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COIN, Complexity, and Full-Spectrum Warfare:

Is it possible to have Center of Gravity given all the Fog and Friction?

by Grant M. Martin

The United States Army uses a concept called the Center of Gravity (CoG) to help determine where the focus of efforts should be during warfare. For instance, during recent U.S. Army Command and General Staff College (CGSC) practical exercises, students many times identified an enemy's most powerful corps or armored division as the Operational CoG that must be defeated in order for U.S. forces to be successful in a conventional fight. In counterinsurgency exercises the CoG was usually identified as "the will of the people", in fact many instructors stifled debate by insinuating there was no alternative. Students took hours to debate CoGs and usually arrived at a consensual conclusion that was widely regarded as wrong by the students.[1] This follows statements made by senior-ranking field grade guest instructors such as, "CoG analysis has never helped me understand a problem" and "getting the CoG right isn't important, doing the thinking is."[2] The possibility that CoG analysis may offer no greater understanding of the true nature of a conflict should cause military professionals concern.

This paper will attempt to remedy the problem by tracing the history of how CoG went from a physics term borrowed by Carl von Clausewitz during the Enlightenment Period to a concept in U.S. Army doctrine.[3] In the end, an argument will be made that new scientific concepts, such as complexity theory, offer better insights into unconventional warfare than does CoG analysis. Such methods could also facilitate a deeper understanding of the nature of warfare itself and be applicable at strategic levels of all forms of warfare.

Clausewitz to the Present

Carl von Clausewitz probably first arrived at the idea of a CoG while talking to a physicist friend of his.[4] This was the Age of Enlightenment, and science was making huge leaps ahead in terms of how people understood the world around them. Clausewitz was not the only one influenced by science at the time: nineteenth-century economists started to describe their world in terms of Newtonian Physics as well.[5] Upon hearing of this concept Clausewitz was

1 As evidenced in a 2008 CGSC exercise in which students conducted a CoG analysis to be presented by the group and then were required to produce CoGs individually for the same scenario. None of the individual products matched the agreed-upon group CoG.

2 Discussions during exercises with observers revealed widely divergent views on how to incorporate CoG analysis into planning- as an intellectual exercise or something that would drive the allocation of resources.

3 Clausewitz, Carl von. On War. Translated by COL J.J. Graham. Kegan Paul, Trench & Co. Ltd. London, 1906. Gutenberg Project On-line: http://www.gutenberg.org/files/1946/1946-h/1946-h.htm. Accessed on 2 OCT 2008. Also see Echevarria, Antulio J. II, "Clausewitz's Center of Gravity: It's Not What We Thought.", Naval War College Review, Winter 2003, Vol. LVI, No. 1. http://www.iwar.org.uk/military/resources/cog/art4-w03.pdf. Accessed on 2 OCT 2008.

4 Echevarria, Antulio J., II. "Clausewitz's Center of Gravity: Changing Our Warfighting Doctrine- Again!", http://www.clausewitz.com/CWZHOME/ECHEVAR/gravity.pdf. Accessed on 15 OCT 2008: 6.

5 Beinhocker, Eric D. The Origin of Wealth. Harvard Business School Press. McKinsey and Company, Inc. Boston, 2006: 32.

reminded of a wrestler, who upon losing his literal CoG falls to the ground.[6] A closer reading, however, of Clausewitz leads one to wonder whether or not he is being taken out of context today as the CoG concept is used to analyze an enemy's theoretical focal point and develop a checklist of capabilities, weaknesses, and requirements that will facilitate surrender. Clausewitz, in his writings on the fog and friction of war and the complexity inherent in "the trinity", seems to advocate the idea that warfare cannot be subdivided into pieces and parts, analyzed, and then reduced to a few bullets with which to place resources against. Indeed, one could argue that Clausewitz's concept of a CoG might best be applied to the operational level of warfare and only to conventional warfare, especially in the context of unconventional operations that encompass much more than just military forces[7].

