**Book Reviews**

**Aircraft in Warfare, the Dawn of the Fourth Arm**

**Frederick William Lanchester**

**London, 1916**

**CHAPTER V: Principle of concentration. The N-Square Law**

* **Principle of concentration:**
  + As Clausewitz refers to bringing as many troops as possible to decisive point as 1st principle of Strategy(Clausewitz, n.d., p. 195), Lanchester similarly asserts that one of the great questions at the root of all strategy is that of “concentration”; concentration of all whole resources of belligerent on a single purpose or object, and concentration of the main strength of his forces, at one point in the field of operations. But unlike Clausewitz he refers material side of concentration as not of principle of strategy rather a scientific phenomenon to be used in tactical operations. For him concentration has two sides, namely moral and material. He analyses controlling factors of it with the sense of contrasting natures of conditions of ancient and modern warfare (Lanchester, 1916, p. 39).
* **The Conditions of Ancient and Modern Warfare Contrasted (p.40-41):** 
  + According to him in ancient times no matter how much strength strategy brings to the theatre of operations, ultimately men will find only men to wield its weapon. Instead of this direct nature of olden times defence, he argues, defence of modern arms is indirect: enemy is prevented from killing you by your killing him first. So, he argues, because of this difference, the importance of concentration in history has not been a constant quantity.
  + Under the old conditions it was not possible by any strategic plan or tactical maneuver to bring other than approximately equal numbers of men into the actual fighting line. Under the present-day conditions all this changed. With modern long-range weapons the concentration of superior numbers gives an immediate superiority in the active combatant ranks. Here he implies that concentration in old times rather difficult to achieve although it was not impossible.
  + In the ancient condition where man is opposed to man, and assuming the combatants to be of equal fighting value and conditions are equal, “duels” will make up the fight and there will be equal numbers killed.
* **Modern Conditions Investigated (p.41):**
  + In the modern conditions, with the same assumptions, each man will in a given time score, on an average, a certain number of hits that are effective, so, the number of men knocked out per unit time will be directly proportional to the numerical strength of the opposing force. He gives also mathematical equation of this like that.
  + He formulates this as:

Text

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b, r: numerical strength of blue and red

t: time

c, k: constants, (c=k if the fighting values of the individual units of the force are equal)

* **Weakness of a Divided Force** (p.43-46)**:** 
  + He gives graphical explanation of “divided forces” weaknesses. He analyses situations and concludes that **if a superior strategy compels** one part to fight in two parts, results would be like the conditions explained below.
    - In a 1:1 force ratio, one could defeat the divided side,
    - In a 1:1 force ratio without division of forces battle would prolong,
    - In a 1: √2 superior force ratio, if inferior force divides superior one, the battle end with no winner.
* **Validity of Mathematical Treatment** (p.46-47)**:**
  + After analyzing these force ratios, he further asserts that “the direct numerical comparison of the forces engaging in conflict is almost universal”. He further goes and asserts that “counting the pieces as of value, and to deny the more extended application of mathematical theory, is illogical and unintelligent.”
* **Fighting Units not of Equal Strength** (p47)**:**
  + He made these force ratio analyses with the assumption of fighting strengths of two sides are equal. In mathematical terms c=k.
  + At this point he asserts that “this condition is not necessarily fulfilled if the combatants be unequally trained or of different morale or if their weapons are of unequal efficiency.
  + He asserts that while we cannot judge on these two factors, but we can calculate weapons efficiency.
* **Influence of efficiency of weapons** (p.48)**:**
  + He asserts that “any difference in the efficiency of weapons may be presented by a disparity in the constants c and k in equations”.
  + With a Blue force of 500 that use rifle and lose 100 men would eventually be equal force of Red with 1000 man that use breech-loader gun with 200 casualties. Here we have different constants and Lanchester shows this again with mathematical equation.

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M, N = representing the efficiency or value of an individual unit of Blue, Red Force

* + He explains this formulation as “fighting strengths of the two forces are equal when the square of the numerical strength multiplied by the fighting value of the individual units are equal.
* **Outcome of this investigation: the n-square law and its proof (p.48-50)**
  + Within this law he defines **the fighting strength of a force**: it is proportional to the square of its numerical strength multiplied by the fighting value of its individual units.
  + Thus, (referring to fig. 5b) he made conclusion of divided forces: sum of squares of two portions of the divided forces are for all values equal to the square of the other (not divided) force.

Diagram, engineering drawing

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* + **Simple proof of this law arising from equations 1 and 2:** Let the numerical values of the blue and red represented by b and r, then in a small interval of time the change in b and r is represented by db and dr of such relative magnitude that db/dr=r/b or

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* + If we draw the squares on b and r and represent the increments db and dr as small finite increments, we see at once that the ***change of area*** of ***b²*** is *2b db*, and ***change of area*** of ***r²*** is *2r dr* which according to foregoing (1), are equal.
  + Therefore, the difference between the two squares is constant. q represents the numerical value of the remainder of the blue force after annihilation of the red.

b²-r² = constant ------> b²-r²=q² ---------> b²=q²+r²

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* + Example of this is an army of 50K giving battle in turn to two armies of 40K and 30K respectively, equally well armed; then the strengths are equal, since 50K²=40K²+30K². But if divided force fight in one part then the army of 50K will be overwhelmed.
* **Example involving weapons of different effective value:** 
  + He gave an example with this assumption: 1 man employing machine-gun can punish a target to the same extent in a given time as 16 riflemen. He analyzes number of men armed with machine-gun necessary to replace a battalion (1000 men strong) in the field?
  + From n-square law: **N r² = M b² -🡪 16\*r²=1\*1000²-🡪r²=√1000²/16 = 1000/4=250** or one quarter the number of the opposing force (p.50).
  + According to him this example exhibits at once the utility and weakness of the method. Basic assumption is that the fire of each force is definitely concentrated on the opposing force. Thus, the enemy will concentrate on the 1 machine-gun operator the fire that would otherwise be distributed over four riflemen. And so, on an average he will only last for one quarter the time, and at 16 times the efficiency during his short life he will only be able to do the work of 4 riflemen in lieu of 16 (p.51).
  + When, on the other hand, the circumstances are such to preclude the possibility of such concentration the value of the individual machine-gun operator becomes 16 riflemen. The same applies when he is opposed by shrapnel fire or any other weapon which is directed at a position rather than individual. So, he concludes that one might pay attention to these variations when assessing the theory (p.51). According to him these variations are less common in naval then in military warfare; the individual unit -the ship- is always the gunner’s mark. He points out that aircraft is more similar to navy ship (p.51).
* **The Hypothesis Varied-modifying initial hypothesis to harmonise with the conditions of long-range fire (p.51-52):** 
  + Assumption: fire concentrated on a certain area known to be held by the enemy, and take this area to be independent of the numerical value of the forces, then, with notation as before, we have;

-db/dt = b\*Nr\*constant

-dr/dt = r\*Mb\*constant ----->M db/dt = N dr/dt --->or the rate of loss is independent of the numbers engaged, and is directly as the efficiency of the weapons.

* Under these conditions the fighting strength of the forces is directly proportional to their numerical strength; there is no value in concentration, qua concentration, and the advantage of rapid fire is relatively great. This is more likely to ancient warfare.
* **An Unexpected Deduction (p.52):**
  + Better for numerically superior force to come to close quarters,
  + Blue force of 100 men with machine-gun vs red force of 1000 men with rifle
  + 1st assumption: both forces are spread over a front of given length at long range.
  + Red force loses 16 men to the blue force loss of 1 man. Red lose.
  + If red come closer enough for each individual have mark, red would lose half to come closer, **but would win, by n-square law: 600²\*1>100²\*16**
* **Examples from history (p.53):**
  + Principle: on the field of battle “concentration” matter of the most vital importance.
  + Controlling factors both in strategy and tactic.
  + Attacking of opposing force before concentration gained: defeat of Napoleon in Italy campaign.

**CHAPTER VI: The N-Square Law in its Application**

* The N-Square Law in its Application to a Heterogeneous Force (p.54-55):
  + **chapter V summary:** Fighting strength of a force, so far as it depends upon its numerical strength, is best represented by the square of the number of units.
  + Where individual fighting strengths of the component units (land, navy or air) may be different, it has been shown that if a numerical fighting value can be assigned to these units, the **fighting strength of the whole force** is as the square of the number multiplied by their individual strength. Nr²=Mb²
  + Where the component units differ among themselves, as in the case of a fleet that is not homogeneous, the measure of the total of fighting strength of a force will be the ***square of the sum of the square roots of the strengths of its individual units.***
* **Graphical Representation** (p.55)**:** 
  + The strengths of a number of separate armies of forces successively mobilized and brought into action are represented by the lines a,b,c,d,e, and aggregate fighting strength of these armies are given by the lengths of the lines A,B,C,D,E, each being the hypotenuse of a right-angle triangle, as indicated.
  + Thus, two armies a and b, if acting separately (in point of time), have only the fighting strength of a single force or army represented numerically by the line B.

Diagram

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* **N-square law in naval warfare (p.57-58):**
  + N-square law applies to military operations;
    - on land: there may be special conditions to the hypothesis whereby its usage maybe masked.
    - naval warfare: however, the conditions strictly conform to basic assumptions. Thus, when battle fleet meets battle fleet, there is no advantage to the defender analogous to that secured by the entrenchment of infantry.
  + In a naval battle every shot fired is aimed at one enemy’s ship; there is no firing on the mass.
  + Old conditions (1000-yard effective range): advantage could be taken of concentration within limits. 18th century tactics makes it apparent that with any ordinary disparity of numbers (probably in no case exceeding 2 to 1) the effect of concentration must have been not far from that indicated by theory.
  + With a battle-fleet action at the present day the conditions are still more favorable to the weight of numbers, since with the modern battle range-some 4 to 5 miles- there is virtually no limit to the degree of concentration of fire.
  + Further than this, there is in modern naval warfare practically no chance of coming to close quarters in ship-to-ship combats, as in old days.
  + Thus, the conditions are to-day almost ideal from the point of theoretical treatment. Numerical superiority of ships of individually equal strength will mean definitely that the inferior fleet at the outset has to face the full fire of the superior.
  + The same observations will probably be found to apply to aerial warfare when air fleets engage in conflicts, more especially so in view of the fact that aeroplane in three dimensions of space instead of being limited to two, as in the case with the battleship. This will mean that even with weapons of moderate range the degree of fire concentration possible will be very great.
* **Individual value of Ships or Units (p.59):** 
  + Deciding the value of individual units is difficult.
  + Fighting value of ship depends not only to armament but also to protective armor. Question of fleet strength can never be reduced quite a matter of simple arithmetic.
  + May be gauged by the weight of its “broadside” or more accurately, taking into account the speed with which the different guns can be served, by the weight of shot that can be thrown per minute.
  + Another basis may to compare energy per minute for *broadside fire*, which represents, the horsepower of the ship as a fighting machine.
  + Similar means of comparison for aeroplane, though it may be that the *downward fire* capacity will be regarded as of vital importance.
* **Applications of the n-square Law (p.59-61):**
  + The **n-square law** tells us at once the price or penalty that must be paid if elementary principles are outraged by the division of battle fleet into two or more isolated detachments.
  + If battle fleet separated into 2 equal parts, increase would require to be fixed at approximately %40 percent – that is to say, in relation of 1 to √2; more generally the solution is given by a right-angled triangle.

