Thinking of Revolution in Military Affairs (RMA)

Towards a common understanding of RMA

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Summary

The origins of the Revolution in Military Affaires (RMA) concept we use today has its roots in the Soviet military thinking of the 1960s. By the early 1980s the Soviet General Staff developed the concept of what many call the *information revolution* in military affairs today. They saw advanced data processing and communications technology applied to hi-tech conventional firepower potentially increasing the US and NATO conventional capabilities. The Soviets coined it the Military-Technical Revolution (MTR). Inspired by the Soviet thinking, the Office of Net Assessment (ONA) at the Pentagon at the time undertook an assessment that would explore whether a major shift in the character of military competitions was under way. They also started to use the term RMA instead of MTR to avoid a cognitive bias toward the role of technology in these kinds of shifts.

In order to move RMA towards a common understanding it is important to try and keep the established meaning of the terms "revolution" and "military affairs" closely linked to the definition of RMA. If there is no link it is more expedient to change the term (as was done when ONA moved from using MTR to RMA.) A good way of defining RMA is as follows:

> RMA is a sudden change in the power relations[1] between two or more political actors[2] as a consequence of changes in variables other than economic or geopolitical prerequisites. The change has to be large enough to win significant political concessions through conflict, or through general acknowledgement of increased power.

When applied to the historical example of utilization of mass mobilization in France in the late 1700s there is a traceable sudden change in power relations caused by the application of conscription that manifested itself in significant political

[1] By «power relations» it is here meant military power relations.

[2] By «political actors» it is here meant actors with given political goals and the ability to mobilize resources to ensure a successful completion of this objective.

concessions through conflict. Napoleon at the time did not grasp when the window of opportunity closed and failed to cement most of his political concessions, however.

What complicates the discussion around the phenomenon RMA is that it is abstract and not readily available. What can be said of the nature of the phenomenon is that it will most likely occure over and over again in the future, but there is nothing inherit in the nature of it that ensures that it does.

Preface

The quote from Wittgenstein is very true when it comes to the emergence of the term Revolution in Military Affairs (RMA.) But the core issue here is not just of philosophical and theoretical nature, it has to do with war, the most serious aspect of politics. And war has, and always will be, a very complex affair with a lot of unknowns. It has great potential as a catalyst for change but is also cloaked in grave consequences if not handled wisely. As recent wars in Iraq and Afghanistan show, even history's mightiest military – the US armed forces of today – experience war as complex and a difficult mistress to harness. After all, a few weeks of all-out-war easily removed Saddam from the throne in Iraq, something 20 years of covert action and sanctions never did. But Iraq didn't necessary turn out quite as imagined. Also, war has become increasingly complex in recent history. Not just more complex technologically but also in terms of its judicial, social and moral aspects. The increasing unpopularity of war continues to complicate. It has not been a linear increasing unpopularity but a marked and clear one for sure. And in some circles war has also been seen as something that will eventually become obsolete by evolution. Progress will do away with the savage and natural instincts that make us prone to wars. As Tennyson so elegantly put it: "And battered with the shocks of doom […] Move upward, out the beast. And let the ape and tiger [inside us] die" (Tennyson, 1850: 183). Even though wars now have a tendency to be fought for other reasons than in the past when goods, territory and women were the primary objectives, it doesn't seem to go away quite yet.

The term Revolution in Military Affairs (RMA) became a buzzword in the course of the 1990s. This had much to do with the fall of the Iron Curtain, the stunning victory against Iraq in 1991 and the usefulness of the concept for US military budgetary and procurement procedures in the wake of the Cold War. Much of the work and some of the definitions that were formulated in this period were clearly tailored towards addressing the current situation without any wider historical understanding of the concept. So why is RMA of interest to the general public today?

It is not an easy question to answer when competing with fashionable terms as COIN (counterinsurgency), A2/AD (anti-access/area-denial), the new arms races[3], the "new cold war"[4], etc. These terms apparently makes more sense in everyday life. The truth is that these fashionable terms depend on a few prerequisites. And these prerequisites again take for granted that a certain *military regime*[5] (network-centric warfare) is the dominant and most effective way when it comes to waging war. But is that really the case? One aspect worth pointing out here is that this military regime has never been tested against a "worthy" opponent. So this assumption lacks empirical evidence. Therefore it is of great interest to gain a better understanding of how this assumption arose. By taking a thorough look at the term RMA and refine the concept, it might be possible to gain a better understanding of how it affects COIN, A2/AD, the "new cold war" and the new arms races; then further be able to better refine these concepts. By gaining further insight into how some sudden changes in the balance-of-power came about might gain new insight into fields of research beyond RMA as well.

What is beyond doubt is that the term RMA by coming into existence provided us with an opportunity to think differently about familiar conditions that surrounded us. And another interesting thing about RMA is the *historical phase* the term is in. That means that the exact meaning has not been determined, and how it is used still influence how it should be understood. Other concepts, for example "chair", has an established meaning and cannot be too much outside the scope before people would say it is not a chair anymore. This is not the case with RMA. Moreover, RMA is an abstract term that cannot be pointed at or pinned on the wall. The terms of use are only loosely established so the ongoing discussion shapes the concept quite rapidly.

The former US Secretary of Defense, Donald Rumsfeld once proclaimed "As you know, you go to war with the army you have, not the army you might want or wish to have at a later time" (Scmitt, 2004) Well, in many ways it was the quest for

[3] The new arms race generally refers to the competition for high-tech weapons, especially in Asia.

[4] The new cold war generally refers to the rise of China and the effects it has on Sino-US relations.

[5] Military regime must here be understood as the prevailing system or pattern of conducting war. Some refer to this as a *military paradigm*.

having the army you wish to have at a later time that generated the term RMA. Exactly how it came about is described in detail in chapter 2.

Even though I have had tremendous help underway from Lieutenant Colonel Dr. Harald Høiback all shortages, errors and lacking logic is due to my own stubborn insistence or from lack of better knowledge. I also owe Dr. Høiback big thanks for his extreme patience with me during all this time. A big thanks also to my fiancée for pushing me to finish this project, Professor Steven Metz and Dr. Michael O'Hanlon for great and insightful discussions on the subject. And last but by no means least the legendary Dr. Andrew Krepinevich for discussions, advice and valuable data.

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"Concepts lead us to make investigations; are the expression of our interest, and direct our interest."

Ludwig Wittgenstein in Philosophical Investigations § 570

1 Introduction

Revolution in Military Affairs (RMA) – however one chooses to define it – is a complex phenomenon. This makes it hard to describe and analyze. This may be the reason for the lack of a common understanding of what constitutes a RMA although most people agree it involves some form of radical change, or some form of discontinuity in the history of warfare. But there is no consensus regarding how and when these changes or discontinuities take place, or what causes them.

The main purpose of this assignment is to conduct an analysis of the term Revolution in Military Affairs (RMA.) It will be argued that the term is in flux, and consists of many competing definitions. The ambition in this assignment is thus to establishing a common understanding of the term. This is just a small step in a very long march. It will be done by formulating a definition of the term that will function as a *demarcation* of the scope of the phenomenon. Further case studies will be needed to determine on individual basis what constitute, and what does not, constitute a RMA (i.e. determine the scope of the phenomenon.) Due to space limitation only one case will be fully examined in this assignment.

Two important considerations must be taken into account when trying to establishing a common understanding of RMA. The first that there need to be a relation between the term (RMA) and the established meaning of the words that make up the term ("revolution" and "military affairs"), and that there is a correlation between the purpose for which the term arose and the new definition. If these considerations are not taken into account, one can equally well create a new term.

With these considerations in mind, I have developed a definition that tries to take these factors into account:

> RMA must be understood as a sudden change in the power relations[6] between two or more political actors[7] as a consequence of change in a variable other than economic or geopolitical prerequisites. The change has to be large enough to win significant political concessions through conflict, or through general acknowledgement of increased power.

There are several variables and an important temporal component at play here. "Change in power relations", "significant political concessions" and "sudden" are rather straight forward. But in the definition there is one changing variable as well. To find the variable that causes the "sudden change in power relations" an analysis to isolate this variable need to be conducted.

The vagueness of the wording in the definition is both its weakness and strength. It is a weakness in the sense that expressions like "sudden change", "large enough" and "general acknowledgement" easily can be taken out of context and applied to a great deal of examples. In order to limit this potential weakness much effort has been devoted into explaining these key terms in chapter 6.1. But the vagueness is also the strength of the definition. This way it remains timeless and can be applied to phenomena that we do not yet know the nature of. As a definition often rely on a set of other terms to explain itself, it is necessary to conduct an etymological examination to increase the level of precision and reduce the ambiguity (chapter 5.2.)

Further, this assignment rests on two premises. The first one is that it assumes that RMA is only interesting if it has an effect on power relations between a set of actors. This is a controversial point which will be discussed in depth in chapter 4. The second is that the effect of the RMA doesn't have to be permanent. Only that it has worked once, or

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6 By «power relations» it is here meant military power relations.

7 By «political actors» it is here meant actors with given political goals and the ability to mobilize resources to ensure a successful completion of this objective.

acknowledged by other actors once. Also, certain issues have been omitted due to the limited nature of this assignment. The discussion on whether or not terrorism or other forms of none-state actors can bring about RMAs is one of them. It is important to note that it is not been defined out of the RMA debate, only that it will not be discussed here.

In addition certain sub-conclusions will be reached underway. These will be explained in depth in the chapters that follow. The most important ones are a) the Soviet term Military-Technical Revolution (MTR), even though it has limited transference on my definition, and most other recent definitions; b) the US RMA understanding in the early 1990s, which was heavily influenced by the MTR term and thus is obsolete today; and c) the term *revolution*, which requires both an temporal- *and* quantitative component. The argument in this assignment rest heavily on the formation process of the term, therefore it is necessary with an in-depth account of this process.

2 A short historical background of the RMA concept

As mentioned RMA became a buzzword in the course of the 1990s as a result of the usefulness of the concept for US military budgetary and procurement procedures in the wake of the Cold War. But there is an important distinction worth stressing. This RMA debate must not be confused with the mid-1950s debate about *the* military revolution that focused solely on 16th and 17th century developments and did not see it as a possible reoccurring phenomenon (Murray, 1997: 69). However, this does not exclude the phenomenon from being a potential RMA.

The origins of the RMA concept we use today has its roots in the Soviet military thinking of the 1960s. Later, in the early 1970s, it appeared in the title of a major Soviet book of military theory (Reddel, 1975). This book dealt primarily with the strategic and operational exploitation of nuclear firepower. However, by the early 1980s the Soviet General Staff developed the concept of what many call the *information revolution* in military affairs today. What they saw was advanced data processing and communications technology applied to hi-tech conventional firepower potentially increasing the US and NATO conventional capabilities (Patrick, 1994: 39).