What is more intriguing from an American historical perspective is how Clausewitz's ideas turned into the CoG analysis concepts that the U.S. Army uses today. Rudolph Janiczek has described the fascination with Clausewitz during the last decades of the Cold War; the thought process was that the U.S. should identify the one thing to focus resources upon in order to render the Soviet forces ineffective.[8] Each service came up with their own ideas of what a CoG was and ended up tailoring it to their own capabilities, situation, and history. Joint publications attempted to draw a consensual position and thus, according to some, failed to come up with anything that made the concept more meaningful to military planners.[9] Over time planners have come to use several concepts including CoG analysis as analytical tools at the strategic and operational levels. These include critical capabilities, requirements, vulnerabilities, and lines of operation and effort analysis. All of these contribute to a better understanding of the enemy and the effects required from friendly actions.

Enter Operations Enduring and Iraqi Freedom and the resultant ambiguous enemies, protracted warfare, instability and nation-building, and one may see where the CoG paradigm could come up short in preparing commands for the reality of what they will face. Modern disciplines such as complexity theory and systems thinking provide the holistic type answers needed in modern warfare rather than a narrow, reductionist statement or list from COG analysis.[10]

Complexity Theory

Complexity theory has emerged relatively recently in response to a common observance: while linear, reductionist approaches work well in classrooms, the world outside of classrooms is full of complex phenomena that do not lend themselves to easily-measured, static, and pieces/parts study.[11] To put it simply, a linear entity should, among other things, be the sum of

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6 Bassford, Christopher. "Clausewitz and His Works". Courseware for The Army War College, 2008. http://www.clausewitz.com/CWZHOME/CWZSUMM/CWORKHOL.htm Accessed on 15 OCT 2008.

7 The further one gets away from conventional force operations, the more variables are in play, and thus the conceptual application of any one "center" of anything becomes problematic. As more and more centers are identified, at some point the CoG concept loses practical application.

8 Janiczek, Rudolph M., "A Concept at the Crossroads: Rethinking the Center of Gravity", OCT 2007, http://www.StrategicStudiesInstitute.army.mil/: 2.

9 Echevarria, Antulio J., II, v.

10 From http://necsi.org/guide/concepts/reductionism.html: "…Reductionism is an approach to building descriptions of systems out of the descriptions of the subsystems that a system is composed of, and ignoring the relationships between them…" (emphasis added). Accessed 1 April 09.

11 Gregoire Nicolis, Catherine Rouvas-Nicolis (2007) "Complex systems". Scholarpedia. 2(11):1473. http://www.scholarpedia.org/wiki/index.php?title=Complex_systems&oldid=25053. Accessed on 2 OCT 08.

its parts; a complex entity (non-linear), however, is best described as greater than the sum of its parts. Thus it would be easy to break a linear problem down into its parts, study it, and come to a conclusion. Non-linearities, however, lose most practical application if they are broken down into parts and studied outside of context. In addition, three other features of non-linearities are: 1- the impossibility of predicting future behavior of the system; 2- difficulty in locating and processing the data the system produces or that can describe the system and also difficulty in representing the system by a picture in order to better understand it; and 3- containing self-organizing properties such that knowledge of its components does not translate into an ability to predict future behavior of the system.[12]

Some entities thought to be complex are evolution, the weather, the universe, the human body, economics, markets, and social networks. New studies have led to conclusions that can be drawn about complex systems in order for people to make more educated decisions than they have in the past, or at the least to understand the limitations that the linear, reductionist approaches of the past contain when applied to complex systems.[13] Any entity or system that is composed of humans can be categorized as "complex", and thus military operations (and subsequently the planning thereof) can be thought of as complex. The variables are enormous and arguably get more so the further they get away from conventional combat operations and into unconventional warfare. An understanding of how complex systems work could allow military commanders and planners to better approach the problems they face on the battlefield.

