Fighting in the Streets

Testing Theory on Urban Warfighting

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Abstract

This paper sets out to examine why it is that combat in urban environments is so deadly and casualty-heavy for conventional militaries, even when those militaries hold a technological and/or numerical advantage. The paper aims to test the theory of Alice Hills through a structured, focused comparison on three cases of urban warfighting. The paper examines the battle of Stalingrad 1942-1943, the battle of Mogadishu 1993 and the first battle of Grozny in 1994. Support for Hills theory is found in what she argues is a pre-modern type of combat that is slow-going and relies upon ground forces as well as the equalization of technological advantages through improvised adaptation of older and/or less than ideal equipment. The paper highlights the need for intelligence in urban operations, especially human intelligence, as a potentional further development of Hills theory.

Introduction

> The NVA were dug in and waiting for us on the other side of the street. They occupied first- and second-floor windows, and many of the NVA were on the roofs. Several automatic weapons raked the street from our left flank, from the tower that protected the eastern entrance to the Citadel. And I ran, and ran, and ran, and I got nowhere fast.
> There was no place to hide; I was shit outta luck.
>
> Nicholas Warr (1997) p.105

Military operations in cities across the globe have taken many lives. Infamous battles such as Stalingrad, Berlin, Hue, Mogadishu, Grozny and Fallujah serve as examples of some of the most difficult fighting in history. The above quote is from Nicholas Warr, a former U.S. Marine Corps lieutenant who served during the battle of Hue 1968 in the Vietnam War. He saw most of his platoon wiped out by entrenched North Vietnamese Army soldiers during a battle that lasted over a week. A battle of house-by-house fighting against an opponent that when in risk of being overrun kept withdrawing further and further back, into more and more entrenched positions.

So, why is it that urban warfighting is so difficult and fraught with casualties for conventional militaries, despite technological and/or numerical advantage? Alice Hills tries to address this puzzle in her book *Future War in Cities*. Her theoretical contribution provides a framework for policy, doctrine and future research. But her theory remains untested. She provides brief case studies but these do not critically examine the assumptions Hills makes regarding the nature of urban combat and the role of technology in urban operations. The purpose of this paper is to test Hills theory and its explanatory value for the research problem described above through three case studies. By examining Hills theory, it is possible to establish its viability as an explanation for the difficulty and deadliness of urban warfare.

Hills, as well as many others, have argued that the world is increasingly becoming urbanized (Hills 2004:4, McGuiness 2000:1). This shift will only magnify the problem that urban warfare represents. The current Western approach to urban warfare is one of avoidance (Hills 2004:40-

41). While this might work, any capable enemy will soon follow the dictum of Sun Tzu that "what is of supreme importance in war is to attack the enemy's strategy" (Sun Tzu [transl. Griffith] 1963:77). As Western forces and coalitions avoid cities the enemy will concentrate just there, where the western strategy is weakest. As such, this problem is of utmost importance for policy, strategy and doctrine. Furthermore, as urbanization increases more and more non-combatants risk becoming collateral damage in devastating urban operations. Mega-cities, such as Tokyo, Seoul and New York, are home to tens of millions of people. Any warfighting in these cities might be more devastating than anything previously seen. For social science, this problem is important in understanding the role of civilians in combat, in understanding how to avoid collateral damage and in understanding how urban warfare might look in the 21st century. As peace cannot be promoted without an understanding of war so cannot urban operations be avoided or diminished without an understanding of urban warfighting.

Previous Research

Surprisingly little research has been done on the characteristics of urban operations considering the infamy with which some battles are regarded. Alice Hills is one of the more prolific writers in the field. In addition to the book *Future War in Cities* she has written articles on urban operations and post-conflict policing. The RAND corporation has published several books about urban operations. Scott Gerwher and Russell Glenn explore the role of deception within urban operations in their book *Art of Deception* (2000) finding that deception has a high degree of effectiveness in the urban environment which is suitable for ambushes and flanking. Sean Edwards, also of the RAND corporation, explores three cases of recent U.S. urban operations in his book *Mars Unmasked* (2009) finding that the urban environment is unique both in physicality and political aspects. He highlights the importance of information warfare in urban operations while certain aspects relating to such operations remain unchanged. David Kilcullen explores the urban environment and urban operations in his book *Out of the Mountains* (2013). Highlighting the changing nature of war and the border between combatant and noncombatant Kilcullen uses a body politic metaphor in imagining the city as an ecosystem that must be accounted for during an operation. Anthony King explores how Special Forces tactics in urban operations are disseminated in the U.S. military among non-specialized infantry units in his 2016 article “Close Quarters Battle: Urban Combat and ‘Special Forcification’”.

Christina Patterson has highlighted the role of infrastructure and how urban operations affect the civilian population by destruction, or preservation, of critical infrastructure in her paper "Lights Out and Gridlock: The Impact of Urban Infrastructure Disruptions on Military Operations and Non-Combatants" (2000). Patterson's paper was published by the Institute for Defense Analysis which has also published Murray Williamsons paper "War and the Urban Terrain in the Twenty-First Century" (2001) which explores historical cases of U.S. military engagement and the role of urban operations within them. Two papers from the U.S. Army War College explores the U.S. preparedness for urban operations: "United States Army Special Forces – The 21st Century Challenge" by Lt. Col. Matthew McGuiness (2000) and "The United States Armys Preparedness to Conduct Urban Combat: A Strategic Priority" by Lt. Col. David Wood (1997).

In contrast to these more mainstream researchers is Stephen Graham. In his book *Cities under Siege* (2013) Graham uses a combination of Marxist and post-structuralist perspectives to argue that oppressive mechanisms and methods of population control are perfected in low-intensity conflicts in the global south. These are then imported to the industrial cities of the north where it is used to control minority populations. He argues that this is a new type of militarized urbanism that conflates liberalism, nationalism and rural suspicion of urban cosmopolitism to create dangerous Others.

Urban Operations

Cities can be regarded as special terrain. It has the same multidimensional battlespace that mountainous terrain has as well as the restrictions on movement and maneuver jungle terrain has and it has similar logistical requirements as operations in desert terrain (Gerwher & Glenn 2000:9). But it is unique in that it is a human environment, a "complex manmade terrain superimposed on existing natural terrain [...]" (Hills 2004:7). The presence of humans, of noncombatants, is frequently high-lighted as the defining feature of urban environments (Hills 2004:7-8, Gerwher & Glenn 2000:8-9, McGuiness 2000:1). Alice Hills argues that "urban operations are special because their environment explicitly shapes them" (Hills 2004:8).

Urban environments also contain significant infrastructural elements. As Christina Patterson highlights these are sometimes crucial to our daily functioning and for an urban area to run as it should (Patterson 2000:1). These services can be as impactful as getting caught in a fire-fight. Without electricity, not only lights cease to function but hospital equipment; coolers and freezers for perishables; water treatment facilities; and telecommunications grids. For the military, infrastructure can be important during an operation to provide the logistics necessary for the operations sustainment as well as to ease the transition to local authorities after a conflict (Patterson 2000:84, 86).

Hills outlines four distinct features of urban operations. First, the physical terrain itself consists of complex manmade structures that form an environment with several dimensions - both vertical and horizontal as well as interior and exterior. The terrain itself poses tactical and strategic challenges. Hazards unique to cities present further obstacles with inflammable materials, gas leaks as well as increased ricochets and fragmentation from concrete buildings presenting hazards not common to other operations. Hills further highlights the difficulties of communication due to electronic interference and building density (Hills 2004:9). Second, urban operations highlight the limitations of current military operations that are designed for open areas where firepower and maneuverability is emphasized (Hills 2004:9-10, McGuiness 2000:3). Third, the presence of large numbers of non-combatants (Hills 2004:11). Large cities are dense, filled to the brim with people, and urbanization is an ongoing process (McGuiness 2000:1, Hills 2004:16-17). Historical examples bear witness to higher civilian casualties as well as more brutality in urban war (Hills 2004:11). The devastation seen in Stalingrad or Berlin during WW2 is staggering when imagined in a city of tens of millions such as Tokyo, Seoul or New York. The presence of civilians furthermore affect the outcome of the conflict itself. Manifested in friendly non-combatants that support a defending force with logistical help or as an early warning system (Gerwher & Glenn 2000:8-9). Lastly, Hills argues that urban operations limits technical advantages producing a far more brutal type of combat that most closely match that of pre-industrial conflict (Hills 2004:12-13).

Toward a Theory on Urban Warfighting

The Nature of Urban War

Alice Hills argues that urban war is unique, and uniquely limiting for conventional forces. She argues that factors such as military necessity, pragmatism, frustration and fear give urban war what she calls a "pre-modern style of fighting" that is especially contrasting to Western norms (Hills 2004:142, 221). For Hills the pre-modern style is one of closer quarters and where air and artillery power is curtailed. She argues that "airpower and long-range bombardment must be accompanied by a determined ground offensive" (Hills 2004:157). Within a city the boundaries between units are blurred and become "tactical weak points" (Hills 2004:153). The need for a ground offensive combined with the close proximity of units in a city prompts Hills to refer to street fighting as "an aggressive, slow and dangerous business" (Hills 2004:143). Aggressive close combat is a core characteristic of urban war and the nature of the urban environment "obstructs maneuver and the application of firepower" (Hills 2004:57).

