In Search of a Joint Urban Operational Concept

A Monograph
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ABSTRACT

IN SEARCH OF A JOINT URBAN OPERATIONAL CONCEPT, by Major Lee K. Grubbs, United States Army, 62 pages.

Combat operations in the urban area are not new to warfare. The United States' military conducted large-scale urban operations in World War II, Korea, and Vietnam. During the last sixty years, the United States' Army approached the urban area by rubbling or isolating the city. The combination of the increasing potential for urban operations and political restraints on friendly and non-combatant casualties reduces the usefulness of these historical approaches. Joint forces need a new urban operational concept that achieves strategic aims without rubbling the city or causing politically unacceptable levels of non-combatant and friendly casualties. Current joint operational concepts such as Joint Vision 2020 do not provide a view of future warfare. Emerging operational concepts such as Rapid Decisive Operations depend on long-range surveillance and engagement of enemy forces to reduce the requirement of close combat.

The search for a joint urban operational concept is analogous to the Russian search for a new method of warfare during the inter-war period of the World Wars. Russian theorists realized the difficulty of destroying an enemy system with an attrition-linear attack. Operational Shock approached the enemy as a system and attacked its hierarchic nature attempting to create operational disunity. A survey of operational shock and systems theory revealed five critical aspects to creating this systemic effect. These aspects, attacking control, maneuver, simultaneity, depth, and achieving cognitive effects, were contrasted with the unique nature of the urban area.

The Joint Force can create operational shock in the urban environment. Operational shock as an urban operational concept depends on selective influence. Selective influence with maneuver seeking operational advantage simultaneously through depth will shock the enemy system's critical functions. The utility of selective influence depends on a deep understanding of the battlespace to identify causality between critical point, action, and effect achieved. This level of situational understanding within the infinite relationships of an enemy system and the urban area requires a variation on the doctrinal development of an understanding of the city and operational design.

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"We advise about the importance of drawing the enemy into long, close and exhausting fighting, taking advantage of camouflaged positions in plains, farms, mountains and cities. The enemy fears town fights and street fights."
Osama Bin Laden 2003

In the book *Military Misfortunes*, Eliot Cohen and John Gooch concluded that militaries fail by not anticipating, learning, and adapting.[1] In the last decade, the United States military conducted urban operations in Somalia, Haiti, Bosnia, and Kosovo. Additionally, the Russian Army twice conducted operations in Groznyy, Chechnya. If history is any indication of the future, the United States' military will increasingly operate in urban areas. The question is: Are we learning the right lessons and adapting the Joint Force's operational concept, Joint Vision 2020, for conducting major combat operations within the urban environment?

Joint Vision 2020 outlines six operational concepts intended to drive the development of service capabilities.[2] Its articulation of dominant maneuver, precision engagement, focused logistics, full dimensional protection, information operations, and joint command and control does not address the difficulties and unique nature of the urban environment.[3] The Joint Urban Operations Master Plan (draft) states that "JV 2020 and future CJCS vision and concept documents will guide the requirements generation process, joint concept development and experimentation, and the associated changes in doctrine, organization, training, materiel, leadership and education, personnel, and

[1]Eliot Cohen and John Gooch, *Military Misfortunes* (The Free Press, 1990), 26

[2]Chairman of the Joint Chiefs of Staff, Joint Vision 2020, Washington, DC: The Joint Staff, http://www.dtic.mil/jv2020/jvpub2.htm, 34 (accessed 12 January 2002).

[3]David A. Fastabend, "That Elusive Operational Concept." *Army Magazine* June 2001, 4. http://www.ausa.org/www/armymag.nsf/(all)/, David Fastabend states that the six "operational concepts" of Joint Vision 2020 are not a view of future warfare, but a list of nonintegrated service capabilities.

facilities (DOTMLPF) necessary to achieve desired operational capabilities."[4] These operational concepts do not prepare the joint force to understand, shape, and engage an enemy within the urban system. The Joint Force needs an urban operational concept that recognizes the human dimension of the urban space and therefore the political restraints associated with operating around so many non-combatants. Russian "deep battle", cyber shock, and effects based planning methodologies emphasize the denial of the enemy's aim providing an intellectual approach for selective influence and achievement of an effect against an entire system. Applied to an enemy in the city, this approach could spark a revolutionary change in the United States' military's view of urban operations. This argument proposed just such an approach.

Over the last sixty years, the United States' military approached the urban area in two fundamental ways. First, in World War II, the American army's methodology for fighting in the city was dubbed "knock'em all down."[5] This description of the assault on Aachen, an excerpt from "Knock'em All Down: The Reduction of Aachen," exemplifies the approach to urban offensive operations in the Second World War.

> When the ultimatum expired unanswered on 11 October, the Americans began a two-day preparatory bombardment of the city. Twelve battalions of VII Corps and 1st Infantry Division artillery poured 4,800 rounds into the city on 11 October, to which four air groups of the IX Tactical Air Command, totaling some 300 fighter-bombers, added 6 tons of bombs. Another 5,000 shells and 99 tons of bombs hammered the city on 12 October.[6]

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[4]Chairman of the Joint Chiefs of Staff, JUO Master Plan (draft), Washington, DC: The Joint Staff, 5 November 2002, 1.

[5]Christopher R. Gabel, "Knock'em All Down: The Reduction of Aachen, October 1944." Command and General Staff College http://www-cgsc.army.mil/csi/research/MOUT/MOUTGabel.asp (accessed 11Sept 2002)

[6]Ibid.

The knockdown method placed cities and their inhabitants second to the conservation of American combat power. Though this approach to urban operations achieved the political ends of their day, they were extremely costly in time, manpower, and loss of non-combatant lives.

In response to the high strategic consumption rate of attrition warfare in the city, the military adapted an isolate and bypass methodology. The 1979 Military Operations on Urbanized Terrain doctrine stated, "… urban combat operations are conducted only when required and that built-up areas are isolated and bypassed rather than risking a costly, time-consuming operation in this difficult environment."[7] This doctrine did mention the difficulty of the isolate and bypass, but its significance in regards to resource decisions in technology acquisition and training remained until the early nineteen nineties. Airland Battle, the overarching operational concept of the eighties, had little utility for operations in the urban area. A change of threat focus from the Soviet Union and a significant increase in involvement in urban operations around the globe rekindled interest in urban operations.

The recommendation to develop a joint operational concept is an extension of the military's third adaptation towards the conduct of urban operations. In its infancy, the third adaptation recognizes the operational level of urban warfare. The Joint Staff codified this new level of urban operations in its Joint Urban Operations doctrine published September 2002. Joint Publication 3-06, Urban Operations, introduces a systems approach to the urban environment and the utility of operational design for planning and visualizing operations in the city. This approach is a prerequisite to

[7]Department of the Army. FM 90-10. *Military Operations on Urbanized Terrain.* Washington DC 15 August 1979, 1.

creating operational shock in an urban environment. An operational concept will build on the doctrine to help the Joint Force understand how to achieve shock against an enemy in the urban system.

The Joint Force needs to continue its revolutionary adaptation towards urban operations. Joint Publication 3-06 began the transition but stopped short of providing a methodology for warfighting in the urban area. A joint urban operational concept is needed to help commanders view the future of warfare in the city and inform priorities for capability development and acquisition decisions. The argument for creating a joint urban operational concept and the recommendation for an approach is organized into four sections. First, the requirement for a joint urban operational concept is based on the increasing potential for urban operations, recognition of the political restraints inherent in operating among non-combatants, and the nature of the terrain and how it limits the effectiveness of emerging concepts like Rapid Decisive Operations. The second section is a literature review introducing the theoretical foundations for the recommended operational concept. Operational shock, cybershock, and systems theories are surveyed to define how to achieve operational shock and what is the effect on an enemy system. In the third section, a model for operational shock and the key aspects to achieving the effect are contrasted with joint doctrine and the unique nature of the urban environment. Historical precedents of the use or lack of use of operational shock aspects are identified. Operational design and a process for understanding the city becomes critical for the selection of critical points to destroy, control, and influence. The fourth section presents a model based on critical point analysis and the relationship between an enemy system's

critical functions and the populace, physical terrain, and infrastructure. The argument concludes with recommendations and future research subjects.

CHAPTER ONE

"I am talking about attacking those things from which the regime draws its power but being very careful about it so that we don't get large bodies of young Americans caught up in a house to house Berlin, World War II type scenario." Lieutenant General Wallace, V Corps Commander 7 March 2003

Urban operations provide the most difficult terrain soldiers, sailors, and airmen will encounter. Its difficulties necessitate the development of an operational concept that incorporates the strategic context of future operations and required restraints in the use of force within the city. Roger Spiller, George C. Marshall Professor of Military History at the United States Army's Command and General Staff College, stated that "any armed force operates in accordance with a conception of war that has been formed as a consequence of its history, the state of military knowledge available at the time, the material and technical assets at hand, the objectives to which the force expects to be committed and, certainly not least, the caliber of those who must attempt to give it life in battle."[8] The consequence of the United States recent history and the objectives to which the force expects to be committed are directly related to the strategic context of future operations. Global commitments, urbanization, and the asymmetric value of the urban area are the three key factors that will increasingly pull the United States military into the urban complex.[9]

[8]David A. Fastabend, "That Elusive Operational Concept." *Army Magazine* June 2001, 3. accessed (9 February 2003) http://www.ausa.org/www/armymag.nsf/(all)/

[9]*Soldiers in Cities: Military Operations on Urban Terrain*, ed. Michael C. Desch (SSI, 2001), 2. Michael Desch in his article, "Why MOUT Now", describes three reasons for an increasing importance in urban operations. Demographic trends, recent failures in MOUT operations, and increased global responsibilities as a result of the end of the Cold War rekindled the intellectual interest in the subject.

"An Evolving Joint Perspective" underscores the global commitment of the Joint Force with two key assumptions. First, "The United States will continue to have global interests and commitments requiring military power to protect and advance them."[10] Second, "The joint force battlespace will be global and extend from the US homeland to include cyberspace and space."[11] These global commitments lend themselves to expeditionary operations to demonstrate global presence and protect the nation's interest. Of the two hundred fifteen expeditionary operations of the United States from 1946-1976, one hundred four were in the urban environment.[12] The capability to project power globally and the recognition of global interests increase the importance of urbanization and asymmetrical warfare trends.

The demographic explosion of urbanization in the developing world and its associated population shift increases tension along ethnic and cultural fault lines.[13] Seventy-five percent of the world's population will live in cities by the year 2010.[14] In 1995, four hundred eighty-eight cities had a population of greater than seven hundred

[10]The Joint Staff. Directorate for Operational Plans and Joint Force Development. *An Evolving Joint Perspective: US Joint Warfare and Crisis Resolution in the 21st century.* 28 January 2003, 6.

[11]Ibid, 6.

[12]Roger J. Spiller, Sharp *Corners: Urban Operations at Century's End.* U.S. Army Command and General Staff College, 2002, 91. Roger Spiller correlates the increase in expeditionary operations and urban operations. The 104 urban operations out of 215 expeditionary operations were taken from Blechman and Kaplan's *Force without War.*

[13]D. A. Barley, "Are We Prepared for the Challenges of Future Operations in the Urban Environment?" *British Army Review*, (Autumn 2000), 18. Lieutenant Colonel Barley also outlines the increase in urban areas along the littoral regions of the world. This increase in population along the littoral will allow naval and marine forces to operate within range of support ships rather than using evolving doctrine for over the horizon logistics.

[14]*Soldiers in Cities: Military Operations on Urban Terrain*, ed. Michael C. Desch (SSI, 2001), 4.

fifty thousand.[15] These great megalopolis and their sprawl are too large to bypass, and it is not feasible or acceptable to evacuate millions of people from their livelihood and shelter. The implications of global urbanization will not be fully understood for decades, but the turmoil of ethnic strife or humanitarian disaster within cities will garner the attention of strategic decision makers. The Joint Force cannot assume that the real politick calculus of national interest will support ignoring, isolating or bypassing urban areas. For example, the Bush Administration in 1991 decided to enter Mogadishu, Somalia to relieve human suffering with little national interest at stake. Urban space and its increasing economic and political importance also act as an equalizer of military capabilities for belligerents.