It is important to understand why complex systems cannot be analyzed effectively using metaphors, reductionist methods, or linear processes. The reason this is important is that there are still many disciplines that are arguably complex, such as economics, which still follow to some extent a linear-type approach. If one takes a complex system, breaks it into parts and tries to come to a better understanding of the system as a whole from that study, one frequently, runs the risk of arriving at conclusions wholly divorced from on-the-ground realities. If a student of military thought has ever wondered at the applicability of "lines of operation", "lines of effort", "center of gravity", and other attempts to break complex subjects (like warfare) into parts in order to formulate a coherent plan to affect that subject, then that student would probably find common ground with the economics student studying the rational consumer behavior model which postulates that consumers buy things out of rational thought.[14] Both of these concepts come from an application of Enlightenment science to disciplines far removed from the original-source discipline.[15] It is time for other disciplines to catch up to the new kinds of physics that

12 Pavard, Bernard & Dugdale, Julie, An Introduction to Complexity in Social Science, GRIC-IRIT, Toulouse, France. http://www.irit.fr/COSI/training/complexity-tutorial/properties-of-complex-systems.htm. Accessed on 2 OCT 08.

13 Beinhocker, Eric D. The Origin of Wealth. Harvard Business School Press. McKinsey and Company, Inc. Boston, 2006. Beinhocker tells the story of the fascinating work of the Santa Fe Institute (http://www.santafe.edu/) and some of the application of complexity theory to scientific thinking in pages 45-50. From page 79 to 217 he weaves into his narrative examples of the breakthroughs, especially since the 80's, of the fundamental ideas within complexity theory and its associated concepts. For the impact on military theory see any of the many Design-related articles published in Military Review, the Clausewitz Homepage's listing of Complexity-related topics here: http://www.clausewitz.com/CWZHOME/Complex/PropBibl.htm, and especially see Alan Beyerchen's paper on Clausewitz and non-linearity: http://www.clausewitz.com/CWZHOME/Beyerchen/CWZandNonlinearity.htm.

14 Economics courses still incorporate to some extent models that assume rational behavior on the part of consumers. Economic forecasters can then arrive at conclusions that will presumably help them to predict future economic conditions. However, if the assumption that consumers act rationally is incorrect it would naturally follow that most economic forecasts based on rational consumer behavior would also be incorrect (and in practice they often are).

15 Beinhocker, Eric D. The Origin of Wealth. Harvard Business School Press. McKinsey and Company, Inc. Boston, 2006: 45-75. In the case of the source of CoG- linear physics- the discipline today bares little resemblance to what it did during the Enlightenment.

have been developed since the Enlightenment in order to understand the world as it is known in the twenty-first century.

"Complexity Economics" and "Complexity Warfare"

"Complexity Economics" was a term coined by the economist Brian Arthur and described in depth in Eric Beinhocker's book, *The Origin of Wealth*.[16] Beinhocker describes economics as a complex system, much the same as evolution, in the sense that economics is a process whereby designs are put through an evolutionary formula of "differentiate, select, and amplify" and this makes up the underpinnings of everything that we call economic activity.[17] Beinhocker starts out by tracing the evolution of what he calls "traditional economics" from the same enlightened period that produced Clausewitz. Specifically, he tells the story of Léon Walras, an economist who saw similarities between equilibrium in economics and balancing forces in nature. He borrowed an equilibrium concept from an 1803 physics textbook that ended up providing the basis for many key concepts in economic theory and textbooks that are still in widespread use today.[18]

Beinhocker goes on to list several other Enlightenment period economists who borrowed concepts from the physics of the period and showed how they influenced what is taught to economics students today. Beinhocker's conclusion is damning of today's study of economics: that "traditional economics" has changed very little for the last one-hundred years and has done very little to assist economists in a deeper understanding of the phenomena that make up the world of business, capital, and wealth creation.[19] Since military theorists continue to invoke a similar authority from the same time period and an authority who also borrowed concepts from physics, military theory should be critically scrutinized similar to Beinhocker's critique of economics. In his conclusion, Beinhocker recommends economists turn to evolutionary science to better understand economics and to throw out the old methods- the ways that are still taught to undergraduates and graduates today.[20]