Thus, warfare in urban environments is conceived of as something that is slow, hard-fought and fraught with casualties. The environment itself is especially obstructing, with buildings blocking communications and a three-dimensional landscape that favors the defender. Any tactical movement is dangerous and susceptible to ambush. Infantry combat is characterized by its close-quarters nature with troops having to fight from house to house with difficult logistics and a unique proximity to the enemy. Hills highlights that the intensity of this type of combat is stressful and taxing on the soldiers performing it (Hills 2004:157, 220). Urban warfare then is characterized by its high attrition rates.

The Presence of Non-combatants

Hills highlights the presence of non-combatants as unique to urban operations. Cities have populations. Populations that invariably become part of any military operation within the city (Hills 2004:11). The urban environment is a human environment which is interactive (Hills 2004:8) - a city and its population is an actor rather than a backdrop in a conflict. Though civilians certainly are in danger of becoming victims of the fighting through collateral damage they are sometimes directly targeted, not only through brutal acts, but in propaganda or

psychological operations (Hills 2004:230). This contrasts to the desire of Western forces to make war cleaner - less costly both in collateral damage and casualties (Hills 2004:163). Hills argues that urban war and humanitarian war is irreconcilable - brutality and suffering is part of urban war (Hills 2004:245).

According to Hills the characteristics outlined above are troublesome to reconcile with liberal norms and its legal and moral framework (Hills 2004:220). The brutality of urban war, per Hills, means an acceptance of a certain degree of casualties and collateral damage. To pursue a successful military operation in an urban environment there is a need to engage in a type of warfighting that is often seen as a product of the past.

The Promise of Technology

Hills argues that technological advancement and our understanding of the nature of war is intertwined (Hills 2004:64). While technology holds promise, these promises are yet unfulfilled and the nature of war in urban areas is unchanged from how it was conducted during the Second World War (Hills 2004:64-65). Western forces avoid cities because cities counteract their preferred method of war - clean, precise and distant (Hills 2004:65). Sun Tzu wrote that "when the enemy concentrates, prepare against him; where he is strong, avoid him" (Tzu [Transl. Griffith] 1963:67). Hills argues much the same, highlighting the risk of enemies realizing Western commanders desire to avoid urban combat and thus concentrating forces in cities so as to counteract the Western forces technological advantage (Hills 2004:65). Hills writes that technological advancement is not devoid of direction. Technological advancement is born of a decision to pursue technological solution to certain problems. In this, the understanding of the problem, fundamentally the understanding of the nature of war, is important. Hills argues that in the West operations in cities are understood as primarily a tactical challenge, thus technology provides tactical solutions. Technology becomes a support, an enabler that alleviates certain tactical obstacles. But it does not fundamentally change the nature of urban warfighting (Hills 2004:71).

The reliance of Western forces on airpower is another example of the idealized promise of technology. To politicians, airpower is precise, discriminating and cost-free (Hills 2004:71). It

lacks the bloodiness of an urban battle of attrition. Airpower holds significant limitations in urban warfare however. The urban environment provides diverse challenges such as flight hazards in the shape of high-density wires and antennas; light levels affecting night-optics on aircraft; the difficulty of urban personnel recovery; tactical issues in finding landing zones; rotary-wing aircrafts vulnerabilities in the confined spaces between high rises; effects of inner-city air currents on helicopters; and electronic interference (Hills 2004:75). These challenges are compounded with the danger presented by shoulder-fired anti-air missiles and high density small arms fire (Hills 2004:75-76). Technology holds the possibility of a strong supporting role, but reliance on technology creates weakness when flaws in technology are realized. GPS-equipment, for example, provides an incredible information advantage but becomes utterly useless when attempting to determine the location of enemy combatants several stories up in a high-rise (Hills 2004:83).

A Framework for Testing Assumptions

Hills theory outlines several conclusions regarding what urban warfare is and what effect it has on the soldiers performing it. (1) Hills argues that in urban operations the warfighting capabilities are crucial. She writes that "cities are volatile" and that a range of operations must be undertook for mission to be successful. As such, the skills of the combatants are more important in these operations (Hills 2004:244). (2) Fighting in cities is "always difficult, destructive and manpower intensive" (Hills 2004:244). (3) Urban war results in fighting in close proximity where the experience, training, motivation and cunning is more important than technological advances or doctrinal innovations (Hills 2004:244-245).

From this then one can glean some important assumptions that are testable against the historical examples available. Firstly, that urban combat entails some of the most difficult fighting. The importance of the skills of the soldier means that training for urban operations is important. Through training, the skills required for effective warfighting are gained. This is something that Hills herself highlights (Hills 2004:256-257). By examining historical accounts of mistakes and poorly executed operations as well as well-executed operations it is possible to gauge if training would have been or was beneficial.

Second, combat in urban terrain is destructive. This is no surprise. When the density of man-made structures increase, the destructiveness of operations should also increase. However, the assertion that urban combat is more difficult and more manpower intensive than other operations is not as immediately clear. Other operations are certainly difficult and some have high demands in manpower. By examining cases this assumption is testable. Difficult operations should take longer, have more casualties and generally require a harder fight. If an operation is manpower intensive, we can assume that the enemy either has numerical superiority which must be rectified or a force multiplier that require additional soldiers for the success of an operation. A city can be seen as this type of force multiplier.

Third, while fighting in close combat puts a premium on training and experience it is often technological advancement that is thought to be most promising (Hills 2004:254). Urban operations seem to level this playing field in two general ways. First by limiting the scope of technology through electronic interference on comms, obstacles for aircraft or obfuscating GPS tracking. Second by making older technology viable through adaptation. For example, the use of RPGs to bring down Black Hawk helicopters in Somalia during the international intervention (Hills 2004:77). Examining this requires examining the type of threat highlighted as most dangerous in an operation. If advanced anti-air with night-optics used to bring down enemy aircraft is the most dangerous we can assume that technology has played an important role. If, however, the most dangerous threat is RPGs and high-intensity small-arms fire then technology is being equalized rather than providing the type of advantage Western forces seek.

Testing these assumptions is important in testing Hills theory. If the maneuver warfare focused on tempo and aggression is an ill-fit for the slow, dense urban environment then the above assumptions should hold true. Examining historical cases we should thus see a consistent pattern of slow, attritional warfare where numerical superiority is equalized by entrenched defenders and technological advantages are counteracted by older technology adapted to work in an urban environment.

Methodology

Structured, Focused Comparison

In order to test the theoretical framework derived from the theories of Alice Hills this paper will conduct a comparative case study using the method of structured focused comparison. Alexander George and Andrew Bennet explains that a structured focused comparison is one where the researcher uses a structured method, asking generalized questions, with a focus on certain aspects of a historical case in comparison with similar cases (George & Bennet 2005:67). The selection of cases should reflect the research objective as well as clearly define the universe of cases from which selection is made. It is important to understand what phenomenon the case is an example of. This is derived by clarifying the research objective which highlights the aspects the research intends to focus on. The generalized questions must also reflect the research objective as well as the theoretical focus of the paper. The questions strive to provide an ability to collect generalizable data from similar, but diverse, cases which will allow comparative research to be undertaken (George & Bennet 2005:69).

George and Bennet argue that the most important part of a good research design is formulating a research objective. This is closely connected with identifying a research problem (George & Bennet 2005:74). Together, these two aspects inform the rest of the research design. A theory testing research objective is aimed at testing the validity and scope conditions of one or more theories (Bennet & George 2005:75). Stephen van Evera writes that there are two general ways of testing theories, through experimentation and observation. Observational tests furthermore generally come in two forms, large N-studies and case studies (Van Evera 1997:27). An observational theory test then is when an "investigator infers predictions from a theory" that are then tested by observing data and deferring whether the prediction unfolds as expected (Van Evera 1997:28). Ian Shapiro highlights some of the difficulty in establishing a research problem. He argues that a theory-driven approach lends itself to pitfalls and a desire to vindicate theory in the face of observation (Shapiro 2002:599-601). Shapiro argues for a problem-driven approach where the puzzle of the phenomenon observed is object of study. The researcher then studies prior theoretical work to establish whether these sufficiently explain the puzzle observed (Shapiro 2002:603).

At face value this might contradict the essentially theory-driven objective of theory testing. However, theory is the explanation of a causal law of why a phenomenon occurs. The law itself relates to the relationship between variables – in essence, how a phenomenon occurs – while a theory explains the relationship between the variables, the why of how a phenomenon occurs (Van Evera 1997:8-9, Walz 1979:1,3) As such, good theory is ideally problem-driven. It aims to illuminate both how a puzzling phenomenon works and why this relationship functions. Testing an established theory, then, is fundamentally problem-driven. The puzzle at the core of this paper is why urban warfare is so destructive and difficult, examined by testing whether the established theory of Alice Hills can adequately account for this puzzle.