Potential adversaries will use the complexities of urban terrain as an asymmetrical solution to the United States military's technological advantages of situational awareness and precision guided munitions.[16] This approach at functional dislocation attempts to render the United States military's strength irrelevant or dysfunctional.[17] Adversaries will attempt to deny decisive combat operations in open terrain where these technological advantages almost ensure defeat. Thereby, adversaries will challenge our ability to respond effectively to crisis. Dr. Colin Gray, in his article "Thinking Asymmetrically in

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[15]United Nations Population Division Department of Economic and Social Affairs, World Urbanization Prospects: The 1999 Revision http://www.un.org/esa/population/publications/wup1999/wup99.htm, 90.

[16]D. A. Barley, "Are We Prepared for the Challenges of Future Operations in the Urban Environment?" *British Army Review*, (Autumn 2000) 18.

[17]Robert R. Leonhard, *The Principles of War for the Information Age.* Presidio Press, Inc. 1998, 64-65. Mr. Leonhard describes four types of dislocation all focused on the art of rendering the enemy's strength irrelevant. Positional dislocation forces the enemy to be in the wrong location or orientation. Functional dislocation places the enemy at a disadvantage through technology or combined arms tactics. Temporal dislocation manipulates time to gain the advantage. Moral dislocation offsets the enemy strength through defeat of the opponents' will.

Times of Terror," stated, "highly irregular warriors of asymmetry can succeed tactically only in the mercifully rare cases when they are indifferent to personal survival, or when they can merge anonymously into the urban human mass or into forbidding physical terrain."[18] The urban environment provides the human mass and the opportunity to force the United States military's forces into a war of attrition, testing the political will of western democracies.

The increase in operations in urban terrain due to global commitments, urbanization, and asymmetrical warfare comes at a time when the United States' military forces face several constraints. Constraints of limiting friendly and non-combatant casualties and preventing the destruction of civilian support infrastructure render many historical precedents of little utility to operational planners. Lieutenant General Wallace, V Corps Commander, stated in a recent newspaper interview," that he hoped to avoid a Stalingrad but there was no model in history for preparing to enter Iraq." [19]

World War II provides the majority of the United States military's historical examples of offensive operations in cities. During the 1942-1943 offensive phase of Stalingrad, the Russians suffered four hundred seventy-five thousand killed and wounded in action, approximately the Army's current end strength.[20] In 1994 and 1996, the Russians conducted offensive operations against insurgents defending Groznyy, Chechnya. These operations resulted in the physical destruction of the majority of the city

[18]Colin S. Gray, "Thinking Asymmetrically in Times of Terror". *Parameters* Spring 2002 8.

[19]Michael Gordon, "Battle Plan for Baghdad", International Herald Tribune, 7 March 2003.

[20]*Soldiers in Cities: Military Operations on Urban Terrain*, ed. Michael C. Desch (SSI, 2001), 24. The defensive phase of the Stalingrad battle, he shows 324,000 dead and 320,000 wounded and sick, producing an average of 5100 casualties per day. During the offensive phase, he shows 155,000 dead and 330,000 wounded or sick.

and the death of thousands of non-combatants. Sergei Kovalev, Russia's Commissioner for Human Rights, estimated twenty four thousand civilian deaths and four hundred fifty five thousand displaced civilians due to fighting between November and January of 1994.[21] These attrition based operational concepts for offensive operations in the urban area, characterized by Stalingrad and Chechnya, are the antithesis of the United States military's operational planning requirements. In the future, success will equal mission accomplishment plus acceptable friendly casualties plus tolerable non-combatant casualties.[22]

The confluence of factors increasing the probability of forces operating in an urban environment and constraints tied to limiting casualties challenges military professionals to develop alternative operational concepts. The systematic clearing of urban structures in a block-by-block methodology characteristic of operations in Aachen, Stalingrad, and Groznyy is a recipe for high friendly and non-combatant casualties and the destruction of infrastructure. The challenge is the development of an executable operational concept for achieving systemic, across the entire system, effects within the urban environment through the selective use of force.

[21]Edward Kline, "Essay on History of Conflict in Chechnya", 1995, http://www.newsbee.net/Moscow/chhistory.html, 15 November 2002. "Kovalev's testimony on the war's human cost was echoed in the observations of a 5-man fact-finding mission to Moscow and Chechnya (January 23-29) under the auspices of the Organization for Security and Cooperation in Europe (OSCE) and led by Istvan Gyarmati, Personal Representative of the OSCE Chairman-in-Office." *Soldiers in Cities: Military Operations on Urban Terrain*, ed. Michael C. Desch (SSI, 2001), 62. Anatol Lieven, author of the Lessons of the War in Chechnya, states that Kovalev's numbers of non-combatant casualties are nonsense. He states that the majority of hospitals in Groznyy were closed but the hospitals south of the city were opened and he analyzed the orderly records. He estimates five thousand dead non-combatants.

[22]Concept developed by Russ Glenn presented in his "Nuggetizing the Elephant" briefing during a School of Advanced Military Studies Urban Operations elective, RAND.

OPERATIONAL CONCEPTS AND ADAPTING FOR ADVANTAGE

The adaptation of operational concepts to achieve an operational advantage is nothing new to warfare. Adaptation or transformation typically follows along two routes. First, an Army can transform its operational concept or how it views the future of combat.[23] "Operational concepts form a bridge between the overarching approach and the identification of needed capabilities."[24] Napoleon's operational concept of distributed maneuver and envelopment with independent operating corps created a considerable operational advantage in the early nineteenth century over France's continental competitors. Second, an Army can adapt technology to create an operational advantage. Moltke's use of the railroad in 1866 to mass two Prussian Armies against the Austrian Army at Konigratz is an example of using technology to create an operational advantage. Neither operational concept nor technological adaptation takes place in isolation. Ground and air mechanization technologies empowered a German interwar doctrine for World War II. This operational concept evolved into Army Regulation 487, Leadership and Battle with Combined Arms.[25] This combination of a new operational concept and technology, referred to as Blitzkrieg, created a synergy that gave the German Army an operational advantage through the early years of World War II. The United States Army empowered its Airland Battle doctrine with the big five acquisition of the early nineteen

[23]David A. Fastabend, "That Elusive Operational Concept." *Army Magazine* June 2001, 3. accessed (9 February 2003) http://www.ausa.org/www/armymag.nsf/(all)/. Mr. Fastabend uses Knox's 1915 description: of an operational concept as "a military power views an operational concept as a conception of war as it should in its opinion be best conducted."

[24]Chairman of the Joint Chiefs of Staff, JUO Master Plan (draft), Washington, DC: The Joint Staff, 5 November 2002

[25]David A. Fastabend, "That Elusive Operational Concept." *Army Magazine* June 2001, p. 2. accessed (9 February 2003) http://www.ausa.org/www/armymag.nsf/(all)/

eighties. Though the operational requirements documents of the big five acquisitions predated the enunciation of Airland Battle, the operational concept had significant impact on design criteria such as speed and survivability.[26] History illuminates that ideas and operational concepts matter and provide technological innovations a framework for development and integration. Any working hypothesis for the future of war must include major combat operations in different environments. If the working hypothesis for joint warfighting is that a robust command, control, communications, computers, intelligence, surveillance, and reconnaissance structure will provide superior situation awareness and long range fires will allow the defeat of an enemy without sustained close combat, the urban environment will challenge the hypothesis.[27]

JUST AN ENVIRONMENT?

The question might be asked, why does the urban environment require a separate operational concept? The debate between environment and operational concept is ongoing within the joint community. The current Joint Staff direction is the development of operational concepts for seven mission types. These seven mission types are subsets of the interim range of military operations from war to military operations other than war.[28] The seven joint operational concepts will each address the urban environment as a

[26]Federation of American Scientist. Direct Fire Weapons. http://www.fas.org/man/dod101/sys/land/direct.htm (accessed 13 January 2003)

[27]Jim Garamone, "Joint Forces Command to test revolutionary combat." Air Force News 11 May 2000. General Shelton described Rapid Decisive Operations to the Senate Appropriations Committee on 26 April 2000 as, "Rapid Decisive Operations emphasizes critical functional concepts, including attack against critical, mobile targets, which focuses on near-simultaneous sensor-to-shooter data flow and high-speed, long-range weapons," Shelton said April 26 during testimony before the Senate Appropriations Committee.

[28]The Joint Staff. Directorate for Operational Plans and Joint Force Development. *An Evolving Joint Perspective: US Joint Warfare and Crisis Resolution in the 21st century.* 28 January 2003, 6.

possible characteristic of mission types such as major combat operations, peacekeeping operations, and counterterrorism.[29] This begs the question, whether major combat operations in the deserts of Iraq and the city of Baghdad are similar enough to be included in the same operational concept? If an operational concept drives the Joint Requirements Process, then will a major combat operations operational concept ensure the correct acquisition priorities for the urban fight? Unlike any other environment, the high density of non-combatants dictates the characteristics of the environment and limits the application of force.

If the urban area is only another environment, it is an environment that requires a deep understanding of its human dimension and an adaptation of current doctrinal approaches to offensive operations. The focus on humanness of the urban environment is a change from planning the defense of Western Europe against a symmetrical superpower. Airland Battle, the United States Army's operational concept of the nineteen eighties, focused on the threat system within an environment distinguished by its physical characteristics. Rapid Decisive Operations, as an emerging joint warfighting concept, focuses on speed of tempo and long-range identification and engagement of the enemy. The urban environment brings a third party with its three dimensional physical terrain into the warfighting equation. Field Manual 34-130 states, "Terrain analysis at the operational level focuses on the general effects of terrain on operations within the

[29]Operational Plans and Joint Force Development. Hertling, Mark, J7, Joint Staff. Briefing delivered on 7 February 2003 to the School of Advanced Military Studies. Brigadier General Hertling discussed the development of seven Joint Operating Concepts. These concepts – homeland security, combating terrorism, major combat operations, global strike, strategic deterrence, promote security, and transition – are derived from the National Security Strategy, National Military Strategy, and Joint Vision 2020. Individual scenarios for each recommended Joint Operating Concept will include different threat and terrain characteristics. Recommended scenarios for major combat operations are large scale combat with anti-access difficulties, urban operations, operations against a non-state actor with weapons of mass destruction, and operations in a faltering state with regional nuclear capability.

battlefield framework."[30] Examples of terrain at this level are large pieces of terrain that have a significant impact on combat units such as dense forests, transportation networks, seasonal weather analysis, and other factors such as cultural.[31] In the urban area the "other factors", such as cultural are the most critical to planning. The differences of the environment and its effects on enabling capabilities like C4ISR dominance and precision engagement from the air make the development of a separate joint urban operational concept a requirement for future military success in the city.[32]

HOW TO CRACK THE NUT?

An urban operational concept must be a view towards future warfare in the city and a usable framework for service capability development, technology acquisition, and training. Statements like "avoid an attrition approach" from the Army's draft Field Manual 3-06 do not describe a model for commanders and planners.[33] Several concepts have emerged as alternatives to historical precedent. General Scales authored an article entitled, "How US Military Forces Can Avoid the Pitfalls of Future Urban Warfare," where he outlined a theory of isolate and collapse.[34] General Scales' thesis ignored the

[30]Department of the Army. *Field Manual 34-130, Intelligence Preparation of the Battlefield.* Washington, DC: Headquarters, Department of the Army Headquarters, 8 July 1994, Chapter 5.

[31]Ibid, Chapter 5.