So why was it the Soviets who gained a conceptual understanding of this topic first? The short answer is that the Soviet military thinking had a doctrinal tradition that was highly deductive. It was influenced by two cycles of experience. The first one was in the early 1920s. The Russian Revolution and the following Civil War gave impetus to a fundamental reassessment of the nature of future war among new commanders in the Soviet Commissariat of War. Some argued that these historical developments completely changed the nature of war and gave rise to new approaches. The outcome of the assessments done during the 1920s was the "combined arms" approach, or Unified Military Doctrine, in which no single service or weapons system was deemed sufficient to win wars alone. This came out of a long internal feud in the Bolshevik party on how conflict was to be viewed.

The far left in the party – represented by among others Mikhail Tukhachevskii – advocated an international general staff that would spread revolution through military

assistance to all nations. This idea was later picked up by Mikhail Frunze and incorporated into his reforms. On the right side of the scale was Leon Trotsky. Trotsky didn´t view war itself as something subject to revolutionary laws. War was unchanging and timeless. Thus, there was a need to look at past events to prepare for future outcomes. Trotsky therefore wanted to take the lessons both from the First World War *and* the Russian Civil War and codify them into a military doctrine. For him a military doctrine based on proletariat principles was ludicrous. It was the Civil War's lengthy fronts and small armies that had produced maneuver warfare, not Bolshevik ideology (a point that should have been obvious since the White Army had used the same tactics.) Therefore it made no sense to Trotsky to determine tactics based on ideology. Circumstances would provide that answer (Lafleur, 2004: 45-6 and Higham & Kagan, 2002: 57).

The one who came to champion the military doctrine based on proletariat principles was Mikhail Frunze. Frunze – a hero of the Civil War – focused on merging the experience of the Civil War with the principles of Marx and Engels. The First World War was not relevant because it was fought under the conditions of the old world order. The genius of Frunze's approach was application of Engels' themes to the specific situation in the young Soviet State.

Frunze suggested that a future war would have four fundamental characteristics. It would be a class war, rather than a nationalistic one; second, it would be “mass engaged on the battlefield”; third, there would be a technical factor; and fourth and last, it would be dominated by the relations between the social-political and the economic elements within the society at war. It was this latter characteristic that Frunze thought the greatest distinction between the Socialist and capitalist societies would become apparent. Therefore it should be regarded with supreme importance according to Frunze (Erickson, 1962: 210-11).

Since capitalist societies didn't have the advantage of a truly legitimate rule in the eyes of the proletarian masses, Frunze assumed that capitalist societies would have great problems mobilizing them to fight fellow proletarians in an event of war. Therefore, one of the advantages of the Soviet Union would be strength in numbers. However, this could be offset by technological advances by the capitalist societies. This, combined with the already extreme backwardness of the Soviet Union, made Frunze fear and admire technology. Frunze predicted that “since bourgeois armies […] inner-class struggle may prevent them

from going ahead with arming the whole nation [they may] take the path relying on technical means" (Erickson, 1962: 211). And according to communist theory war was inevitable since the source of war lay in the existing social organization of the world into classes and in the character of capitalism. Class struggle would eventually lead to a war between the classes. Since the Soviet Union was the only state representing the proletariat it had potential enemies on all sides (Jacobs 1969: 102). Consequently, for Frunze two things where obvious; war was coming, and technology was the Achilles heel of the Soviet Union.

Communist theorists, Engels and Marx, also wrote extensively on issues relating to armed combat. Some would even say they are among the ancestors of total war (Neuman & Hagen, 1986: 263). Their writings have to be understood in the context of their communist materialistic interpretation of history and its emphasis on the prevailing economic conditions as a key to understanding of sociopolitical dynamics. They were fully aware of the wider implications of war; hence they operated with a four-folded nature of modern warfare – diplomatic, economic, psychological, and military (as a last resort). Here a clear influence from the writings of Clausewitz himself is obvious, something Engels admitted to Marx (ibid: 265). But Engels took it further and also investigated the impact of technological change on military organizations. (This was something Clausewitz did not have a concept of.) In the book *Anti-Dühring* Engels (1878) wrote: "It is not the 'free creations of the mind' of generals of genius that have had a revolutionizing effect here, but the invention of better weapons and the change in the human material, the soldiers; at the very most the part played by generals of genius is limited to adapting methods of fighting to the new weapons and combatants." Another important element of Engels' military thinking was the idea of "the nation in arms". He hoped universal compulsory military service could eradicate feudal traditions within it and awaken its democratic tendencies. One might be so bold as to say that history would prove that ideal terribly wrong (Neuman & Hagen, 1986: 280). Engels didn't have much impact on military thinking at the time but he would have a large influence later on through the Communist doctrine of the inevitability of war.

Post World War II the Soviets found themselves in a similar situation to that of the early 1920s. Now three new technological developments with potentially great impact on future wars came into focus. This was the invention of nuclear weapons, the development in rocketry, and cybernetics (early computers). This sparked a new cycle in military thinking.

In Soviet military logic doctrines had two aspects; a) social-political which was elaborated by the political leadership, and b) the military-technical aspect which was the General Staffs primary responsibility. This had profound effects on Soviet doctrinal thinking. The social-political aspect was constrained by Marxist-Leninist ideology, but it provided justification for a large focus on military means. Because as long as the capitalist class existed and possessed military means, the "objective conditions" for peace did not exist. This – according to Marxist-Leninist ideology – made some sort of armed conflict inevitable. According to Odom the ideological basis for Soviet military needs cannot be discounted lightly (1988/89: 116).

Further, Soviet political and military leaders in the 60s and 70s still reckoned that Soviet military capabilities were limited by three objective conditions (Odom, 1988/89: 118). First, the manpower base had a low technical-cultural level when measured against the requirements for modern war. Second, the Soviet industrial base was insufficiently developed to provide modern technology and weaponry. Third, new technologies continued to affect the nature of modern weaponry. The reaction to these limitations has repeatedly been to define the nature of future war in light of new technologies. This was also very much in line with the thinking of Frunze as seen above. The fear of technology due to Soviet's continuing backwardness might have been the reason for this obsession. Especially since the Russian Revolution itself as well was an anachronism in relation to Marxist-Leninist theory which predicted the revolution to take place in a highly developed country, not a backward one like Russia at the time, and that major post- WWII developments were in the technological field.

Some authors – like Adamsky (2010) – claim there are slightly other reasons for the Soviets to be the first to coin the concept of Military-Technical Revolution (MTR) and later the RMA concept. He stresses that the Soviet-Russian society has an inclination toward *holistic-dialectical thought*. This approach relies on experience-based and intuitive knowledge rather than on formal logic (ibid: 18-9). This also means that there is an emphasis on change in context, recognition of contradiction, and search for the synthesis between opposing propositions (ibid). The opposite way of thinking – according to Adamsky – is *analytical thinking*. This is similar to what Thomas Kuhn defines as "normal science", and it avoids contradictions and does not suffer from conceptual discontinuities

(ibid: 19). The differences between the likes of Odom and Adamsky concerning why the Soviets came out with the starting concept is not hugely relevant to the assignment, but I will argue that the reason might be a lot simpler than they assume: the Soviet MTR was the result of an ongoing process within the Soviet doctrinal concept of Unified Military Doctrine (UMD). This made the Soviets pick up on technological developments quickly since they feared a canceling out of their strategic advantage; space and numbers. As will be obvious later in the assignment, consequently this means that the MTRs cannot be RMAs in the Soviets mind because it needs a premise which is context dependent, namely the existence of the Soviet state and worldwide class struggle.

So how great was the potential effect of these developments? Well, first of all it meant – according to the general staff – that the US had potential to reach conventional parity with the Soviet Union and the Warsaw Pact. In worst case even surpass them. Since the Soviet's at this time only viewed nuclear weapons as a policy instrument in theory (because of its destructiveness) this would completely change Soviet strategic position.

2.1 Ogarkov and the MTR

After Brezhnev's Tula address in 1977 the Soviet military was forced to turn focus away from means of defense against nuclear weapons in favor of conventional capabilities again.[8] This coincided with Ogarkov's ascendances to the top position in the Soviet General Staff. Under him Soviet military thinking moved from the unilateral focus on the social-political aspect towards greater attention to the technological component of the military doctrine (Kokoshin, 1998: 56). With the removal of nuclear weapons as an expedient instrument of achieving political goals, the field was open to a new pace of reform. This doctrinal attention to the technical aspect was somewhat atypical of Soviet military traditions since the 1930s (ibid).

Ogarkov was a champion of technological reform. Already in 1971 he said in an article that "[…] the colossal scales in terms of space, the dynamic character and tension of military actions, […], the sharp increase in the volume of information and equally sharp

[8] Brezhnev's Tula address in 1977 marked a shift in Soviet nuclear policy. Nuclear war was from then on seen as too unpromising and dangerous to be an instrument of policy. It remained so only in theory, and self-defense.

reduction in the time allotted to working out decision on battle or operation – all this has made unusually high demands on Soviet military-scientific thinking and the ideological-theoretical and professional training of army and navy cadres." (Gottemoeller, 1989: 4) What Ogarkov saw in the West's rise of hi-tech merging with conventional weapons was the old fear formulated by Frunze that the West now was taking "the path of relying on technological means." This was a move to counter the advantages achieved by the Revolution, a kind of counter-revolution. This was the second Military Technical Revolution (MTR) after WWII. With the acknowledgment that nuclear weapons no longer was an expedient instrument of war, it was no big surprise that the biggest focus of his tenure as Chief of the General Staff would be the effect of technological development on conventional forces. However, his tenure coincided with another important factor; increasing budget constraints. These constraints collided with plans for military modernization and reorganization stemming from the two other factors mentioned above: nuclear non-option and technological change (ibid).

According to Gottemoeller (1989: 3) this was not the first MTR. According to her the advances that grew out of technological developments in nuclear weapons, radioelectronic technology, and automation in the 1950s constituted the first modern revolution in military affairs. However, there is reason to be unsure if Mikhail Frunze would have thought it a revolution in military affairs, or just a continuing aspect of it. He believed that the threat from technological development was ever present since this was the Achilles-heel of the socialist experiment. The Unified Military Doctrine was formulated to meet this continuing challenge. So in that sense both the first and second MTR took place within the framework of the predicted consequences of the Russian Revolution itself.

Another important point worth stressing at this stage is that the Soviet MTR concept was designed to specifically address the developments in US military capabilities at the time, even though they reached back as far as the 1920s to get empirical evidence (Adamsky, 2010: 24-39). So in that sense it resembled the debate among the historians in the mid-50s. However, the concept evolved – as seen above – and today most people see the phenomenon of MTR as the precursor to the RMA concept. This is only the case to a certain extent since MTR rests on a few premises not present today (the existence of the Soviet

state and worldwide class struggle.) This was something the American thinkers who picked up on the term also were aware of.