George and Bennet highlight the need for clear variables in this type of research design (George & Bennet 2005:79). Two types of variables are commonly used in social science research. First, the dependent variable which can be thought of as that which is studied. The dependent variable is the phenomenon which the researcher aims to explain (Van Evera 1997:11). Second, the independent variable is that with which we explain the studied phenomenon. That is, the independent variable is what the researcher posits will account for variations in the dependent variable (Van Evera 1997:10). This paper will make use of two dependent variables that reflect the theoretical framework previously presented. The first dependent variable is the pre-modern nature of combat that distinguishes urban warfare. This pre-modern type of combat can be explained by two variables, (1) the defender's ability to entrench in the urban environment and (2) the close proximity most fighting takes place in. These two independent variables coalesce to create a type of combat that is at odds with the preferred modern type of combat. The second dependent variable is the negation of technological advantages that occur in urban combat. Two variables affect this, (1) the environmental limitations urban environments place on modern technology and (2) the ability of defenders to adapt older technology for use in urban combat. These two variables create an environment that equalizes the disparity in levels of technology. The relationship between variables by the Table 1 below.

Dependent Variable	Independent Variable
DV 1 – Pre-modern nature of combat	IV1 – Defenders ability to entrench
	IV2 – Proximity of fighting
DV2 – Negation of technological advantage	IV3 – Environmental limitations on technology
	IV4 – Older technology adapted to urban combat

Table 1: Relationship of variables

George and Bennet posits that the relevance of a case to the research objective is the most important factor in case selection (George & Bennet 2005:83) When selecting cases George and Bennet also argues that these "should [...] be selected to provide the kind of control and variation required by the research problem" (George & Bennet 2005:83). Some problems require similar cases while others require cases with variation. The classification of the universe of cases in conjunction with the research problem defines how cases are best selected (George & Bennet 2005:83).

The cases chosen for this paper is the battle of Stalingrad 1942-1943; the battle of Mogadishu, or Day of the Rangers, during the UN mission to Somalia in the 1990s; and finally, the first battle of Grozny during the First Chechen War. The battle of Stalingrad is the prototypical example of an urban operation. It took place during Operation Barbarossa, the German invasion of the Soviet Union, and was a pitched battle that lasted almost a year. During the battle the Soviet Red Army successfully defended the city against the German Wehrmacht despite German technological superiority. It was a battle known for its attrition and terrible destructiveness. The battle of Mogadishu is infamous due to the downing of two Black Hawk helicopters by Somali militias using modified RPGs. The following operation in the city of Mogadishu is an example of how a numerically superior but technologically inferior force can use the city to its advantage. The battle of Grozny took place during the First Chechen War. It was fought between the Russian Federations army and the Chechen rebels holding the Chechen capital of Grozny. The battle is known for the numerous casualties it inflicted on the Russian Army, the advantage Chechen rebels took in traversing and utilizing the city as well as the brutal way the battle was fought.

These cases will provide one ideal, but historically distant, example as well as two modern examples that relate to the more common conflict-situations conventional militaries deal with today, namely insurgency and intervention. Furthermore, all three cases involve conventional armies and the case of Somalia involve Western militaries. This furthermore provides an opportunity to examine an historical change in urban warfighting, if one has taken place and if so how.

Finally, George and Bennet argues that the "specification of data requirements should take the form of general questions to be asked of each case" (George & Bennet 2005:86). The specification of data requirements is an important part of a research design in that it structures the study. By asking the same generalized questions of all the cases the results are comparable, cumulative and can be systematically analyzed (George & Bennet 2005:86). The questions must be general in terms of the specificity they address - they cannot be designed for a single case. Rather, they must be derived from theory and applicable to all cases selected. The availability of data used to answer questions can be an obstacle that requires the fine-tuning of questions in relation to the above described aspects of research design (George & Bennet 2005:86). As such, the formulation of questions is an iterative process in conjunction with the rest of the research design. The questions serve as a guide in the analysis of the empirical material and this study does not aim to answer in detail each of the questions. Rather the general questions ensure that the researcher examines each case in a generalizable manner and are included here in that regard.

The following general questions have been used in this study:

1. Training, skills and experience

Have specialized units (with training in urban operations) taken part in the fighting? If so, has their performance been highlighted as above average?

Have techniques adopted by experienced soldiers been highlighted? For example, tactical innovations such as mousehouling or behavioural patterns such as decreased observation due to snipers.

2. The Urban Environment

Has the defender used the city itself as fortification? Eg. Occupied houses, constructed fortifications using buildings, etc

Has there been an occurrence of booby traps?

Has the defender utilized the urban environment for ambushes? If so, were those successful?

Have either party used the environment to circumvent enemy positions? For example, moving through sewers or high-rises, using rubble as concealment.

2. Nature of Combat

Has fighting taken place in close proximity?

Has there been fighting within the same building or fighting otherwise construed as hand-to-hand fighting?

Have snipers been a particularly effective type of unit?

3. Technological Limitations

Has airpower been limited by the urban enviroment? For example, buildings obscuring target, cellars used as bomb shelter, inner city currents affecting helicopter.

Has airpower or artillery been limited by the proximity of friendly forces to enemy forces?

Has technological equipment failed or been found to be lacking?

Has the urban environment placed limitations on equipment that in an open terrain would not exist?

4. Technological Adaptions

Has there been any cases of older technology innovated upon?

Has older technology been effective in fighting more advanced equipment? If so, has this been due to the urban environment?

Ontological and Epistemological Considerations

Within social science the nature of being and the nature of knowledge are contested notions. As such, it is prudent to situate one's work within this debate. The nature of causality is sometimes fiercely debated among different schools of researchers. Simplistically, one might divide the

debate into two camps, the positivistic and the constructivist. Positivistic views of epistemology and causality is derived from the physical science and argues generally for a science based on observation, where cause and effect must be rigorously proven through empirical data (Bryman 2011:30). The constructivist approach posits a less clear chain of causality that emphasizes social and normative factors outside of observation. It highlights the lived reality of the individual and the role of researcher in producing knowledge (Bryman 2011:32, 37). This paper uses a more traditional approach of examining a cause and effect. However, causality in social science cannot be deterministic, as the multitude of factors at work can never be wholly observed (Kellstedt & Whitten 2015:53). As such, this paper assumes a probabilistic view of causality. Causal variables make one type of variation or effect more probable than had the causal variable been absent.

Alternative Methodological Approaches

Social science is a field of methodological pluralism. Several methods are almost always applicable to any one study. It is one of the most important roles of the researcher to explore these and decide upon the research design most suited for their paper. Generally, social science methodology is delineated into two categories, quantitative and qualitative. Quantitative methods relate to the use of statistics in large-N studies while qualitative methods refer to a plethora of different approaches. I will briefly review these and discuss the choice of structured, focused comparison as the research design for this paper.

Quantitative methodology focuses largely on statistical data gathered through surveys or data sets. This data is then examined using statistical methodology, usually regression analysis. The goal is to establish whether there is correlation between two or more variables relating to the phenomenon examined (Esaiasson et.al. 2012:66-67, 96, Kellstedt & Whitten 2015:82-83). While a statistical research design is feasible for the research objective of this paper there is some issues with it. First and foremost is the issue of quantifying doctrinal and technological variables. War is often asymmetrical, in fact Sun Tzu advised to "Attack when [the enemy] is unprepared; sally out when he does not expect you" (Sun Tzu 1963:69). As such, the variation between specific battles are great and give rise to some difficulty in controlling for independent variables. The advantage of using a statistical method is greater generalizability but the cases of

urban warfare are not plentiful. The famous cases of Stalingrad, Berlin, Manilla, Hue, Grozny and Mogadishu nearly sum up all instances of the phenomenon. Thus, a comparative case study is better suited for dealing with the specificity while providing a degree of generalizability.

Qualitative methodology comes in many forms. One of the most common methods is case studies, which this paper utilizes. There is in turn several ways to conduct a case study. A common way is using the method of controlled comparison, studying two or more cases of a phenomenon that are similar in all aspects except for one (George & Bennet 2005:151). This approach is similar to the one used in this paper, and might have been a useful method to use. It is a clear method for theory testing in that it lends itself to a "make or break" type of test by using the classic Mills "Method of Agreement" or "Method of Difference". However, the nature of variance in cases means it is supremely difficult to identify all possible independent variables. As such, spurious or invalid inferences may be drawn using either method (George & Bennet 2005:156, Van Evera 1997:57-58). Qualitative text analysis is another common method of qualitative research. The purpose of this method is to critically examine a text, actively asking question such as the texts purpose, audience and arguments (Esaiasson et.al. 2012:210). While textual analysis is a well-established method of rigorous research it requires a specific type of research problem. If this paper focused on how doctrine on urban warfare was discussed in field manuals a textual analysis would be appropriate. This paper, however, is concerned with the phenomenon of urban warfare as it relates to the combat in the field, rather than the intellectual discussion of it or its narrative dissemination in the media. As such, textual analysis is a poor fit for this papers research objective. The same argument applies to the method of discourse analysis.