[32]Charles L. Taylor, Military Transformation for Warfare in the Twenty-First Century: Balancing Implications of Urban Operations and Emerging Joint Operational Concepts, United States Army War College, 9 April 2002, 18. Mr. Taylor's recommendation is to use joint urban operations as a linchpin to the development of an overall joint operational concept. He asserts that the urban environment is the most difficult problem faced by a joint force dependent on warfighting with a robust C4ISR structure.

[33]Department of the Army. *Field Manual 3-06, Urban Operations.* Washington, DC: Headquarters, Department of the Army Headquarters, DRAG May 2002, 5-12.

[34]Robert H. Scales, "The Indirect Approach: How US Military Forces Can Avoid the Pitfalls of Future Urban Warfare." *Armed Forces Journal International,* October 1998.

challenge of housing and feeding millions of displaced civilians. It also ceded the urban area to America's future adversaries by declaring an intention not to enter the city. His proposed approach has little utility in planning for operations within the urban environment when isolation is politically or militarily not suitable or acceptable. Two additional concepts have emerged that address the eventuality of entering a city.

The fiscal year 2001 Authorization Act required the designation of an executive agent to develop a Joint Urban Operations Plan.[35] The Joint Urban Operations Master Plan (draft Nov 02) provided an explanation of the development of the Department of Defense new approach to urban operations. The plan emphasized a maneuver approach with the five-activity framework described in Joint Publication 3-06: understand, shape, engage, consolidate, and transition. Maneuver is emphasized as generating an advantage in tempo. The advantage will provide the opportunity to diminish the adversary's ability to fight and then its will to resist.[36]

The RAND Arroya Center under contract of the United States Army has presented numerous monographs on the changing nature of urban operations. Russell Glenn wrote in *Corralling the Trojan Horse: A Proposal for Improving US Urban Operations Preparedness in the Period of 2000-2025* that US forces must seek an alternative to today's "close-combat" concept of urban warfare. He recommended six simultaneous components: 1) ISR enhancements 2) Denial of access 3) Nodal operations 4) Noncombatant control 5) Selective dominance and 6) Post-conflict sustainment.[37]

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[35]Defense Authorization Act, U.S. Code, Vol 106-398, secs, 113 (2001)

[36]Chairman of the Joint Chiefs of Staff, JUO Master Plan (draft), Washington, DC: The Joint Staff, 5 November 2002, Chapter II.

[37]Russell Glenn, Corralling the Trojan Horse: A Proposal for Improving U.S. Urban Operations Preparedness in the Period 2000-2025. Santa Monica, CA: RAND, 2001, 16-26.

This methodology is a separate paradigm than applied in emerging joint doctrine. The key component to the paradigm described in *Corralling the Trojan Horse* is a reduced dependence on close combat.[38] The key components of the paradigm are similar to the operational shock theory with the identification of key nodes as decisive points, segregation from support of populace, and simultaneous selective dominance of key nodes. These emerging concepts are helpful in the development of a joint urban operational concept, but a lack of historical precedence plagues the maneuver and selective influence approach.

Operation JUST CAUSE and the Russian assault on Kabul are two historical precedents that illustrate operational shock focused on the control mechanisms of civilian and military leadership through maneuver, simultaneity focused on decisive points and the cyber component of separating fielded forces from commanders. The traditional coup de main characterizes these operations. JUST CAUSE and the take down of Kabul in 1979 include all the described elements of operational shock. Though these precedents are important to understand the operational effect that can be achieved in the swiftness of the coup de main, many urban operations will not lend themselves to the advantages that Soviet and American forces had in Afghanistan and Panama. These key advantages were a prior presence in the city and a political environment that would disintegrate armed opposition once the political leadership was removed.

In 1979 the Russian military quickly removed the political leadership in Kabul and the Afghani Army quickly disintegrated. The Russians learned their lessons of

[38]Russ Glenn described the paradigm difference between the approach described in the monograph *Corralling the Trojan Horse* and current joint doctrine during a School of Advanced Military Studies Urban Operations elective. The key difference is looking for a methodology to win in the city while greatly reducing the need for close combat.

taking down a political regime in the city with the heavy losses in the 1956 Hungarian Revolution. In response to the losses, the Russians developed an operational concept tested in Czechoslovakia in 1968 to support the rapid take down of a city. This model included pre-hostility presence, extensive reconnaissance, IO focus on isolating the city and disrupting external communications, integration of SOF and conventional forces against critical nodes or decisive points, centralized planning and decentralized, simultaneous operations.[39]

A similar precedent for operational shock was Operation JUST CAUSE and its use of maneuver to simultaneously strike twenty-seven objectives across multiple dimensions to gain an advantage over the Panamanian center of gravity.[40] Just as in Kabul, the United States Army had maintained a long-term intelligence effort within the country and prepositioned forces prior to the initiation of hostilities.

An urban operational concept needs to be a paradigm that can help commanders and planners engage an enemy in the city and drive technological research and development. Russian theorists developed a similar operational concept after World War I. Analyzing results from the First World War, theorists declared that the attritional models of the last war would no longer achieve military victory.[41] The military system could not be destroyed through an attrition model focused on the linear defense of the

[39]Lester W. Grau, "The Take-Down of Kabul: An Effective Coup de Main." *Urban Operations: an Historical Casebook*, Fort Leavenworth, Kansas, Oct 2002:

[40]David B. Haight, "Operation JUST CAUSE: Foreshadowing Example of Joint Vision 2010 Concepts in Practice." Naval War College, February 1998, 6.

[41]Frederick Kagan, "Soviet Operational Art: The Theory and Practice of Initiative 1917-1945" *Leadership: The Warrior's Art*, Editor, Kolenda, Christopher.

rival system. [42] Instead of a linear oriented attrition model focused on destruction, the Russian Army developed udar or operational shock. Shock was an operational concept developed to attack the opponent's cognitive behavior producing disintegration. This was a departure from Europe's emphasis on destruction, transforming a Russian operational force focused on system disruption through depth and simultaneity.[43] A new operational concept for operations in an urban area must achieve the systemic effects the Russian theory depended on and include the human variable as the defining characteristic of the urban complex.

A review of recent literature on urban warfare and the theory of operational shock will provide an understanding of the current state of knowledge on urban warfare. This literature review surveys current Joint and Army operational doctrine and theories that discuss operational shock and the systems approach to the urban environment. The synthesis of these theories and concepts provides a definition of operational shock and aspects critical to achieving operational shock in the urban area.

[42]Shimon Naveh, In *Pursuit of Military Excellence*. London: Frank Cass Publishers, 1997, 16.

[43]Ibid, 11.

CHAPTER TWO

Absent an ability to dispute control of the airspace outright currently possessed by few potential adversaries, a future aggressor instead will seek to reduce his exposure to stand off attack by avoiding massed formations, dispersing, concealing and hardening critical assets, and operating wherever possible in and from complex terrain, to include exploiting the physical and moral sanctuary furnished by heavily populated areas and urban terrain. Land Warfare Paper Number 40, March 2002.

Few environments challenge the multi-dimensional dominance of the United States' military. Our current joint operational concepts and force structure maximizes long-range engagement and tempo empowering a doctrine focused on rapidly creating overmatch.[44] The complex terrain of the urban environment mitigates these advantages and complicates planning and execution. The impact of urban terrain on warfighting received little intellectual attention during the fifteen years associated with active defense and Airland battle. The doctrine of bypassing and isolating urban complexes at all cost focused on open warfare between large armored formations. The increase in urban operations in the nineteen nineties produced an explosion of literature discussing alternatives to isolate and bypass.

This review of relevant surveys outlines operational shock and urban systems theory. The review introduces a definition of operational shock developed through synthesis of Russian operational theory, Dr. Schneider's description of cybershock and doctrine. Additionally, a review of doctrine and professional journal articles describing a systems theory approach to urban doctrine provides the foundation for creating a systemic effect.

[44]Chairman of the Joint Chiefs of Staff, Joint Pub 3-0, *Doctrine for Joint Operations*, Washington, DC: The Joint Staff, 10 September 2001, III-21. Force overmatch is achieved during Phase III Decisive Operations.

OPERATIONAL SHOCK

Defining operational shock requires the synthesis of Russian operational theory, joint and army doctrine, and professional articles. The concept of operational shock originates from Russian operational theory during the interwar years. *In Pursuit of Military Excellence,* Shimon Naveh defined Russian operational shock (udar) as "a consequential state of a fighting system which can no longer accomplish its aims."[45] Russian theory outlined shock as deriving its effect from the physical and psychological domains. Operational shock included a horizontal and vertical component focused on the rival systems' frontage isolating units preventing them from cooperating, and the depth segregating the operational command from the entire command and control structure.[46] Russian operational theory stated that simultaneity, fragmentation, and momentum achieved operational shock.

The Russian deep battle theory focused on the command and control structure of the enemy by attacking across the depth of its echelonment. Dr. James J. Schneider, professor of military theory at the School of Advanced Military Studies, in an article titled "A New Form of Warfare" introduced cybershock as a systemic paralysis of an army through its inability to direct and control itself."[47] The concept of cyber reinvigorated a theory of operational shock against an enemy without depth in echelonment. An urban operational concept attempting to create operational shock will need to conform to an enemy without a linear frontage and definable spatial depth. Dr.

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[45]Shimon Naveh, *In Pursuit of Military Excellence*. London: Frank Cass Publishers, 1997, 16.

[46]Ibid, 17.

[47]James J. Schneider, "A New Form of Warfare." *Military Review*, (Jan-Feb 2000): 56.

Schneider's hypothesis is that cybershock is achieved through electronic isolation, deception, surprise, and speed, focused against command and control, and therefore effectiveness of the enemy system.[48] The emphasis on cyber in Dr. Schneider's hypothesis might lead someone to believe that shattering of cohesion can be accomplished through virtual or electronic means alone. Richard Simpkin's *Race to Swift* explains the importance of mass to attack cohesion.

Race to the Swift discusses the exertion of simultaneous pressure to affect a change-and-response cycle. Additionally, this pressure must include a minimum mass because organized forces maintain a certain amount of cohesion that shields them against disintegration or disorganization.[49] Operational shock must include a physical aspect as described by the segregating function of udar. Joint and Army doctrine articulate shock as an effect associated with disruption and paralysis.[50]

Joint Publication 3-0 Doctrine for Joint Operations and *Field Manual 3-0 Operations* describe four components to achieving shock against an enemy system. First, a commander uses maneuver to concentrate forces to achieve psychological effects.[51] Second, force is focused against decisive points. Third, integration of joint effects creates

[48]Ibid, 56.

[49]Richard E. Simpkin, *Race to the Swift: Thoughts on Twenty-First Century Warfare*. London: Brassey's Defence Publishers, 1985, 188.

[50]Department of the Army. *Operations*. Washington, DC: Headquarters, Department of the Army Headquarters, 14 June 2001, 4-4, 4-16, 5-12.

[51]Ibid. 4-4, 4-16, 5-12.

multi-dimensional pressure on the enemy system. Fourth, surprise and physical momentum create psychological effect.[52]

Through synthesis, these sources provide a useable description of operational shock. The Joint Force Commander achieves shock through maneuver and cybernetic attack. Shock requires a physical component or minimum mass and cannot attempt to affect the moral and mental levels of warfare by non-physical means alone. Operational shock focuses throughout the systems spatial and logical depth targeting the rival systems' decision loop and separating forces from operational command and control.

This description leads to a definition of operational shock. Operational shock is a systemic effect against the enemy systems control mechanisms, which achieves paralysis, disorganization, and disintegration. The simultaneous application of multi-dimensional force across the rival systems spatial, temporal, and logical depth focusing on the rival system's cognitive and physical components achieves operational shock. Implied in this definition of operational shock is the requirement to understand the rival system and the interrelationships between its critical variables. The understanding of the system which is the first activity of the USECT – understand, shape, engage, consolidate, and transition-requires a systems approach to create the desired operational level effects.[53]

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[52]Chairman of the Joint Chiefs of Staff, Joint Pub 3-0, *Doctrine for Joint Operations*, Washington, DC: The Joint Staff, 10 September 2001, IV-9.