2.2 ONA and the MTR Term

On August 1, 1991, i.e. only months after the stunning victory in the Persian Gulf, Andrew Marshall and Andrew Krepinevich met with a small group of advisors at the Office of Net Assessment (ONA) at the Pentagon. They were to undertake an assessment that would explore whether “a major shift in the character of military competitions was under way.” The intention was to move beyond the Cold War military balance assessment despite the continued existence of the Soviet Union. They were preparing for the post-Cold War.

In the beginning Krepinevich, Marshall and ONA was using the term “military-technical revolution” which was the Soviet term. Later they realized they needed another term because people tended to equate the “revolution” (the network-centric one) primarily (and sometimes exclusively) with advances in technology. Marshall insisted on using the Soviet inspired RMA while Krepenivich in his subsequent research on the issue adopted the term “military revolution” which he perceived more consistent with the scholarly literature. There was another interesting reason as well, Krepinevich wanted to avoid the baggage of being associated with the Soviet usage of the term. These measures clearly demonstrate the validity of the opening quote of Wittgenstein that "concepts lead us to make investigations; are the expression of our interest, and direct our interest" and that Marshall and Krepinevich wanted to mitigate this effect. But Krepinevich and Marshall was still equated RMA with change in how wars was fought (character of military competition), independently of political effect/consequence (Krepinevich, 1992 [2002].)

Today RMA is generally seen as something that has happened repeatedly throughout history. So what does the phenomenon actually describe then? The Soviets came up with quite an accurate conceptual understand of how the next generation of military capabilities would develop. It was not necessarily a conceptual understanding of RMA as a phenomenon. Would the Soviets predicted the change if it was not technology driven? There is much evidence – as seen above – to doubt that.

In order to gain further understanding it is necessary to look at concepts in general, conduct an etymological examination, and on the RMA concept in particular.

3 Conceptual Theory

All concepts that claim scientific or philosophical legitimacy must be articulated in the form of a definition. Ever since the time of Aristotle there have been very specific logical requirements for this type of definitions. By using definitions issues can be opened up or demarcated. They act as useful tools when conducting examinations or research to reduce ambiguity and lack of clarity due to vagueness in linguistically expressed meanings (terms.) A definition shall have a set of conceptual characteristics that separate are *necessary,* and together constitute the only *adequate* set. This rule can be formulated as follows:

> An expression "U" is applied correctly if and only if the characteristics K_1 & K_2 & K_3 & …K_n are present.

To concretize this abstract description we might think of an every-day object like a chair. A chair might be described – or defined – as "seating furniture with backrest designed for one person." The chair is then the object to be described (the *definiendum*) and "a seating furniture with backrest designed for one person" is the defining clause (*definiens.*) The defining clause formulates the requirements for using the concept correctly. So, for the word chair to be used correctly it should be used in relation to something that a) is a seating furniture, b) has a backrest, and c) is designed for one person. These three conditions determines the *conceptual content* for the concept "chair", and all furniture that meet these conditions constitute the concept's *scope*.

Within definitions of linguistic expressions, or terms as they also are called, there is a key distinction between *normative* and *descriptive* definitions. The main purpose of the latter is to explain how a term is actually used, that is what the established usage of a term is. This is only useful on terms with a high degree of consensus about what constitute the definiens, for example like with everyday words or objects like a song, car, spoon, chair, etc. Common for these are that they can be explained with an assertion of what the object or word is, or means. For example "word A usually means B." When it comes to normative definitions – which are the most common in research – they are formulated as "word A must

in this context be understood as B." The purpose with this type of definition is not to explain how it is used but to provide a particular significance. There are certain requirements for normative definitions:

a) The definition must clarify the meaning
b) The definition must have an appropriate scope
c) The definition must have decidability

These requirements are ideal types since they seldom are possible to satisfy completely in one single definition. Which of the requirements to be emphasized usually depends on in which context the definition is used in (Karlsen, 2009.) Since the concept is related to war, or the prospect of war, it is necessary to say something about war as a phenomenon as well.

4 The Nature of War and Warfare

The social institution known as war has been a more or less permanent feature throughout human history. It survived the agrarian revolution of approx. 6000 BC, the industrial revolution of the nineteenth century, and the scientific revolution of the twentieth (Gray, 2005: 29). It would be safe to assume that it would continue to be present in the time to come whatever changes in technology, economy, social and political context, that lay ahead of us.

War has been very unpopular at times, for instance in the immediate aftermath of the Great War (1914-18). But as we know it didn't prevent mankind from rushing into another great disaster only 20 years later (the Second World War). Today war is still being used as a political instrument and there is no known cure for it. Some argue that the current change in the conduct of war also change the nature of war. That is not the case. Clausewitz defines war as "an act of violence intended to compel our opponent to fulfill our will" (Clausewitz, 1827). Gray has another one: "war is organized violence threatened or waged for political purposes" (Gray, 2005: 30). These are rough definitions but fully adequate for the purpose of the argument made here.

According to Echevarria (Echevarria, 1996: 78) Clausewitz considered war as multi-dimensional, composed of *objective* and *subjective* natures. This will serve as a useful framework for understanding war in this assignment. The objective nature is universal and has validity for all conflicts regardless of when or where they are fought. Violence, uncertainty, chance, and friction remain a constant part of war despite time and place, despite embodying many varieties and intensities. Uncertainty and friction becomes greater the more complex the combat operations are, and friction comes in many forms. It can be ordinary errors, misunderstandings, delay, mechanical breakdowns, supply problems, etc. not caused by the enemy but rather in the inherent risk of implementing whatever is intended. In the words of Edward Luttwak: "friction is the very medium in which any kind of strategic action must unfold, and war's most constant companion" (Luttwak, 2001: 10). These properties of conflict were valid for

the great wars of the twentieth century the same way they were valid for the peacekeeping operations of the twenty-first. Moreover, because war is not an autonomous activity but a social and human event, it has two tendencies: escalation and reciprocation. Absent the moderating influence of policy and debilitating force of friction, these tendencies push war toward a violent extreme. Thus, for Clausewitz war might change color like a chameleon, but its essential nature remains constant – violent, unpredictable, and prone to escalation.

The subjective nature on the other hand is unique for every conflict, and in constant motion. The central elements of the subjective nature are military forces, doctrines, leadership, weapon systems, and the dimension the war takes place in (land, sea, air, space , cyberspace). Clausewitz argues both natures of war continuously affect each other, and this is where the importance of a Revolution in Military Affairs (RMA) comes in. The only way to affect the objective nature of war is through change in the subjective (which one control). But you don't control *how* the change in the subjective nature will affect the objective one because of presence of uncertainty and chance.

War and warfare do not always change in an evolutionary linear way (Gray, 2005: 25, Knox & Murray, 2001: 176-79). As Gray (2005: 25) points out "surprise is not merely possible, or even probable, it is certain", and it is this "surprise" that might be a RMA. Metz & Kievit (1995: 11) have tried to illustrate this using a simple graph (see below). They use military development as a function of *combat effectiveness* and *time* to show how RMA can be spotted. Sudden increases in combat effectiveness that deviate from the normal linear growth pattern indicate a RMA.

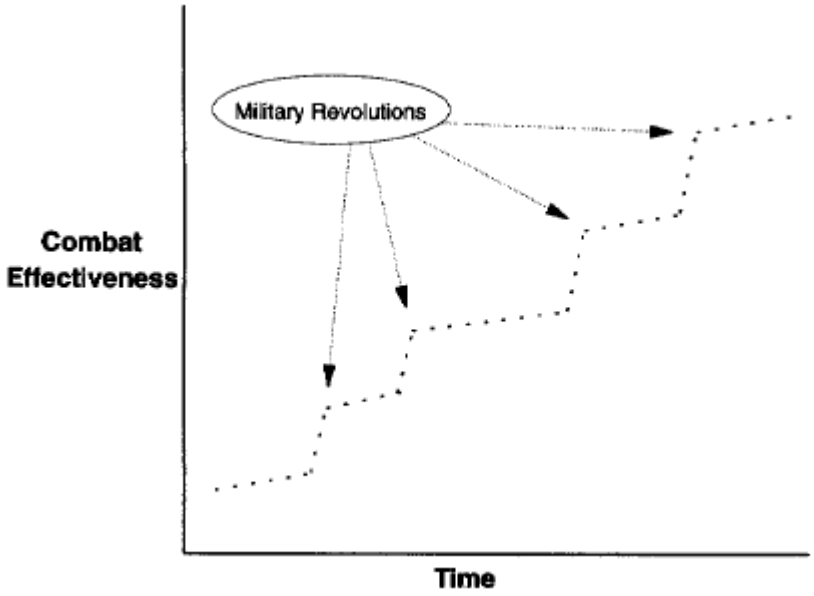

Figure 1: Effectiveness and Revolutions (Metz & Kievit 1995:11).

As we will come back to later, I don't agree with Metz & Kievit's explanation of the graph, or that it is adequate with only one graph. This graph provides explanatory power only if combat effectiveness is seen as cumulative, ever increasing, and non-relational. For this figure to have at least some explanatory power I argue that a second graph is needed (see below). What I do agree strongly with Metz & Kievit on is the need for a temporal component.

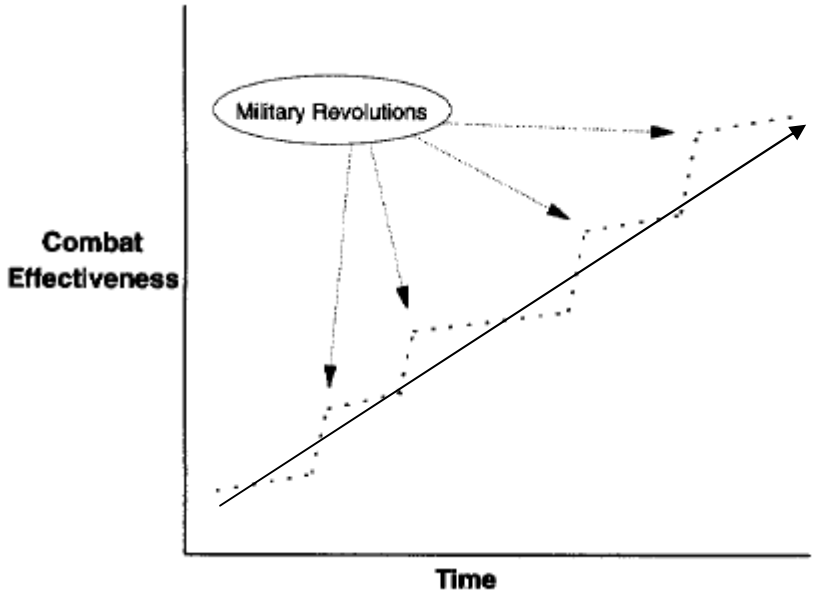

Figure 2: Effectiveness and Revolutions (Metz & Kievit, 1995:11) modified by author.