Had time and resources allowed an experimental approach might have been a fruitful way of examining this papers research problem. Experimental methods refer to methods done in a controlled environment where researchers hold full control over variable input and variation (Kellstedt & Whitten 2015:72). In social science, this is somewhat of a chimaera in that the variables studied are extremely hard to isolate. However, by designing a study that focuses on training for urban operations using simulated environments in exercises one could control for tactics, doctrine, environmental factors as well as unit composition and available air- and

artillery support. This however would require great resources and the cooperation of an infantry branch willing to participate. This method would likely not be able to fully isolate certain variables, especially recruitment and teaching methods, but would allow for a modicum of control that historical case studies lack.

Empirical Material

The empirical material in this paper consists mainly of historical accounts as well as reports by Western military personnel. For the case of Stalingrad two historical accounts serve as empirical material. The first is the book *Stalingrad* by Anthony Beevor published in 1998. The other is the book *Enemy at the Gates* by author William Craig published in 2004. These two accounts are popular and well-reviewed accounts of the build-up, battle and aftermath of the Battle of Stalingrad. This case is historically well-researched and these two modern accounts follow a tradition of publications, by both Russian and German authors among others. While two accounts limit the ability to triangulate data within it, the case is historically distant and neither author seem to have a personal stake, as was the case with early accounts by German and Russian authors. Neither does any greater debate or controversy surround the historical research on Stalingrad. As such, two well-regarded accounts should be sufficient in examining this case.

For the case of Mogadishu several sources were used. The main account of the operation on 3 October 1993, which the case is focused on, is the book *Black Hawk Down* by Mark Bowden (1999). Bowden is an american journalist and the book builds on articles about the same mission. The book focuses on the U.S. perspective on the ground and is focused on the personal details. There is a certain risk of bias both because Bowden is a journalist interested in profiting from a well-written narrative and due to his closeness to the sources. However, the book is built largely on interviews with personnel involved in the operation as well as some Somali people. It is rigorously referenced and no story, incident or anecdote lacks an attributed source. These sources are also frequently discussed in a transparent manner. Supplementing this book is two further books, *Somalia and Operation Restore Hope* by John Hirsch and Robert Oakley as well as chapter 41 "United Nations Operations in Somalia II (UNOSOM II)" in *The Oxford Handbook of United Nations Peacekeeping* written by Paul Williams (2015). *Somalia and Operation Restore*

Hope does not focus on the October 3 incident in particular, but is rather a detailed outline of the two UN missions to Somalia during the 1990s. The book is written by American officials involved in the operation and Somalia in general. While this might create bias and tendentious perspectives the critical outlook of the book gives another impression. It is rigorously researched and focuses largely on the impact of the operations on the Somali people and how it relates to other peacekeeping missions. *The Oxford Handbook of United Nations Peacekeeping* is an encyclopedia of UN operations published by Oxford University. It is subject to a prestigious universities' standards and can be presumed to not contain bias or tendentiousness to a large degree. Like *Somalia and Operation Restore Hope* it is not specifically focused on the October 3 operation but rather the whole UNOSOM II mission. Lastly, Bowden's account of the October 3 operation is corroborated by the official U.S. Army after-action report on the Somalia mission, containing specific accounts of Task Force Rangers operation. This source is certainly tendentious and is biased in that it will likely omit damning details of misconduct by US personnel, something that will be mitigated by triangulation with the other sources.

The empirical material for the Grozny case study consists of several sources. First, two articles written by scholar Timothy Thomas written in 1997 and 1999. The first is a detailed account and analysis of the battle of Grozny. The other is an analysis of the lessons that can be learnt from the battle itself. Both articles are published in well-known journals, Journal of Slavic Military Studies and Parameters respectively. In an effort to triangulate the claims of Thomas articles the book *Chechnya: Tombstone of Russian Power* by Anatol Lievin (1998) will be used. Lievin is a journalist who spent time covering the first Chechnyan war. In addition to Lievin, the book *Russia's Wars in Chechnya* by Mark Galeotti (2014) will be used. Lastly, a report by Col. James Pike entitled "Urban Operations in Chechnya: Lessons Learned and Implications for U.S. Urban Doctrine and Training" (2001) is used to add a military perspective to the case study. No clear bias or tendentiousness is visible as all authors are well distanced from both the Chechen rebels and the Russian army. The proximity of the material to the case is close however. Most texts were published shortly after the First Chechen War ended. However, Mark Galeotti's more general history of the wars provides a counter-point to any claims that might not have stood the test of time.

Case Studies

Stalingrad

The Volga is a Russian river that meanders from central Russia, east of Moscow, down towards the Black Sea. Where the river turns to the east and toward the Black Sea lies the city of Volgograd, sprawling on its western embankment. Further west, the river Don marks the boundary of the steppes that stretch into Ukraine. Founded as Tsaritsyn, Volgograd is perhaps more well known as Stalingrad. As Nazi Germany invaded the Soviet Union and advanced across the western parts of Russia they soon reached Stalingrad where a fierce battle took place. The Nazi Wehrmacht eventually broke and the 6th Army failed to take the city. The Battle of Stalingrad has since then been memorialized in Soviet history as well as in Western popular culture through movies such as *Enemy at the Gates* and video games such as *Call of Duty*. But the battle itself is a prototypical example of urban warfighting and the change in dynamic between fighting parties when engaging in combat in urban environments.

On the 21st of August 1942, the first Germans crossed the river Don (Beevor & Cooper 1998:114). As part of the so-called Operation Blue the German 6th Army was to conquer Stalingrad. The prior months had seen fierce fighting on the steppes between the river Donets and the Don, further to the east. On the steppe, hidden Soviet tanks and anti-tank guns were outmaneuvered by the Germans (Beevor & Coopers 1998:83, 85). Two days after crossing the Don, while the 6th Army advanced across the steppe, Stalingrad was firebombed (Beevor & Cooper 1998:116-118, Craig 2004:58-59). The bombing was not confined to industrial targets but blanketed the city which turned into an inferno as the fires spread through the city, sped along by the drought of previous months (Beevor & Cooper 1998:116, Craig 2004:58). More than a 1000 tons of bombs allegedly killed around 40 000 people during the first week (Beevor & Cooper 1998:117). While Stalingrad was being bombed the German 16th Panzer Division swept across the steppe towards the city. At first they met light resistance but later ran into anti-aircraft guns which slowed the progress of the tanks which eventually reached the town of Rynok north of Stalingrad (Beevor & Cooper 1997:118-119).

As the Germans first saw the river Volga the defenders of the city organized the defense. The first weeks were especially desperate for the Red Army. Militias of factory workers were organized and tanks rolled straight from the production line off into combat while attacks were repulsed south of Stalingrad. Counter-attacks by the Soviets diverted some German resources and bought precious time for soldiers falling back to the outskirts of Stalingrad (Beevor & Cooper 1998:120-121, 125, 129). The end of August highlights the desperate situation for the Soviets, who had less than 40 000 soldiers in defense of Stalingrad (Beevor & Cooper 1998:130). The ability of the defenders to entrench, even on the outskirts of the city, is interesting however. Craig writes that militia fighters had gathered and "dressed in work clothes or Sunday finery, they crouched behind mortars and machine guns" stopping the advance of the 16th Panzer Division (Craig 2004:63). After five days of fighting the Panzer Division was close to pulling back when a resupply renewed their fighting strength (Craig 2004:72-73). These early days also highlight an important strategic decision. In an attempt to save the 62nd and 64th Red Armies outside Stalingrad the Soviet commander Yeremenko attempted to withdraw these forces. This caused the 4th Panzer Army to attempt a pincer maneuver and link up with the 6th Army. The 6th Army failed to follow-up, under pressure from other Soviet forces, and the Soviet withdrawal was completed (Craig 2004:75, Beevor & Cooper 1998:129). It is difficult to say how important this decision was but Craig emphasizes that "[Paulus, the 6th Army commander] seventy-two hours of indecision had given the enemy another chance to fight" while Beevor and Cooper argues that counter-attacks "managed to divert Paulus forces in the critical stage" (Craig 2004:76, Beevor & Cooper 1998:129).

As August turned to September the fighting in Stalingrad continued. For the Soviets, some relief arrived with the 13th Guards Division. The division crossed the Volga from its eastern bank and from the ferry went straight into combat. The German lines were in places no more than 100 meters away. Fighting was close-quarters and according to Beevor "ruthless" as the soldiers cleared houses on the riverbank (Beevor 1998:144). The 13th Guards Divisions crossing had been assisted by militiamen of the NKVD, the Soviet secret police, who spread out and created "a series of mini-fortresses, commanding various street intersections" (Beevor 1998:142, see also Craig 2004:90). The effect was to funnel German armor into roads where they encountered Soviet anti-tank guns. This successful strategy was further compounded when Luftwaffe planes,

afraid to bomb their own, could not attack the Soviet forces (Craig 2004:90-91). This tactic was later adopted by the 13th Guards Division whose commander ordered the front line to be approximately 50 meters from the Germans so as to make it harder for German air- and artillery power to be used (Beevor 1998:150). A telling example of the risk of friendly fire is that of German Captain Meunch who called in an air strike on a railroad station occupied by the Red Army in an attempt to spare his forces. The German planes missed their target and the bombs hit Meunch's troops (Craig 2004:93). Furthermore, Soviet tactics against enemy armor shows clearly the type of equalizing effect that urban operations can have on technology. The German armor, when bogged down and cornered in close-quarters, were doused with firebombs, commonly known as Molotov cocktails (Craig 2004:79, Beevor 1998:129).