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* **British Naval Tactics in 1805 (p.62):**
  + Not form in a line-of-battle parallel to the combined fleet
  + Break the line, envelop rear, overpower with groups of ships, isolate enemy and cut off.
  + First tactics according to Lancaster, advantages of fire concentration.
  + Van cannot help rear
* **Nelson’s Memorandum and Tactical Scheme (p.63, 64):**
  + British formed 2 main columns.
  + One of the main columns was to cut the enemy’s line about the centre,
  + Other to break through about 12 ships from the rear,
  + Smaller column being ordered to engage the rear of the enemy’s van 3 or 4 ships ahead of the centre, and to frustrate, every effort the van might make to help centre or rear.

Diagram

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* **Nelson’s Tactical Scheme Analysed (p.65-66):**
  + Nelson planned to envelop the half of -23 ships- combined fleet with 32 ships. This, according to n² law would give him superiority of fighting strength of almost exactly 2 to 1[[1]](#footnote-1).
  + Strength of British in arbitrary n² units:32²+8²=1088
  + Combined fleet: 23²+23² = 1058
  + British advantage:30, remaining British ship: √30=5.5 ships
  + If they had engaged in older times tactics:
  + strength of combined fleets 46²=2116
  + strength of British fleets: 40²=1600, Balance in favor of combined fleet would be 526, in ship terms √516= 23.
  + Thus, we are led to appreciate the commanding importance of a correct tactical scheme. If old-time method of attack had been adopted, British could not avert defeat.
  + First: Definite statement of cutting the enemy into two equal parts – according to n-square law the exact proportion corresponding to the reduction of his total effective strength to a minimum
  + Second: the selection of a proportion, nearest whole number equivalent to the √2 ratio of theory, required to give a fighting strength equal to tackling the two halves of the enemy on level terms, and the detachment of the remainder, the column of 8 sail, to weaken and impede the leading half of the enemy’s fleet to guarantee the success of the main idea.

**CHAPTER VII: Attack by Aeroplane on Aeroplane. The Fighting Machine and Its Armament**

* **Attack by Aeroplane on Aeroplane (p.67-68):**
  + Lancester emphasize that in the 1St World War period main duty of aeroplane was reconnaissance, but he foresaw that by the next war they will be used to attack each other.
  + He says that, with the technology by this time, it is not easy to attack to aeroplane on the air. So, it is not easy to give casualties to enemy.
* **The Fighting Machine as a Separate Type (p.68-69):**
  + Long distance reconnaissance flights or strategic scout should not be deemed fighters, but tactical scout should be engaged by enemy so it has to defend itself or some other fighters defend scout planes.
  + So, he foresaw need of rendering the tactical reconnaissance type capable of taking the offensive, so that it may establish its ascendency over the similar craft of the enemy.
  + But he emphasizes heavily armed fighting machine will provide air supremacy. Until this time tactical scout is playing double role (recce and fighting).
* **The Question of Armament; Treaty Restrictions (p.70-72):**
  + Int the specification of a fighting type of aeroplane the consideration is means of attack. These fall two main categories:
    - fire-arms (machine-gun, mitrailleuse) and
    - gravitational weapons (bombs, grenades etc.)-ill suited to conditions of aircraft.
  + Light artillery may be mounted, but only the very smallest calibre -namely, the “one pounder” can be considered suitable for present day machines.
  + The use of smaller size of projectiles is prohibited by treaty obligation. Any explosive projectile less than 1 lb. weight (400 gr) is banned by the Declaration of St.Petersbourg of 1868.

**CHAPTER VIII: Rapidity of Fire and Its Measure**

* **Rapidity of Fire and Its Measure (p.77-78):**
  + Index of fighting value: rapidity of gun-fire from aeroplane or dirigible depends on nature of target.
  + Some cases: number of projectiles per minute is most important factor, as, for example, in attacking any object in which hit is hit whether the projectile be large or small.
  + Other cases: where the mischief done is in any reasonable relation to the weight of the projectile, the total weight of projectiles discharged per second affords better criterion.
  + In view of comparatively fragile nature of aircraft, it is doubtful whether the energy equivalent of the discharge will ever be of the importance which it in the case of the battleship, where the destruction of the enemy depends to a very large extent upon the number of foot-tons with which he is assailed.
  + Thus, it is doubtful whether a factor representing the hp of the offensive armament would, as applied to the fighting aeroplane, will have any useful significance.
  + Not probable, fighting machine have complete bullet proof protection, at short range. So unimportant which bullets used in its destruction. Weight and size is only important when a single hit is sufficient to carry away an important structural member which would have been penetrated without great injury by a bullet of ordinary size.
  + So long as we are dealing with ordinary rifle, pistol or mg fire, we are concerned merely with the ***number of bullets that can be discharged per unit time***. This number express **value of armament.**
* **Measure of Fire Value in the case of Explosive Projectiles (p.78-79):**
  + In the context of throwing explosive projectiles, it is impossible to maintain any direct basis of comparison.
  + Effectiveness of the shell fire depends upon the conditions (range must be known, time-fuse mechanism perfect, nature of target).
  + Granted that necessary conditions exists, destruction wrought by any given type of explosive projectile maybe taken as, in a measure, proportional to its weight. However, there are cases where 3 lb. high explosive maybe effective than 18 lb. if hit at the motor.
  + Comparing the relative value of armament of diverse type for aeroplane (mg or small artillery) we need to examine the service for which the armament is required; it is impossible to institute a direct quantitative comparison which would be generally applicable.

**Military Power**

**Stephen Biddle**

**2004**

**Preface**

Biddle argues that although many scholars and policy makers believe future wars will be predominantly different from the past ones he argues that continuity rather than change prevails in the character of warfare. He further argues that real causes of battlefield success is stable since World War I, although there were many technological developments. Contary to many scholars and policy makers who believe that gross numerical strength and material resources are the main sources of the prevailing the battlefield, he argues that both material and non-material factors interact to produce success on the battlefield. He dubbes the paerticular nonmaterial variable as “force employment” and details how it interacts to produce battle outcome. (Biddle, 2006, p. ix). Preface ix.

**Chapter 1 Introduction**

He argues that altough the questions like “what causes victory and defeat in battle?” are life-and-death questions, the answers often fall short. He takes World War I, World War II, 1973 Arab-Israel War and Gulf War as example and states that in the whole of these wars, results baffled the participants. Nobody expected four year stalement and trench war which exhausted many resources in World War I, nobody expected German swift victory in France in World War II, nobody expecte Israeli defeat and help request in 1973, and finally nobody could have estimated such a minimum casualty of Coalition Forces in Gulf War(Biddle, 2006, pp. 1–2).

His points for the methodology in analyzing the subject is remarkable. He says that, most analyses are either rigorious but narrow, or broad but unrigorious. He asesses that mathematical models are emphasizing material factors alone, meanwhile “holistic assessments” takes into account factors such as strategy, tactics, morale, combat motivation, or leadership or as well as just material but treating these varaibles less systematically. He further assesses that “real progress demands rigor and breadth: a systematic treatment of both material and nonmaterial variables”. To conduct such an treatment he proposes “one key nonmaterial variable: force employment”, and he defines this as “the doctrine and tactics by which armies use their material in the field” (Biddle, 2006, p. 2)

Since he assesses that there are number of patterns of force employment, he prefers to held a particular pattern of it. And he dubbs this pattern as “the modern system”. According to him modern system “has been pivotal in the 20th century and is likely to remain so”. (Biddle, 2006, p. 2)

He argues that “since at least 1900, the domianant technological fact of the modern battlefield has been increasing lethality. Even by 1914, firepower had become so lethal that exposed mass movement in the open had become suicidal. Subsequent technological change has only increased the range over which exposure can be fatal. To perform military missions in the face of this storm of steel requires armies to **reduce their exposure**, and since 1918 the central means of doing so has been modern system employment”.(Biddle, 2006, pp. 2–3)

His treatment of the subject of modern system is like intervening variable for the outcome of the battle. He suggests that numbers matters only if they can be exploited by modern-system force employment(Biddle, 2006, p. 3). Hew proposes two examples of this argument, one is Iraqi Army in Gulf War, although they seem to be powerful by numbers, they have been mismanaged, and lost the war, and the second is North Vietnamese Army, although weak in numbers, mananeged properly and made unexpected resistance in the war. According to him these results challenged a wide variety of standard views. (Biddle, 2006, p. 3)

He advises to be more cautious on the propositions of Revolution in Military Affairs which indicates that long-range precision air and missile strikes will dominate future warfare while ground forces role would be limited by scouts etc. He says that overgeneralization of the results of Gulf War may lead to make false policy decisions(Biddle, 2006, p. 4).

**What is Military Power?**

He claims that war outcomes is not product of military power alone. And this military power can mean different things in different context like offence or defence etc. He proposes that if capability is the ability to succeed at an assigned mission, different states will thus assess capability very differently for the same forces. And he further states that no single concept of “military capability” can apply to all conflicts in all places and times(Biddle, 2006, p. 5).