[53]Chairman of the Joint Chiefs of Staff, Joint Pub 3-06, *Doctrine for Joint Urban Operations*, Washington, DC: The Joint Staff, 16 September 2002, viii. "The framework for planning and conducting JUOs can be described in terms of the following activities: understand, shape, engage, consolidate, and transition. These activities function as an interdependent, continuous, and simultaneous cycle and are applicable for urban operations across the entire range of military operations." The Joint Urban Operations Publication defines the urban area as a system of systems. An urban triad is the interrelationship of people, physical terrain, and infrastructure.

SYSTEMS APPROACH TO THE CITY

Essential to creating operational shock is the selection of the correct critical nodes and decisive points within the rival system. Selection of critical nodes requires understanding the system, its human architecture, and the depth of the urban area. This approach to systems analysis is rooted in Russian operational theory and Army and Joint doctrine.

Russian operational theory approached operational shock as an effect targeting a rival system. Shimon Naveh, *In Pursuit of Military Excellence*, described the Russians' realization after World War I that a military could not destroy another military system. Additionally, the Russian theory described two distinct weaknesses of any system. First, the aim absolutely dominates the action of the system. Second, military systems require depth in space and a hierarchical logic of action.[54] Emerging Army and Joint doctrine and professional articles describe the urban complex within the context of a system. The surveyed literature describes characteristics of cities, depth, and terrain.

The joint and army urban operations doctrine adopted systems analysis of the urban environment. *Joint Publication 3-06 Doctrine for Joint Urban Operations* outlined a methodology for approaching the urban complex using the urban triad - three characteristics present in any urban complex. The urban triad consists of physical terrain, population, and infrastructure. The presence of these three characteristics makes the urban complex a dynamic system of systems.[55] *Field Manual 3-06 Urban Operations*

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[54]Shimon Naveh, *In Pursuit of Military Excellence*. London: Frank Cass Publishers, 1997, 17.

[55]Chairman of the Joint Chiefs of Staff, Joint Pub 3-06, *Doctrine for Joint Urban Operations*, Washington, DC: The Joint Staff, 16 September 2002, I-2, I-3.

states, "the urban environment includes the physical aspects of the urban area as well as the complex and dynamic interaction and relationships between its key components—the terrain (natural and manmade), the population, and the supporting infrastructure as an overlapping and interdependent system of systems."[56]

The understanding of the system requires an analysis of its key variable, humanness, and its relationship to a city's rhythm, cohesion, and tenacity. Additionally the tenets such as depth that have a common character in Russian operational theory and cybershock have a non-traditional importance beyond the spatial dimension in the urban complex. Several authors have explored these concepts critical to creating operational effects in the urban complex.

The analysis of the human nature of the city can be done through two supporting lenses. The first and the more scientific of the two is the analysis of the demographic nature of the city or what conditions exist.[57] Second and the most important is the cultural analysis that answers why the conditions exist.[58] Cultural analysis supports the understanding required to select points to influence. Ralph Peter's introduced a methodology in his article, "The Human Terrain of Urban Operations," that describes a methodology for categorizing the "human architecture" within the urban complex. He defines three categories. First, hierarchical cities found commonly in the west characterized by united citizenries that historically offer prolonged resistance to an attacker. Second, multi-cultural cities commonly found along Huntington's cultural fault

[56]Department of the Army. *Field Manual 3-06, Urban Operations.* Washington, DC: Headquarters, Department of the Army Headquarters, DRAG May 2002, 1-3.

[57]Jamison J. Medby, Street Smart: Intelligence Preparation of the Battlefield for Urban Operations. Santa Monica, CA: RAND, 2002, 55.

[58]Ibid, 55.

lines characterized by aggravated ethnic divisions that can be easy to conquer through the manipulation of minority groups. Third, tribal cities commonly found in Africa are characterized by large young male populations seeking adventure that are difficult to control due to lack of consensus towards any position. This methodology emphasizes the absolute criticality of understanding human architecture.[59] Understanding that the human architecture of a city provides a definable cohesion and pattern, commanders and planners can begin to make sense of perceived chaos. Dr. Spiller's book, *Sharp Corners: Urban Operations at Century's End*, states that, "The critical element to understanding the environment is its humanness." The humanness of the city provides reason to the shape, reaction to chaos, relationship to other regional urban complexes, and tenacity."[60] Jamie Joe Medby, in her book *Street Smarts,* recommends analysis of the human dimension of the urban area as a first step to the development of the four steps of Intelligence Preparation of the Battlefield.[61] This methodology of a continuum of relative interest supports the analysis of the relationships between the enemy and population sub-groups.

The greatest change to the operational environment is the humanness that defines the urban area and the constraints it places on military operations. The population provides the foundation for the operational environment and must be a key component to a new urban operational concept. Analyzing the urban system and its defining human characteristic requires an understanding of how the system might interact in depth.

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[59]Ralph Peters, "The Human Terrain of Urban Operations." *Parameters*, (Spring 2002): 4-12.

[60]Roger J. Spiller, *Sharp Corners: Urban Operations at Century's End.* U.S. Army Command and General Staff College, 2002.

[61]Jamison J. Medby, Street Smart: Intelligence Preparation of the Battlefield for Urban Operations. Santa Monica, CA: RAND, 2002.

The book *Soldiers in Cities: Military Operations on Urban Terrain* describes the Israeli Defense Force operational design for the 1982 invasion of Lebanon. The Israelis approached the Palestinian Liberation Organization as a rival system and attempted to define "urban warfare depth". The focus on depth of the system finds its origin in the Russian operational theory discussing operational strike and shock. The Israeli Defense force conducted an amphibious operation to attack the depth of the rival system. The Israeli attempt to separate the disparate parts of the system from the command and control in Beirut was unsuccessful. The author's analysis is that the "urban warfare depth" was along the logical lines of logistics and local populace support and not physical space.[62]

The systems approach to the urban environment directly influences the planners' ability to use operational art to achieve shock. The urban triad and its relationship to the rival system form a series of interrelated, dynamic variables that if properly identified and simultaneously attacked across several dimensions can send a shock throughout the higher system. The analysis of "urban warfare depth" is essential to the correct selection of critical nodes and their interrelationships. Dr. Spiller and Ralph Peters provide a mental framework for approaching the humanness of the urban system and developing an operational design of center of gravity and decisive point analysis to focus operational shock.

[62]Michael C. Desch, *Soldiers in Cities: Military Operations on Urban Terrain.* Strategic Studies Institute, 2001, 41-43.

CHAPTER THREE

"The future is not the son of Desert Storm, but the stepchild of Somalia and Chechnya."
General Charles Krulak, USMC

Through a synthesis of the Russian "deep battle" theory, joint and army doctrine, Dr. Schneider's article on cybershock, and emerging effects based theory, operational shock depends on five key aspects: 1) focus on enemy systems control, 2) maneuver against decisive points, 3) simultaneity, 4) depth, and 5) action focused across the mechanical and cognitive realms of warfare. The uniqueness of the urban terrain adds an additional dimension to all of these tenets with an emphasis on the relationship between the rival system and the urban triad. The examination of each of these aspects against the difficulties of the urban area provides an answer to the feasibility of the operational concept.

ASPECTS OF OPERATIONAL SHOCK

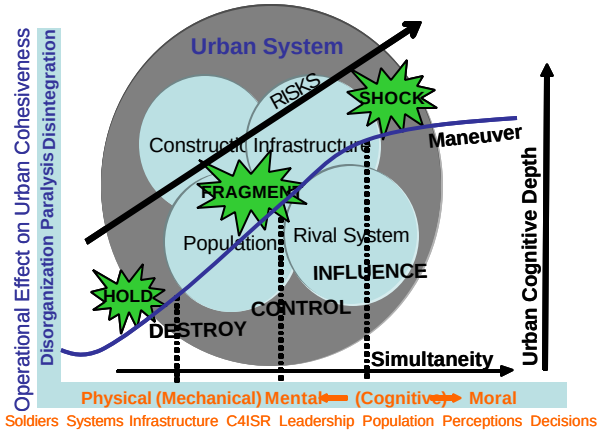

Figure 1. Aspects of Operational Shock.

CONTROL

The principal effect of operational shock is the loss or disruption of the enemy system's ability to control its forces, thereby preventing it from achieving its aim.[63] The absolute dominance of the system's aim is its primary weakness.[64] An aim provides the system purpose and direction. Shimon Naveh describes this relationship of a system to its aim as, "that which provides the cognitive cement to combine the loose complex of independent formations into a coherent operational unity."[65] Control required for operational unity is the target of operational shock. A secondary weakness of the system is its hierarchy; a concept related to the system and its aim.

A deep structure and logic of action are characteristic of the hierarchical nature of the system.[66] Russian operational theory described the deep structure as frontage and depth. Depth and frontage relationships meant an echelonment of military formations with the top of the hierarchic pyramid in the rear flowing to the front.[67] The problem of creating operational shock in the urban area is an absence of echelons and frontage. Operational shock as an effect must conform to the urban environments' unique physical terrain, infrastructure and human dimension to prove its usefulness as an urban operational concept. Aspects of operational shock such as maneuver, simultaneity, and depth must focus on the functions that support control and operational unity. The

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[63]Shimon Naveh, *In Pursuit of Military Excellence*. London: Frank Cass Publishers, 1997, 16. Naveh states that the absolute dominance of the system's aim is its primary weakness.

[64]Ibid, 16.

[65]Ibid, 16.

[66]Ibid, 17.

[67]Ibid, 17.

functions of observation and sustainment support the ability of the enemy system to control its subordinate forces. In order to analyze the relationship of these aspects to the urban environment, a theoretical understanding of command and control is important.

Command and control consists of the decision making process and the control system related to the planning, directing, coordinating, and controlling forces.[68] The quality and effectiveness of the decision making process is dependent on the degree of situational understanding of the battlespace. In order to affect the control and operational unity of the enemy system, the enemy can be blinded or deceived of the true nature of the battlespace. Dr. Schneider's theory of cybershock described electronic isolation, deception, and surprise as components of achieving a systemic effect.[69] The decision making process informs the control mechanisms.

Control systems historically are dependent on bureaucracy as well as technology to increase efficiency and speed of an activity.[70] Each methodology of control is important for understanding how the enemy system processes information and communicates with subordinate units. Control through bureaucracy and technology in Russian operational theory meant echelonment and depth in structure. Understanding the

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[68]*Department of Defense Dictionary of Military Terms.* http://www.dtic.mil/doctrine/jel/doddict/index.html amended as of 9 January 2003. The Department of Defense defines command and control as, "The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission." The decision making process and a control system are the underlying functions and procedures that support the planning, directing, coordinating, and controlling of forces.

[69]James J. Schneider, "A New Form of Warfare." *Military Review*, (Jan-Feb 2000): 56.

[70]James R. Beniger, *The CONTROL Revolution: Technological and Economic Origins of the Information Society.* Harvard University Press, 1986, 7.

urban environment's impact on those functions and how they relate to the urban area is critical to the use of maneuver, simultaneity, and depth.

MANEUVER

The traditional argument that places maneuver and attrition at opposite ends of the offensive spectrum is not appropriate for a model illustrating the achieving of a systemic effect. A focus on the enemy system's cohesion requires mass or direct and kinetic effects. *Race to the Swift* discusses the exertion of pressure that must include a minimum amount of mass to counter the enemy system's cohesion.[71] Russian operational "deep battle" required the exertion of mass or a fragmenting strike to neutralize the cohesive interrelationship between the enemy and its functional components.[72] Achieving a systemic effect is a reconciliation of ways and ends and not a limitation on the means or forms of warfare such as attrition, maneuver, and coercion.[73] Effects are often seen as some nebulous, nonphysical means of warfare rather than a linkage between the mechanical military objectives or critical nodes and strategic aims. The use of maneuver as a tenet recognizes the necessary preeminence of an operational advantage by as little attrition as possible in an effort to achieve strategic aims without the tax of high friendly and non-combatant casualties.