Assuming that actor A (solid line) within a given time period have a linear development while actor B (dotted line) have sudden increases in effectiveness. If these increases are significant enough they might constitute a RMA if it results in political concessions. If the difference between the two actors is sufficiently large a sudden increase in combat effectiveness doesn't necessary constitute a RMA (see figure 3 below). For example if an actor that uses sticks and stones finds new ways of throwing the stones it might provide for a significant increase if the other relational actor are roughly equal. But if the opponent is the US military of today it wouldn't matter much.

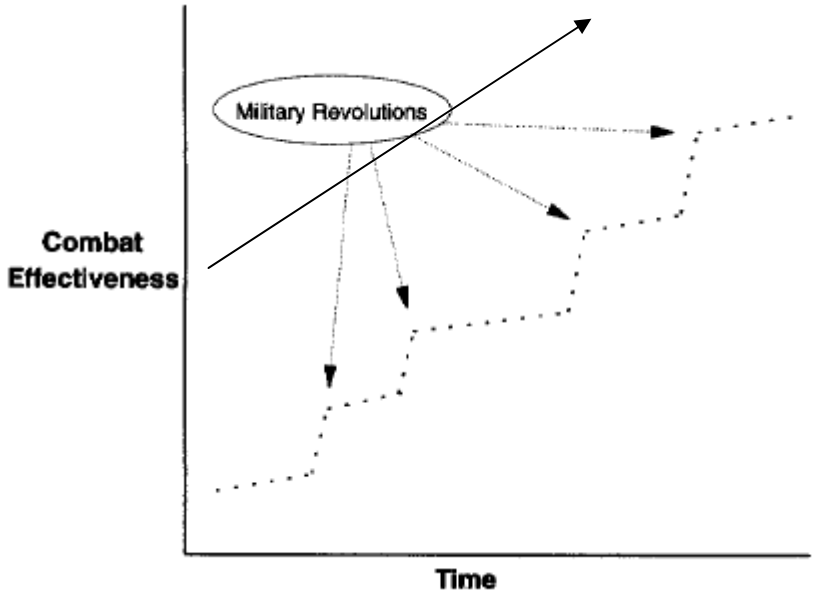

Figure 3: Effectiveness and Revolutions (Metz & Kievit, 1995:11) modified by author.

Therefore what is interesting is not increase in combat effectiveness *per se*, but rather changes in the power relations between two or more actors and the subsequent ability to extract political concessions. Power is always relational and reciprocal, and therefore more suited. It should be noted that Prof. Metz when asked about this agreed that his figure doesn't reflect power's relational and reciprocal nature (Metz, 2012).

Both increase in combat effectiveness and perceived change in power relations affect the subjective nature. How it plays out on the objective nature one wouldn't know until combat actually takes place. However, if the increase in the subjective nature is convincing enough the opponent might recognize that it would most likely have an effect. Then political concessions might be extracted without actual fighting taking place. Thus, would it be possible to cultivate the subjective nature so much so that one is guaranteed a victory? No, because the objective nature contains elements – as mentioned above – such as chance and uncertainty, or what has popularly been referred to as the "fog of war". The challenge then is of course to develop the subjective nature so that it might limit uncertainty and decreases the likelihood of

chance affecting ones side when the two natures interrelate. Even if one side is superior in the traditional sense this is easier said than done as we saw in Vietnam (during the U.S. intervention) and Afghanistan (under the Soviet occupation). In short; the outcome of a conflict cannot be guaranteed.

If the change in power relations manifested itself through conflict one limit the reliance on inductive reasoning, and perceived effects on the subjective nature of the conflict. But a sudden change in power relations manifested through combat victory doesn't have to be a RMA if it happens as a result of for example total incompetence of the opponent. Then there isn't change in any variable that causes it, but rather circumstances in the subjective nature of the conflict that puts the side at an extreme disadvantage. On the other hand, if it was an active measure from the opposing side that caused the incompetence, then it might constitute a RMA.

5 Defining the RMA concept

Collin S. Gray writes in his landmark book *Strategy for Chaos* (2002: 1) that revolution in military affairs (RMA) "was the concept-of-the-decade among strategic thinkers in the 1990s" and that "RMA was fashionable and therefore literally bankable". As Grey points out, this was just one concept in a long line of – what he calls – "high concepts [of] policy-oriented theory in strategic studies". This, of course, produced some interesting definitions of the phenomenon. And every decade have at least one such fashionable concept. After World War II we have seen containment in the 1940s, nuclear deterrence in the 1950s, and détente in the 1970s just to name a few. There is also an intimate relationship between RMA and strategy but it is my argument that these are two distinctly different phenomena.

5.1 RMA and Strategy

Even though I aim to hold strategy and RMA separate it remains a delicate task, they are interwoven in many respects. A good strategy is usually a prerequisite so that your side's subjective nature in a conflict is not put at too much of a disadvantage. RMA can be seen as an ultimate manifestation of a strategy when successful beyond initial expectations, a kind of mutant if you like. This is only half the truth though since many episodes that get labeled RMA are not intended consequences of the initial strategy (Hundley, 1999: 64).

5.2 The Etymology of the Term

Knox & Murray (2001: 1) claim the current notions of RMA derive from two principal sources, namely early modern historians and Soviet military theorist. But they offer little in terms of a deeper analysis of the concept. Before we go any further we need to look at what the *definiendum* at hand – Revolution in Military Affairs – consists of. As we see it consists of a combination of two terms; revolution *and* military affairs. Even though a normative definition does not need to have compliance with the established meaning of terms it should have an association when possible. If not there is maybe

good reason to change the term. Since this assignment is an attempt to take RMA towards a more common understanding of the term, it is necessary with proximity between the established meaning of the terms it consist of and the phenomenon. We can start by looking at the second term in the definiendum, namely military affairs.

Military affairs is generally understood as the policies that come under the responsibility of the ministry of war or defense – depending on the political organization. For example, in the US military affairs is the responsibility of the Department of Defense (DoD). In other agencies – like the Central Intelligence Agency and State Department – the offices/bureaus that have "Military Affairs" in their title are those that are concerned with coordinating with the DoD. Also, many equate military affairs with military science. This I don't agree with. Military science is a much narrower category than military affairs. I define military affairs as everything having to do with defense and security policy. This is somewhat loosely defined but it will not reduce the precision of the RMA definition devised in this assignment. On the contrary, it will increase it. This will be elaborated later in the assignment.

The other term – revolution – is widely used and derives from the Latin word *revolutio*, and has several meanings – like rotation, or an instance of revolving – but here we'll concentrate on the meaning in political context. According to the Oxford Dictionaries (2011) a revolution is "a forcible overthrow of a government or social order, in favor of a new system", or "a dramatic and wide-reaching change in conditions, attitudes, or operation". In other definitions it also has a temporal component. According to *The American Heritage Dictionary* and *Random House Dictionary* it can also be defined as "a sudden, complete or marked change in something" or as "a sudden or momentous change in a situation". What is interesting is that none of these definitions says that it needs to be both sudden *and* momentous/complete/marked. To be able to distinguish revolution from a normal development process I will argue this need to be the case. In our case what sudden and momentous means need to be relative according to what time period we are applying the RMA-definition to. For example in some aspects the pace of change was much

slower in the 1600s than in the 1900s. But it is only partly dependent on the time period. What is maybe more relevant is how fast actors are to counter the advantage given to a specific actor at their expense. This doesn't need to be slower in earlier times than today. For all we know there might have been many events in ancient history where change in power relations happened suddenly, but where countered swiftly so that the effects were not momentous. This would of course then not constitute a RMA. Since we do not know, we cannot rule it out. Whether pace of change is decreasing or increasing over time depends on in what field the RMA takes place. If we, for the sake of argument, say the invention of the longbow (for example Hundley, 1999: 12) and the network-centric warfare (for example Owens, 2000) constitute RMAs we can make a case that the RMA pace was quicker in the instance of the Longbow. The scope and extent of change is enormous when it comes to network-centric warfare systems. However, the relative change in power balance between the relevant actors may be smaller. Also how quickly the longbow was counter-measured, while the network-centric system has not yet been, show that the temporal component doesn't necessary speed up chronologically.

Remembering the requirements for an adequate definition from chapter 3 (necessary and adequate characteristics), when speaking of a revolution in relation to a phenomenon like RMA the characteristics that separate are *necessary* and together constitute the only *adequate* set are "temporal component" *and* "momentous/complete/marked change in relation to another actor of significance." It should be noted that Michael O'Hanlon – among others – disagrees with the necessity of a temporal component by citing the example of guerilla warfare in Vietnam which was a long time in the making (O'Hanlon, 2012). Even though this example is at the fringes of the scope of this assignment it warrants a short comment. It is insufficient evidence in the guerilla warfare example to exclude the temporal component requirement. By the time the US withdrew from Vietnam the Vietcong were fighting like a regular army. It was the domestic social cost of American involvement that forced their hand in the end, not the effectiveness of the Vietnamese (which at that point were fighting as a regular army anyway.) The Vietnamese successfully extracted

significant political concessions by inflicting just enough casualties so that the social cost became too high. If the war had ended while the Vietnamese where still primarily a guerilla army it might have been a more adequate example.

The use of the term revolution like Thomas Kuhn applies it is not directly relevant to RMA. But, since many scientists talk of RMAs as "paradigm shifts" (Hundley, 1999; Smith, 2006) I find it necessary to mention Kuhn's concept of revolution. The Khunian (scientific) revolution has one premise, what you are explaining or measuring is unchanging. It's absolute. Paradigm shifts are more like gestalt shifts; the phenomenon itself isn't changing (Khun, 1970 [1962]: 111-12). Since RMAs are abstract and relational this doesn't fit very well. They are constantly subjected to internal and external pressures and therefore in constant motion/process.

The first RMA definition that reached a broader audience was formulated by Andrew F. Krepinevich in his 1992 assessment "The Military-Technical Revolution: A Preliminary Assessment" (1992 [2002]). It was undertaken at the behest of the US Department of Defense's Office of Net Assessment (ONA) and its head Andrew W. Marshall. It was a brilliant paper and caught on in many circles in the American defense establishment. As discussed in chapter 2.2 there are some important distinctions between how it was used then, and how it is usually employed today. This process was started by Marshall and Krepinevich themselves by altering the term, even though they perceived they were addressing the same phenomenon. They recognized that the term MTR might create a cognitive bias towards the role of technology, but still stressed that technology was an important part of it.

In 1994 Krepinevich goes further and tries to put RMA into a broader context in his article "From Cavalry to Computer" (Krepinevich, 1994). Here he defines RMA as: "It is what occurs when the application of new technologies into a significant number of military systems combines with innovative operational concepts and organizational adaptation in a way that fundamentally alters the character and conduct of conflict. It does so by producing a dramatic increase – often an order of magnitude or greater – in the combat potential and military effectiveness of armed forces."