In his analysis he picks the **mission of controlling territory** in mid- to high-intensity continental warfareto evaluate capability. He than selects three criteria to assess success in these missions: the ability to destroy hostile forces while preserving one’s own, the ability to take and hold ground, and the required time. He than offers offensive and defensive definitions of capability. He defines offensive military capability as “the capacity to destroy the largest possible defensive force over the largest possible territory for te smallest attacker casualties in the least time; and he defines defensive military capability with conversing the offensive one: “the ability to preserve the largest possible defensive force over the largest possible territory with the greatest attacker casualties for the longest time. (Biddle, 2006, p. 6)

He then selects the unit of analysis as “operation”. And he expands as the operation as a series of interconnected battles resulting from a single prior plan. These interconnected battles in a single theater constitute a campaign. He gaves the example of Normany Campaign which constitutes Operations EPSOM, GOODWOOD and COBRA. By mid- to high-intensity conflict he means in between of guerilla warfare and global thermonuclear war, namely regional conventional wars such as Afghanistan War, while excluding the two extreme ends. (Biddle, 2006, p. 6)

**Methodology**

He states that since there is no overarching methodology to explain capabilty, he combines historiography with formal theory, case method, statistical analysis, and simulation experimentation. (Biddle, 2006, p. 9)

His emphasis on history part is the role of doctrinal adaptation for the wars course and outcome. And the formal theory facilitates to overcome the limites and complex interconnecting claims of the historiography by using mathematical language to describe relationships. Though, this also has limites, because it abstracts away real issues in sake mathematical clarity. So he places history first. And harness these claims with mathematical analysis. (Biddle, 2006, p. 9)

He tests this approach with three methods. First one is **case study** to provide maximum theoretical leverage. Then he applies a **small-n- ase method** to characterize the variables, like force employment which he claims never had been tried before. To generalize the results he compliments the case studies with a series of **large-n statistical analyses**. He inserted the new variable of force employment with ***treating it indirectly via enabling assumptions and proxy variables***. He also includes ex ante experiments via a simulation tool, changing key features while holding all other aspects constant to deduce a more systematic framework which is not experienced by real time fights. (Biddle, 2006, p. 10)

**p.14**

**Ideas on the Determinants of Capability**

Ideas about capability and states that these ideas fall into three broad classes which are numerical preponderance, technology, and force employment.

1. **Numerical Preponderance**

“God is on the side of the big battalions.” quotation of Napoleon summarizes preponderance explanation of military capability.

He states that association of victory with material preponderance underlies the widespread perception that economic strength is a necessary precondition for military strength, and effects the national strategy making equaly with politic-military considerations. In the end most of these preponderance arguments claims only that numerical superiority determines capability. (Biddle, 2006, p. 14)

He then gives some detail accounts of this approach and mentions about **“density”** term of especially Liddle Hart and Mearsheimer. He summarizes these scolars approach and states that “density matters rather than just force size: the higher the “force-to-space” ratio, the greater the defender’s relative advantage, and vice versa”. (Biddle, 2006, p. 14)

*Basil Liddle Hart, The ratio of troops to space, Military Review 40, April 1960,*

*Mearsheimer, Conventional Deterrence, pp.47-48, 181-183.*

**p.15**

He summarizes also briefly the approaches of threshold effects via **“rules of thumb”** from again mainly Liddle Hart and Mearsheimer, saying that most common holds that successful attack requires at least a 3:1 local superiority. He reflects that especially Liddle Hart and Mearsheimer thought which states that these ratios should compare quality-adjusted “combat power” rather than simple troop strength, yet he says, these scholars and writers doesn’t provide explanation on how these adjustments will occur. (Biddle, 2006, p. 15)

*Basil Liddle Hart, Defense of Britain (London: Faber and Faber, 1939) pp.54-55*

*John Mearsheimer, Assessing the Conventional Balance: The 3:1 Rule and its critics, International Security 13, 4(Spring 1989), pp.54-89*

He finalises this approach by stating that; in this approach it is relied on simple measures of gross preponderance per se: the greater A’s numerical superiority over B, the greater its relative capability. (Biddle, 2006, p. 15)

1. **Technology**

There are two schools within this approach.

* **Systemic Technology Theory:** 
  + Focuses on the gross “state of the art” in the international system at any given time rather than the particulars of individual states’ holdings.
  + The difference between era of tanks and the era of the horse is the “key”, not which side’s tanks are better than the others.
  + **Offense-defence theory:** 
    - Technology changes **shifts** the relative ease of attack and defence for all states in the international system.
    - Ex: Prior to 1914 it mattered little how any single state was armed. The machine gun made attack impossible for anyone. Tanks balanced back to attack. The one who took offence has important edge over opponent.
    - Offers political science’s chief understanding of technology’s role in international security.
    - Widely used to explain war causation, arms racing, alliance formation, crisis behaviour.
  + **Technology’s main effect** is not to strengthen state A to state B- it strengthens attackers over defenders (or vice versa) regardless of who attacks and who defends.

Second school in the technology approach is dyadic technology theory which claims the one who has the technology edge prevails.

**On War**

**Clausewitz**

**BOOK ONE: ON THE NATURE OF WAR**

**CHAPTER ONE: WHAT IS WAR?**

**+ Definition:** (p.75) Clausewitz says that war is nothing but a duel on a larger scale. Each tries through physical force to compel the other to do his will; his immediate aim is to throw his opponent in order to make him incapable of further resistance. From this point he makes his final definition: war is an act of force to compel our enemy to do our will. This definition based on “hostile intentions” perspective of human psychology (p.76).

His main emphasis is on physical force which is the means of war to impose our will on the enemy is object.

To get this object, we must render the enemy powerless, true aim of the warfare.

Keywords: “war”, “act of force”, “will”, “duel”, “physical force”, “object”, “aim”

**+ The maximum use of force**

p.75

He argues that in order to disarm or defeat an enemy one has to use maximum force possible, while noting that using intellect may go alongside it. And the sides should not be deterred by the bloodshed which nature of the war necessitates.

p.76:

He also mentions that “social conditions of the states” give rise to war and these conditions may moderate the warfare, designate the severity of war. T o introduce the principle of moderation into the theory of war itself would always lead to logical absurdity.

He bases the cause of the war to the human insticnts. He mentions that there are two different motives that cause the figth between two men fight: hostile feelings and hostile intentions. The definiton of war is based however on the hostile intentions because of it is more general. So he argues that every human feeling such as hatred cannot be explained without hostile intention. From this perspective, there are no difference between the nature of civilized and savagery societies. There is difference between how far institutional progress has been achieved among these two. Even the most civilized of peoples, in short, can be fired with passionate hatred for each other. This conclusion made him suggest that **wars are not resulted from rational act only, these feelings plays its role also.**

Here comes important suggestion: when we think war without these feelings, it would be enough to compare physical forces to decide who wins, as he terms it “algebra war”, which never happens. Because the war is act of force, the emotions do involve. Emotions affect the war to some degree. And this depends on how far conflicting interest exist, not in level of civilization.

The invention of gunpowder and the constant improvement of firearms are enough to show that the advance of civilization has done nothing practical to alter the impulse to destroy the enemy, which is central to the very idea of war.

p.77:

He sums the thesis: war is an act of force, and there is no logical limit to the application of that force. Each side, therefore, compels its opponent to follow suit; a reciprocal action is started which must lead, in theory, to extremes. This is the first case of interaction and the **first "extreme"** we meet with.

Keywords: maximum use of power, intellect, social conditions, theory of war, hostile feeling, hostile intention, algebra war, emotion, invention of gunpowder, improvement of firearms, evidence of destroy enemy, extremes.

**+ The aim is to disarm the enemy:**

p.77

He repeats that aim of the warfare is to disarm the enemy. To achieve he argues that the enemy should be put in a enough dangerouıs situation to accept that. Otherwise it should wait to improve condition.

He argues that, war is not the action of a living force upon a lifeless mass. The enemy is also living force so it m ay do the same thing for me. So, these reciprocal aims constitutes the **second extreme**.

**+ The maximum exertion of strength**

p.77:

He argues that if you want to overcome your enemy you must **match your effort against his power of resistance**, which can be expressed as the product of two inseparable factors, viz. the total means at his disposal and the strength of his will”. He further states that while means should be measurable, strength of will can only be measured “approximately” by the strength of the motive animating it. Once you accurately estimate power of resistance of opponent you adjust yours. That is, “you can either increase them until they surpass the enemy's or, if this is beyond your means, you can make your efforts as great as possible”. And according to his conceptualization since the sides do the same this situation will take us to **third extreme**.

Strength of will ~ motivation

**6. Modifications in practice:**

**p.78**

* Since each side will try their extreme ends on the means and objectives, this will never produce real life understanding of the war.
* It is nearly impossible to reach this kind of perfection. In other word, realities will force participants to be far more back of the desired means and desired objectives.
* Belligerents shall act in line with pure concept of abstracts if;
  + War was an isolated act,
  + War consists single act,
  + Decisions were complete and perfect.

**7. War is Never an isolated act**

* There are three reasons which prevents the human to reach such a perfection. First, war is not an isolated act which means resistance of power depends on the human will and this will fall short of perfection. And this according to Clausewitz should be measured with comparing past actions of the sides.

**8. War does not consist of a single short blow**

**p.79**

* Second reason why it is impossible to act in line with pure concept is war necessitates successive decisions and actions rather than a set of simultaneous decisions and a single action.
* This nature also moderates the warfare, preventing it to reach extreme. Since these decisions and actions are seen in context, they will provide a measurement for those that follow.
* It is impossible to mobilise all available means to a single action. Real world calculations will force sides to allocate part of the resources which in turn will make the war successive actions and decisions.
* Resources in question is fighting forces, the country, with its physical features and population, and its allies.

**9. In war the result is never final**

**p.80**

* Third reason to prevent to reach to extremes is the thought that every participant should think that political conditions should appease the transitory evils.

**10. The probabilities of real life replace the extreme and the absolute required by theory**

* These real-life conditions modify these three extremes.
* Since these real-life conditions will prevent each side to act in line with extremes, they will **decide** the degree of effort.
* This degree of effort will be based on the phenomena of real world and the laws of probability. From the enemy's character, from his institutions, the state of his affair: and his general situation, each side, using the laws of probability, forms an estimate of its opponent's likely course and acts accordingly.

**11. The political object now comes to the fore again**

* The more the law of extremes loses power with real life condition modifications, political object become more important.
* Political object should be always included in the calculation of probabilities. Because it is the **original motive** for the war.