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[71]Richard E. Simpkin, *Race to the Swift: Thoughts on Twenty-First Century Warfare*. London: Brassey's Defence Publishers, 1985, 188.

[72]Shimon Naveh, *In Pursuit of Military Excellence*. London: Frank Cass Publishers, 1997, 214.

[73]Edward C. Mann and Gary Endersby. *Thinking Effects: Effects Based Methodology for Joint Operations.* Cadre Paper No. 15 Air University Press, October 2002, 2. There is a close relationship of the emerging Effects Based Operations theory and Operational Shock. Both are attempting to achieve a systemic effect as a way to achieve political ends. The means or forms of warfare are stitched together in a plan to achieve the systemic effect which will achieve the strategic aim.

Field Manual 3-0 defines operational maneuver as the "placing of Army forces and resources at the critical place in time to achieve an operational advantage.[74] Joint Vision 2020 defines dominant maneuver as "the ability of joint forces to gain positional advantage with decisive speed and overwhelming operational tempo in the achievement of assigned military tasks."[75] The density of non-combatants and man-made physical terrain in the urban environment severely limits the United States' joint forces traditional advantage of physical maneuver. Additionally, the density of the urban environment is ever changing in peace and war with the movement of non-combatants and the construction or rubbling of man-made structures. Describing maneuver as physical positioning to achieve advantage within the urban area greatly reduces the opportunities that exist to influence the enemy and urban system.

The Army and Joint doctrinal definitions emphasize the physical movement of forces and resources rather than the concept of achieving an operational advantage. The uniqueness of the urban environment with its human element and asymmetric value makes this doctrinal definition insufficient for a new urban operations paradigm. In the urban environment, maneuver must emphasize achieving an operational advantage and dislocation. Robert Leonhard, in his book The Principles of War for the Information Age, defines maneuver as the "placing of the enemy in a position of disadvantage through the flexible application of combat power."[76] The focus on operational advantage and combat power emphasizes the importance of indirect or cumulative effects targeting

[74]Department of the Army. *Operations*. Washington, DC: Headquarters, Department of the Army Headquarters, 14 June 2001, 4-4.

[75]Chairman of the Joint Chiefs of Staff, Joint Vision 2020, Washington, DC: The Joint Staff, http://www.dtic.mil/jv2020/jvpub2.htm, accessed 12 January 2002.

[76]Robert R. Leonhard, *The Principles of War for the Information Age*: Presidio Press, 2000, 53.

behavioral elements of leaders and population sub-groups as well as physical maneuver against mechanical elements such as soldiers and systems.

Maneuver within the urban environment must focus on temporally and functionally dislocating the rival system.[77] Joint forces must not meet the rival system on its terms within the city. Facing the enemy's components, strength on strength, will quickly raise the cost of operations in friendly and non-combatant casualties. Changing the conditions the enemy expects to fight in through dislocation is important to attaining and maintaining the initiative. For example, maneuver in the urban complex must focus on the cognitive such as manipulating popular support of a population sub-group, as well as, the physical of isolating a portion of the urban complex critical to the enemy's situational awareness.[78] An example of operational maneuver in the urban area is H-hour Panama, 1989. Twenty-seven strikes conducted by special operating forces, light infantry, and attack aviation attacked command and control sites breaking the cohesion of the Panamanian Defense Force.[79]

A theory related to operational maneuver in an urban area is relative superiority. "Relative superiority is a condition that exists when an attacking force, generally smaller, gains a decisive advantage over a larger well-defended force."[80] Relative superiority is achieved at a pivotal moment during the initial part of an engagement. It must be sustained and loses its value over time against a numerically superior enemy. Achieving

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[77]Ibid. 64

[78]Ibid. 65.

[79]Raymond A. Thomas, "JUST CAUSE Revisited: Paradigm for Future Operations," U.S. Naval War College, New Port, RI: 1995, 8.

[80]William H. McRaven, *Spec Ops: Case Studies in Special Operations Warfare Theory and Practice.* Presidio Press, August 1998, 4.

relative superiority is dependent on surprise, speed, and purpose.[81] Relative superiority becomes important when selectively influencing critical points in the urban environment. The initial moments of control over the two block area of Mogadishu, Somalia demonstrates the achievement of relative superiority. Once the clan leadership realized that the insertion was a small group of soldiers and their method for leaving the city was a convoy, the enemy attacked and pursued relentlessly.[82] What the Mogadishu raid lacked was simultaneous insertions to deceive the clan leadership of Task Force Ranger's intentions and prevent the massing of gunmen from that area of the city.

SIMULTANEITY

The use of maneuver as a tool to influence the enemy commander's decision cycle and create conditions for operational shock requires simultaneity to overwhelm the senses required for observation, orientation, and direction of subordinate elements. In 1994, Russian forces attempted a double penetration of the center of Groznyy with the 81st Motorized Rifle Regiment (MRR) and the 131st Maikop Brigade. Due to a lack of situational understanding and command and control of the two forces, the 131st Maikop Brigade did not continue its penetration of the city center after seizing the rail station. As the 131st Brigade, conducted an operational pause the 81st MRR was ambushed. After the defeat of the 81st MRR, the Chechen fighters attacked the 131st Brigade nearly destroying

[81]Ibid. 11.

[82]Mark Bowden, "Reliving a Firefight: Hail Mary then Hold On" Philadelphia, Inquirer, 16 Novermber, 1997, http://inquirer.philly.com/packages/somalia/nov16/default16.asp. Mark Bowden's account reports immediate gunfire from Somali gunmen, but there was no indication of the massing of gunmen from other parts of the city. McRaven's concept of relative superiority utilizing surprise and speed initially overwhelmed the local gunmen protecting the twenty-four Somalis detained.

the entire unit.[83] The Russian attack without simultaneous supporting efforts enabled Chechen rebels to mass on each isolated unit. Maneuver and simultaneity in the urban area requires the enemy commander to split his defensive effort and limit his ability to isolate and destroy individual friendly elements.

Joint Publication 3-0 states "simultaneity is the simultaneous application of capability against the full array of enemy capabilities and his strengths."[84] Joint doctrine refers to the simultaneous pressure across levels of warfare as Parallel Operations.[85] Within the study of urban operations simultaneity is often thought of as part of a coup de main. The nineteen eighty nine invasion of Panama involved simultaneous raids on the "Panamanian Defense Forces barracks at Fort Amador, the National Departments of Investigation and Transportation, and the central nerve center of the Panamanian Defense Forces at La Commandancia."[86] Though this offensive operation achieved the systemic effect of operational shock, simultaneity does not have to be linked to rapidity. The key to simultaneity is the interaction between the attacking forces maneuver and how the enemy system senses, understands, and responds. The Joint Urban Operations Master Plan (draft) emphasizes the control of tempo to obtain advantage. The tempo of friendly

[83]Timothy L. Thomas, "The 31 December 1994-8 February 1995 Battle of Grozny", Combat Studies Institute, Command and General Staff College (http://www-cgsc.army.mil/csi/research/MOUT/)

[84]Chairman of the Joint Chiefs of Staff, Joint Pub 3-0, *Doctrine for Joint Operations*, Washington, DC: The Joint Staff, 10 September 2001.

[85]The Joint Staff. Directorate for Operational Plans and Joint Force Development. *An Evolving Joint Perspective: US Joint Warfare and Crisis Resolution in the 21st century.* 28 January 2003.

[86]James H. Embry, Operation Just Cause: Concepts for Shaping the Future of Rapid Decisive Operations. US Army War College, April 2002.

operations is relative to enemy capabilities and actions. The key to achieving an advantage is through controlling the tempo.[87]

In order to achieve a systemic effect against an enemy system, friendly courses of action must create multi-dimensional effects across the enemy system and its interrelationship with the infrastructure and population. The objective of these effects is operational shock preventing the enemy from achieving its aim. Simultaneity within operational shock achieves over stimulus against the enemy system's decision loop. The friendly commander's combat action overwhelms the enemy system's observing and sensing window achieving an operational advantage.[88]

Simultaneity in the urban area takes on the added complexity of multiple missions taking place simultaneously in a constricted space. Achieving shock against the enemy system requires changing the enemy system's condition in which it operates. Operations controlling riots of populations supporting the enemy force or feeding neutral populations can change the condition of the urban area. During combat operations, friendly courses of action will include stability and support missions. FM 3-0 states, "…throughout the campaign, offensive, defensive, stability, and support missions occur simultaneously."[89] The difference with the urban complex is the constricted space and time where multiple missions will occur. General Krulak's concept of the three-block war where small units will face several mission types within a given day provides an analogy for future combat

[87]Chairman of the Joint Chiefs of Staff, JUO Master Plan (draft), Washington, DC: The Joint Staff, 5 November 2002.

[88]John Boyd, Patterns of Conflict. http://www.d-n-i.net/fcs/ppt/boyds_ooda_loop.ppt (accessed 12 January 2003)

[89]Department of the Army. *Operations*. Washington, DC: Headquarters, Department of the Army Headquarters, 14 June 2001, 1-16.

operations in the city.[90] The sum of these simultaneous actions will change the condition of the urban area throughout its depth.

DEPTH

Joint doctrine and Russian operational theory inextricably links simultaneity and depth. Joint Publication 3-0 states "operations extended in depth, in time as well as space (geographically), shape future conditions and can disrupt an opponent's decision cycle."[91] The relationship of time and space becomes less predictable inside the urban complex. Combat operations on open terrain retain a relationship between disposition of forces and resources, movement rates of vehicles, and the spatial depth of the battlespace. The development of the area of interest was based on the anticipation of forces entering the field of action defined as area of influence.[92] The anticipation and ability to see in spatial depth before enemy forces can affect the battlespace does not exist in the urban complex. Joint Publication 3-06 states "Depth in urban operations can extend outside the actual urban area or be measured in a matter of city blocks."[93] This explanation of depth in the urban complex relies on spatial depth in relationship to lines of communication. Anticipation and depth in the urban complex should focus on the cognitive or logical level as well as the spatial realm. The analysis of second and third order effects to friendly operations makes temporal or cognitive depth the critical factor. Depth can

[90]Charles Krulak, "The Strategic Corporal and the Three-Block War." http://www.urbanoperations.com/strategiccorporal.htm (accessed 14 January 2003)

[91]Chairman of the Joint Chiefs of Staff, Joint Pub 3-0, *Doctrine for Joint Operations*, Washington, DC: The Joint Staff, 10 September 2001 III-12.

[92]Shimon Naveh, *In Pursuit of Military Excellence*. London: Frank Cass Publishers, 1997, 298.

[93]Chairman of the Joint Chiefs of Staff, Joint Pub 3-06, *Doctrine for Joint Urban Operations*, Washington, DC: The Joint Staff, 16 September 2002, II-4.

include popular support or anticipated events in relationship to the rival systems course of action or planned friendly force effects.

The second and third order effects associated with depth include the likelihood of an enemy system's ability to adapt tactics and strategy. Planners must analyze the ability of an enemy to adapt and include this during wargaming for possible branches and sequels.[94] The study of the enemy's relationship to the urban complex, organization and doctrine can provide a predictive model for adaptation capabilities. The relationship between depth and anticipation on the cognitive level requires the development of an understanding of adaptation. The inability of the Israeli Defense Force to understand the Palestinian Liberation Organization's ability to adapt or morph into the population during the Peace for Galilee operation denied an Israeli Defense Force a decisive victory.[95] Understanding physical and cognitive depth and its relationship to anticipation provides the planner the ability to deny the enemy system's its aim.