What Krepinevich is saying here is that military revolutions comprise of four elements: technological change, system development, operational innovation, and organizational adaptation. These are – according to him – *necessary* and *sufficient* conditions for a dramatic increase in military effectiveness that according to him characterizes a RMA. A perusal of the existing literature show most people agree that this might be conditions present in a RMA, but not that they are exhaustive. As Grey (2002: 5) also point out, there are several problems with this definition. First of all, it claims RMA is a function of new technologies. Without venturing into a debate on the definition of technology I would argue that application of new technologies is not a necessary condition to bring about a RMA. I argue it is sufficient for example to use old technology in new ways. Secondly, a RMA needs to alter the character and conduct of conflict. This is somewhat vague and doesn't say much about how much it needs to change, or if it is relational. But I will give Krepinevich the benefit of the doubt on this one. The last, and maybe most important, condition is the increase in combat potential and military effectiveness. Most writers on the subject tend to agree with this condition. Metz & Kievit (1995: 11) insist that combat effectiveness is cumulative and not strictly relational:

> The increase in combat effectiveness associated with revolutions in military affairs is cumulative. Since the collapse of the Roman Empire, *there has been no instance of reversion to pre-revolutionary levels*. While the aggregate change may vary, the trend in combat effectiveness has been steadily upward, with short periods of intense movement (revolutions) and longer periods of evolutionary development.

And Grey even goes as far as to say that the point "is of commonsense nature, and should be true" (2002: 5). I will argue this is not necessarily the case. Take for example strategic missile defense. It has the potential for reducing the efficiency of strategic missile forces of other countries drastically. This would dramatically shift the

balance of power decisively in favor of the country that adopts it. So by reducing the efficiency of others it might increase its standing relatively to other actors. Hundley (1999: 9) in his definition takes into account this possibility by referring to "[conducts of military operations that] *renders obsolete* or *irrelevant* one or more core competencies of a dominant player." The major problem with Hundley's definition, however, is that it refers to RMA as a paradigm shift in the nature and conduct of military operations. In my view this points more in direction of change in military combat regimes than an actual RMA (which, of course, also might include a change in combat regime). There is a case to be made that even a strategic missile defense is an increase in *effectiveness* but a decrease in combat *destructiveness*. But this remains semantically and not vital to the argument made in this assignment.

Another influential book on the subject is Knox & Murrays "The Dynamics of Military Revolution, 1300-2050" (2001). They take a slightly different approach to the subject. Knox & Murray operate with both military revolutions *and* revolution in military affairs as their analytical framework. What is interesting is that they don't provide a definition of either concept. The closest they come to a definition of military revolution is: "[RMAs] defining feature is that it fundamentally changes the framework of war" (2001: 6). They continue further by listing five military revolutions that had that effect in Western history:

- the seventeenth century creation of the modern nation-state
- the French Revolution
- the Industrial Revolution
- the First World War
- the advent of nuclear weapons

These supposed to work as a back-drop for "radical military innovation", which again resembles what we term RMAs. They also refer to Andrew W. Marshall's testimony to the Senate Armed Services Committee: "the term 'revolution' is not meant to insist that change will be rapid – indeed past revolutions have unfolded over a period of decades – but only that change will be profound, that the new methods of warfare will be far more powerful than the old. Innovations in technology make a military

revolution possible, but the revolution itself takes place only when new concepts of operations develop and, in many cases, new military organizations are created. Making these organizational and doctrinal changes is a long process" (Knox & Murray, 2001: 4-5). Further they list a few requirements needed to bring around RMAs. These are: "the assembly of a complex mix of tactical, organizational, doctrinal, and technological innovations" (ibid: 12). These are needed to "in order to implement a new conceptual approach to warfare or to a specialized sub-branch of warfare" (ibid). They are relying heavily on inductive reasoning which leaves them vulnerable to (hermeneutical) biases, especially conformation bias based on the experience with the ongoing change in combat regime at the time. This limits the arguments ability to predict which becomes clear when they note the following: "[…] in the end, battlefield outcomes usually make pitilessly clear which military organization has innovated most effectively." As we will get back to below, only historians have the luxury of wording themselves in this way.

There are three problems with this framework. Firstly, the reference to "radical military innovation" and past military revolutions seems to be more of a debate on how combat regimes change, not how revolutions come around. By citing Marshall they have backing for this since he operates without any real temporal requirement. As mentioned above, it is problematic to discuss revolutionary change without a temporal component. The second objection to Marshall's definition is his premise that new methods of warfare need to be far more powerful than the old. Once again I will use the missile defense example to point out that this need not be the case. The third, and last, objection to Knox & Murray is the lack of relativity. By saying "RMAs require the assembly of a complex mix of tactical, organizational, doctrinal, and technological innovations in order to implement a new conceptual approach to warfare or to a specialized sub-branch of warfare", and "yet in the end, battlefield outcomes usually make pitilessly clear which military organization has innovated most effectively" they have devised a framework that – at best – only can serve as a tool in history research. Given the title of their book is "The Dynamics of Military Revolution, *1300-2050*" the framework isn't very suited to the task at hand.

6 Towards a Definition of Revolution in Military Affairs (RMA)

So far we have surveyed the relevant terrain around RMA as a concept. What have other people said about the topic? Returning to the suggested definition in chapter 1, what should a good RMA definition consist of?

We know from chapter 3 that it needs have decidability, a clear scope and a clear meaning of what it is. It also needs some proximity to the established meaning of the terms it is made up of. If not it is difficult creating a common understanding of it, and it might lead to an unhealthy cognitive bias as we saw in chapter 2.2 when the term MTR was still used in the ONA circles. After dissecting Krepinevich, Marshall, Hundley and Knox & Murray's definitions we see that a good definition need the following: a) a temporal component, b) say something about the scope of change, c) to be relational, d) to exclude factors that might create an invalid inference, and e) be as independent of historical context as possible.

Requirement a) and b) are necessary conditions for distinguishing revolution from evolution/ normal development. Without a temporal component and/or a relational perspective it will be extremely difficult – maybe impossible – to make an assessment of the scope of change. If we look at Marshall's testimony to the Armed Services Committee above he says "the term 'revolution' [in RMA] is not meant to insist that change will be rapid […] but only that change will be profound".

Without requirements a) and c) (temporal and relational) it is impossible to say something about b) (scope (not to be confused with the definition's scope)). Change can hardly help but be profound without these (Knox & Murray (2001: 4-5, Gray (2002: 33))).

Requirements d) and e) (inference and context) are a bit more controversial. The intention of including d) is to better isolate different variables and subsequently gain further precision. It should be noted that explanatory power is not a universal recognized requirement for definitions. However, it is an ideal worth striving for and

included in this assignment for this purpose. When it comes to independence of historical context (requirement e)), it is an ideal, not something one can achieve one hundred percent. If not for anything else, the author will always have a bias which will to some degree – large or small – be reflected in the work done. Still, requirement d) (inference) is important for the definition to be applicable to both potential future, present, and historical RMAs. One grave example of a definition of RMA where this requirement is not met is McKendree's definition from 1996 (quoted in Hundley, 1999: 8)

> [Today's RMA is] a military technical revolution combining [technical advances in] surveillance, C3I and precision munitions [with new] operational concepts, including information warfare, continuous and rapid joint operations (faster than the adversary), and holding the entire theater at risk.

To McKendree's benefit it should be mentioned that he is focused on the RMA of today, not providing a definition of RMA as a phenomenon that might have happened previously, or in the future in another form. But this renders the definition useless for most purposes when it comes to studying aspects of RMA (unless you have as a premise that RMA is a onetime phenomenon ascribed to the current military combat regime. This will be discussed in length later in the assignment.) But a more rightful term of his text would then be that it is a characterization, not a definition.

But MacKendree is not alone in not adhering to the requirements mentioned above. None of the existing definitions of RMA today wholly adheres to these requirements. As mentioned in the introduction (chapter 1) the definition has been constructed based on the requirements above.

6.1 New Definition

The definition constructed for this assignment is somewhat unique in its approach. It approaches the phenomenon from a slightly different angle than other definitions. The definition is not very useful for military science in a narrow sense, or in more of a *longue durée* approach to the phenomenon. The "analytical level" chosen, between these two extremes, is done as to best accommodate the criteria of decidability, a clear scope and a clear meaning. The two most controversial features of this definition are the temporal component and the measurement of change. Other approaches with broader focus often lack decidability and are very vague when it comes to measurable variables. For example the Tofflers (1993) argues that there are only three RMAs; the Agrarian Revolution, the Industrial Revolution, and the Information Revolution. Their temporal component spans the entire human existence which limits the application of their theory significantly when it comes to explaining changes in power relations within shorter timespans. They would probably argue that changes within shorter timespans are irrelevant. The argument made here is that the Tofflers do not address the relevant phenomenon. The ambition for the definition in this assignment is to provide a clearer meaning of the phenomenon, a clearer scope and to have better decidability that for example Tofflers'. As mentioned in the introduction, the working definition for the phenomenon as it is described in this assignment should be viewed as:

> RMA is a sudden change in the power relations[9] between two or more political actors[10] as a consequence of changes in variables other than economic or geopolitical prerequisites. The change has to be large enough to win significant political concessions through conflict, or through general acknowledgement of increased power.

[9] By «power relations» it is here meant military power relations.

[10] By «political actors» it is here meant actors with given political goals and the ability to mobilize resources to ensure a successful completion of this objective.

There are a number of key terms in this definition that need further explanation in order to limit ambiguity. They might seem vague at first glance but it is a necessity in order not to create too limited scope.

- Sudden change: By this it is meant that change happens quicker than normal development in the relevant field, and quicker than other actors in the relevant dyad, triad, tetrad, etc. relationship. As we see in the text, this could also be a result of a perceived change.
- Power relations: The noun power has many meanings. It is sometimes referred to as "military strength or economic or political influence of a nation or other group" (Houghton, 2011). What is beyond doubt when we speak of power in a political or social structure is that it operates both relationally and reciprocally. In lack of a better word, power relations is here meant to indicate military power/potential that can be used to improve one's standing vis-à-vis other actors. It doesn't have to be of offensive character. An improvement in defensive capabilities would reduce the other actor(s) offensive capabilities, thus changing power relations. And to have an effect there needs to be some proximity in power – or potential power – of the actors (see figure 3, chapter 4). Power is also very dependent on what objectives it is meant to meet (strategy). We will not go into detail of that in this assignment since it is beyond its scope.
- Political actors: Here it is simply meant an entity consisting of individuals organized as group with a common political objective and the ability to mobilize resources to ensure a successful completion of this objective. In order not to rule out pre-Westphalian examples, or any future form of organizing political life, it is here referred to political actors instead of a state.
- Variables (or factors): are the set of attributes that make up the power of the political actor. These could be organizational, technological, etc. So why have I excluded economical and geostrategic prerequisites? Because economic and geopolitical changes might change power relations between actors without there being a RMA. For example when the Soviet Union collapsed the power

relations between the Soviet Union (later Russia) and the US changed dramatically because the Soviet/Russian economy collapsed. It had nothing to do with RMA (even though some might claim that it was the cost of the military arms race that brought this about.) Political revolutions can wreck or build economies, thus impacting on power relations, but remains outside the scope of RMA. Change in the economic base of a political actor should be dealt with in Economics, how one *utilizes* the economic base for military purposes will be discussed here. The same goes for changes in geostrategic prerequisites. Take this example, if a country A has two hostile neighbors – B and C – and have balanced power relations with both. Suddenly A and C allies. Country A is then able to redirect more of its resources toward B, thus changing the power relations between them without anything resembling RMA.