**p.81**

* Resistance of opponent depends on the penalty you request from him.
* So, if an opponent request high value asset, it will face greater resistance. This is another modification.
* With this feature political object determines both military objective and amount of effort it requires.
* The political object cannot, however, provide the standard of measurement. It differs time to time and according to people. We can therefore take the political objects a standard only if we think of the influence it can exert upon the **forces** it is meant to move.
* The **nature of those forces** therefore calls for study. Depending on whether their characteristics increase or diminish the drive toward a particular action, the outcome will vary.
* Relations between political military objectives are calibrating themselves according to degrees of importance and intensity of the war itself.

**+ An interruption of military activity is not explained by anything yet said:**

**p. 81, 82**

* Every action needs a certain time to be completed. That period is called its duration, and its length will depend on the speed with which the person acting works.
* Now if every action in war is allowed its appropriate duration, any additional expenditure of time-any suspension of military action-seems absurd.
* Suspension means not the progress made by one side or the other but the progress of military interaction as a whole.

+ **Only one consideration can suspend military action, and it seems that it can never be present on more than one side**(82): Clausewitz argues that if two parties have prepared for war, that motive will make the hostiliy persist. Only if one side thinks that it is beneficial to wait for a better moment, acting may pause. In this condition other side would desire to act rather than wait. So, Clausewitz argues that it is not concept of balance that result a standstill but it is aim and strength.

**+ Continuity would thus be brought about in military action and would again intensify everything**(83): He implies here that there is another extreme point, where one side will never let the other side pause the hostility if it is adventageus to act. He argues that war does not show such contiunity. In real life he implies, there will be times in warfare the sides will cease activities for any reason that circumstances requires.

+ **Here a principle of polarity proposed** (83): Clausewitz argues that there is a truly polarity in warfarfe since one side’s victory cancels other side’s. He adds that this polarity lies not in the things (two sides) but in their relationships.

+ **Attack and defence being things different in kind, polarity cannot be applied to them**

**p.83**

* Polarity lies in the “decision”, which two side is trying to achieve objective. It doesn’t lie in the kind of warfare or kind of military action like attack or defence.
* If it is in A's interest not to attack B now but to attack him in four weeks, then it is in B's interest not to be attacked in four weeks' time, but now.

**+ The superiority of defence over attack often destroys the effect of polarity, and this explains the suspension of military action.**

**p.84**

* Defense is stronger form of fighting than attack.
* Questions to answer:
  + Postponing a decision is more advantageous for attacker or defender?
  + Is that advantage is bigger than the natural advantage of defence?
* If this advantage is not bigger than the natural advantage of defence, then the attacker will not postpone the decision.
* To fight a defensive battle under less favourable conditions may still be better than to attack immediately.
* For attack good preparation is needed. If you attack immediately defence will stop you. So, attacker will wait to consolidate his power.
* **Conclusions:** 
  + Polarity impulse would be moderated by this trade-off.
  + Natural advantage of defence explains periods of inactions in the war.

**+ A second cause is imperfect knowledge of the situation**

**p.84-85**

Again from human psyscology, he refers than human nature tend to see enemy’s strength too high, so this nature when coupled with insufficient intelligence about enemy, makes the commander halt the action.

The possibility of inaction has a further **moderating effect** on the progress of the war by diluting it, so to speak, in time by delaying danger, and by increasing the means of restoring a balance between the two sides.

Keywords: “possibility of inaction”, “moderating effect”,

Periods of inaction depends on tension.

if tension is great : motive : high --> willpower: strong ; effort, high -> inaction periods shor

low: motive, less ; war effort; less --> inaction periods long

keywords: “motive”

**+ frequent periods of inaction removes the war from abstraction and extremes and make even more a matter of assessing probabilites.** (P.85)He argues that since with inevitable interruptions of activities it will be easier to correct any possible mistakes so taht generals can make bolder decisions.

keywords: “assessing probabilites”, “bold decision”, “general”

**+ therefore only the element of chance which always exists is needed to make war a gamble** (p.85): since now, all explanations brings us to the point that since there is no absolute assessments, since there is no extremes, the **objective nature of the war** makes it a matter of assessing probabilites. And, if chance factor is added to this nature, which he arguea that it always exists, then war becomes gamble.

Keywords: “objective nature of the war”, “chance” , “gamble”

He argues that through this chance element, guesswork and luck come to play a great part in war.

Keywords: “guesswork”, “luck”

Deduction: Guesswork is byproduct of leaders.

**+ subjective nature of the war also makes war a gamble:**

**p.85**

* **Subjective nature of the war** is “**the means** by which war has to be fought”.
* Because of these means the war look more than ever like a gamble.
* In **danger,** which is an **objective nature of the war**, human beings exhibit different **moral qualities.** 
  + “courage” is the most important quality in danger.
  + courage is compatible with the “**prudent calculation**” although these two stems from different **psychological forces.**
  + boldness, rashness, trusting luck are variants of courage
  + In war courage seek its proper element – chance.

**p.86**

* Absolute (mathematical) factors, never find a firm basis in military calculations.
* There is an interplay of possibilities, probabilities, good luck and bad that weaves the outcome.
* In the whole range of human activities, war most closely resembles a game of cards.

**+ This situation best suits human nature:**

* While **intellect** prefers **certainty**, human nature finds **uncertainty** fascinating.
* Human being evaluates these possibilities and activates **human feelings** like **courage**.
* Because of this, human factor must be included to the theory of war.
* The art of war deals with living and with **moral forces**. Because of this forces theory of war must always leave a margin for **uncertainty.**
* This uncertainty however is **balanced with** **courage** and **self-confidence**. The greater these two scales are, the greater margin that can be left for accidents. ?
* Thus, courage and self-confidence are essential in war, and theory should propose only rules that give ample scope to these military virtues, in all their degrees and variations.

**+ War is a serious means to a serious end: a more precise definition**

* This is the nature of war. There is commander who directs it, and the theory governs it.
* This nature of war although resembles a game of chance, it is a serious means to serious ends.

**p.87**

* Political situation & object (purpose) is always constituting the reason for war.
* War is not absolute manifestation of violence like a mine that explodes in predefined direction. In such case, war might drive the policy out of function.
* But war is the effect of forces that creates pulsation of violence, variable in strength and in the speed.
* Since war is a mean to reach political purpose, it will remain subject to the political will. This will remain the supreme consideration in conducting it.

**+ War is merely the continuation of policy by other means**

* Second definition of war: “war is both an act of policy and a true political instrument, a continuation of political intercourse, carried on with other means. What remains peculiar to war is simply the peculiar nature of its means.”
* Commander may request modifications of policy if there are inconsistencies in the use of means.

**+ The diverse nature of the war:**

**p. 88**

* War approaches to its abstract concept if the **motive** of the war is high. In this case political objectives coincides with military element’s **natural tendency to violence** and objectives.
* Conversely if the motives are less impulsive, political object will be more at variance with the aim of war, and the conflict will be predominantly political.
* **Tendencies of the forces** are separate subject and includes **morale** and the **emotions of the combatants**.

**+ All wars can be considered acts of policy**

* Policy is effaced in high motivated war and strong in the motives for the war is less.
* But both kinds are equally political.
* But if politics is apparently abstaining from using of force, then the second one becomes more political than the first one.
* Political will mut be ready for the contingencies in which policy effect is negated by violence, military.

**+ Effects of this view:** Nature and the theory of war:

* 1st: War is never something autonomous but always is an **instrument of policy.**
* 2nd: This is how **wars varies** with the **nature of their motives** and of the **situations** which give rise to them.
* 3rd: Judgment or **decision** to be made by statesman and commander&1st strategic question: identify the kind and nature of war.

**+ Consequences of the theory:**

**p.89**

* War is more than a chameleon that slightly adapts its characteristics to the given case.
* Dominant tendencies of war make it a paradoxical trinity.
* Tendencies of this trinity variable in their relationship. Any theory would contain all three and would not fix them to some degrees. It is important to develop a theory that maintains a balance to given situation.
* These three are the magnets and theory like an object suspended between.
* Preliminary concept of war which we have formulated casts a first ray of light on the basic structure of theory.

**Paradoxical Trinity of War**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Elements & tendencies** | **Mainly concerns** | **Depends** |
| 1 | Violence, hatred, and enmity: regarded as blind natural force. | People | Passion to kindle |
| 2 | Play of chance and probability within which the creative spirit is free to roam. | Commander and his army | Character of play of the courage and talent in the realm of probability and chance |
| 3 | Element of subordination to policy. | Government |  |

**BOOK ONE: ON THE NATURE OF WAR**

**CHAPTER TWO: Purpose and Means in War**

**P.90, 91**

1. **ENDS:**

+ Complex and changeable nature of the war **influences** its purpose and means.

+ Military objectives of war serve to political end. And it may vary like its political objective and circumstances.

+ **In the pure theory of war**:

* War is an act of violence to force enemy to do our will.
* **Aim of war** (theoretical concept of war): to overcome enemy and **disarm him** (how to disarm, subject of war plans).
* Logical conclusion from this: Political purpose of war has no connection with war.
* Many wars do come very close to fulfilling it, let us examine this kind of war first.
* **Distinguish 3 things & objectives that cover everything:**

**3 Broad Objectives of War**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Broad objectives** | **Function** | **What to do?** | **Mean** |  |
| 1st objective: Armed forces | Assure the safety of country | To be destroyed, gradual process | Put them a  condition that they can no longer carry on the fight |  |
| 2nd objective: Country | Keeps army functioning | To be occupied, gradual process | To the degree enemy could not raise fresh military forces | Occupied country restart the resilience with the help of allies |
| Final objective: Enemy’s will |  | To be broken, to be taken to peace table, | Government to sign peace, population to submit.  With the conclusion of peace the purpose of the war has been achieved. | reciprocal effects of hostile elements, cannot be considered to have  ended so long as the enemy's will has not been broken |

**p.91**

* Most peace treaties are done before totally **disarming the enemy**. This political aim in pure theory is unreal.
* There is **one category of war** where enemy is stronger: idea of defeating the enemy is unreal.
* Theoretical object of the war is sometimes inappropriate. Because of the **two kinds of war**.
  + **Pure theory:** States are equal in strength (reciprocal actions). At most, material disparity could not go beyond the amount that **moral factors could replace** (Europe today).
  + **In reality:** War shifts itself from pure concept toward probabilities. Wars are fought between states with unequal strength. Analysis of probabilities may show these **grounds for making peace.**
    - Inability to carry on struggle
    - improbability of victory
    - its unacceptable cost.
  + Not every war need be fought until one side collapses. When the motives and tensions of war are slight, very faintest prospect of defeat might be enough to cause one side to yield.
  + If from the very start the other side feels that this is probable, it will obviously concentrate on bringing about this probability rather than take the long way round and totally defeat the enemy.