The battle had at this point become hard-fought within the urban areas. In a grain silo, around 50 Soviet soldiers had held up for almost a week, repelling ten attacks on the 18th of September alone. Out of ammunition, water and food the defenders still managed to repel an attack that successfully got inside the silo. The fighting inside was done in darkness, as smoke and dust had filled the interior. According to Beevor the Germans fired towards sound, rather than at what they saw. Craig writes that the Germans were driven back "with knives, fists, and bullets" (Beevor 1998:148-149, Craig 2004:101). The defenders managed to break out during the night of the 20th, apparently, according to Craig, attacking an enemy mortar battery in their search for water (Beevor 1998:149, Craig 2004:101-102). This type of incident highlights what Alice Hills refers to as the pre-modern nature of combat. It also exemplifies the limits of technology during this battle. While German armor took part in the battle for the grain silo, armor alone could not take it. When Panzers failed to kill those inside, infantry was required to attempt to clear the building, leading to devastating blind hand-to-hand combat. While modern precisions-munitions and higher-yield explosives presumably could have levelled the building, this has a cost of itself. The grain inside was later used by the German army as horse feed (Craig 2004:116) and in a less ruthless war the destruction of the grain silo, and the grain within, would have been devastating for the post-war reconstruction and the civilians who depended on it.

As September progressed the fighting moved north as the Germans captured the southern parts of Stalingrad. The fighting in the northern industrial districts was fierce. Calling the fighting

Rattenkrieg the Germans employed tactics from the First World War, using a wedge tactic where groups of ten used machine-guns, flamethrowers and grenade launchers to clear cellars, bunkers and sewers. One German general supposedly said to a friend that "The enemy is invisible. Ambushes from cellars, debris from walls, hidden trenches and the ruins of factories cause our troops heavy losses [authors transl.]" (Beevor 1998:157). The proximity of combatants was very close (Beevor 1998:157). In an industrial shop one group of Germans took the ground floor of a building with Russians in it. The Germans tried to drive the Russians out but were repulsed and spent a night sleeping in pairs with the Russians only a floor above (Craig 2004:139-140). In another tactic reminiscent of the First World War, Soviet engineers planted explosives underneath a German strongpoint (Beevor 1998:158, Craig 2004:144-145). The proximity and fluidity of the front line was remarkable. Beevor writes of German attacks on the Soviets that came from behind - the Germans had crept through sewers in order to flank (Beevor 1998:171). Small groups of soldiers performed night-time raids using knives and sharpened shovels in order to not be heard (Beevor 1998:158).

When October came, the Germans had pressed the defenders even more tightly in the northern parts of the city. Fighting over a tractor factory decimated a German division and advances were repulsed inside other factory complexes (Beevor 1998:195). Successful German advances were sometimes suddenly attacked from the rear by Soviet soldiers the Germans had passed (Beevor 1998:199, Craig 2004:141). None the less, the Germans gained ground and had by mid-October divided the Soviet forces in the industrial districts (Beevor 1998:201). A famous story from this period of fighting is the one of "Pavlov's House". For 58 days, a small number of Soviet soldiers, led by the sergeant Jacob Pavlov, held out in a four-story house in no-man's land (Beevor 1998:203-204). By placing men in the cellar and on the fourth floor the German armor could not return fire. They couldn't elevate or depress the guns of their tanks enough (Beevor 1998:204, Craig 2004:137). This action rendered the tanks harmless, little more than moving cover for the German infantry. This simple adaption apparently led Pavlov to "kill more enemy soldiers than the Germans lost in taking Paris [authors transl.]" (Beevor 1998:204). This highlights, almost perfectly, how the urban environment can serve as an equalizer through disadvantaging one type of technology in favor of another.

In early November, the German advances lost momentum and halted as winter approached (Beevor 1998:216-217). On the 11th of November, the Germans massed for a final attack on the industrial parts of Stalingrad. The attack failed, the building was taken only to be lost again in counter-attacks (Beevor 1998:220-221). As the fighting had raged in Stalingrad, the Soviet commanders planned a large counter-offensive, codenamed Operation Uranus, that mounted huge numbers of Red Army soldiers. The plan was a two-pronged attack that aimed to cut the German forces at Stalingrad off from the rest of the German Wehrmacht (Beevor 1998:229-231). The counter-offensive was a success and cut the 6th Army off from its supply lines to the West (Beevor 1998:263). This was the beginning of the end for the 6th Army and the attempt to take Stalingrad. Almost two months later, on the 31st of January 1943, the German 6th Army capitulated to the Soviets and the siege of Stalingrad was over (Beevor 1998:378-379)

Conclusions

The aspects highlighted above present a case that fits almost seamlessly with Alice Hills theory on urban warfighting. While the Soviets eventually reinforced the city as the battle progressed, for the first weeks the defenders were severely outnumbered. The German 6th Army and its supporting elements were a formidable force, the largest military formation of the German army, while the Soviet defenders at the start of the battle numbered only around 40 000 that had suffered heavy losses in tanks, soldiers and artillery (Beevor 1998:130, 155). As an illustration, it is estimated that the number of soldiers in the 6th Army encapsulated by the Soviet counter-offensive was between 195 000 to 268 000, this after months of fighting (Beevor 1998:432). The ability of those 40 000 to hold-out for enough time to be reinforced, despite heavy losses, is notable. What is more is the fact that a portion of the defenders were militias or NKVD personnel rather than regular Red Army soldiers. In the case of Stalingrad, the ability for defenders to entrench seem to have been a decisive factor in the battle.

Stalingrad also highlighted the limitations of technology in urban warfighting. The fluidity and proximity of the front line frequently made both airpower and artillery difficult to use without risking friendly fire. Some of this is presumably due to early 20th century technology but a fire mission within 50 meters of friendly troops would none the less be regarded as danger close by todays standard. The Swedish Försvarsmakten establishes the risk zone as within 300 meters of

an artillery targets midpoint (Försvarsmakten 2001:69). The difficulties presented for armor has also been highlighted. The difficulty in maneuvering created vulnerabilities for armored units and limitations on utilizing the famous *blitzkrieg* tactic. One especially telling example is the effective use of petrol bombs by the Soviet soldiers. While a bogged down tank in the middle of a ruined city can be doused in flame using this tactic a fast-moving tank moving across an open steppe or plain is hardly susceptible to this type of weapon. Furthermore, the ability of Soviet soldiers to place anti-tank guns in cellars or on top floors of buildings to negate the ability of tanks to return fire is another example of new vulnerabilities.

However, the afore mentioned strategic decision by 6th Army commander General Paulus not to close the pincer presented by the German 4th Panzer Army and thus allowing the Soviet 62nd and 64th armies to withdraw into Stalingrad might have been significant in giving the defenders the means to hold out for long enough. While interesting to speculate on, this decision did not change the nature of combat within Stalingrad - which is what this paper is ultimately interested in. Furthermore, it is important to note that the German 6th was stretched across a much wider line than just the city of Stalingrad itself (Beevor 1998:155). These factors, perhaps, gave the defenders a chance to entrench that they otherwise would not have had. None the less, the nature of combat within Stalingrad was reminiscent of the "notoriously difficult and violent environment" Alice Hills argues distinguish urban warfighting (Hills 2004:238).

Mogadishu

In 1988 civil war descended upon Somalia in response to the repressive actions of dictator Siad Barre (Hirsch & Oakley 1995:10). In 1990 the dictator had been toppled but the civil war continued. Fighting around the capital Mogadishu and south-central Somalia between Siad Barre and Mohamed Farah Aideed devastated the countryside eventually creating a famine that struck the civilian population living in the area between Baidoa, Kismayo and Bardera harshly (Hirsch & Oakley 1995:12). As regional control fell to the different clan leaders Aideed fought for control of Mogadishu with rival clan leader Ali Mahdi Mohamed (Hirsch & Oakley 1995:13-14). The fighting took a heavy toll on the city and its inhabitants with thousands dying from shelling. The city center and the city's infrastructure was destroyed leaving Mogadishu devastated (Hirsch

& Oakley 1995:15). In response to the famine and growing humanitarian crisis the UN created the UNOSOM I, United Nation Operation in Somalia, in 1992 (Hirsch & Oakley 1995:21). The operation at first deployed unarmed observers and as the crisis worsened began large-scale airlifts of relief supplies to airfields in the famine-stricken parts of Somalia as well as authorizing 500 peacekeepers to be deployed late in 1992 (Hirsch & Oakley 1995:21, 24-25, 26). Looting and banditry as well as the blocking of land corridors stopped most of the relief supplies from reaching those that needed it most (Hirsch & Oakley 1995:31). This situation eventually led to the decision by U.S. president George Bush (senior) for U.S. ground forces to lead a major humanitarian intervention, UNITAF and Operation Restore Hope (Hirsch & Oakley 1995:43). While the UNITAF and UNOSOM I missions proved somewhat successful during the early stages, the intervention failed to disarm Aideed's militia and over the spring and summer of 1993 relations between Aideed and the UN mission worsened (Hirsch & Oakley 1995: Ch. 4-6). The UNITAF and UNOSOM I missions eventually transitioned into the significantly smaller UNOSOM II (Williams 2015:1). After the transition, the fighting came to a head with Aideed after the successful bombing of a U.S. Humvee, an act that killed four U.S. soldiers. The U.S. Army Rangers as well as the U.S. Delta Force, both special forces, were tasked with capturing Aideed (Hirsch & Oakley 1995: Ch.6, 122, Williams 2015:8).