- Through general acknowledgement: This caveat is meant to cover the possibility of a RMA being brought about without actual fighting taking place. It is to some degree an attempt to avoid relying too heavily on purely inductive reasoning. It creates room to "think outside the box" i.e. *deductive reasoning*. For example if a successful missile shield – to use a familiar example – is presented and demonstrated sufficiently it would probably bring about an RMA without states firing ICBMs at each other. It could also be the case with today's network centric combat systems. The Soviets perceived a change in the power relations between the two countries taking place when it was first demonstrated. They recognized its potential without actually fighting the US, and changed behavior accordingly (see also further elaboration on this subject in chapter 9.)
- Political concessions: War is not an end in itself but a mean. That is why to measure war, or the prospect of, without looking at the political effect is pointless. That is why the only way to measure the effect of war is in political gains. This gain can be for a very limited time period but it needs to be a measurable gain. Political concessions can manifest themselves as physical control over a geographical territory, officially or unofficially recognized sphere of interest, tributes, organizational benefits (like the Bretton-Woods system and the UN Security Council), or other concession (like Sweden letting

German troops pass through their neutral territory during World War II.)

There are also a few more points that require explaining in relation to the definition. First of all I would once again stress the point of changes and perceived changes. Most of the time power relations are perceived. Berlin May 1945 might not be one of them, but as soon as fighting stops one enters a period of perceived relations. And further from the last confrontation one comes, the greater are the uncertainties. Often a change in the military combat regime starts slowly. Especially the losing side of a conflict has an interest in starting a process of assessing how to improve weaknesses. This was the case with the Germans after WWI for example (Conetta, 2006). This could be inventing new doctrines, increasing manpower, technological developments, etc. The Germans were willing to take – what others would deem – extreme risks to meet its revisionist international agenda. They had no guarantee that it would work but pursued it wholeheartedly anyway. And it paid off. But after a while the paradox of a successful strategy (Luttwak, 2001) kicked in and the other opposing nations started to counter it. Even though it is not a theoretical impossibility to perpetuate a RMA it usually remains a temporary phenomenon thanks to the impact of the strategic paradox. It is also strategy's responsibility to cement gains obtained by a RMA in political concessions. Exactly how one goes about this is more in the realm of strategic studies than in RMA but it is worth noting that a successful RMA doesn't necessary translate into strategic gains if one not push for this while there is a mutual *settlement range*.

7 The Character of the Phenomenon

After going through the historical background, the conceptual theory and defining the concept, one important aspect remains. Explaining what actually takes place militarily in situations that might constitute an RMA is not difficult. Those who study war have conceptual frameworks and terminology to explain exactly what is happening in concrete examples. This is not the ambition here. What is interesting is the abstract *character* of the phenomenon.

As mentioned above, the phenomenon is abstract and not readily available. Some questions are left open and need to be addressed. How can the redefinition of the term be justified? Is it by nature a recurring phenomenon or one-time event? These questions are vital to the character of the phenomenon.

7.1 Changing Character of the Phenomenon

Even though the term RMA originated from looking at specific military capabilities and the effect of advances in technology it quickly morphed into a much broader debate. Yes, it is interesting from a military perspective that the character of the actual fighting change but what quickly became the prime focus was the effect of this change on a strategic level. As seen in chapter 2 to begin with the debate had a very technological focus and it quickly ventured into the effect it had on history. As Hobson (2008:29) point out repeatedly in his analysis of RMA, the emergence of the name of the concept might very well be an expression of some unique characteristics of the US bureaucratic organizing. A lot can be said of the quality of the research that comes out of some of these institutions but there was a phenomenon that needed to be addressed in some way. As explained in chapter 2 there was a concept in place (MTR) but it had certain prerequisites (see chapter 2.1) that made the US phenomenon fall outside its *scope*. Instead of redefining the MTR term, the Office of Net Assessment decided to name a new one that better linked the established meaning of the words that made up the concept and the perceived phenomenon itself. Krepinevich and Marshall discussed what the term should be called. Krepinevich (2013) wanted to just call it a military

revolution in order to link it to an existing academic debate while Marshall favored a new term (RMA.) Whether or not this was out of tactical concerns so that they would receive funding to do more research into the phenomenon or a altruistic expression of what Marshall felt needed to be addressed is not vital to the argument made here. What Hobson claim happens in the US strategic environment due to the characteristics of the bureaucratic organizing is neatly summed up in the Wittgenstein quote in the beginning of this assignment ("concepts lead us to make investigations; are the expression of our interest, and direct our interest.") But what Wittgenstein argues is that it is not necessarily the bureaucratic characteristics that give direction, but the concepts/terms themselves. That debate, however, is outside the scope of this assignment.

Like any new discovery the full range of the phenomenon was not readily available when it emerged in the early 1990s and subsequently the term began its formative period. In that context new research allowed new insight into the phenomenon the term was intended to describe. This is very common for terms in formative periods. But instead of changing the term, like what was done when they moved from MTR to RMA, it is argued here that just a slight adjustment is called for and the term can be kept and still make sense. The reference to a not yet know variable in the definition is an attempt to try and mitigate the problem brought up by Wittgenstein that there cannot be a too rigid list of characteristics if it is to allow for not yet known examples (Johannesen, 1997: 14-15.)

7.2 A Recurring Phenomenon?

Whether or not RMA is a recurring phenomenon or not is a broad question. The short answer is that RMA is a recurring phenomenon but each individual RMA is hardly so. So what are the prerequisites needed if a RMA is to occur? Looking at the definition, RMA is "a sudden change in the power relations between two or more political actors as a consequence of changes in variables other than economic or geopolitical prerequisites. The change has to be large enough to win significant political concessions through conflict, or through general acknowledgement of increased

power. ” In practical terms that means an actor must choose to try and extract political concessions from others that seems unreasonable given the established understanding of power relations between themselves. The difficulty here is distinguishing between concessions granted on terms of domestic weakness (social factors), bad decisions (incompetence), etc. and concessions based on acknowledgement of the other party’s perceived increase in strength. If an open hostility has taken places it is easier to make this call. To illustrate, take for example the Munich Agreement where Britain and France conceded the territory of an ally (Czechoslovakia) to Germany. Does that constitute an RMA? No, because the concessions were granted on basis of British unwillingness to go to war and French unpreparedness. It was diplomacy and strategic deliberations. The German *Case Yellow*[11], however, might qualify as an RMA. For the sake of this argument let’s assume it was. Case Yellow, and later Case Red, forced France to surrender in only five weeks. It was a massive victory and political concessions were formulated in the *Second Armistice at Compiègne.* This, however, does not necessarily mean that it was a deliberate German plan to bring about an RMA. There are many indications that it was not, that it was brought about by coincidence. The changes in the plans for Case Yellow in the last minute and the absence of a plan for the takeover of entire France in the Führer Directorate number six are a few indications that might strengthen the assumption that it was coincidental.

Nevertheless, coincidences came together and created a sudden change in power relations between Germany and France allowing Germany to extract political concessions. Later when Germany tried to replicate the success deliberately during the invasion of the Soviet Union it did not work out as intended. A point made very well by Hobson (2008) in his critical analysis of the use of historical examples to justify certain policies. This illustrates the great paradox of RMA. When working it is often unintended but creates great awards. It leades to a temptation to replicate, which history has shown is very difficult because of the relational nature of the phenomenon. When applied it creates countermeasures from the opposing actor. As a function of time (depending on the ability to absorb knowledge in the organization of the opposing

[11] Case Yellow was the German operation plan for the first stage of the invasion of France.

actor) the effect of an RMA wears down. *A* RMA will most likely happen again while *the* RMA probably never does. That said, if the main component of an RMA is hard to find, countermeasures to it might be applied over and over again. For example if China invent's something that renders US expeditionary capacity obsolete and the US can not find out how, or afford to counter it, it might in theory be applied again and again. Either in combat or in processes to get political concessions. It does, however, require a degree of *ceteris paribus*. There is (at least) one example where an actor deliberatly has tried to bring about an RMA. That is the US transformation effort during the 1990s. That example is useful in many respects and will be covered in chapter 9. It could also be used to check the predictive power of the definition (to a certain extent.) This is not a universal requirement of a defintion but necessary for the scope of this definition. But first the definition need to be tested on a historical example.

8 Past RMAs

In this chapter the definition will be tested on one historic event for the purpose of determine if it constitutes a RMA according to the definition outlined in this assignment. As explained in the introduction (chapter 1) it will need to be done in two stages 1) determine if the change in power relations is sudden and large enough to win political concessions, and 2) which variable(s) caused it so that it can determined if it is within the scope of the definition (i.e. not caused by change in economic or geopolitical prerequisites.) The ambition here is to isolate the variables to the greatest extent. At the same time changes as big as those who bring about RMAs is never the result of change in only one variable. Still, the purpose here is to find the *most* significant of all variables, not to find all variables.

8.1 Mass Mobilization

Even though Napoleon is the one closest affiliated with the utilization of mass mobilization he is also the one who lost the war for France. Napoleon inherited huge conscript armies from the revolution. He then applied his own genius to it and produced some remarkable victories but in the end he didn't manage to cement this into lasting political concessions. But for many years he shifted the power balance in Europe decisively in France's favor. This – I will argue – is sufficient to constitute a RMA.

But it was more to it than just mass mobilization; tactics and moral also played a significant role. On 20 September 1792 a group of French soldiers held off a Prussian assault at Valmy. The Prussian army commander, the Duke of Brunswick, was surprised to meet such a resolute opponent and was forced to negotiate a peaceful retreat. This was the first modern example of a “people's army” defeating the old order (Rothenberg, 2005: 11). Prior to Valmy wars was, at least since the Thirty Years’ War, formal affaires, pursued with limited means for limited objectives. With the absence of any national or ideological content it was not in anyone's interest to seek the total destruction of the enemy. No general ever thought of fighting to the last man (ibid:

12). This was very much the result of political, social, economic, and military constraints. War was more about maneuver than combat. But these constraints were about to change.