Central to Beinhocker's theory are five characteristics of complex systems: dynamic, composed of agents (inductive, ignorant and fallible individuals making decisions and adapting to the perceived outcomes of those decisions), connected by networks (describing temporary interactions between the agents), having self-organization properties, and evolutionary (a process of "differentiating, selecting, and amplifying" which leads to further complexity).[21] He contrasts these ideas with the unrealistic descriptions of economics that are still used in today's textbooks and displays them in a table.[22] A similar table to Beinhocker's, but using "warfare" in place of "economics" and borrowing his use of the terms "complexity" and "traditional" is depicted below:

16 Ibid, 19.
17 Ibid, 12.
18 Ibid, 32.
19 Ibid, 21-75. 213-239, and 279-319.
20 Ibid, 21-75.
21 Ibid, 97.
22 Ibid, 97.

	Complexity "Warfare"	Traditional "Warfare"
Environment	Dynamic, nonlinear	Linear, static
Enemy (and others on "the battlefield")	Realize individual agents make decisions based on bias and incomplete information	Agents studied collectively, almost monolithically.
Linkages	Interconnected and every interaction changes the network of relationships. Long-term and nuanced.	Seemingly unaware or uncaring of the impact of an action on other agents. Short-sighted and focused on singular connections.
Macro vs. Micro trends	Bottom-up interactions drive top-down picture (thus requiring small unit and decentralized vs. battalion and higher operations).	Everything is macro, top-down-driven, uniformity; over-simplification of the problem is communicated/understood.
Change Process	Differentiate, select, amplify (evolution), a much more complicated change mechanism that applies to ALL agents.	No system for studying how things could change other than "Most likely, most dangerous, and contingency planning"

The table demonstrates that "traditional warfare" looks a lot like "conventional warfare". In "traditional warfare" the enemy followed an order of battle, was monolithic, was controlled by a command structure, his actions were simplified to most likely and most dangerous, and second and third order effects (such as collateral destruction) were irrelevant. It should be readily apparent that these prescriptions could spell disaster in an unconventional environment and even in today's contemporary environment of twenty-four-hour news coverage. The U.S. Army arguably gets many of these concepts in its embrace of "full-spectrum" operations. The reality of operations today is that non-military aspects of any action can mean much more than the traditional military aspects. In the spirit of the Army's new doctrine, "Complexity warfare" could be taken as all forms of warfare along the spectrum, and thus describe all military efforts.

Regardless of whether or not conventional warfare is more complex than unconventional warfare (it is arguably semantics), the case can be made that a tremendous amount of variables affect both. It would thus be highly unlikely that one could, even after identifying most or even all of the variables that will be present, make any reasonably close predictions on how any plan will affect the enemy. The reasons for this might best be described by von Moltke, who stated, "No battle plan survives contact with the enemy;" one action upon the enemy will result in secondary effects on all of the other variables involved. The end result is that several days after the first action, the battlefield will often look vastly different than anything that could have been predicted.[23] It follows that any portion of the battlefield whether broken up by time or battlefield function, will do very little in the way of helping one understand the full picture. The bottom line is a planner or commander will likely miss a nuance that could make all the difference.

As anyone who has spent one day inside the Joint Operations Center (JOC) of a major headquarters knows, the amount of data that is available to a commander is overwhelming. Situation reports are turned in by so many sub-units that even operational and tactical commanders are not able to process everything that is going on and routinely miss critical data. Because of the nature of a complex system, especially during an insurgency, centralized headquarters are systemically in a bad position in terms of being able to understand the battlefield in any timely and nuanced manner. Arguably the U.S. Army understands this phenomena since recent transformation initiatives have decentralized operations and pushed capabilities down to relatively lower levels.

23 For an excellent example of this phenomenon see Cobra II: The Inside Story of the Invasion and Occupation of Iraq by Michael R. Gordon and Bernard E. Trainor. Pantheon Books. New York. 2006.

