The Army of Flanders and the Spanish Road, 1567-1659* (Cambridge: Cambridge University Press, 1972), 10.

17. J. W. Wijn, "Military Forces and Warfare," in *The New Cambridge Modern History*, vol. 4, ed. by J. P. Cooper (Cambridge: Cambridge University Press, 1970), 222-23; see also Parker, *The Army of Flanders*, 8-10.

18. Kostof, *The City Shaped*, 69.

19. David P. Jordan, *Transforming Paris: The Life and Labors of Baron Haussmann* (Chicago: University of Chicago Press, 1995), 18-23.

20. Ibid., 188.

21. The first Viking raid of 845 A.D. was followed in 885 by a full-fledged, eleven-month-long siege. The third, by Otto, emperor of the Holy Roman Empire, was lifted only when an epidemic broke out in the lines. Those of 1418, 1436, 1570, and 1649 arose from internal struggles for power and civil wars, while that of 1814 would lead to Napoleon's abdication and exile. The siege of 1944 was technically a "liberation" in that the city had been occupied by the German army since 1940. Dupuy and Dupuy, *Encyclopedia of Military History*, 246-52, 258, 415-17, 481, 560, 763, and 1108.

22. Michael Howard, *The Franco-Prussian War* (London: Methuen, 1961), 229, 317-19, 371.

23. The crown prince, writing in his personal war diary, is quoted in Howard, *The Franco-Prussian War*, 351, 353.

24. Howard, *The Franco-Prussian War*, 352.

25. Ibid., 250.

26. Gunther E. Rothenberg, "Moltke, Schlieffen, and the Doctrine of Strategic Envelopment," in *Makers of Modern Strategy: From*

Machiavelli to the Nuclear Age, ed. by Peter Paret (Princeton, NJ: Princeton University Press, 1986), 306-7; see also Howard, *The Franco-Prussian War*, 455.

27. Michael Howard, *The Franco-Prussian War*, 326.

28. Giulio Douhet's *Command of the Air*, as the bible of air power enthusiasts, still states the case more clearly than any of his successors. His views and those of other like-minded theorists are conveniently summarized in Gerhard Weinberg, *A World at Arms: A Global History of World War II* (Cambridge: Cambridge University Press, 1994), 574-76.

29. Ibid.,149-50.

30. See two different interpretations of the objective of the raid on Guernica in Hugh Thomas, *The Spanish Civil War* (New York: Harper Colophon Books, 1961), 419-23; and Peter Wyden, *The Passionate War: The Narrative History of the Spanish Civil War* (New York: Simon and Schuster, 1983), 349-63.

31. Robert Goralski, *World War II Almanac: A Political and Military Record* (New York: G. P. Putnam's Sons, 1981), 130-33.

32. J. Bowyer Bell, *Besieged: Seven Cities Under Siege* (New York: Chilton Publishers, 1966), 56-57.

33. Ibid.,57,61.

34. Ibid.,61,67.

35. Goralski, *World War II Almanac*, 395.

36. See the portrait of Tokyo immediately after surrender drawn in John Dower's *Embracing Defeat: Japan in the Wake of World War II* (New York: W. W. Norton, 1999), 44-48.

37. A photo of what remains of Lidice today can be found in Kostof, *The City Assembled*, 257.

38. Fernand Braudel, *The Identity of France*, vol.1, *History and Environment*, trans. by Sian Reynolds (New York: Harper & Row, 1990), 312-15, 330-35.

39. General von Falkenhayn is quoted in Michael Geyer, "German Strategy in the Age of Machine Warfare, 1914-1945," in Paret, *Makers of Modern Strategy*, 534. See also Eugen Weber, *A Modern History of Europe: Men, Cultures, and Societies from the Renaissance to the Present* (New York: W. W. Norton & Co., 1971), 774-76.

40. Michael Geyer, "German Strategy in the Age of Machine Warfare," 535.

41. Ibid., 535.

42. Ibid., 536.

43. Weinberg, *A World at Arms*, 411.

44. Ibid., 42.

45. John Erickson, *The Road to Stalingrad: Stalin's War against Germany,* vol. 1 (New York: Harper and Row, 1975), 362-64.