While France in 1792 was Europe's second most populous state after Russia, it had been losing out in relative terms to its neighbors. While the other states like the German states, the Habsburg Empire and Britain[12] doubled their population in the latter decades of the eighteen century, France had only a 44.5% increase. Britain – while maybe not growing quite as rapid in population – nearly doubled their national income between 1712 and 1792 (Rothenberg 1999: 20-1).

It is not just in relation to this example population is a key factor. The primary resource for any nation is its human resources. Therefore, trends in population are critical indicators to follow. But it is not only size that matters when it comes to population, structure and means could be just as important. For example nations must have sufficient resources to meet the challenges an expanding population brings and the right structure. Average age for example often play a crucial role. The argument in this assignment is that France didn't have any advantages in terms of demography but still managed to utilize its population in a way that swung power relations in Europe in its favor. But this is an understudied aspect of the argument made here so further comparative research into demography in Europe at the time-period in question might be a possible way of falsifying the hypothesis put forward in this chapter.

8.1.1 Background: The Tactics of the Old Order

Many historians have contended that the Napoleonic Wars was the end – not the beginning – of a revolution. In the *military revolution* context this is true to a certain extent. Starting around 1550 there had been a period of tremendous change in the way European states raised, trained, equipped and employed armies. But even if we just

[12] Britain is not a good example since its population and power in this period was very much dependent on many other factors, like its empire and rapid industrialization. But if we for example look at the figures just for England the growth was 46 % in the period between 1751 and 1801 (Evans 2011: 14) while it is reason to interpret Rothenberg as Britain also doubled its population. It has not been confirmed by other sources, however.

discuss the change in context of *military regime* the sheer magnitude of the mobilization of resources led to a fundamental change in the size and character of the armies. However, this change is not vital to the argument made here. As outlined previously in the argument it depends on changes that benefit one power relative to others to such an extent that there is a sudden change in power relations significant enough to extract political concessions.

In the aftermath of the Seven Years War (1756-1763) a debate about improving war-fighting capabilities erupted in France. It was brought about by the humiliating defeats the war had inflicted on the country. One of the things that were experimented with as early as 1759 was the self-contained all-arms division; a later mainstay of Napoleonic tactics and strategy. It was, however, not permanently adopted until 1793. Similar, France was also leading in developing new infantry tactics. A debate of 'line versus column' had been raging for a while and was resolved in 1772 by a suggestion put forward by Guibert. He favored a combination were battalions shifted deployment according to the tactical situation, also known as the *ordre mixte*. Also, in the area of field guns there was a development led by France but this effect has been overstated according to Rothenberg (1999: 22): "while much (sic) historians have made much of the supposed uniqueness of his [Gribeauval] range of field guns […] Austrians, Prussians and English artillery was nearly as hard-hitting and mobile as the French, and was often utilized when captured."

Still, field armies throughout Europe in 1790 were very similar. They rarely exceeded 50,000 men and were formed at the opening of hostilities from existing regiments. There was little variance in organization or armament which resulted in limited difference in tactics as well (Rothenberg, 2005). While there were technological developments the biggest transformation of war had its origins in political, social and ideological change which facilitated conscription.

When Robespierre in desperation in 1793 declared the "the fatherland in danger", and the Committee of Public Safety decreed *levée en masse* which conscripted all national resources, human and material, the tide was about to change.

Conscription worked and by the spring of 1794 France had over 750,000 men available to fight. This would allow France to alter the balance-of-power in Europe in the years to come (Rothenberg, 1999: 26-7).

8.1.2 The Revolution Unfolds: conscription as a variable

Napoleon created his military instrument of choice – the Grande Armée – in 1802. It consisted of both French and allied troops operating under Napoleon's direct command. Its authority was extremely centralized and thus required a substantial staff apparatus. The General Staff of the Grand Armée was headed by chief of staff, Berthier, who also was part of Napoleon's personal staff. However, Napoleon was poor at delegating tasks and to a large extent functioned as his own operations officer as well. This would be something that served him well as long as the size of the fighting force remained relative small but would later become one of his greatest challenges. While his Grand Armée grew, the system of command, control and administration of the Armée didn't evolve. At its inception the number of men he commanded was 50,000. Eventually the number would swell to well over 400,000 men. This created enormous problems when his armies operated in separated theatres of war or extended fronts. Attempts to maintain strategic control then failed. The system of command did, however, serve him quite well for a long time.

Other less significant variables also favored the French. The time from a soldier was assigned a unit and until it arrived in the field was about 60-70 days (including one week of training and marching days). This means that they arrived fairly well trained and in good condition. Further proficiency was obtained through experience in combat. As Rothenberg (2005: 135-36) put it: “by dispensing with large periods of formal training, the French armies obtained replacements in the shortest possible period of time and as long as enough veterans were available to absorb the recruits the system worked well.” Of course after the failed attempt at crushing Russia in 1812 and the subsequent heavy casualties during the retreat, the system was weakened. This difference is easily illustrated if we contrast the quality of The Grand Armé of 1805 which was one of history's most maneuverable and best exercised forces while the two

Young Guard Divisions fed into combat at Craonne in 1814 was made up exclusively of conscripts pressed into the army only a month earlier (Griffith, 2007: 3). Still, the lead time from recruitment to battle station was not the reason for Napoleon's rapid increase in cannon fodder. Like the system of command it made the Grand Armé more effective for a period but it was not the main reason for success.

But in 1810 Napoleon dominated Europe as no ruler before him. France had nearly doubled in size since 1789 and beyond its borders were the satellite kingdoms of Italy, Spain, Naples, and Westphalia. It was his failure to cement his war gains in lasting political concessions that brought about his downfall, not his later inability to effectively command his swollen Grand Armée and subsequent collapse of the veteran/recruit system (Rothenberg, 1999: 69-70). But before we conclude on first stage of the two-pronged approach, evidence beyond France´s example is needed to show the correlation between the levée en masse and RMA. It could be useful to look at another example from the same time period. How did for example Prussia regain its momentum and rise to great power status again after its initial defeat to Napoleon in 1806-07?

8.1.3 The Prussian Counter Move: isolating the variable

The devastating defeat of the Prussian army at the hands of Napoleon's Grand Armée in 1806-07 was truly an existential crisis for the modern Prussian state. Prussia had – and would – never experience anything like this between its creation in the seventeenth century and its de facto dissolution in 1945. After the losses in the battle of Jena and Auerstedt, the army simply cracked and dissolved, never again to be rebuilt. Prussia was turned into a French satellite. Burdened with heavy financial obligations towards Napoleon's war chest and partly dismembered; reform was now a question of survival.

In the period 1807-1814 there was a rapid and almost complete overhaul of the military system. A *new* army was built. It also had a huge effect on the state, and to some extent on society itself. Aristocratic privilege was almost completely eliminated

and the process of abolition of serfdom got started, changing the Prussian society in a direction previously thought of as unthinkable. Politically it changed as well. The period saw the birth of a responsible government and rational central organization, henceforth providing the citizens with some basic civil rights. However, a constitution would not come around and complete the reforms for another four decades.

The biggest reform was – as mentioned – the military one. It started with a self-controlled purge of the officer corps that rid it of 100 generals and thousands of others in different officer categories. They included the abolition of corporal punishment, the opening of the officer corps for commoners, introducing a meritocracy (in principle), a new central organization for defense under a unified war department, a vastly improved army structure (introducing self-sustained divisions of all arms), and tactical reforms emulating the French example. All this – dramatic as it might sound – proved comparatively easy to implement and were in place already by 1808. The hard part was agreeing to what everybody knew would be the game-changer: the recruitment system.

The reformers, the ministry and the king discussed for a full six years before they reached consensus on what would eventually be the introduction of universal conscription in Prussia. What they all agreed on at the outset was that for Prussia to regain her great power status it was necessary with a numerical larger army than what they had possessed in the past. Even though the motivation for the reforms differed between the king and his government, and the reformist; the pressing need to make the state defensible again united these two factions. The only element of this reform that enjoyed unanimous support was the abolition of foreign recruiting. This occurred already in November 1807. This – of course – made the need for increased domestic recruiting even more pressing. But it was not just internal factors limiting possible outcomes. Prussia was also subjected to external limitations. The Convention of Paris (1808) that was forced upon Prussia by France imposed severe limitations in regard to size and formations. The overall limitation on men under arms was 42,000; it prescribed the exact number and strength of individual formations, and denied them

any form of militia or reserve force. The short-term answer to this question was the *Krümpersystem*.

The Krümpersystem was a milestone in the prehistory of conscription in Prussia. It effectively abolished the old system of long-term service in favor of short-term service by rotating small number of troops constantly in order to gain a wartime reserve.[13] This insured compliance with the Convention of Paris while preparing future manpower without having them enrolled. The actual effect, however, was minor. What was important was the move away from long-term service. When Prussia had to outfit an auxiliary corps for Napoleon's invasion of Russia in 1812 the opportunity was used to start a hidden rearmament in violation of the Convention of Paris. Under the guise of recruiting for the Russia campaign Prussia used frequent reassignments of active troops, reserves, recruits, etc. to hide its actual strength at any time. By the time the *Landwehr* system was introduced (1812), conscription soon followed. Napoleon's defeat in Russia emboldened the Prussians and neutrality was announced. With the Landwehr in place and the French oversight shed, recruitment could start on a grand scale. Volunteers were taken first; afterwards recruiting was by the lot.

When the Prussian army together with its allies crushed France it totaled 300,000 men, a far cry from the 42,000 barely three years earlier. As much as 6 percent of the total population served in the old provinces, a ratio that would not be surpassed in any major European country until the First World War. Prussia had risen to meet the French challenge and had prevailed. What is important to note here, however, is that it did so not by significant changes in tactics or new technological developments, but by copying the French model (see above and chapter 8.1.2) of increasing the number of troops. And because of the financial constraints they were subjected to the only way they could manage it was through conscription (Walter, 2009; Rothenberg, 1999: 174-82; Clark, 2006: 312-38).

But even with conscription there was a limit to the number of forces a nation could utilize. Even if they didn't get paid the still needed to be equipped, fed, led, etc.

[13] Personell were rotated through companies for terms between one month and one year. The total years of service was cut to four compared to 20 in the old system.

The annual average conscripted men in France up till 1812 was about 85,000. This was less than the total number of eligible men available, and even including the levies in 1813-14 the number of men actually serving did not exceed 41 percent of the eligible male population (Rothenberg, 2005: 134-5). This was the French ceiling when other constraints kicked in and limited the ability to put additional men under arms. Russian levies also peaked around the same period (1812-13). They operated with quotas of 8 per 500 souls which resulted in 166,563 recruits in the year of 1812 and approximately 200,000 in 1813 (Mikaberidze, 2009: 46-51). This helps to show that there were also some limitations when conscripting. Not only population size mattered but also access to other resources matter. More importantly, another point that could be read out if this is that the Russians – much like the Prussians – were dependent on numbers to counter the French even though they did not recruit the same way.