This case study centers on one specific raid by the Delta and Ranger task force. On October 3rd of 1993 a raid near the Olympic Hotel in Mogadishu, where several of Aideed's senior people were, quickly grew into crisis when two Black Hawk helicopters were shot down and forces on the ground scrambled to reach the crash site through mounting Somali opposition (Hirsch & Oakley 1995:127). The whole operation ended with 18 U.S. soldiers killed and 78 (84 according to the U.S. Army after-action report) wounded as well as between 300 and 1000 Somali casualties (Hirsch & Oakley 1995:127, U.S. Army 2003:139, Williams 2015:2). The plan of the assault involved Ranger squads blocking off the streets around a target building which Delta operators entered in order to detain a number of high-value targets close to Aideed. Four Ranger squads would cover a corner each of the target building and a convoy of vehicles would arrive after the prisoners had been detained and exfiltrate the Rangers, Delta operators and the prisoners (Bowden 1999:3). The mission was during the daytime and presumed to be done quickly. Therefore, the soldiers involved left behind canteens and night-vision googles as well as other

gear deemed unnecessary for a daytime mission (Bowden 1999:6). Above the target area was three observation helicopters as well as a spy plane to provide real-time coverage for senior officers in command (Bowden 1999:10). The total force that was involved in the initial assault was 12 vehicles in the ground convoy, 19 aircraft (including the observation helicopters and spy plane) and around 160 men (Bowden 1999:5).

The initial assault went well. There was one casualty as a soldier had fallen from his helicopter when roping down (Bowden 1999:16). Three Humvees from the convoy was used to evacuate this soldier (Bowden 1999:53). During the drive back, these three vehicles came under heavy fire from both small arms and rocket-propelled grenades. Roadblocks and barricades were set up as obstacles which slowed and disrupted the U.S. soldiers as they drove through "fire from both sides" (Bowden 1999:54). During this drive back, a soldier in one of the vehicles was shot and killed (Bowden 1999:54). These two incidents are interesting. A seemingly simple mistake by one soldier, missing his rope, and the decision to evacuate him allowed the militia forces to take advantage. By very rapidly setting up roadblocks and obstacles in the path of the Humvees the militias created a situation that allowed their numerical superiority negate some of the training, experience and superior equipment of the U.S. soldiers.

The first Black Hawk helicopter to get hit was flying in a low orbit over the area of operations. It carried four snipers in addition to the pilots and the crew chiefs providing cover for the soldiers on the ground (Bowden 1999:78). An RPG hit the tail of the helicopter disabling the rotor and sending the helicopter into a downward spin (Bowden 1999:81). The U.S. troops moved to reach the crash site at the same time as the Somali militia did, Bowden writes that thousands of "armed Somalis were thronging toward those plumes [signal fires] from all directions [...] People were erecting barricades and digging trenches, laying traps for American vehicles, trying to seal them in" (Bowden 1999:84). The ability of the militias too quickly entrench the streets of Mogadishu is unique to the urban environment. Narrow streets and an unfamiliar terrain is easily fortified or blocked off leaving the attacker to use predictable routes. The second Black Hawk helicopter was hit in almost exactly the same manner as the first - by an RPG aimed at the tail rotor (Bowden 1999:106).

The ability of RPG to act as anti-aircraft launchers was due to a modification. Normally the back blast of an RPG risked hurting or killing the shooter. Furthermore, the range was limited to around a thousand feet and a distinct smoke trail made pinpointing the shooter easier (Bowden 1999:87). Bowden writes that the RPGs used by Aideed's militia had been fitted with a metal funnel at an angle. This directed the back blast away from the shooter's body (Bowden 1999:108). They were further modified using timing-devices to explode in mid-air instead of on impact, thus making them easier to aim (Bowden 1999:110). According to Bowden, these modifications were taught to the militia by experienced Islamist fighters from Sudan (Bowden 1999:110). The role of Islamist trainers is only partially corroborated by Hirsch and Oakley who writes that Islamist forces where reported but not confirmed in large numbers. They write that rumors were usually inaccurate or exaggerated. However, they highlight support from Sudanese sources (Hirsch & Oakley 1995:84-85). The modifications of the RPGs show the ability of older technology to be modified to an urban environment where it can be used effectively against new types of targets. The helicopters might have been able to avoid the grenades had they flown at a higher altitude, but the need to provide support for the troops on the ground required a low-altitude orbit. While the accuracy of the RPG fire was most likely not the best - the after-action report writes that "hostile militia fired RPG rounds in volley at the helicopters" (U.S. Army 2003:138) - the ability to down two helicopters minutes apart shows signs of a successful tactic.

When the first Black Hawk helicopter was shot down, the U.S. forces on the ground moved quickly toward the site. A rescue force landed along with a Little Bird helicopter to extract the wounded and secure the crash site (U.S. Army 2003:139, Bowden 1999:81, 83, 85). The ground forces moved toward the crash site but "came under a barrage of fire from surrounding building and streets" (U.S. Army 2003:139). The convoy of vehicles that carried the prisoners as well as a portion of the ground forces had difficulties navigating the roads of Mogadishu (Bowden 1999:106, 112, 113, 114). The spy plane circling above the area of operations attempted to relay directions to the convoy but the directions went through a chain of officers before being relayed to the convoy leader creating a delayed response to directions given (Bowden 1999:111-112). As the convoy travelled through the streets, the defending militia took advantage of the situation. The convoy was ambushed several times, roadblocks were constructed and the slow progress of the convoy allowed the militia, on foot, to keep pace (Bowden 1999:112, 114, 117). A telling

example of the advantage the militia had in using the city occurred when one vehicle was hit by an RPG stopping the rest of the convoy. While taking cover and returning fire down a street one soldier was shot from a window behind and above him (Bowden 1999:115). The experience of the convoy highlights the unique aspects of urban operations. The U.S. soldiers took fire from all around and had to navigate streets where continual ambushes where set up. The lightly armored vehicles were vulnerable to RPGs. The ability of the Somali fighters to get in close negated the difference in accuracy. The failure to relay accurate directions from the spy plane to those driving on the ground shows how the technological advantage can be equalized. During an operation in open areas the multiple steps the information had to travel might have been less important but when passing multiple streets in a minute a delay becomes devastating.

Conclusions

The operation on the 3rd of October 1993 contains many of the aspects highlighted by Hills theory. It is a telling example of how the urban environment allows a defender with area knowledge to entrench quickly. The timespan from the start of the mission to the incident with the convoy highlighted above was only about an hour. The operation started at 1530 hours, the convoy was dispatched at 1600 hours and at around 1620 hours the first helicopter was shot down (U.S. Army 2003:138-139). In the span of this hour, the militia fighters mobilized and entrenched a defense around the target area. The speed of this fortification could not have taken place outside urban environments, with the exception of perhaps mountainous environments. Streets provided the funnel required for effective roadblocking which proved very hazardous for the lightly armored Humvees and trucks. While armor could have been effectively used to destroy roadblocks or even create alternate paths through buildings the ability of Somali fighters to close the distance to U.S. tanks could have created significant vulnerabilities. Even a modern tank becomes vulnerable to dated anti-tank rockets when maneuvering narrow streets, as highlighted by previous Pakistani armored vehicles that had been destroyed (U.S. Army 2003:133). Furthermore, this was difficult work. The U.S. Army after-action report highlights how roadblocks were constructed with great intensity, focusing on UNOSOM II supply routes. Several roadblocks were constructed in a day and subsequently cleared by engineers form the U.S. or Pakistan. The after-action reports explain that on 5th of September ten separate roadblocks were built along a five kilometer stretch (U.S. Army 2003:132).

The simple modification of anti-tank weaponry to effectively fire on aircraft is precisely the type of example Hills highlights. With one extremely simple modification, welding an angled funnel, and one slightly more complex, attaching timing devices to rocket-propelled grenades, an old anti-tank launcher became sufficient to shoot down two helicopters and damaging, but not downing, a third (Bowden 1999:138-139). This was neither the first attempt to engage helicopters nor the first time to shoot one down. On the 2nd of September, the Somali militia successfully drew a helicopter to an ambush site where it took heavy fire from the ground but was not shot down. On the 25th of September, however, a helicopter from the Quick Reaction Force was shot down by an RPG (U.S. Army 2003:135, Bowden 1999:77). This highlights how a tactical innovation and relatively simple modifications of existing technology equalizes a disadvantage in high-tech equipment. The confusion that arose as the spy plane attempted to guide the convoy is a further example of how technological advantages might be negated. The significant advantage in real-time updates and aerial coverage of the battlefield disappeared when information could not reach the right person in time. Furthermore, Williams argues that issues with intelligence gathering were a significant limitation of the UNOSOM II mission in general. Intelligence gatherers on the street apparently were significantly lower than during the UNOSOM I mission (Williams 2015:12).