46. Ibid., 384.

47. Ibid., 387.

48. Antony Beevor, *Stalingrad: The Fateful Siege: 1942-1943* (New York: Viking Press, 1998), 161.

49. Beevor, *Stalingrad,* 123-24, 128-29, 147. Weinberg, *A World at Arms,* 447-53.

50. Erickson, *The Road to Stalingrad*, 387. After their successful assault carried German troops all the way to the river on 13 September, several boats of considerable size carrying civilian refugees were taken under fire. One thousand refugees died when a larger steamer was sunk. Clearly, no small number of civilians were in the city and still trying to escape, with or without state permission.

51. Erickson, *Road to Stalingrad*, 421.

52. Beevor, *Stalingrad*, 439.

53. Ibid.,148.

54. Ibid.,190-93.

55. Erickson, *The Road to Stalingrad*, 431.

56. Stalin's cable is reproduced in all the standard sources. See, for instance, Erickson, *The Road to Stalingrad*, 528-29.

57. See Cornelius Ryan, *The Last Battle* (New York: Simon and Schuster, 1966), 321. The phrase and the estimate are both Omar Bradley's. Some Americans, professional soldiers, were disappointed not to be going to Berlin for that reason. See the exchange between General Simpson and one of his brigadier generals in Erickson, *Road to Stalingrad*, 552.

58. Ryan, *The Last Battle*, 399.

59. Ibid.,27.

60. Ibid.,380.

61. Berlin was periodically occupied during the Napoleonic Wars, but after the Austrians took the city in 1760, it had not been the object of a campaign or the site of a battle.

62. Ryan, *The Last Battle*, 166-67. At the height of the battle, 30,000 people were said to have taken refuge here.

63. Weinberg, *A World at Arms*, 822.

64. Ryan, *The Last Battle*, 256. Weinberg, *A World at Arms*, 822. The first writer cites figures from forces immediately engaged, while the second obviously includes rear supports as well.

65. Erickson, *The Road to Berlin*, 535.

66. Ryan, *The Last Battle*, 381.

67. Weinberg, *A World at Arms*, 821-22, conveniently summarizes the Soviet plan and the circumstances of its composition. A more detailed account can be found in Erickson, *The Road to Berlin*, 531-39.

68. By now, this was the standard artillery density for launching an operation of this magnitude. As Soviet forces closed in on the

city, the densities would increase. At Teltow canal, they would reach 650 per kilometer. See Erickson, *The Road to Berlin*, 586-87.

69. Ibid., 590, 604.

70. Ryan, *The Last Battle*, 520.

71. See Erickson, *The Road the Berlin*, 595; and Ryan, *The Last Battle*, 520.

72. Carl von Clausewitz, *On War*, ed. and trans. by Michael Howard and Peter Paret (New York: Everyman's Library, 1993), 101. The military savant will recognize this passage as one of the elements of Clausewitz's celebrated "trinity of war."

73. Alistair Horne, *A Savage War of Peace: Algeria, 1954-1962* (New York: Penguin Books, 1977), 23-28, and *passim.*

74. Walter Millis, *Arms and Men: A Study of American Military History* (New York: The New American Library, 1956), 272-307, addresses this paradox in his discussion of nuclear weapons policy and its effect on traditional military action.

75. See, for instance, Lloyd Matthews, ed., *Challenging the United States Symmetrically and Asymmetrically: Can America be Defeated?* (Carlisle Barracks, PA: US Army War College, 1998), particularly, Charles Dunlap, Jr., "Preliminary Observations: Asymmetrical Warfare and the Western Mindset." One of the most interesting entries in the growing asymmetry literature comes to the West from two officers in China's People's Liberation Army, Colonels Qiao Liang and Wang Xiangsui, in a book entitled *Unrestricted Warfare*, published in February 1999, by Beijing's PLA Literature and Arts Publishing House, suggesting a semi-official approval. Only part of this study has been translated into English by the CIA. The authors turn asymmetry into a grand strategy, since it seems hopeless to them that China or any other country can keep technical and economic pace with the United States. Copy in author's possession.