Finally, warfare can turn all attendant variables and the landscape into something wholly unrecognizable and much more unpredictable than what was thought at the beginning of an operation. Surely few senior officers prior to 2003 thought that the U.S. Army would restructure itself and turn into a counterinsurgency-type force, sustaining BCTs on long deployments, stressing Mobile Training Teams (MTTs) as priority-fill slots for soldiers and officers, tapping into the Navy and Air Force to man Provincial Reconstruction Teams (PRTs) and even some MTT positions, and arguing that the force needs to be prepared to do full spectrum operations, not just high intensity conflict (HIC) or Major Combat Operations (MCO). If the U.S. Army can change so radically, it follows that most other, if not all, entities (read: variables) involved in OEF/OIF have also changed, most in ways highly unimaginable.

Descriptions of today's operating environment match the descriptions of a complex system and this raises numerous questions. If warfare is a complex system, then what does that mean? If military planners and commanders should not use reductionist and linear methods to understand and prepare for war, what should they use? And, a question that could be more contentious within the military, what is warfare, truly, if looked at through a holistic, systems-thinking prism?

Implications of Complexity Theory to Military Operations

The implications of these questions range from a different way in which to plan at the strategic and operational level to a vastly new way of conceptualizing warfare. One implication is that no matter how much informational-processing capability and battlefield situational awareness headquarters think they might have, it will never be enough to understand the complex, dynamic and evolving environment in which forces are operating. It would be like trying to manage all local and state governments, police forces, fire departments, education departments, judicial systems, etc. from Washington, D.C. There are reasons for efficiency and effectiveness to allow greater control and decision-making at the lowest levels possible. Commanders will need to gain an appreciation for how difficult any analysis of the battlefield and measurements of operational success will be in the contemporary environment. The reason for this is that the reality will have already changed by the time the commander puts out guidance; agents have adapted and can even use what the commander says publicly to force seeming contradictions. Even more important, and a lesson that the U.S. learned in Vietnam, is that metrics do very little in terms of measuring actual reality, it is probably more attune to the concept of "I'll know it when I see it"- people will know when there is peace and stability and it probably will not be during a press conference wherein a commander is reporting statistics.

Taking Beinhocker's advice for CEOs and translating it into military concepts, the first specific point would be that commanders cannot assume that certain strategies will be successful in the future and that strategic commitments will result in any sustainable stability. The takeaway from this is that much like markets, the linkages between networks of people drive innovation and change- not army units, although they can play a part in terms of *their* linkage. The trick is to bring that change inside the system of the Army, or, as Beinhocker describes it, "think of strategy as a portfolio of experiments".[24] To put it into military terms, the U.S. Army has to work better on becoming a learning organization, even to the detriment of "Traditional

24 Beinhocker, 334.

Warfare". [25] Many senior military leaders insist the Army is a learning organization while at the same time discounting contrarian views and turning defensive upon criticism. This is anathema to what a learning organization is. Instead of following the traditional way of leading a military unit with unquestioning discipline and an insular motivation based on loyalty to the unit, junior leaders have to be empowered to make decisions at the lowest level possible without repercussions, as long as their decisions are legal and do not lead to unacceptable levels of risk.

This could take the form of allowing infantry sergeants to approve of soldiers wearing local dress, growing beards, and living outside the firebase, for example. These kinds of decisions run counter to conventional, "Traditional Warfare" commanders who must foresee some kind of breaking-down of discipline, or, quite possibly a threat to their career and further promotion. Instead, results should be the overriding concept. Experiment and a certain level of failure should not just be tolerated, but should be encouraged and rewarded. At the higher level, this means that commanders and headquarters staff cannot allow themselves to think that "they have turned the corner" or that they have to keep fighting the course of action the commander first chooses. Planners and commanders must constantly assess whether their strategy is working, whether it must be modified at the ground level, and whether it needs to be changed based on success or failure at the lower levels. Commanders also have to fight the urge to require uniformity in results and approaches across the area of operations.