It is worth noting however, that U.S. casualties relative to the Somali casualties are staggeringly low. Hirsch and Oakley put the figure at 18 killed and 78 wounded, the U.S. Army after-action report put the number of wounded at 84. But the Somali casualties are estimated at between 300 and 1000 (Hirsch & Oakley 1995:127, U.S. Army 2003:139, Williams 2015:2). The ability of the 160 or so soldiers on the ground, with air support from helicopters, to withstand an attack by thousands should not be ignored. That said, had the Somali militia been a conventional army with an air force presence of their own the mission would have been outright impossible. The urban environment gave the Somali militia edge enough to fight back, even while taking staggering casualties.

Grozny

As the Soviet Union dismantled itself and became the Russian Federation, the republic of Chechnya declared independence (Thomas 1997:1, Galeotti 2014:21, 31, Lieven 1998:58). Chechnya borders Georgia to the south, Russia to the north, Dagestan to the east and North Ossetia to the west. To the south the impassable Caucasus mountain range mark its border with Georgia and ranges from the Andi mountains cut across the land. The Chechens is an ethnic group that call themselves the Nokchy or Vainakh who first encountered Russian state during the 18th century (Galeotti 2014:7, 13). In 1991 the Russian presidential candidate, later president, invited independence from the autonomous republics of Russia (Lieven 1998:61, Galeotti 2014:30-31). This was acted upon by Chechen general Dzhokhar Dudayev who, seizing power from the former communist leadership, declared elections in October of 1991 and in November declared the full independence of Chechnya from Russia (Lievin 1998:60-63, Galeotti 2014:31, 454). Attempts were made by the Russian state to reverse the course in Chechnya but these were driven back and the Russian military presence in Chechnya was cast out. A large portion of the Russian arsenal ended up in the hands of the Chechnyans (Lievin 1998:64, Galeotti 2014:31). In 1994, after a series of kidnappings and increasing tensions with the Chechnyan government, the idea of an intervention into Chechnya was formed within the Russian state (Lievin 1998:86-87, Galeotti 2014:31-32). This idea turned into reality on the 30th of November 1994 when Yeltsin signed a presidential decree to restore "constitutional law and order in the territory of the Chechen Republic (Galeotti 2014:32).

As 1994 transitioned into 1995 Russian forces, positioned outside Grozny, launched an attack from three directions at once into the city (Thomas 1997:52, Galeotti 2014:36-37, Lievin 1998:108, Pike 2001:19). Grozny, the Chechen capital, was founded by Russians in 1818 as a fort (Galeotti 2014:14). It later became an industrial base and home to a large portion of Russia's oil industry (Lievin 1998:74, 85, Galeotti 2014:31). The initial attack on the city was disastrous. According to Thomas one column alone lost 102 armored personnel carriers and 20 out of their 26 tanks (Thomas 1997:52). The Russian forces were bogged down in traffic jams, engaged in street fighting and ambushed by the Chechen forces (Galeotti 2014:37). According to a Chechen fighter interviewed by Lieven the Russian soldiers stayed in their armor and did not dismount.

The Chechen forces "stood on balconies and dropped grenades on to their vehicles as they drove by underneath" (Lieven 1998:109). The fighting continued until the 9th of January when Russia declared a ceasefire between 10-12 January (Thomas 1997:71). The Russians shelled the presidential palace in Grozny during the ceasefire and it was broken by fighting from both sides (Thomas 1997:71-73). Under cover of artillery the Russians began anew the assault on Grozny and on the 13th and 14th the fighting centered around the presidential palace, the Council of Ministers, the railway station and the Chechen internal affairs and security ministries (Thomas 1997:75, Galeotti 2014:38). On the 15th Grozny was sealed off by the Russian forces and on the 19th of January the flag of the Russian Federation flew over the presidential palace in Grozny (Thomas 1997:75-76). The fighting continued some time after that and the Chechen forces eventually retook the city in August 1996 (Thomas 1997:77-82, Galeotti 2014:44-46).

While the first battle of Grozny ended with Russian control over the city it can hardly be thought of as a victory. The Russians suffered heavy casualties, swaying public opinion and faced continued conflict with an enemy that was not yet beaten. A number of aspects of this battle are interesting for this paper. First, the Russian forces were severely lacking in preparation and intelligence. The Russians lacked detailed maps, using only maps of a 1:100 000 scale, while fighting an opponent native to the city (Thomas 1999:91, Lievin 1998:109). An interview with a captive Russian by Anatol Lievin illustrates the lack of preparation. He says that the "Commanders gave us no map, no briefing, just told us to follow the BMP [Russian armored personnel carrier] in front, but it got lost and ended up following us." (Lievin 1998:110). The Chechens took advantage of this by repositioning street signs, blocking narrow streets so as to direct armor into kill zones and volunteering as guides for Russian forces only to lead them into ambushes (Thomas 1997:58, 64, Thomas 1999:91, 96). This highlights the human element of the urban environment. There is always an innate advantage to the defender native to the area they defend. By inadequately preparing for battle within an unknown city the Russians gave the Chechens the deciding power of when and where to fight.

This issue was compounded by the three-dimensional nature of the battlefield. The Chechen fighters used underground sewers and water tunnels to flank the Russians and attack from the rear (Thomas 1997:58, 69). In a departure from the previous cases, the Chechens avoided strong

points, focusing rather on a mobile defense (Thomas 1999:95). Using hit-and-run tactics negated Russian firepower by not allowing the Russians to concentrate on pockets of resistance (Thomas 1999:95). By allowing armored columns to move past, the Chechen fighters could take out lead and rear vehicles trapping the rest of the convoy (Thomas 1999:96, Lievin 1998:117). By attacking from basements and top stories of buildings Russian tanks could not raise or depress the main guns enough to return fire, effectively rendering them sitting ducks (Thomas 1999:96). The lack of supporting infantry further made armor highly vulnerable, a problem that was rectified toward the end of the assault (Thomas 1997:58, Thomas 1999:97, Pike 2001:19). The urban environment was also advantageous for snipers, frequently used by Chechen forces. Snipers proved very effective in diverting convoys and forcing armored columns to take other routes (Thomas 1999:94). Lievin too highlights the effectivity of snipers in Grozny, writing that "whenever I was in the open I imagined the sights of a sniper's rifle zeroing in on my head from some building half a mile away" (Lieven 1998:114). To counteract Russian artillery the Chechen forces employed a "hugging" technique. Simply put, the Chechens ensured close proximity between them and Russian forces during an ambush, negating the ability to call in artillery. The fluidity of the front line during the battle made this possible. Russian units suffered from different tempos, lack of communication and an already confusing environment (Thomas 1999:96-97).

A few dire mistakes were made in the planning and preparation of the assault on Grozny. Mistakes that most likely contributed to the difficulty of the operation. First, there seems to have been a dangerous degree of arrogance among high level officers. Russian general Pavel Grachev supposedly said, regarding the situation in Chechnya prior to the intervention, "I would solve the whole problem with an airborne regiment in two hours" (Galeotti 2014:32). The Russian high command seems to have, to a large degree, assumed that Chechnya would not fight a Russian intervention (Thomas 1999:92, Pike 2001:18). Second, there was a lack of intelligence as well as technical support (Thomas 1999:92). As mentioned before, the Russian army lacked maps. The Russian forces furthermore communicated with no encryption, giving the Chechens the ability to intercept as well as spread false information. The equipment used was dated and radio operators were targeted by Chechen forces. In comparison, the Chechen forces used commercially available hand radios such as Nokia and Motorola (Thomas 1999:92, 93, 97-98). This

exacerbated a problem of coordination between units of different branches already suffering from poor integration and coordination (Thomas 1999:92). Third, the Russian army failed to surround and close off the city prior to the assault on Grozny (Lievin 1998:109, Pike 2001:19-20). The south of Grozny was essentially open to the Chechens. This allowed the Chechen forces to bring in reinforcements from other parts of Chechnya as well as failed to contain retreating Chechen fighters (Thomas 1997:70-71, Pike 2001:20). Fourth, the number of Russian forces participating seems to have been fewer than the Chechen defenders. Pike writes that the "Russians attacked into a city where they were outnumbered by at least two to one (Pike 2001:14).