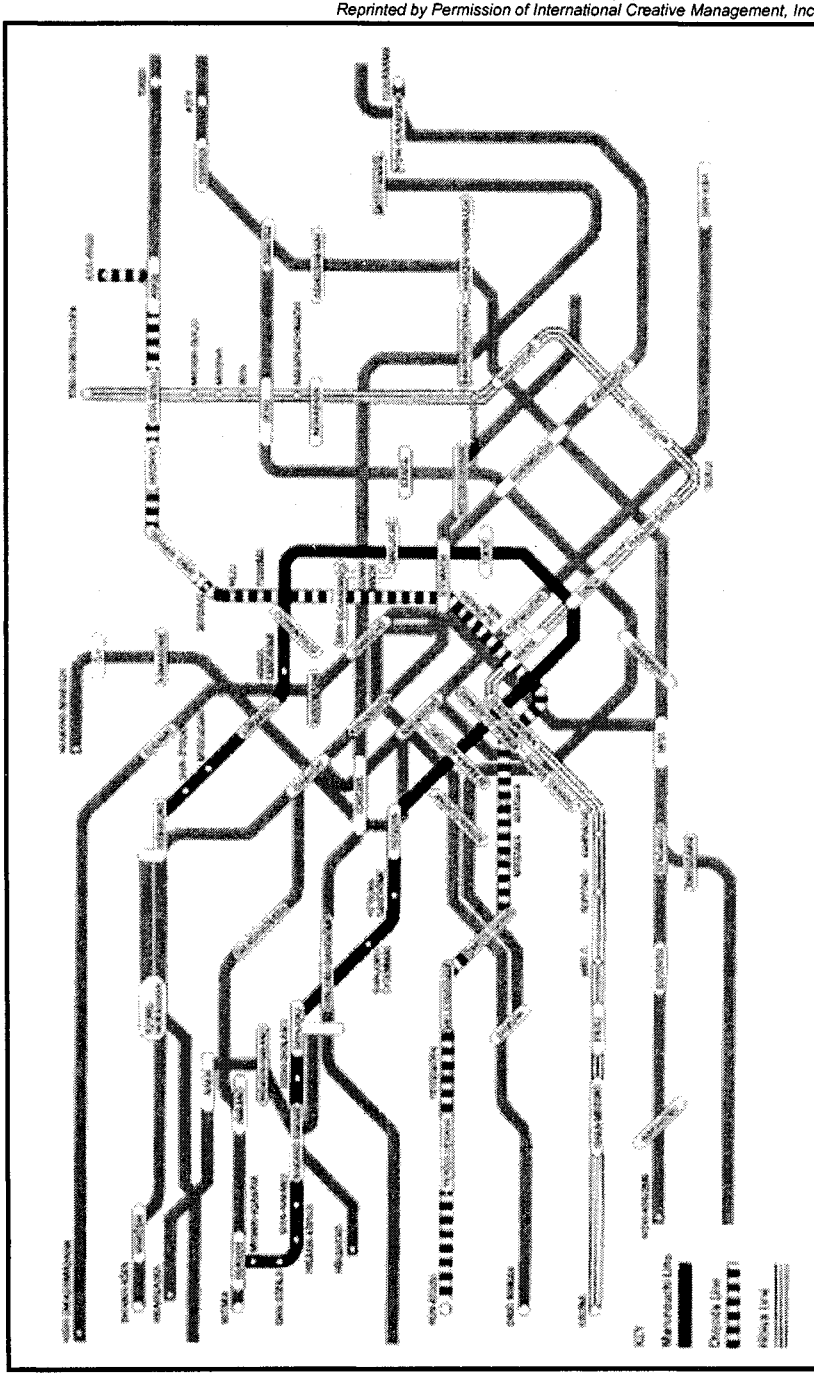
76. Max Weber, *The City*, trans. and ed. by Don Martindale and Gertrud Neuwirth (Glencoe, IL: The Free Press, 1958), 36. Weber approvingly quotes Spengler's *Decline of the West* here.

77. Fernand Braudel, *The Structures of Everyday Life*, vol. 1, *Civilization and Capitalism, 15th-18th Century*, trans. by Sian Reynolds (New York: Harper and Row, 1981), 479-81

78. Hong Kong Trade Development Council, "Hong Kong & China Economies," 11 January 2000, 5, at <www.tdc.org.hk/main/economic.htm>.

79. John Zubrizycki, "Mastering Software Helps India Youths Snag Foreign Jobs," *Christian Science Monitor OnLine*, 13 November 1997, received via Internet, 29 February 2000.

80. See "Checking the Interweather," *Time Digital Daily, 20* December 1999, at <www.pathfinder. com/time/digital/daily>.



Part of the route map Tokyo's public transit system. One need not be a master of Japanese to see the choke point at Shinjuku Station.