**p.92**

* Consciousness of efforts so far and efforts to come influence **decision to make peace**.
* Policy decides **sacrifices to be made in magnitude** and in duration to reach to political aim.
* Once the expenditure of effort exceeds the value of the political object, the object must be renounced, and peace must follow.
* If one side cannot completely disarm the other desire for peace on either side rise or fall according to the probability of further success and amount of effort these would require.
* If the incentive grows on one side, it should diminish on the other. Peace will result so long as their sum is sufficient
* Side that feels the lesser urge for peace will naturally get the better bargain.
* **Positive or negative character of the political ends** is bound to produce a difference. And this difference is ignored for now.
* Original political objects can greatly alter or completely change during the course of the war.
* **1st question- how success can be made more likely?**
* **One way:**
* To choose two objectives that will incidentally bring about the enemy's collapse
  + destruction of his armed forces and
  + conquest of his territory.
* These two would not happen If the real object is total defeat of enemy.**?**
* Series of ops until all resistance is broken **differs** an operation to obtain single victory to make unsecure the enemy. Resource allocation differs.
* Conquest of territory is a different matter if the enemy's collapse is not the object.
* If we wish to gain **total victory**, then the destruction of his armed forces is the most appropriate action and the occupation of his territory only a consequence.
* Occupation of land before destroying the opposing army is evil unless this aim is subtask.
* **Another way:**
* To disrupt the opposing alliance, favourably affect the political scene. Shorter route to the goal than the destruction of the opposing armies.
* Operations that have direct **political repercussions,** without defeating the enemy's forces.

**p.93**

* **2nd question -** **how to influence (increase) the enemy's expenditure of effort? Or how to make the war more costly to him?**
  + Expenditure of effort consists wastage of his forces and loss of territory.
  + **5 Methods:** 
    - **Destroy the enemy** for wastage of forces.
    - **Conquer the land** for loss of territory.
* **Both factors** vary in their significance with variation in objectives.
* As a rule, the **differences will be slight**, but when strong motives are not present, the slightest nuances often decide between the **different uses of force**.
  + - **Invade** to exact financial contributions not to retain it to cause damage.
    - **Give priority to operations that will increase the enemy's suffering:** 
      * **Priority to military operations,** if the purpose is to defeat the enemy, this is advantageous.
      * **Priority to political alternatives**: more profitable if the enemy cannot be defeated.
    - **Wear down (outlast) the enemy** which lies at the heart of pure resistance, is also the natural formula for this.
      * Use the duration of the war to bring about a gradual exhaustion of physical and moral resistance. the most important.
      * **Holding out more than enemy is possible with being content with the minimum** possible object.
      * **Negative aim (policy):**
* The **minimum object** is pure self-defense (negativity); in other words, fighting without a positive purpose.
* Relative strength will be at its height, and thus the prospects for a favourable outcome will be greatest.
* How far? Not to the point of [absolute passivity (sheer endurance)!= fighting]
* But resistance is a form of action, aimed at destroying enough of the enemy's power to force him to renounce his intentions.
* If a single action succeeds, contribution of positive policy is greater than negative one.
* But the probability of succeeding in negative policy is greater than positive one and gives you more security. What it lacks in immediate effectiveness it must make up for in its use of time, that is by prolonging the war.

**p.94**

* This distinction makes the difference between attack and defence.
* All the advantages comes from the negative purpose.
* With negative aim the advantage need only be enough to balance any superiority the opponent may possess. In the end his political object will not seem worth the effort it costs.
  + - * This method applies to the great number of cases where the weak endeavour to resist the strong.
      * Frederick the Great as an example of wearing down the enemy, as he was although had bad conditions throughout the war in Sever Year War, he used his strength patiently and by this time opponents against him weakened by other circumstances (for example Russian Czar died, for other states the cost of war has raised) he succeeded.
* **Summary ~ Roads lead to success is** range from the destruction of the enemy's forces, the conquest of his territory, to a temporary occupation or invasion, to projects with an immediate political purpose, and finally to passively awaiting the enemy's attacks. Any one of these may be used to overcome the enemy’s will. Choice depends on circumstances.
* **Ad hominem:** 
  + Another shortcut to reach to aim.
  + Direct the attacks to personality.
  + Personalities and relations between personalities of commander and statesman may be manipulated.
  + The sparks that caused because of this may be used to reach the goal.
* These shortcuts never be omitted because of its rarity. Because wide a range of political interests can lead to war. From war of independence to a war reluctantly declared because of the alliance. Between these two there are numerous gradations. Do not omit one.

**p.95**

1. **MEANS**

**Combat**

He argues that there is only one mean, and it is “combat”.

In the concept of war that everything that occurs must originally come from battle although it has many forms, and the severity varies. Because in war there are armed forces. Whenever armed forces used, combat is present.

Warfare comprises everything related to the fighting force;

* Creation and maintenance are means of it
* Usage is ends

Combat in war is a contest between individuals. It is made up of many parts.

**Two distinguishable elements of combat:**

|  |  |  |
| --- | --- | --- |
| **element** | **Determined by** |  |
| mass of combatants in an army forms fresh elements of a greater structure, The fighting activity of these parts | subject | (More or less) Defined element |
| element of war by its very purpose | objective |  |

**Engagements:**

* **Engagement:** is a combat activity where these two elements become distinct.
* Use of fighting forces is possible through planning and organizing of a series of engagements.
* The whole of military activity must therefore relate directly or indirectly to the engagement. The end for which a soldier is recruited is simply that **he should fight** at the right place and the right time.
* **Purpose of military engagements:** (varies like pol object, not only destruction of armed forces)
* All threads of military activity led to the engagement. Then if we control the engagement, we comprehend them all.
* Their results are produced by the orders of commander.
* In the engagement the goal is: the destruction of the armed forces. This is one of the means by which the political purpose of the engagement is achieved. (Remember: there are other ways to get the pol objects)
* There are other objectives for which the war is waged.
* Those other objectives can also become the purpose of particular military operations, and thus also the purpose of engagements.

**p.96**

* The separate units often be assigned tasks that are not related with the destruction of the enemy's forces. Ex: a battalion is ordered to drive the enemy from a hill, the true purpose is normally to occupy that point. Destruction of the enemy's force is only a means to an end, a secondary matter.
* If with only show up cause the enemy to abandon his position, the objective has been achieved; but as a rule, the hill is captured to inflict more damage to the enemy.
* This is the case on the theatre of operations, where two nations face each other.
* In this case (when total destruction is not aimed) the engagement becomes a **trial of strength**. It is of no value in itself; its significance lies in the outcome of the trial.
* 100s of examples where objectives may be attained by, this possible, consistent with overall purpose
  + showup force
  + evaluation of situation
  + entire campaign fighting is unimportant
* one mean: combat; multiple form and multiple aims took us different directions.
* But the fact is: only one means (~combat) constitutes a strand that runs through the entire web of military activity and really holds it together.

**p.97**

**Question:** there are multiple objections, okay, but what is the **relative importance of destruction of enemy force?**

* Depend on circumstances
* Combat is only effective force in war.
* Destroy the enemy forces;
  + is a mean to a further end.
  + underlies all military actions; all plans are ultimately based on it.
* all action is done in the belief that “ultimate test of arms” is tried with the expect of **favourable** outcome. The **“decision by arms”** is like cash payment is in commerce.
* Decision by-fighting (arms) is the basis of all plans and operations.
  + The enemy can prevent everything through a successful battle.
  + Destruction of opposing forces-reacts on all other possibilities
* destruction of the enemy forces is always the superior,
* Destruction of the enemy is more effective if we can assume that all other conditions are equal. Skillfull caution is better than blind aggressiveness. Greater effectiveness relates not to the means but to the end; we are simply comparing the effect of different outcomes.
* DoEF is not done with only physical force. Moral element must be included.
  + Two interact throughout.
  + Two are inseparable
  + Effect of destructive act: a major victory, exerts on all actions, it is exactly at such times that the moral factor is the most fluid element of all. Therefore, morale spreads most easily to affect everything else.
  + Means of DoEF advantage to other means is balanced by its cost and danger and requires more efforts. If failed danger so high. Policies manage these risks.
  + Other methods, therefore, are less costly.

**p.98**

* + Two kinds of means: DoEF and other means positive purposes. If one commander choice force other commander to conduct same mean. Meaning if other choose other means the one who choose major battle will have excellent chance of success.
* negative side of DtEF: the preservation of our own.
* **Two efforts interact:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Efforts** | **Purpose** | **Leads to** | **Final aim** | **Calls?** |
| DtEF | **Positive** | **Positive results** | enemy's collapse | act of destruction into being |
| Preserving our own forces  (pure resistance) | **Negative** |  | to prolong the war until the enemy is exhausted | **waits** |

* How far waiting attitude?
  + The answer lies in the theory of attack and defense,
  + policy of waiting must never become passive endurance,
  + In the end this policy has to aim to seek the destruction of the opposing forces at the end.
  + fundamental error: imagine a negative aim implies a preference for a bloodless decision over the destruction of the enemy.
  + It has this risk: it is not the appropriate course: that depends on factors that are determined by the opponent.
  + Avoidance of bloodshed, then, should not be taken as an act of policy if our main concern is to preserve our forces.

**p.99**

* + Certain effect of negative policy: retard the decision: waiting for the decisive moment.
  + further waiting would bring excessive disadvantages, then the benefit of the negative policy has been exhausted.
  + DtEF now reemerges.