Conclusions

Several aspects of the first Battle of Grozny are striking examples of the difficulties of urban operations. The well-prepared Chechen fighters were able to use the urban environment to its fullest potential through both movement, subterfuge and tactics. The Russian lack of maps and the repositioning of street signs by the Chechens in congruence created a far more confusing landscape for the assaulting Russian force. It also gave the Chechen fighters the ability to direct and funnel Russian forces into ambush areas. By posing as guides Chechen fighters could further lure Russian forces into ambushes, a practice that highlights the role of deception in urban environments. Several accounts further note the practice of Chechen fighters to blend in with the civilians of Grozny (Thomas 1999:94, Thomas 1997:63-64). The human element of the urban environment provided the Chechens a great advantage against the uniformed personnel of the Russian Army. The three-dimensional nature of the city allowed Chechen fighters to move unseen through sewers and water tunnels to flank or follow Russian forces as they progressed through the city. By utilizing the tight quarters of urban areas, the Chechens negated Russian artillery firepower in a manner highly reminiscent of Soviet tactics in Stalingrad. The forest of high-rises suited snipers well, who had a myriad of options of where to position themselves. The vulnerability of armor is highlighted by the Chechen tactic of using height to their advantage when attacking. By attacking from above or below Russian armor could not return fire, thus rendering them vulnerable. The lack of supporting infantry highlights the need for dismounted infantry in urban combat. Armor cannot assault buildings, cellars or narrow alleys and needs supporting infantry to provide cover from enemy troops with anti-tank weapons.

While Grozny seems to be a perfect example of why urban operations are so difficult the operations disastrous results might have been deeply affected by the dire mistakes made by Russian planners and officials. As Pike argues, the Russian forces attacked into a city where they were outnumbered, despite inheriting Soviet doctrinal experience that suggests encirclement strategies and the need for sufficient troop numbers (Pike 2001:14, 17). Had the Russians encircled and closed off the city Chechen fighters might not have reinforced the city, and when it fell would not have been able to withdraw. Had sufficient troops been provided Russian advances might have been harder to surround and ambush. The lack of intelligence and the poor communications of the Russian army also exacerbated the already difficult operation. The incredible decision to use open communications, thus allowing Chechen interception and misinformation, surely cost the Russians many casualties. Furthermore, the lack of coordination between units from different ministries was disastrous. Some units advanced further than others, leaving them cut off. In one incident, friendly fire pinned one unit down for an hour (Thomas 1999:97). The picture painted of the Russian forces is one of an underequipped, poorly trained force with a command element severely lacking and a political leadership that assumed the Chechen fighters to be virtually on the run before Russian troops even entered the region. Had sufficient planning and sufficient intelligence gathering preceded an operation carried out by well-coordinated and well-equipped soldiers the example of Grozny might not be the disastrous case it is seen as today. Crucially, few of these aspects are unique to urban operations.

Conclusions

This paper has aimed to examine three cases of warfighting in urban environments using the method of structured focused comparison in an attempt to test certain aspects of Alice Hills theory on urban warfare. Using historical accounts of three well-known battles in urban environments the paper has strived to answer, at least in part, the puzzle of why urban warfare is so difficult, especially when considering technological or numerical differences between involved parties. Three historical cases were examined in this paper, the Battle of Stalingrad 1942-1943 between Nazi Germany and the Soviet Union, the Battle of Mogadishu in 1993 between the U.S. Army and a number of Somali militias and irregulars, and finally the first Battle of Grozny 1994 between Chechen rebels and the Russian Army.

Alice Hills sets out a broad theory in her book *Future Wars in Cities* and this paper has focused on two parts of her theory, the nature of urban combat and the role of technology. There is no doubt that the nature of urban combat is far removed from the type of fast-paced operations over open terrain where maneuver warfare shines. There is a surprising consistency in how the fighting is waged in cities across the 20th century. Grozny resembles Stalingrad almost uncannily. The fighting in the streets of the Chechen capital was brutal for the Russian army, requiring a coordination and planning it did not achieve. In Stalingrad, an inch became a mile as the German advance slowed to a grinding halt in the ruins of an industrial city. The exact same process happened in Grozny, with a fast-moving advance of Russian troops encountering stiff resistance, snipers and ambushes on unknown streets. Certain tactical innovations used in Stalingrad, attacking armor in close proximity from either above or below, were replicated by the Chechens in Grozny to devastating effect. This highlights how certain aspects of urban warfare have changed very little since the earlier parts of the 20th century. Furthermore, the human element of the urban environment creates unique opportunities and obstacles for the fighting parties. Chechen fighters used deceptive tactics in order to mask troops, lead Russians into ambushes and gather intelligence by blending into the civilian population of Grozny. In Somalia, the militia frequently used the populace for intelligence, lighting tire fires as signals of approaching U.S. troops, and the crowds of people moving in the area of operations on the 3rd of October 1993 gave militia fighters cover as they moved in on the crash sites. The civilian

population suffered greatly in all three cases. Both Stalingrad and Grozny saw almost indiscriminate bombing and artillery campaigns that disproportionally hit the civilians inside the cities. While the artillery bombardment of Grozny cannot compare to the ruthlessness of the Germans it still resulted in tens of thousands of civilian casualties (Galeotti 2014:38). While the U.S. operation in Somalia was not of the scale seen in the other battles it still resulted in many civilian casualties. Bowden's account of the battle is surprisingly candid of how civilians were caught up in the battle (Bowden 1999).

The role of technology in an urban operation is fascinating. All three cases saw tactical innovations using older equipment and new technical advancement being severely limited. Artillery and airpower suffer most during urban operations. The proximity of troops place friendly forces well within the boundaries of the fire zone. This issue is exacerbated when defenders purposely "hug" their enemy to deny the use of either their airpower or artillery. Furthermore, the battles of Stalingrad and Grozny show that artillery creates conditions that are sometimes favorable to the defender. As the city is turned to rubble it becomes harder and harder for armored units to move around. The artillery also strikes hard on the civilian population both in terms of civilian casualties but also through the destruction of life-supporting infrastructure such as water pipes and electricity grids. Both Grozny and Mogadishu highlight the capability of shoulder-fired anti-armor weaponry when it is used in close quarters. In Grozny, the RPG was used to devastating effect on Russian armor caught in ambushes. In Mogadishu, a simple modification allowed the RPG to be an ineffective, but none the less sufficient, anti-air weapon. The downing of helicopters in Mogadishu also highlights how vulnerable airpower can be in the urban environment. The density of streets and close proximity of fighting forces require helicopters to provide close support. Something that leaves them vulnerable to return fire from the ground.

These findings support Hills theory. The need for ground forces, especially infantry, and the limitations of technological solutions are salient points for Hills. The three case studies of this paper support this assertion. However, the importance of intelligence, specifically human intelligence, has been highlighted clearly in the case of Grozny and Mogadishu. In Grozny, the Russian army severely underestimated the Chechen forces and assaulted Grozny underprepared.

The tactic of changing street signs highlights the ease with which Chechen forces confused the Russians. In Mogadishu intelligence was also poor. Information on tactics by the militias might have revealed their focus on shooting down helicopters and prevented some of them. The incident with the convoy that got lost when driving to the first crash site is also revealing. Mogadishu had very few street signs and the observation plane above, by a staggered communications chain, could not relay timely information to the drivers. The drivers themselves, unfamiliar with the roads, got lost. It seems that in urban operations intelligence is supremely important. Knowing where the enemy is strongest, where it has most support from the civilian population and which streets are commonly barricaded or roadblocked are pertinent information when planning an operation in a city.

Scott Gerwehr and Russel Glenn has already touched upon these aspects in their book *Art of Darkness* (2000). They highlight how the 'noise' of the city helps deception by making intelligence gathering much more complex (Gerwehr & Glenn 2000:44). Furthermore, they argue that the urban terrain is rich with intelligence in all aspects but that the noise requires a larger degree of coordination so as not to fall prey to deception or misdirection (Gerwehr & Glenn 2000:54). They argue that intelligence analysts working on urban operations must have the ability to discern signal from noise, but furthermore discern "signal from *spurious* signal and noise" (Gerwehr and Glenn 2000:58). This is an area where Hills theory can be developed by further studies. Future research could focus on intelligence gathering in cities and how this information translates into actionable intelligence in the preparation of an urban operation. Gerwehr and Glenn illustrate that as British operations in Northern Ireland progressed the British forces were better equipped to deal with IRA deception and action because of the accumulated intelligence (Gerwehr & Glenn 2000:54). The case of Northern Ireland and the British conflict with the IRA is most often examined as a case of counter-insurgency but could fruitfully be examined as a case of urban warfighting, especially with a focus on the role of intelligence gathering.

Finally, it is worthwhile to remember that unlike in Stalingrad, which ended with the Soviet capture of an entire German army, neither Mogadishu or Grozny were this type of decisive victory. Grozny was still lost to the Chechens, and while retaken, the cost of that battle was high

for their forces. Russia eventually withdrew from Chechnya only to return again in the early 21st century, this time successfully. The battle of Mogadishu was pivotal in the withdrawal of U.S. forces from Somalia, with the Clinton administration abandoning the mission – but it was far from the end of the civil war in Somalia. What these two battles clearly show is a certain arrogance on the part of the top officials of the attacking force. Both Russian and U.S. commands seem to have assumed that who they are fighting is nothing but easily routed militias lacking training and real strategy. These two battles more clearly than anything else show the price to pay for underestimating a motivated defender in an urban environment. A city all too easily comes alive with fire, and without prudent preparation even the most well-trained soldier risks death. Strategists, from Carl von Clausewitz to Colin Gray, have emphasized the need for clear political objectives from which strategy might be derived. It is of utmost importance that in the deadly fighting of an urban operation the end goal justifies the risk those fighting in the streets face.

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