U.S. military commanders already provide their units with the keys to success through Battle Command. However, many units in Counterinsurgency environments have seen that more "give and take" is required throughout the entire command structure. As Beinhocker describes it, commanders should "create a context for strategy", utilizing a "collective understanding of the current situation and shared aspirations" in the unit. Second, leaders must create a process that encourages and maintains experimentation. Third, units must have a system that rewards those experiments that produce results. This could be a system that rewards specific metrics on the ground, but should probably also incorporate a measurement that will be made in the future to reward long-term progress. Lastly, units have to establish a way to transfer the positive experiments to their subordinate units while simultaneously re-evaluating and ultimately ending any of the negative experiments without killing future experimentation.[26]

Beinhocker does have a place for conventional strategic planning as it "prepares minds". The headquarters staff that does the strategic planning spends an awful lot of time studying the variables involved in the fight- not to come up with a detailed plan that will predict the future, but to ensure that staffers are able to understand the situation quicker and adapt to changes more efficiently. As Beinhocker describes it, innovative thinkers are not those who have zero control and accept a lot of risk, but are instead more pragmatic; it is a mindset that is worried only about results and not about anything else.[27]

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25 Senge, Peter M., The Fifth Discipline: The Art & Practice of The Learning Organization, New York: Currency Doubleday, 1990. List of "disciplines": http://leeds-faculty.colorado.edu/larsenk/learnorg/senge.html. Accessed on 27 OCT 08. Senge goes into detail on what this actually constitutes, but the main ideas are to build systems thinkers, continual learners, objective minds, a shared vision, and team learning.
In terms of "Traditional Warfare", some have argued that for every step the U.S. military takes towards conducting Unconventional Warfare there is a corresponding loss in conventional operations capability. I take the position that "Traditional Warfare" is a way of looking at warfare that does not apply anymore, if it ever did, and that any loss would simply be cultural vice actual capability.
26 Beinhocker, 333-348.
27 Ibid, 348.

One of the most surprising parts of Beinhocker's book is when he concludes that CAPM (Capital Asset Pricing Model), a standard method for calculating the cost of capital, is based on faulty assumptions, one of those being the concept of equilibrium: previously discussed as having been borrowed from Newtonian physics.[28] This theory, along with its accompanying formula, is used in finance to evaluate companies and help make buy and sell recommendations on shares of stock. Without getting into a deeper description of the concept, suffice it to say it would be like telling a military planner that the DIME model (Diplomatic, Informational, Military, and Economic) of national power is based on faulty assumptions. If one of the main topics covered in Finance classes for MBA students is based on faulty assumptions, it naturally leads one to question whether there are similar faulty models within other disciplines, the military being one. If CoG and other processes are, as Beinhocker describes strategic planning, "a way to prepare minds", then the analysis may have some usefulness. If, however, it leads planners and commanders down the wrong path to understanding the fundamental nature of the problems they face, then it could be worse than a waste of time: it could be counterproductive to stability efforts. Is it possible that a CoG of "the will of the people" means nothing, is fundamentally wrong, paints too monolithic a picture of what the U.S. military faces, and does not help planners focus on where resources should go in a counterinsurgency fight?

Beinhocker also calls into question the role of businesses and asks what the purpose of a business is, to make a profit or to continue its existence?[29] These fundamental questions also apply to warfare. What is the purpose of war? To make a better peace? As Beinhocker alludes to in his book, the study of complex systems requires a holistic view and solutions that encompass all pieces/parts possible. Full-Spectrum Operations goes a long way to begin the process of thinking about the entire spectrum of conflict, but a deeper understanding of reality would be to start thinking of warfare as, as Clausewitz himself noted, an extension of other things - possibly politics, but maybe just human behavior. Warfare is not something that occurs in a vacuum and that is separate from everything else going on at the time or in the past or unaffected by changing events that will happen in the future. Warfare is really something that should be considered along with human interactions and behavior as something that exists to a certain extent at all times, even if it does not entail massive columns of troops shooting artillery barrages and moving in up-armored vehicles. Warfare is a complex system; it must be studied in the context of each of its individual instances, and must be looked at in a holistic way.