Result:

* Many different roads can lead to the attainment of the political object, fighting is the only possible means.
* Everything is governed by a supreme law, **“the decision by force of arms”**.
* If the opponent does seek battle, accept it.
* A commander who prefers another strategy must first be sure that his opponent either will not appeal to that force or that he will lose the verdict if he does.
* To sum up: of all the possible aims in war, the destruction of the enemy's armed forces always appears as the highest.
* other kinds of strategies can achieve in war. admit the general possibility of their existence, the possibility of deviating from the basic concept of war under the pressure of special circumstances.
* But even at this point violent resolution of the crisis, the wish to annihilate the enemy's forces, is the first-born son of war.
* If the political aims are small, the motives slight and tensions low, a prudent general may look for any way to avoid major crises and decisive actions, exploit any weaknesses in the opponent's military and political strategy, and finally reach a peaceful settlement.
* If his assumptions are sound and promise success we are not entitled to criticize him. But he must never forget that he is moving on devious paths where the **god of war** may catch him unawares.
* He must always keep an eye on his opponent. Do not encounter an enemy with sharp sword only with an ornamental rapier.
* nature of war and the function of its purposes and means;
  + war in practice deviates in varying degrees from its basic concept
  + but always remaining subject to that basic concept, as to a supreme law.

**BOOK ONE: ON THE NATURE OF WAR**

**CHAPTER THREE: ON MILITARY GENIUS**

**P.100**

* If gifts of intellect and temperament is outstanding and reveal themselves in exceptional achievements in complex activities, their possessor is called a "genius."
* "genius" refers to a very highly developed mental aptitude for a particular occupation.
* What are the gifts of mind and temperament that in **combination** bear on military activity? (Essence of military genius)
  + It is not a single gift like courage.
  + Genius consists in a harmonious combination of elements, in which one or the other ability may predominate, but none may conflict with the rest.
  + Genius ~ Rarely occur because it is special cast of mental and moral factors
  + Numbers& Quality:
    - The more military activity dominates the more likely genius exist in numbers.
    - Quality depends on the general intellectual development of society.
  + **Warrior spirit:** far more common in primitive societies than in civilized ones.
  + Truly great commander: far more common in civilized societies. since this requires a degree of intellectual powers beyond anything that a primitive people can develop. As the Romans and the French have shown us.

**P.101**

* **Intellectual power play in the higher forms of military genius**
  + War is the realm of danger; therefore, courage is the soldier's first requirement.
  + Courage is of two kinds: courage in the face of personal danger, and courage to accept responsibility. 1st one is discussed here
  + **Courage in face of personal danger** is also of two kinds. The highest kind of courage is a compound of both.

**Courage in face of personal danger**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Due to | Nature of it | Acts | There is | Mind |
| **indifference to danger** | individual's character | permanent | More dependable, never fail | More reliable | Calmer |
| **positive motives** likeambition, patriotism, or enthusiasm | Feeling, emotion | temporary | Achieve more | boldness | Stimulated, blind sometimes |

**Nature of war and requirements of war: managed by** “powers of intellect”.

|  |  |  |
| --- | --- | --- |
| Nature | Effect | requirement |
| realm of physical exertion and suffering | Destroy the soldier | Courage in personal danger  (Indifferent to them, train the body and soul). |
| realm of uncertainty  (three quarters of the factors of war are wrapped in a **fog of uncertainty**). |  | A sensitive and discriminating judgment is called for; a skilled intelligence to scent out the truth. |
| the realm of chance | makes everything more uncertain and interferes with the whole course of events. |  |

**p.102**

* Uncertainty (informations and assumptions are open to doubt) + chance at work everywhere = unexpected things happened + decisions to be made at once and quick = commander mind must be permanently armed to deal with them.
* Two indispensable qualities to cope with:
  + **Intellect** (coup d'oeil): even in the darkest hour, retains the inner light which leads to truth
  + **Courage** (determination) to follow this faint light wherever it may lead.
* Since time and space are important elements of the engagement. So, this feature attracts attention as an aspect of war.
  + cavalry attack as a decisive factor: **idea of rapid and accurate decision** first based on an evaluation of time and space, and received a name which refers to visual estimates only ~ limited sense
  + But soon it was also used of any sound decision taken in the midst of action-such as recognizing the right point to attack.
  + **Coup d'oeil** therefore refers not alone to the physical but, more commonly, to the inward eye. The expression, more applicable to tactics, but it must also have its place in strategy, since here as well quick decisions are often needed.
  + concept merely refers to the quick recognition of a truth that the mind would ordinarily miss or would perceive only after long study and reflection.
* **Determination** in a single instance is an expression of courage.
  + we are referring to the courage to accept responsibility, courage in the face of a **moral** danger, not to physical courage. Also called **courage d'esprit**, because it is created by the intellect.
  + But it is an act of temperament. Intelligence alone is not courage.
  + Since in the rush of events a man is governed by feelings rather than by thought, the intellect needs to arouse the quality of courage, which then supports and sustains it in action.

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* + The role of determination is to limit the agonies of doubt and the perils of hesitation when the motives for action are inadequate. But when a man has adequate grounds for action-whether subjective or objective, valid or false-he cannot properly be called "determined."
  + Determination, which dispells doubt, is a quality that can be aroused only by the intellect.
  + create determination :
    - conjunction of superior insight with the appropriate emotions.
    - Courage and intellect should work together (not in separate compartments)
    - **It is engendered only by a mental act**; the mind tells man that boldness is required, and thus gives direction to his will. This particular cast of mind, which employs the fear of hesitating to suppress all other fears, is the force that makes strong men determined.
* coup d'oeil and determination is related to “presence of mind” which play a great role in war, the domain of the unexpected. Increased capacity of dealing with the unexpected.

**P.104**

**Climate of war ~ four elements: Danger, Exertion, Uncertainty, Chance**

* much fortitude of mind and character are needed to make success.
* use of such terms as energy, firmness, staunchness, emotional balance, and strength of character.
* These **psychological forces** are products of the same force-strength of will. And it adjusts itself to circumstances: but though closely linked, they are not identical.
* Difficulties challenges the psychological strength of the soldier. Only a small part of these hardships comes directly from enemy's activity.
* The direct impact of enemy activity falls, initially, on the soldier's person without affecting the commander.
* Enemy's resistance directly affects the commander by two ways:
  + **One way:** If the enemy’s resistance prolonged, the commander’s danger augments; but the higher an officer's rank, the less significant this factor becomes, and to the commander-in-chief it means nothing at all.
  + **A second way:** the loss that is caused by prolonged resistance and the influence this exerts on his sense of responsibility.
* **strength of will** of commander and then others:
  + **is rarely needed**: when things are going well, and the spirit is high.
  + **is tremendously needed:**
    - when conditions become difficult, the machine itself begins to resist, disobedience may occur, and arguments are on rise.
    - **impact of the ebbing of moral and physical strength**: spectacles of the dead and wounded
  + As each man's strength gives out, as it no longer responds to his will, the inertia of the whole gradually comes to rest on the commander's will alone. The ardour of his spirit must rekindle the flame of purpose in all others; his inward fire must revive their hope. Otherwise, the mass will drag him down to the brutish world where danger is shirked, and shame is unknown.

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* **Energy** in action or strength varies in proportion to the strength of its motive (convictions or emotions).
  + Most powerful passions that inspire man in battle: desire for **honour** and **renown(fame)**.
  + Other emotions may be more common and more venerated-patriotism, idealism, vengeance, enthusiasm of every kind-but they are no substitute with the first two.
  + they cannot give the **commander** the ambition to strive higher than the rest, as he must if he is to distinguish himself.
  + They cannot give him, as can ambition, a personal, almost proprietary interest in every aspect of fighting, so that he turns each opportunity to best advantage -plowing with vigour, sowing with care, in the hope of reaping with abundance.
  + It is primarily this spirit of endeavour on the part of commanders at all levels, this inventiveness, energy, and competitive enthusiasm, which vitalizes an army and makes it victorious.
* **Staunchness & endurance:**
  + **Staunchness** indicates the will's resistance to a single blow; endurance refers to prolonged resistance.
  + Difference is significant: Staunchness in face of a single blow may result from strong emotion, whereas intelligence helps sustain endurance. The longer an action lasts, the more deliberate endurance becomes, and this is one of its sources of strength.

**p.106, 107**

* **strength of mind** or **character:**
  + Ability to keep one's head at times of exceptional stress and violent emotion.
  + Strength of intellect alone is not enough for such a faculty.
  + Some men of outstanding intellect do lose their **self-control.**
  + faculty known as self-control-the gift of keeping calm even under the greatest stress-is rooted in temperament.
  + It is an emotion which serves to balance the passionate feelings in strong characters without destroying them, and it is this balance alone that assures the dominance of the intellect.
  + the urge to **always act rationally**. Therefore, we would argue that a strong character is one **that will not be unbalanced by the most powerful emotions.**
* **Men differ in their emotional reactions:** 
  + **1st group** with small capacity for being roused, known as "stolid" or "phlegmatic."
    - hard to throw off balance,
    - but total lack of vigour cannot really be interpreted as strength of character.
    - imperturbability of such men gives them a certain narrow usefulness in war.
    - They are seldom strongly motivated, lack initiative and consequently are not particularly active; on the other hand, they seldom make a serious mistake.
  + **2nd group**: Extremely active, but whose feelings never rise above a certain level, sensitive but calm.
    - Small things can suddenly stir them to act, whereas great issues are likely to overwhelm them.
    - will gladly help an individual in need, but the misfortune of an entire people will only sadden him; they will not stimulate him to action.
    - In war such men show no lack of energy or balance, but they are unlikely to achieve anything significant unless they possess a very powerful intellect to provide the needed stimulus. But it is rare to find this type of temperament combined with a strong and independent mind.
  + **3rd group**: passions are easily inflamed suddenly but soon burns out, like gunpowder.
    - general of little value in practical life, and therefore of little value in war.
    - Their impulses are strong but brief.
    - If the energy of such men is joined to courage and ambition, they will often prove most useful at a modest level of command, simply because the action controlled by junior officers is of short duration.
    - Often a single brave decision, a burst of emotional force, will be enough. A daring assault is the work of a few minutes, while a hard-fought battle may last a day, and a campaign an entire year.
    - Their volatile emotions make it doubly hard for such men to preserve their balance; they often lose their heads, and nothing is worse on active service.
    - Highly excitable minds could sometimes be strong. they usually have sense of own dignity, but there is not time for it to take effect. Once the crisis is past, they tend to be ashamed of their behaviour.
  + **4th group**: do not react to minor matters, who will be moved only very gradually, not suddenly, but whose emotions attain great strength and durability. These are the men whose passions are strong, deep, and concealed.
    - Lastly, we come to men who are difficult to move but have strong feelings-men who are to the previous type like heat to a shower of sparks. These are the men who are best able to summon the titanic strength it takes to clear away the enormous burdens that obstruct activity in war. Their emotions move as great masses do-slowly but irresistibly.
    - These men are not swept away by their emotions so often as is the third group, but experience shows that they too can lose their balance and be overcome by blind passion. This can happen whenever they lack the noble pride
    - of self-control, or whenever it is inadequate.
* **These** psychological **variants;**
  + are related to the physical forces of dual organism (physical and psychological).
  + affect military activity.
* Strength of character requires: powerful feelings + maintain balance in spite of them (like ship compass).
* A man of character: if sticks to his convictions ~ firmness. Not constantly changing