ACHIEVING THE COGNITIVE EFFECT

The basic concept of effects based operations is an emphasis on the defeat of the enemy system vice its destruction. The focus is on the enemy's will and successfully influencing his behavior during lethal and non-lethal combat operations. This approach requires an increased understanding of the enemy system's aim, decision making processes and the battlespace. The Joint Forces Command Glossary defines effects based

[94]Scott Gerwehr, Russell W. Glenn. *Unweaving the Web: Deception and Adaptation in Future Urban Operations.* Santa Monica, CA: RAND, 2003.

[95]Michael C. Desch, Soldiers *in Cities: Military Operations on Urban Terrain.* Strategic Studies Institute, 2001, 41-43.

targeting as “a process used to produce courses of action that will change the enemy's behaviors and compel him to comply with our will”[96].

Operational shock in Russian theory focused on affecting the enemy system on the mental and moral levels through the physical means of large armored formations penetrating deep into the enemy’s rear and air mechanization focused on rear echelons.[97] Creating operational shock in the urban complex has the added complexity of non-combatants and non-linearity. The humanness characteristic increases the importance of developing friendly courses of action that focus combat operations across the three dimensions of warfare – physical, mental, and moral. To achieve success at the behavioral level planners must understand the dynamics of an enemy system and the causality of action in the urban environment.

EFFECTS BASED OPERATIONS MEET THE CITY

The tenets of the urban operational shock model require a process to identify critical points, decisive points, and a center of gravity to destroy, control, or influence. The direct and indirect effects of destroy, control, and influence provide the operational artist the paints for the creativeness required to achieve a systemic effect and transcend the cognitive tension of defining abstract strategic aims into mechanical military objectives.[98] “Systemic effects are those indirect effects aimed at affecting or disrupting

[96]Joint Forces Command, *Joint Forces Command Glossary.* http://www.jfcom.mil/about/glossary.htm#E (accessed 12 January 2003).

[97]Shimon Naveh, *In Pursuit of Military Excellence.* London: Frank Cass Publishers, 1997.

[98]Ibid.

the operation of a specific system or set of systems."[99] The operational artist is attempting to achieve a systemic effect from cumulative tactical effects achieved through destroying, controlling, or influencing. For example, a key population sub-group is needed by the enemy force to provide human intelligence of friendly operations on the periphery of the urban complex. The friendly force might maintain the population as neutral through the cumulative effects of controlling a radio station broadcasting propaganda and influencing by providing humanitarian assistance to the hungry.

Destroy and control are direct or physical effects. Though related to the tactical tasks in the field manual *Tactics*, destroy and control are in the context of an effect on the enemy system, physical terrain, infrastructure, and population. For example, a brigade can control an airfield through the action of tactical tasks such as blocking an enemy or securing a bridge on the only avenue of approach. The second and third order indirect or effects of destroying a system or controlling a geographic area have cumulative effects on the cognitive level of combatants and non-combatants.

Army doctrine defines destroy as "to damage a combat system so badly that it cannot perform any function or be restored to a usable condition without being entirely rebuilt."[100] Soldiers, Systems, and infrastructure are targets that planners might want to destroy in the urban environment. In the urban environment, the destroy function carries immediate tactical benefit and the greatest risk of creating negative cumulative effects. Obviously, the use of kinetic effects can quickly have unintended consequences. The Israeli assassination by precision bombing of a key Hamas leader and the collateral death

[99]Edward C. Mann and Gary Endersby, *Thinking Effects: Effects Based Methodology for Joint Operations.* Cadre Paper No. 15 Air University Press, October 2002, 38.

of his children gained good tactical benefit but created an internal political as well as a strategic problem for the Israeli unity government. Additionally, destruction of key infrastructure that non-combatants depend on for basic life sustaining services can quickly cause negative effects at the strategic level.

Control is a physical effect associated with geography, population and infrastructure. Army doctrine defines control as "a tactical mission task that requires the commander to maintain physical influence over a specified area to prevent its use by an enemy."[101] The physical effect of control requires a presence of military force or the continual ability to effect with a high degree of accuracy a type of infrastructure. For example, a brigade can control an airfield with its seizure and continued presence. A joint force can control the power in a city if it can turn it off an on at will. If the joint force commander can disrupt the power within the city for an undetermined number of hours he has the ability to influence but not control.

The ability to influence non-combatants and combatants in the battlespace is not a new concept. Through a series of actions the Allies in World War II influenced Hitler to focus the majority of German forces defending France in the Pas de Calais area. The American Heritage Dictionary defines influence as "to modify, bias, or sway through power, physical and moral."[102] Influencing combatants and non-combatants is on the cognitive level in the mental and moral realms of war. The joint force commander can influence humans within the urban complex through lethal and non-lethal means.

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[100]Department of the Army. Field Manual 1-02, Operational Terms and Graphics. Washington, DC Headquarters, Department of the Army Headquarters.

[101]Ibid.

[102]*The American Heritage® Dictionary of the English Language,* Fourth Edition Copyright © 2000 by Houghton Mifflin Company. Published by Houghton Mifflin Company.

Though these effects can have the greatest impact on preventing the enemy system from achieving its aim, they are the most difficult to plan for, focus, and measure their effectiveness. Targets in the urban complex that planners might want to influence are an enemy commander's perception of the battlespace or a subordinate units feeling of isolation on the battlefield. The difficulty in influencing behavior of the enemy or urban system is the prediction of effects. Effects' modeling is subjective and the predictive or anticipatory quality of the modeling is questionable. The discovery of causality between the dynamic variables of the enemy and urban system is required before and during combat operations. Causality is the "principle of or relationship between cause and effect."[103]

In the urban area the cohesion and the tenacity of the city maintains an equilibrium or balance equal to its peacetime rhythm and adaptability.
Key to the development of effects' modeling is understanding the equilibrium in order to predict and anticipate achieving positive cumulative effects. This requires the development of critical factors for measures of effectiveness.[104] The staff must have a process for identifying and measuring the underlying factors, success and true causality of direct and indirect effects, to predict an exploitation window of operational advantage. For a commander to exploit a systemic effect before the physical indicators are present the staff must identify the tipping point.[105] A tipping point is a term used in epidemiology. It is the "point of critical mass or boiling point," before the line on the

[103]Ibid.

[104]Paul K. Davis, Effects-Based Operations (EBO): A Grand Challenge for the Analytical Community. Santa Monica, CA: RAND, 2001, 43.

[105]Concept idea passed on to the author during an interview with Dr. Roger Spiller, Command and General Staff College.

chart heads north.[106] An analogy introduced in *The Tipping Point* searches for the reasons that syphilis rates in Baltimore greatly increased in nineteen ninety five.[107] There were three explanations for the increased rate of syphilis. First, an increase in the use of cocaine in Baltimore changed the social connections.[108] Second, there was a breakdown of medical care in the poorest of neighborhoods.[109] Third, physical changes to the public housing high rises led to increased crime.[110] None of these events were dramatic and could have helped predict an increase in the Baltimore syphilis rate. Defining causality is difficult, but predicting a tipping point has great benefit. Identification of causality and the tipping point will require deep understanding of the urban area, enemy system, and how they interrelate.

Joint doctrine recognizes the increased complexity of the urban battlespace due to number and dynamic nature of urban elements.[111] Current doctrine provides a process and mental framework for analysis of the city and the enemy force. The ability to achieve situational understanding of the urban area is critical to the discovery of causality. In order to focus systemic effects, planners must understand the relationship between a tactical effect of destroy or influence to the systemic effects of disorganization, paralysis and shock. This development of deep understanding of the system of systems is

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[106]Malcolm Gladwell, *The Tipping Point*: *How Little Things Can Make a Big Difference*. Little, Brown and Company, 2000, 8.

[107]Ibid. 15

[108]Ibid. 15

[109]Ibid. 16

[110]Ibid. 17

[111]Chairman of the Joint Chiefs of Staff, Joint Pub 3-06, *Doctrine for Joint Urban Operations*, Washington, DC: The Joint Staff, 16 September 2002.

not developed through the reductionism of mission analysis and the action, reaction, counteraction of wargaming. Developing a deep understanding "means knowing, not merely how things behaved yesterday, but also how things will behave under new hypothetical circumstances, control being one such circumstance."[112] The current Intelligence Preparation of the Battlefield doctrine does not provide an adapted methodology to develop situational understanding of the urban area in relationship to the enemy system. Additionally, the Joint Urban Operations doctrine recommends using a doctrinal operational design process. The question is does the complexity of the urban area require an adaptation of the Intelligence Preparation of the Battlefield and operational design?

[112]Judea Pearl, "The Art and Science of Cause and Effect" Cambridge University Press, January 2000, accessed on 9 February 2003, http://bayes.cs.ucla.edu/LECTURE/lecture_sec1.htm

CHAPTER FOUR

Understanding the urban battlespace calls for different ways of visualizing space and time. Joint Urban Operations JP 3-06

Army doctrine defines situational understanding as "the product of applying analysis and judgment to the common operational picture to determine the relationship among the factors of METT-TC."[113] The mere complexity of the urban area makes development of situational understanding in the densest of terrains extremely difficult.[114] The importance of the development of situational understanding is codified as the first of the doctrinal activities of USECT - understand, shape, engage, consolidate, and transition.[115] In past military operations, forces conducted offensive operations in order to gather intelligence through contact with the enemy. The Russian flying column into Groznyy without an adequate knowledge of enemy dispositions or intentions exemplifies the conduct of operations without a clear situational understanding of the urban area. Any new paradigm seeking systemic effects without unacceptable destruction of the urban triad requires a high degree of understanding before initiating offensive operations.

The use of maneuver to create operational effects and limit friendly and non-combatant casualties requires foreknowledge and understanding of the battlespace to selectively destroy, control, or influence critical points. The emerging joint urban

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[113]Department of the Army. *Field Manual 1-02, Operational Terms and Graphics.* Washington, DC: Headquarters, Department of the Army Headquarters, DRAG May 2002.

[114]Russell Glenn, Heavy *Matter: Urban Operations' Density of Challenges.* Santa Monica, CA: RAND, 2000. Heavy Matter describes the density of the urban area and its challenges to target identification in relationship to jungle and desert terrain.

[115]Chairman of the Joint Chiefs of Staff, Joint Pub 3-06, *Doctrine for Joint Urban Operations*, Washington, DC: The Joint Staff, 16 September 2002, 9. The doctrine states that the USECT activities are interdependent, continuous and simultaneous and valid across the entire range of military operations.

operations master plan describes understanding as the key to "achieving and maintaining tempo, identifying the critical vulnerabilities, and achieving friendly force aims."[116] Current Army and Joint doctrine provides a process and a model for analysis of the urban battlespace.

Intelligence Preparation of the Battlefield is a methodical process for analyzing an enemy system in relationship to terrain and weather. The complexity of the urban environment requires an adaptation of the Intelligence Preparation of the Battlefield to focus analysis of an environment with a seemingly infinite number of interrelationships. The planner needs a methodology built around Intelligence Preparation of the Battlefield to analyze the battlespace and through synthesis select which interrelationships will garner the greatest effect without negative impacts on the friendly systems' aim. Understanding the urban area and the enemy system operating within requires a three phase approach during mission analysis.

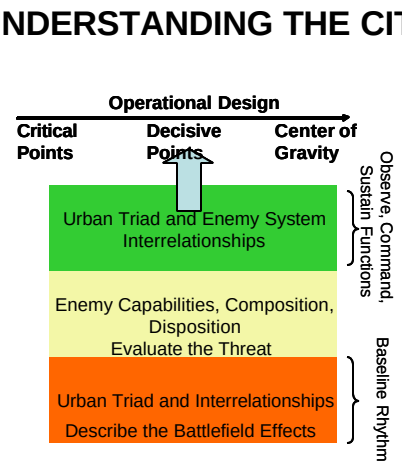

Figure 2. Understanding the City

[116]Chairman of the Joint Chiefs of Staff, JUO Master Plan (draft), Washington, DC: The Joint Staff, 5 November 2002.