8.1.4 Conclusion

As mentioned above, France had from the beginning of the century up till 1792 been losing out growth wise. While other opposing nations had doubled its population size France only grew by 44,5 %. At the same time, in relative terms the economic situation of France didn´t change significantly, no new technological developments greatly favored them either. So the most striking change was their increased ability to put men under arms and win political concessions at gun-point along their way. This was made possible by conscription in France's instance. Between 1789 and 1810 France nearly doubled its territorial size. This is a significantly small timespan. Prussia looked at many ways of regaining their great power status after the humiliating defeats of 1806-07 and ended up copying France by introducing conscription as well. Note they did not adopt the ideology as some historians maintain as explanation for France's success.

As also shown in the previous chapter, the Russians were dependent on numbers as well. What we end up with as the only *necessary* and *sufficient* condition for the French success between 1792 and 1810 is the ability to put a significant number over men under arms at a cheaper cost than their adversaries. That way it can

be inferred that the *most* significant variable in the example of France in the relevant time-period is conscription. With the most significant variable established the next step is to test it against the definition.

Having shown that conscription was the most important factor for change in France's situation in the time-period discussed is not sufficient evidence that conscription constituted a RMA. The pace and significance of change in power relations needs to addressed as well. So, was there a sudden change in the balance-of-power between France and other nations stemming from changes other than economic or geopolitical prerequisites that won France political concessions? It will be argued that this is indeed the case.

It is already established that the variable is not of economic or geopolitical nature. That is, conscription is connected to economy since it lowers the cost per soldier. But this is outside the scope of how economy is defined in chapter 6.1.Had it been the other way around the outcome would have been different. Had the economy in France simply outgrown the others and let them fund more troops in a regular fashion, and in that way tip the balance-of-power in their favor it would be outside the scope of the definition. But since it is not the size of the economy that got affected, just how they were able to utilize it, it remains within the scope. Looking at the rest of the definition it needs to be determined if there was a change in power relations. This can be assessed by looking at the nature of political concessions gained. As mentioned, France nearly doubled its size in the period 1792-1810. At the same time they had satellite kingdoms beyond their boarders, effectively making France the hegemon of the European continent. Having done this primarily by force, or threat of force, infers that the criteria of change in power relations that granted them *significant* concessions is satisfied. That leaves only the temporal requirement. Was the change sudden? Taken into account that France was able to gain more political concessions between 1792 and 1810 than they had been able to in almost a thousand years prior to 1792 (since Charlemagne) makes it safe to infer that the criteria of "sudden" is satisfied as well.

With all criteria's satisfied the hypothesis that conscription in France in the period between 1792 and 1810 constitute a RMA is strengthened.

There is good reason to believe that Napoleon was – to some degree at least – aware of the revolutionary nature conscription had on France's power relations in that time period. Another, although slightly different example, is the awareness American policymakers had of the potential revolutionary effect network-centric warfare would have on the post-Cold War era.

9 Transformation

As mentioned earlier, the US defense establishment was the driving force behind coining the term RMA. The experience from the 1991 Iraq war and the advantageous geopolitical situation as the hegemon in the international system after the collapse of the Soviet Union left the US with a window of opportunity. In 1997 Secretary of Defense, William Cohen, appointed a National Defense Panel (NDP) mandated to "review and make recommendations to the Secretary of Defense on the department's ongoing Quadrennial Defense Review (QDR). […] the NDP also will provide an assessment of alternative force structures for the U.S. military through the year 2010." (National Defense Panel, 1997) The panel came up with a blueprint to operationalize and implement efforts to usher in the "RMA of the 21. century." As it is stated in the report "We are on the cusp of a military revolution stimulated by rapid advances in information and information-related technologies." The key to this RMA according to the panel was "maintaining US information superiority, […] integrate existing and new information systems while exploiting commercial technology. We must also have effective defensive and offensive information capabilities. We will need to recognize that the US lead in space will not go unchallenged. We must coordinate the civil, commercial, and national security aspects of space, as use of space is a major element of national power." (ibid) The result was the doctrine of Transformation. It affected all major allies of the US and became the new "goldstandard" – to use Hobson's expression – in force structure. But did the US succeed? Well, it worked partially. US and its allies quickly won conventional victories against Afghanistan and Iraq. But the mission success criterias was broader than they were in the first war against Iraq in 1991. It was not a war of liberation anymore (even though some seem to think so) but a war of occupation. However, the war was conducted with a high degree of success initially. This was the phase most similar to the 1991 war and the phase the military was most adapt to perform. So the inductive approach worked out well thus far. The next phase (occupation) did not go as well. The war the US went to fight was not the war the assumptions their "RMA" was based on. The political objectives were different, the population reacted differently, other external actors reacted differently.

And most importantly in relation to the argument in this assignment; these were adversaries the US would have – and were expected to – beat wheter or not they had implementet doctrines intended to bring about an RMA. Maybe the new doctrine reduced casualties among US and its allies but it did not significantly alter the power relations between the actors. Still, the jury is out wheter or not this is an RMA since the wars of Iraq and Afghanistan did provide US military victories, but it has not yet been tested against equal or near equal opponents like Russia or China (with reference to the criteria in chapter 4, figure 3.) But could it be argued that the US ongoing Transformation effort is a RMA on the grounds of general acknowledgement of increased power among other actors? To certain extent, yes. The following challenge remains: the US is so dominant in all aspects that it is difficult to determine wheter other states behavior is significantly altered so that the US get political concessions on the basis of their Transformation effort, or if they only react to their general dominance in military power. Two indications are relevant in relation to this; a) other nations seem to move towards network-centric military organizations, and b) developments to counter these advantages are given high priority among potential opponents. For the sake of argument we will use China as example here.

In China's white paper on their armed forces, The Diversified Employment of China's Armed Forces (Information Office of the State Council, 2013), it is very clear that China moves towards a different combat regime than they traditionally have favoured. Among the stated goals are "speed up the transformation of the generating mode of combat effectiveness, build a system of modern military forces with Chinese characteristics, enhance military strategic guidance and diversify the ways of employing armed forces as the times require", "firmly base [China's] military preparedness on winning local wars under the conditions of informationization, make overall and coordinated plans to promote military preparedness in all strategic directions, intensify the joint employment of different services and arms, and enhance warfighting capabilities based on information systems" and "building an informationized military" This document has a lot of similarities with the National

Defence Panel report mentioned above. Worth noting is the central role of joint efforts between services and information. Two key components in network-centric operations.

When it comes the second point, b) (developments to counter these advantages are given high priority among potential opponents), it is clear that China sees information as a vital threath to national sovereignty, security and territorial integrity. Besides threath's faced from "seperatist forces" it is clearly stated that the central task of China's military is to "protect national maritime rights and interests and national security interests in outer space and cyber space" (Information Office of the State Council, 2013.) Taken these observations into account it can be argued that the US is well under way in realizing a RMA but since it is difficult to trace the link to *political concessions* (which is a key phrase in the definition) there is not sufficient evidence to support such a conclusion. What can be said with a degree of certainty is that the US effort is changing the combat regime favored among certain states.

10 Conclusion

While the term RMA originated in Soviet military thinking as a way of addressing the offsetting effects of an increase in US conventional capabilities as a function of technological progress, it lead to an investigating process. When the ONA in Pentagon started to look into the phenomenon to see if the Soviet assumption was correct the 1991 Gulf War was underway. This led Krepinevich and Marshall to ask themselves if this phenomenon was something beyond a contemporary phenomenon, if it was a "fundamental discontinuity in military operations" (Krepinevich, 1992 [2002].) This again led to a historical investigation to find other examples. They also shed themselves of the preferred Soviet term MTR eventually and adopted others more in tune with what they thought corresponded better with the phenomenon and US interests. Krepinevich used "military revolution" and Marshall "RMA." And so the snowball started rolling and the RMA debate found traction way beyond the ONA. It became prominent in the political debate over what to do with the US armed forces in the post-Soviet era and it got operationalized in the process called Transformation. It is a classic example of Wittgenstein's axiom that concepts lead us to make investigations; are the expression of our interest, and direct our interest.

But in the debate during the 1990s and up until today several competing definitions of RMA emerged. Much of the reason for this was/is due to the uncertainty of what the abstract phenomenon is, or should be understood as. The definition put forward in this assignment is an attempt to take a step towards creating a common understanding of the term by doing away with some of the outlying perspectives. The argument is that a change in combat regime/character of warfare can be addressed by other terms and RMA is only interesting if there is an effect on power relations. In extension to this it has also been important to try and keep the established meaning of the terms "revolution" and "military affairs" closely linked to the definition of RMA presented here. That is essential if one seeks to create a common understanding and avoid being too exposed to confirmation bias just based on the name of the term. If

there is no link it is smarter to change the term as was done when Marshall and Krepinevich moved from using MTR to RMA.

To avoid a too rigid set of characteristics in the definition the formulation "change in a variable other than economic or geopolitical prerequisites" was adopted and so far withstands testing well. The example of Mass Mobilization in chapter 8.1 was used to test the definition. It showed that there was one the crucial variable other than economic and geopolitical prerequisites that allowed France to extract political concession at gunpoint during a period until others copied their RMA and evened out the gap in power relations. Even though Napoleon himself was given little attention during the process of isolating the variable he deserves credit for comprehending the phenomenon and deliberately taking advantage of it. This probably increased the effect of the RMA initially. But Napoleon – as shown in chapter 8.1 – did not grasp when the window of opportunity closed and failed to cement most of his political concessions. This was probably due to the megalomaniac tendencies he developed synchronously with, and as a result of, his success on the battle field.

Maybe the most crucial and interesting element besides the actual definition of the phenomenon is the *character* of the phenomenon. In terms of research this is the core. It will have a large bearing on the choice of variables and design. Even though there is nothing in the phenomenon that guarantees a perpetual occurrence it will most likely do because of the relational nature of it. Theoretically it might become obsolete through the absence of incentives that might lead to a RMA, or the absence of coincidences that might lead to it.

With just one case study it is difficult to determine whether the definition provides sufficient decidability, a clear scope and a clear enough meaning. The framework provided in this assignment hopefully can contribute to further research into the phenomenon of RMA by providing a demarcation of the scope of the phenomenon. Others can use this to narrow the focus, finding more specific variables and adding predictive power. Hopefully this effort to explain, not just the

phenomenon, but also the term/concept itself will contribute to moving the term towards a more established understanding of it.

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Appendix

Emails of informed consent from Dr. Krepinevich and Professor Metz can be presented upon request.