**P.108**

* War: rob men confidence in themselves and in others, doubt is plenty: divert them from original **course of action.**
* Presence of suffering danger = psychological fog --> emotion can easily overwhelm intellectual conviction. Action based on firmer than instinct, a sensing of the truth.
* Often there is a gap between principles and actual events that cannot always be bridged by a succession of logical deductions. Then a measure of self-confidence is needed, and a degree of skepticism is also salutary.
* Stick to imperative principle, refuse to change unless forced to do so by a clear conviction.
* Stick to overriding truth of tested principles. Do not yield to transient vivid impressions.
* Men of character again: strength of character depends on balanced temperament; most men of emotional strength and stability are therefore men of powerful character as well.
* Strength of character but not obstinacy.
  + Obstinacy is not an intellectual defect, it comes from reluctance to admit that one is wrong.
  + Obstinacy is a fault of temperament. Stubbornness and intolerance of contradiction result from a special kind of egotism. It might also be called vanity.
  + We would therefore argue that strength of character turns to obstinacy as soon as a man resists another point of view not from superior insight or attachment to some higher principle, but because he objects instinctively
* great commander needs in war has been concerned with qualities in which mind and temperament work together.

**p.109**

* **Warfare and terrain:** act of intellect:
  + Relationship between warfare and terrain determines the peculiar character of military action. In general, we lack info like the enemy, defender advantageous.
  + This problem is unique. To master it a special gift is needed, which is given the too restricted name of a **sense of locality**. It is the faculty of quickly and accurately grasping the topography. This is an act of the imagination.
  + it can only be achieved by the mental gift that we call imagination.
  + We also admit that a good memory can be a great help

**P.111**

* + Appropriate talent is needed at all levels if distinguished service is to be performed. But history and posterity reserve the name of "genius" for those who have excelled in the highest positions-as commanders-in-chief-since here the demands for intellectual and moral powers are vastly greater.

**BOOK ONE: ON THE NATURE OF WAR**

**CHAPTER FOUR: ON DANGER IN WAR**

**P.113**

* Danger is alarming in nature.
* When charging the enemy, ignoring the bullets and casualties, in a surge of excitement, death may happen in any time.
* For the victory. It must not be that difficult.
* Such moments are rare. They are not brief like a heartbeat, but come rather like a medicine, in recurring doses, the taste diluted by time.
* Accompanying novice:
  + With the rumbles of guns, cannonballs,
  + Distraction by wounded and dead,
  + Forward to the frontline, increasing danger, musket balls begin to whistle around.
  + A little further, infantry endures the hammering for hours with incredible steadfastness. The air is filled with hissing bullets that sound like a sharp crack if they pass close to one's head.
  + For a final shock, the sight of men being killed and mutilated moves our pounding hearts to awe and pity.
* The novice cannot pass through these layers of increasing intensity of danger without sensing that here ideas are governed by other factors. Light of reasoning is quite different from normal life or academic speculation.
* It is an exceptional man who keeps his powers of quick decision intact if he has never been through this experience before. It is true that (with habit) as we become accustomed to it the impression soon wears off, and in half-an-hour we hardly notice our surroundings anymore.
* **Ordinary qualities are not enough**; and the greater the area of responsibility, the truer this assertion becomes.

**P.114**

* Danger is debilitating element. What is needed? All these characteristics (like headlong, dogged, or innate courage, overmastering ambition, or long familiarity with danger) must be present to a considerable degree.
* Danger is part of the friction of war. Without an accurate conception of danger, we cannot understand war.

**BOOK ONE: ON THE NATURE OF WAR**

**CHAPTER FIVE: ON PHYSICAL EFFORT IN WAR**

**P.115**

* Objective and accurate views on military operation are rare. Views are mostly subjective. This indicates how much influence physical effort exerts and shows how much allowance must be made for it in all our assessments.
* Among the many factors in war that **cannot be measured**, **physical effort** is the most important. Unless it is wasted, physical effort is a coefficient of all forces, and its exact limit cannot be determined.
* But it is significant that, just as it takes a powerful archer to bend the bow beyond the average, so it takes a **powerful mind** to drive his army to the limit.
* General demand these physical efforts from his troops.
* Like danger **physical effort** is one of the great **sources of friction** in war. Because its limits are uncertain, it resembles one of those substances whose elasticity makes the degree of its friction exceedingly hard to gauge.
* A general and an army cannot remove the stain of defeat by explaining the dangers, hardships, and exertions that were endured; but to depict them adds immensely to the credit of a victory.
* We are prevented from making an apparently justified statement by our feelings, which themselves act as a higher judgment.

**BOOK ONE: ON THE NATURE OF WAR**

**CHAPTER SIX: INTELLIGENCE IN WAR**

**P.117**

* **Intelligence:** every sort of **information about the enemy and his country**.
  + constitute basis of plans and operations.
  + Actual basis of this information is unreliable and transient, so the war is a flimsy structure that can easily collapse and bury us in its ruins.
  + Feeble (not usable) maxim: believe reliable intelligence and approach to these with suspicion. This maxim is not coming true wisdom but from minds who run out of ideas.
* Many **intelligence reports** in war are contradictory; or false, and uncertain, and the effect of fear is to multiply lies and inaccuracies.
  + Officer should possess a standard of judgment. He should be guided by the laws of probability.
  + Difficult to apply these to plans when they are drafted in office, far from the **sphere of action**; the task harder in the **thick of fighting**, with reports streaming in.
  + One is lucky if their contradictions cancel each other out. It is much worse one report tallies with another, confirms it, magnifies it, lends it colour, till a quick decision is made on it which is soon recognized to be mistaken.
  + As a rule, most men would rather believe bad news than good, and rather tend to exaggerate the bad news. The dangers that are reported may soon, like waves, subside; but like waves they keep recurring, without apparent reason.
  + The **commander** must trust his judgment and stand like a rock on which the waves break in vain. It is not an easy thing to do. If he does not have a buoyant disposition, if experience of war has not trained him and matured his judgment, he had better make it a rule to suppress his personal convictions and give his hopes and not his fears the benefit of the doubt. Only thus can he preserve a proper balance.
* This difficulty of **accurate recognition** constitutes one of the most serious sources of **friction in war**, by making things appear entirely different from what one had expected.
  + The senses make a more vivid impression on the mind than systematic thought.
  + Commanders tend to launch operations with feeling obliged to repress some doubts from the start.

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* + Ordinary men tend to lose self-confidence when they reach the scene of action: things are not what they expected.
  + But even the man who planned the operation and now sees it being carried out may well lose confidence in his earlier judgment, whereas **self-reliance** is his best defence against the pressures of the moment.
  + War has a way of **masking the stage** with fearsome apparitions. Once this is cleared away, developments will confirm his earlier convictions -this is one of the great chasms between planning and execution.

**BOOK ONE: ON THE NATURE OF WAR**

**CHAPTER SEVEN: FRICTION IN WAR**

**P.119**

* Difficulties and need of brilliant and exceptional ability of commander understood only by experiencing the war.
  + Everything, like the required knowledge and the strategic options looks simply.
  + Once war starts, the difficulties become clear; but it is extremely hard to describe the unseen.
* Everything in war is very simple, but the simplest thing is difficult. **The difficulties accumulate** and **produce a kind of friction** that is conceivable by experiencing the war.
  + Countless unpredictable minor incidents combine to lower the **general** (commander) level of performance, so that one always falls far short of the intended goal.
  + **Iron will-power** can overcome this friction; it pulverizes every obstacle, but of course it wears down the machine as well.
  + The proud spirit's firm will dominate the **art of war** as an obelisk dominates the town square on which all roads converge.
* Friction is the only **concept** that corresponds to the factors that distinguish real war from war on paper.
  + The **military machine (**the army and everything related to it) is very simple and seems easy to manage.
  + But none of its components is of one piece: each part is composed of individuals, every one of whom retains his potential of friction.
  + **In theory**: a battalion commander’s (a man of tested capacity) duty is to carry out his orders; discipline keeps the battalion together, and so everything runs in a way with a minimum of friction.
  + **In fact**, it is different, and every fault and exaggeration of the theory is instantly exposed in war. A battalion is made up of individuals who may chance to delay things or make them go wrong. The dangers and the physical exertions can aggravate the problem.

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* **This tremendous friction** cannot be reduced to a few points. And these are in contact with chance and brings about effects that cannot be measured. One is the **weather**. **Fog** can prevent the enemy from being seen in time, **rain** can prevent a battalion from arriving, etc.
* It would take volumes to cover all difficulties.
* **Action in war** is like movement in a resistant element. Just as walking cannot easily be performed in water, in war it is difficult for normal efforts to achieve even moderate results. A genuine theorist is like a swimming teacher, who makes his pupils practice motions on land that are meant to be performed in water.
  + To those who are not thinking of swimming the motions will appear exaggerated.
  + Theorists who have never swum, are impractical and even ridiculous: they teach only what is already common knowledge: how to walk.
* **Every war is rich in unique** episodes. Each is an uncharted sea, full of reefs. The commander may suspect the reefs' existence without ever having seen them. If a contrary wind springs up, he will need the greatest skill and personal exertion, and the utmost presence of mind.
* **An understanding of friction** is a large part of that **much-admired sense of warfare** which a good general is supposed to possess.
  + Best general is the one who takes idea of friction to heart.
  + Good general must know friction to overcome it whenever possible, and not to expect a standard of achievement in operations which friction makes impossible.
  + **It is a force that theory can never define**. Development of instinct and tact would still be needed in any case, a form of judgment much more necessary in an area littered by endless minor obstacles.
  + **Instinct** becomes almost habit so that he always acts appropriately, so only the experienced officer will make the right decision in major and minor matters-at every pulsebeat of war. Practice and experience dictate the answer: "this is possible, that is not."