Planners must understand the urban triad and the interdependence of the variables. This phase is part of the second step of the Intelligence Preparation of the Battlefield, Describe the Battlefield Effects. Understanding the nature of the city as well as the individual components of the urban triad is important for the describing a baseline rhythm for use with predictive and anticipatory effects modeling. Cities have three key characteristics that are important to understand. Cities have a function, cohesion, and tenacity that affect a commander's ability to create operational effects.[117]

By their very nature as a system, cities have an aim which is its "brain, heart, and self-regulating system".[118] Unlike any other terrain military forces in conflict will find themselves operating in an environment which is at cross purpose to the military system's aim and able to adapt during combat operations. Cities exist as centers of government and employment. The location of roads and service infrastructure exist to achieve a degree of efficiency for the population. This function and the efficiency achieved through human intervention provide a definable peacetime rhythm. The peacetime rhythm provides a baseline for analyzing possible effects and anticipating second and third order effects. This concept is similar to describing the battlespace during Intelligence Preparation of the Battlefield with a Modified Combined Obstacles Overlay describing the characteristics of the terrain. Instead, planners need to visualize the ebb and flow of traffic, criminal activity, and service infrastructure requirements.

Also, important to understanding the city is the tenacity of the urban triad. Cities are an open system with a strong adaptive nature. This tenacity is a characteristic that an

[117]Roger J. Spiller, *Sharp Corners: Urban Operations at Century's End.* U.S. Army Command and General Staff College, 2002.

enemy can use to its advantage and friendly forces should define during planning. On March 20, 1995 Aum Shinrikyo, an apocalyptic cult, released sarin gas within the Hin-ochanomizu Station of the Tokyo subway system[119]. This attack killed twelve and injured six thousand civilians in the business district of the largest democratic capital in Asia.[120] The city adapted to this attack and within several hours subways all over Tokyo continued to transport civilians through an adapted rhythm of home and work. During combat operations in 2000 in Groznyy, Chechnya approximately one-tenth of the non-combatants remained in the shell of what had been their home.[121] The adaptive nature of the city maintaining its function or order provides a definable cohesion and a predictable tenacity. The ability to anticipate the city's tenacity and ability to adapt will support defining causality and creating effects to deny the enemy system its aim.

ENEMY IN THE CITY

Planners must understand the enemy force's composition, disposition, and capabilities. This phase of developing an urban understanding is part of the third step of the Intelligence Preparation of the Battlefield, Evaluate the Threat. Traditional approaches to the analysis of the enemy system focuses not only on organizational composition and weapons' capabilities, but the reason why the enemy system entered the

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[118]Shimon Naveh, *In Pursuit of Military Excellence*. London: Frank Cass Publishers, 1997, 14. Naveh's premise is that a system is driven by its aim.

[119]Haruki Murakami, Underground. New York, Random House, 2000. The reference of tenacity within the city and example of the Tokyo, Japan sarin gas attack was collected during an interview with Dr. Spiller at Command and General Staff College, Fort Leavenworth, Kansas.

[120]Terrorism Files Organization. http://www.terrorismfiles.org/organisations/aum_supreme_truth.html.

[121]*Soldiers in Cities: Military Operations on Urban Terrain*, ed. Michael C. Desch (SSI, 2001), 62.

city and its effect on the enemy system's doctrinal warfighting. This analysis typically takes place at the tactical level with emphasis on the environmental impact on weapon systems trafficability and ranges. To support a focused analysis of the battlespace, analysts need to develop an operational level cognitive template for how the enemy system will observe, control, and sustain its subordinate forces in the urban area.

Situational understanding must achieve the level of resolution to define the relationship between the urban triad and the enemy force. When an enemy system enters the city with the purpose of defending from inside the urban complex, a dichotomy of aims occurs. The aim that drives the enemy system is the defeat of the attacking forces. This aim is probably in direct contrast to the peaceful aim, function, and rhythm of the city. The challenge to military planners is understanding the relationship forged between the enemy and urban system. The parasitic relationship to a host organism is analogous to an enemy in a city. A doctor must remove the parasite without killing the host. The doctor must discover what the parasite depends on from the host for its survival. Through understanding the host's requirement for survival, which is its aim, the doctor can attack the interrelationship at its most vulnerable level. Understanding the relationship of the enemy force to the urban triad and the cohesion and rhythm of the urban complex is the prerequisite to development of an operational design for the city. Friendly systems facing the challenge of developing concepts for operations in urban areas must have a disciplined methodology for analyzing the city and the enemy to identify critical points, decisive points, and centers of gravity.

OPERATIONAL DESIGN

The joint urban operations doctrine states that the urban area affects operational art.[122] Joint doctrine defines operational art as **"**the employment of military forces to attain strategic and/or operational objectives through the design, organization, integration, and conduct of strategies, campaigns, major operations, and battles."[123] Joint Urban Operations doctrine and Joint Campaign Planning doctrine does not suggest a different methodology for urban operational design. Does the selection of centers of gravity and decisive points provide the level of operational design to achieve operational effects such as shock? The Joint Force Commander needs an adaptation of the doctrinal operational design to decide how to selectively influence the enemy, population, infrastructure, and terrain to achieve operational shock.

The planning process described in the Joint Campaign Planning doctrine describes an analytical approach to operational art by developing an operational design.[124] This operational design provides the conceptual linkage between the abstract strategic guidance and mechanical military objectives.[125] Military objectives equate to what the Joint Force Commander must destroy, control, or influence. Key to the doctrinal approach of operational design is the selection of critical factors chosen from enemy

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[122]Chairman of the Joint Chiefs of Staff, Joint Pub 3-06, *Doctrine for Joint Urban Operations*, Washington, DC: The Joint Staff, 16 September 2002, 9.

[123]Chairman of the Joint Chiefs of Staff, Joint Pub 3-06, *Doctrine for Joint Urban Operations*, Washington, DC: The Joint Staff, 16 September 2002, GL-9.

[124]Chairman of the Joint Chiefs of Staff, Joint Pub 5-00.1, Joint Campaign Planning, Washington, DC. The Joint Staff, 25 January 2002, viii. Joint Publication states that Operational design is linked to operational art and provides the conceptual linkage of ends, ways, and means.

[125]Shimon Naveh, In *Pursuit of Military Excellence*. London: Frank Cass Publishers, 1997. Naveh defines operational art as the cognitive tension between the abstract strategic aim and the mechanical military objective.

strengths and weaknesses.[126] Some of these strengths are centers of gravity. Joint Publication 5-01 states that "Centers of Gravity, those aspects of the adversary's overall capability that, theoretically, if attacked and neutralized or destroyed will lead either to the adversary's inevitable defeat or force opponents to abandon aims or change behavior."[127] Does the methodology of subjectively deciding upon a center of gravity amongst the enemy systems' strengths during mission analysis provide an effective operational design for focusing effects in the urban area?

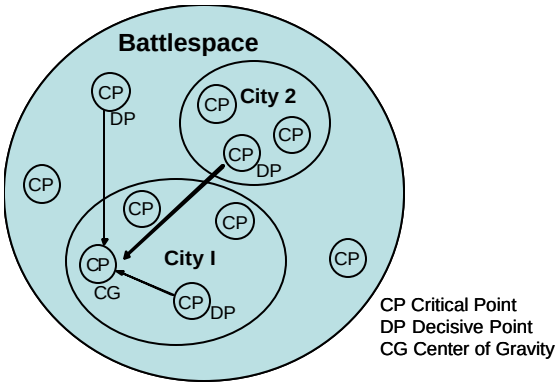

Figure 3. Critical Point Analysis.

Russell Glenn, a senior analyst at RAND, introduced in his article "Urban Combat is Complex" a methodology for developing operational design for the city. Mr. Glenn describes the selection of centers of gravity and decisive points as a subset of critical points.[128] Figure three illustrates the relationship of critical points to centers of gravity

[126]Chairman of the Joint Chiefs of Staff, Joint Pub 5-00.1, Joint Campaign Planning, Washington, DC. The Joint Staff, 25 January 2002, ix.

[127]Chairman of the Joint Chiefs of Staff, Joint Pub 5-00.1, Joint Campaign Planning, Washington, DC. The Joint Staff, 25 January 2002, ix.

[128]Russell W. Glenn, "Urban Combat Is Complex." *Proceedings.* (Feb 2002): 62-65.

and decisive points.[129] Critical point relationships have three characteristics. First, critical points throughout the battlespace can influence the enemy system in the urban area. An additional dimension to this relationship is that critical points do not adhere to state borders. A Joint Force must define the critical points and their relationships across state borders and unit or service boundaries. The relationship between Pankisi Gorge, Georgia and Chechen rebel activity in urban areas in Chechnya is an example of interrelated critical points crossing state boundaries.[130] These geographic critical points relate to the sustaining functions of training and feeding the Chechen insurgency. Second, critical points within a city can influence another cities peaceful rhythm. Often critical points related to service infrastructure being used for an enemy system function will service other cities. For example, affecting the water supply in Kansas City, Kansas will directly impact the potable water supply in Lansing, Kansas.[131] Third, not all critical points are directly related to a selected center of gravity and decisive points. The identification of critical points will exceed the analysis of center of gravity and decisive points. The center of gravity is selected among the critical points that provide the greatest operational advantage to achieve the friendly force's aim and prevent the enemy's aim.[132] Mr. Glenn provides examples of critical points such as command and

[129]Illustration is similar to example provided by Russell Glenn in his briefing "Nuggetizing the Elephant."

[130]Jaba Devdariani, "Georgian Security Operation Proceeds in the Pankisi Gorge" Eurasianet.org 3 September 2002, accessed (10 February 2003) http://www.eurasianet.org/departments/insight/articles/eav090302a.shtml

[131]Information gathered during a urban staff ride to Kansas City, Kansas in January 2003.

[132]William W. Mendel, "Operational Logic: Selecting the Center of Gravity." Military Review, June 1993, 5. Selection of the operational center of gravity should have a logical connection to the friendly systems ultimate aim.

control, reserve forces, concentrations of non-combatants, or a city's marketplace.[133] Facing the seemingly infinite relationships of an enemy within the urban area, how does a staff select the critical points within the battlespace?

With the thousands of geographic points, activities, groups, and service infrastructures, a staff needs a disciplined methodology for selecting critical nodes. To achieve operational shock against the enemy's linkage with the urban triad, critical nodes should relate to those interrelationships that affect the enemy system's critical functions. The determination of critical functions for the enemy system and how these functions interrelate and depend upon portions of the urban triad provides a methodology for focusing effects.

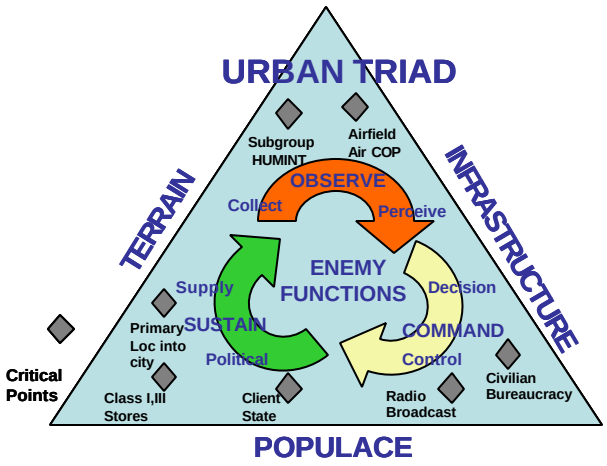

Figure 4. Enemy Critical Functions and the Urban Triad.

An enemy system must maintain three critical functions to provide a sustained and synchronized effort to achieve its aim. Critical functions, illustrated in figure four,

[133]Russell W. Glenn, "Urban Combat Is Complex." *Proceedings.* (Feb 2002): 62-65.

are observation, command and sustain.[134] These three critical functions have their theoretical origin in John Boyd's OODA loop – observe, orient, direct, and act.[135] The relationship of these functions to the urban triad is where critical points supporting the equilibrium of the enemy system are found.