Conclusions

This paper attempts to question whether the CoG analysis offers a constructive tool for the military planner in the counterinsurgency fight. Warfare exists along a very wide and complex spectrum that includes many things that would not traditionally belong to the subject of conflict. To spend any time at the strategic level on what a CoG is in an unstable environment is something that seems to be an academic exercise in futility and confusion. Instead, it would be helpful for military planners to realize that lower-level units will have to experiment and constantly adapt in order to be successful against an enemy in the counterinsurgency fight. Higher level planners should facilitate lower level units' experiments, reward those experiments that go well, and adapt lessons that can be transferred to other units.

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28 Ibid, 404-405. For a detailed description of CAPM see Money-zine.com's description here: http://www.money-zine.com/Investing/Stocks/Capital-Asset-Pricing-Model-or-CAPM/.
29 Ibid, 408-414.

At the operational level in a conventional fight CoG analysis could be useful, however in an unconventional environment it may not lend itself to a deeper understanding of the conflict. To this end, exercises in identifying CoGs at any level, although it may help to "prepare minds", as Beinhocker postulates, probably should not be used as a formal analytical starting point from which resources are allocated towards endstates. Instead, planners should concentrate on five things: 1) recognizing the systems they are studying are dynamic, nonlinear systems and that for every action taken "against" (or within) the systems- the systems will change (requiring constant reevaluation, adjustment, flexibility, and experimentation); 2) the systems are made up of individual people and groups, each using inductive reasoning, bias, and perceived self-interest to make daily decisions; 3) that these people and groups are connected by networks that describe their interactions and that these relationships change constantly; 4) that all of these seemingly random and chaotic activities on the parts of people and groups will lead to larger patterns that can be described as relative temporary "order" and can be measured to draw relatively short-lived conclusions (a static "snapshot" of the overall situation- more qualitative, than quantitative); and 5) that evolutionary forces (processes that differentiate, select, and amplify) will lead to further complexity and, counterintuitively, growth in order- and that to fight these forces is an exercise in futility. To be productive, planners would identify how those forces affect the people, groups and networks within their unit's area of operation and figure out how to act within those forces' environmental reality in order to have the greatest, positive effect. Rory Stewart, the British diplomat, author, and charity worker gives a good example during his presentations when he describes his work in Kabul as working with and through the people towards making their lives better, but often in wholly different directions than he anticipated.[30]

At the strategic level it really becomes a matter of institutional reform, concentrating on becoming a "learning organization" in order to facilitate the lower units' operations as well as creating a strategic understanding of the environment. Interestingly enough, Clausewitz probably would not have a problem with these conclusions. Much has been written lately of the compatibility of *On War* and recent complexity theories.[31] In the end, Clausewitz's concepts of fog and friction and "the trinity" reflect more complexity in the nature of warfare than does a concept as rigid as a CoG. For a theoretician who did not like checklists and did not think that warfare had any static principles, Clausewitz would probably be comfortable hearing of the breakthroughs in complexity and evolutionary theories that are now being applied to other complex subjects, such as economics and warfare.[32]

30 Rory Stewart has described in public statements how his charity had an objective of cleaning up streets and getting economic activity revived in an old sector of Kabul. In working towards those goals, his group has gotten involved in many more projects than just cleaning and economic revival, to include building a school and working with local "power-brokers". In other words, his group did not approach the problems with a top-down, centralized planning style, but instead constantly learned about the dynamics of the situation and worked within the established system in order to make little changes and not wholesale change that was non-Afghan-oriented.

31 Clausewitz Homepage, www.Clausewitz.com, http://www.clausewitz.com/CWZHOME/Complex/PropBibl.htm. Accessed 5 April 09. This webpage presents a number of works specifically tying Clausewitz's concepts to complexity theory.

32 Clausewitz, Carl Von. On War. Howard and Paret translation. Princeton University Press. New York, 1976: 154-156. "…Earlier theorists aimed to equip the conduct of war with principles, rules, or even systems. …interior lines…. …All these attempts are objectionable… …they aim at fixed values… „In war everything is uncertain and variable, intertwined with psychological forces and effects, … of a continuous interaction of opposites…"

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