Observation is the key to the enemy system's situational understanding of the urban area and its surrounding sprawl and countryside. The enemy system collects information and develops a perception of the battlespace. Maintaining this function allows the enemy commander to prevent surprise and use economies of force such as limiting defensive forces along selected avenues of approach. Additionally, the decision superiority through good observation and perception might allow the enemy commander to seek a decisive engagement early forcing a political and moral defeat against the attacking force. The observation function can be interrelated with all three components of the urban triad. The enemy system might depend on several supportive population sub-groups located along key avenues of approach for human intelligence. Key physical terrain within the urban area might provide observation of friendly force activities. Additionally, infrastructure used to support local airfields might provide the enemy an aerial operating picture. Information and an accurate perception of the battlespace is only important if the enemy system can process, decide, and act quicker than the adversary.

Command consists of the decision-making activity and the control system. The decision making process is the input point for the enemy system's observation function. Three questions must be answered to assess the ability to achieve systemic effects and

[134]John Boyd's Patterns of Conflict Briefing http://www.d-n-i.net/fcs/ppt/boyds_ooda_loop.ppt Observe is the first activity of the OODA loop. Orient, Direct and Act are combined under the control function.

how long the operational window of opportunity will remain. First, how does the enemy system make rational decisions and what decisions are critical to achieving its aim? This will allow the staff to identify which sensing capabilities the enemy system requires to achieve its aim. Second, how does the enemy system processes information, make decisions, and direct forces? Third, how quickly can the enemy system react to an operational stimulus? Understanding this temporal dimension of command requires further analysis of the control system.

Control systems historically are dependent on bureaucracy as well as technology to increase efficiency and speed of an activity.[136] Each methodology of control is important for understanding how the enemy system processes information and communicates with subordinate units. Depending on the hierarchical nature of the control bureaucracy, certain enemy systems will act with more operational initiative limiting the effects of isolation. If, the enemy system is very hierarchical and lacks the culture or training for operational initiative, then destroying or controlling the technical means of control becomes increasingly important. For example, if the friendly force influences the technical means of communication for six hours and the enemy system's bureaucracy supports a mission orders concept or a defenseless defense technique it will be more difficult to achieve disorganization or paralysis.

The command function can have interdependence with all three elements of the triad. The decision making portion of command is influenced through the manipulation of the enemy system's sensing windows. Affecting the enemy system's observe function

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[135]Ibid.

[136]James R. Beniger, *The CONTROL Revolution: Technological and Economic Origins of the Information Society.* Harvard University Press, 1986, 7.

by blinding him or through deception will have cumulative effects on the control function's decision making capabilities. The level of reliance on information is the system's vulnerability to influence. The technical control system is empowered through dual use communications infrastructure such as cell phones, pagers, and broadcast radios. Bureaucratic control can include liaison with the resident city government. Destroying or controlling the medium for directing forces allows the friendly system to control tempo and paralyze. Analysis of the urban environments impact on the electro magnetic spectrum might reveal the importance of key terrain required for control to retransmit electronic and digital communications.

The sustain function maintains the energy and tempo required for the momentum of observe and command functions.[137] Sustainment requirements differ depending on the type of enemy system within the urban area. There is a direct correlation to the size and composition of the enemy system and its sustainment requirements. Historically attacking the enemy's sustainment equated to the physical isolation of the urban area. The feasibility of isolating a large city the size of Baghdad or New York is questionable. Joint and army doctrine makes it clear that isolation is critical to the success of any urban operation. Joint Publication 3-06 states "Isolation of an urban defender affords the attacker a significant, often decisive advantage."[138] In 1994, Russian forces failed to

[137]Concept derived from discussion with Dr. Spiller, Command and General Staff College, Fort Leavenworth, Kansas.

[138]Chairman of the Joint Chiefs of Staff, Joint Pub 3-0, *Doctrine for Joint Operations*, Washington, DC: The Joint Staff, 10 September 2001, I-10.

physically isolate Groznyy, allowing the reinforcement, resupply, and an egress routes to Chechen forces.[139]

Sustainment should not be analyzed only by the traditional classes of supply but political sustainment such as local and international support is often critical to the enemy system's aim. The enemy system often derives its political support from a client state or a subgroup of the population. Armed factions of the Hamas within Israel's occupied territories receive physical sustainment and political support from a portion of the Palestinian people as well as countries such as Iran, Saudi Arabia and Iraq.[140]

Once the interrelationships are identified, critical points must pass a test for feasibility and acceptability. For feasibility, two questions must be answered. First, is the critical point exploitable through destruction, control or influence? For example, service infrastructure might not be exploitable with joint force capabilities due to inaccessibility to infrastructure vulnerabilities or an inability to overwhelm multiple redundancies. Second, if the critical point is exploitable does it meet the operational time window requirements? Some critical points will require too much time or too many resources to achieve the desired effect. This question of feasibility is critical to the commander's decision to resource critical nodes deemed exploitable. For example, influencing a population sub-group critical to the enemy's human intelligence network might greatly affect the enemy's observation function. If an assessment of the population sub-group fails to reveal leverage within the group's interest and intents or a medium for

[139]Robert H. Scales, "Russia's Clash in Chechnya: Implications on Future War" National Security Studies Quarterly, April 2000, 53-54.

[140]Megin Goldin, "Hamas feeds struggle against Israel with charity" Reuters. 13 February 2003. (accessed 13 February 2003) http://www3.estart.com/arab/news/featureofweek.html

influence, the friendly commander must weigh the cost of limited resources of time, equipment and personnel to the possible benefit of influencing an enemy system function.

Acceptability is assessed through an analysis of second and third order effects on the enemy and urban system. The acceptability of any intentional and unintentional effects is assessed through the nature of the particular conflict. There can be great ranges of what is acceptable when a nation's sovereignty is at risk versus an expeditionary operation not linked to vital national interest. If there is a standing rules of engagement and planning guidance then assessing acceptability might be much clearer. Without such guidance, the staff must use historical precedent and develop assumptions to support the assessment of acceptability.

The use of cognitive modeling to anticipate the range of positive and negative effects a friendly action might have on the urban triad is not found in doctrine. The Joint Planning community needs a methodology for defining possible effects in an influence diagram, connecting action to a range of possible reactions across the enemy system, population sub-groups and infrastructure.[141] An influence diagram can support wargaming by providing anticipated negative effects. These identified effects can be mitigated through friendly action and branch planning. The visual representation of the probable effects will allow the commander to factor the operational risk of unintended consequences. If, the operational risk is accepted, physical indicators of unintended effects assessed to negatively impact the friendly commander's aim should be included within the collection plan.

[141]Paul K. Davis, Effects-Based Operations (EBO): A Grand Challenge for the Analytical Community. Santa Monica, CA: RAND, 2001, 77.

Understanding the urban environment as a system has the greatest significance on operationalizing urban warfighting.[142] The activity of understanding achieves even greater importance in an operational concept focused on achieving effects. The size of the city and its large number of variables and interactions requires a methodical process for deciding what is important to achieving a systemic effect. The methodology needs to explain the development of a peacetime rhythm for baseline planning. This baseline understanding of the urban area is the start point for anticipating effects caused by enemy or friendly actions. Any methodology for understanding the urban area must include a variant of operational design to help the Joint Force Commander visualize the battlespace and make resource decisions. Additionally, this operational design methodology should help focus the staff on what is important in the urban area. Selection of critical points as a subset of centers of gravity and decisive points, and assessing progress towards achieving a systemic effect or window of operational opportunity are not included in Joint doctrine. The urban area is not just another terrain and warfighting and understanding it requires a concept and methodology.

[142]Roger J. Spiller, Sharp *Corners: Urban Operations at Century's End.* U.S. Army Command and General Staff College, 2002, 96. Dr. Spiller describes operationalizing the urban fight by adapting or operational art and operational design to the "unique nature, structure, and functions" of the urban environment.

CHAPTER 5

The Joint community needs an operational concept for urban operations to provide a framework for doctrine, technology acquisition, and training. An operational concept provides a view of the future of warfare. Joint Vision 2020 and its description of six integrating capabilities are the current joint operational concepts. Joint Vision 2020 does not address the unique nature of the urban environment or provide a methodology that would help commanders and planners facing operations in the city. The transition towards a methodology for urban operations has begun with new Joint Urban Operations doctrine and an awareness of the increasing potential of operating in the city.

Joint Publication 3-06, Urban Operation, began the transition by recognizing the operational level within the city. This revolution in urban operations is in its infancy. Further adaptation is required due to an increasing potential for major combat operations in the city, the political restraints associated with fighting among non-combatants, and the unique nature of the terrain and its influence on emerging joint concepts such as Rapid Decisive Operations.

The strategic context brought on by the end of the cold war will increase the potential for urban operations. Global commitments and interests plus urbanization plus our enemies' penchant for asymmetrical approaches to warfigting will equal an increase in combat operations in the urban area. At the same time the recent historical experiences of conflict changed the view of warfare for the United States with an expectation of minimizing non-combatant casualties. Historical precedents such as Chechnya are not acceptable for the United States' military's warfighting requirements.

The density of population of the urban environment is not comparable to any other terrain in which military forces will operate. The restraints placed on the Joint Force to conserve the force and minimize non-combatant casualties will make operational concepts for other major combat operations of little utility. Emerging concepts such as Rapid Decisive Operations depend on a level of transparency of the battlespace and long range engagement not easily achieved in the urban area. Additionally, historical precedents of operations in urban environment's lack utility because of the attrition approach resulting in major loss of life.

RECOMMENDATIONS

The following recommendations will continue the transition of how the Joint Force approaches the urban area.

1. Adopt an operational concept that achieves a systemic effect through operational shock in the urban area. Operational shock focused on the enemy's critical functions is achieved through maneuver and selective influence by destroying, controlling, and influencing critical points. Simultaneity and spatial and cognitive depth are key aspects to operational shock.
2. Develop a variation of operational design for the urban environment. The methodology should help the commander visualize the battlespace, select critical points, decisive points, and centers of gravity.
3. Codify the relationship of the urban environment to an enemy's critical functions of observe, command, and sustain.

4. Develop a methodology to quantify the progress of achieving friendly effects in the urban environment.

RECOMMENDED RESEARCH

There are five recommended research areas to further the development of concepts and organizations needed to win in the city.

1. Does the Joint Force require a separate force structure for conducting combat operations in the urban area?
2. What capabilities have proven essential to vertical envelopment and other forms of maneuver within the urban area?
3. What are the indicators that a culture or military has the ability to adapt beyond the tactical level?
4. What models exist for anticipating the causality of effects at the tactical and operational level and how can they be integrated into the rational decision making process?
5. What are the different bureaucratic methods of control and decision making and which provide the least opportunity for achieving systemic effects?

CONCLUSION

As the Iraq campaign plan evolves, it is clear that the enemies of the United States' military have learned a method to mitigate the Joint Force dominance in long range surveillance and engagement. The enemy will seek the city and the advantages of mixing with non-combatants and restraining the use of overwhelming force. The purpose of peacetime is to prepare for the next war without becoming fixated on the last war.

Desert Storm taught the world the ineffectiveness of meeting the United States' military symmetrically in open terrain. *Military Misfortunes* concluded that militaries fail by not anticipating, learning, and adapting.[143] The increased interest in urban operations, since Task Force Ranger in Somalia, represented an anticipation of the increased potential of combat operations in cities. Correctly learning and adapting for this future fight is a question yet to be answered.

One overarching operational concept for major combat operations cannot address the symmetric, open terrain fight and the urban fight. The urban area is unique and the most difficult terrain for servicemen to operate. Attrition models such as Chechnya will prove too costly for the current geo-political environment. A joint urban operational concept emphasizing selective influence and systemic effects will require unique training, technology, and possibly force structure. Developing new methodologies for the urban fight without historical precedent will be difficult but is a challenge that cannot go unheeded.

[143]Eliot Cohen and John Gooch, *Military Misfortunes* (The Free Press, 1990), 26.

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