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* Friction is the force that makes the apparently easy so difficult. E
* Eminent commander needs more than experience and a strong will. He must have other exceptional abilities as well.

**BOOK ONE: ON THE NATURE OF WAR**

**CHAPTER EIGHT: CONCLUDING OBSERVATIONS ON BOOK ONE**

**p.122**

* Danger, physical exertion, intelligence, and friction are the elements that coalesce to form the **atmosphere of war** and turn it into a medium that impedes activity.
* In their restrictive effects they can be grouped into a single concept of **general frictio**n.
* **Lubricant to reduce abrasion: combat experience** (not readily available). Habit 'hardens the body for great exertions, strengthens the heart in great peril, and fortifies judgment against first impressions. Habit breeds that priceless quality, calm, which, passing from hussar and rifleman up to the general himself, will lighten the commander's task.
* In war the **experienced soldier** reacts in the same way as the human eye does in the dark: the pupil expands to admit what little light there is, discerning objects by degrees, and finally seeing them distinctly.
* **Way of gaining familiarity** with war in peacetime:
  + **1. Peacetime manoeuvres**: No general can accustom an army to war. Manoeuvres are a feeble substitute for the real thing; but even they can give an army an advantage.
    - To plan manoeuvres so that some of the elements of friction are involved, which will train officers' judgment, common sense, and resolution.
    - No soldier should wait for war to expose him these frictions. He must be familiar with it.
    - This is true even of physical effort. Exertions must be practiced, and the mind must be made even more familiar with them than the body.
    - When exceptional efforts are required from soldiers, they tend to think that they result from mistakes at the top. In consequence, **morale** is doubly depressed.
    - If manoeuvres prepare him for exertions, this will not occur.
  + **2. Attract foreign officers** who have seen active service. A state that has been at peace for many years should try to attract some experienced officers. Alternatively, some of its own officers should be sent to observe operations and learn what war is like.

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* Experienced officers may be less, but their influence can be very real. Their experience, their insights, and the maturity of their character will affect their subordinates and brother officers.

**BOOK TWO: ON THE THEORY OF WAR**

**CHAPTER ONE: CLASSIFICATIONS OF THE ART OF WAR**

**p.127**

* **Concept of fighting**:
  + Essentially war is **fighting. F**ighting is the only effective principle in the manifold activities generally designated as war.
  + Fighting, in turn, is a trial of **moral and physical forces** through the medium of the latter. Naturally moral strength must not be excluded, for **psychological forces** **exert a decisive influence** on the elements involved in war.
  + The need to fight quickly led man to invent appropriate devices to gain advantages in **combat**, and these brought about great changes in the forms of fighting. The concept of fighting remains unchanged. **That is what we mean by war**.
* **Fighting vs. Combat:** Different things but interact
  + Weapons and equipment are not essential to the concept of fighting, since even wrestling is fighting of a kind. They are only the preparation for it, not its conduct.
  + Fighting has determined the nature of the weapons employed. These in turn influence the combat; thus, an **interaction** exists between the two.
  + But **fighting** itself **remains a distinct activity**; the more so as it operates in the danger.
  + This is the difference between two activities.
  + **Two activities** separate: an armed and equipped fighting force is a means, about which one need to know its chief effects to use it properly.
* Conclusion: **art of war** is the **art of using the given means in combat**; there is no better term for it than the **conduct of war**. Art of war includes all activities that exist for the sake of war, such as the creation of the fighting forces, their raising, armament, equipment, and training.
* It is essential to the validity of a theory to distinguish between these two activities:
  + If the **art of war** were always to start with raising armed forces and adapting them to the requirements of the **particular case**, it would be applicable only to those few instances where the forces available exactly matched the need.

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* + If, on the other hand, one wants a theory that is **valid for the great majority of cases**, it must be based on the most prevalent means and their most significant effects.
* The **conduct of war**, then, **consists in the planning and conduct of fighting**. If fighting consisted of a single act, no further subdivision would be needed. However, it consists of several complementary acts, are called "**engagements**" and which form new entities.
* **Tactics & Strategy Classification:** 
  + **Tactics:** Planning and executing these engagements themselves. **T**eaches the **use of armed forces in the engagement**
  + **Strategy**: Coordinating each of them with the others to further the object of the war. Teaches **the use of engagements for the object of the war**.
* Fighting

|  |  |  |
| --- | --- | --- |
| Consist | Name |  |
| Single act | Single engagement |  |
| Several complementary acts | Engagements |  |

* The concept of a **single engagement** and the conditions of its unity:
  + In terms of space (that is, of simultaneous engagements) its unity is bounded by the range of personal command.
  + In terms of time, however (that is, of a close succession of engagements) it lasts until the turning point, which is characteristic of all engagements, has been passed.
* **Doubtful cases**: number of engagements could be regarded as a single engagement.
  + But that will not spoil basis for classification since the point is common to all practical systems of classification where distinctions gradually merge on a descending scale.
  + There may be individual acts which, without a shift in point of view, may belong either to strategy or to tactics; for instance, very extended positions that are little more than a chain of posts, or arrangements for certain river-crossings.
* Our **classification** applies only the utilization of the fighting forces. But war is served by many activities (creation, training, and maintenance of forces) that are quite different from it.

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* **Activities preparatory to battle:** Closely related to the action. They are part of military operations
* **Narrower meaning** of the **art of war**-the actual conduct of war: Excluding these activities is justifiable. Prep activities be in constant interaction with the utilization of the troops but the two are very different.
* **Activities that exist in addition to the engagement:** 
  + If combat or the engagement is **defined** as the only **directly effective activity**, the threads of all other activities will be included because they all get their purpose from combat, and they all lead to combat.
  + Other activities differ widely:
    - **Part of the combat activities**: in one respect part of combat, while in another respect they serve to maintain. **Marches**, camps, and billets: each concerns a separate phase of existence of the troops, and when one thinks of troops, the idea of the engagement must always be present.
    - **Only maintenance activities**: Influences combat because of its interaction with the **outcome of the fighting**. Consists of supply, medical services, and maintenance of arms and equipment.
  + **Marches**
    - completely identical with the utilization of troops.
    - Marching **in the course of an engagement** (usually known as "deployment") while not entailing the actual use of weapons, is integral part of engagement.
    - A march that not taken in the course of an engagement is simply the execution of a strategic plan.
    - Strategy determines when, where and with what forces an engagement is to be fought. The march is only the means of carrying out this plan.
    - A march that is not part of an engagement is thus a **tool of strategy.**
    - Since the forces undertaking it may at any time become involved in an engagement, the execution of the march is subject to the laws of both tactics and strategy.
    - If a column is ordered to take a route on the near side of a river or a range of hills, that is a strategic measure: it implies that if an engagement must be fought in the course of the march, one prefers to offer it on the near rather than the far side.
    - If on the other hand a column takes a route along a ridge instead of following the road through a valley or breaks up into several smaller columns for the sake of convenience, these are tactical measures: they concern the manner in which the forces are to be used in the event of an engagement. The internal order of march bears a constant relationship to readiness for combat and is therefore of a tactical nature: it is nothing more than the first preliminary disposition for a possible engagement.

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* + - The march is the tool by which strategy deploys its effective elements, the engagements. But these often become apparent only in their effect, and not in their actual course. Inevitably, therefore, in discussion the tool has often been confused with the effective element. One speaks of decisive skillful marches, and really means the combinations of engagements to which they lead. This substitution of concept is too natural, and the brevity of expression too desirable, to call for change. But it is only a telescoped chain of ideas, and one must keep the proper meaning in mind to avoid errors.
    - One such error occurs when strategic combinations are believed to have a value irrespective of their tactical results. One works out marches and maneuvers, achieves one's objective without fighting an engagement, and then deduces that it is possible to defeat the enemy without fighting. Only at a later stage shall we be able to show the immense implications of this mistake.
    - Although marching can be seen as an integral part of combat, it has certain aspects that do not belong here, and that therefore are neither tactical nor strategic. These include all measures taken solely for the convenience of the troops, such as building roads and bridges, and so forth. These are merely preconditions; under certain circumstances they may be closely linked with the use of troops and be virtually identical with them-for instance, when a bridge is built in full view of the enemy. But essentially these activities are alien to the conduct of war, and the theory of the latter does not cover them.

The term "camp" is a term for any concentration of troops in readiness for action, as distinct from "billets." Camps are places for rest and recuperation, but they also imply strategic willingness to fight wherever they may be. But their siting does determine the engagement's basic lines-a precondition of all defensive engagements. So they are essential parts both of strategy and of tactics.

Camps are replaced by billets whenever troops are thought to need more extensive recuperation. Like camps, they are therefore strategic in location and extent, and tactical in their internal organization which is geared to readiness for action.

As a rule, of course, camps and billets serve a purpose besides that of resting the troops; they may, for instance, serve to protect a certain area or maintain a position. But their purpose may simply be to rest the troops. We have to remember that strategy may pursue a wide variety of objectives: anything that seems to offer an advantage can be the purpose of an engagement, and the maintenance of the instrument of war will often itself become the object of a particular strategic combination.

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So in a case where strategy merely aims at preserving the troops, we need not have strayed far afield: the use of troops is still the main concern, since that is the point of their disposition anywhere in the theater of war.

On the other hand, the maintenance of troops in camps or billets may call for activities that do not constitute a use of the fighting forces, such as the building of shelters, the pitching of tents, and supply and sanitary services. These are neither tactical nor strategic in nature.

Even entrenchments, where site and preparation are obviously part of the order of battle and therefore tactical, are not part of the conduct of war so far as their actual construction is concerned. On the contrary, troops must be taught the necessary skills and knowledge as part of their training, and the theory of combat takes all that for granted.

Of the items wholly unconnected with engagements, serving only to maintain the forces, supply is the one which most directly affects the fighting. It takes place almost every day and affects every individual. Thus it thoroughly permeates the strategic aspects of all military action. The reason why we mention the strategic aspect is that in the course of a given engagement supply will rarely tend to cause an alteration of plans-though such a change remains perfectly possible. Interaction therefore will be most frequent between strategy and matters of supply, and nothing is more common than to find considerations of supply affecting the strategic lines of a campaign and a war. Still, no matter how frequent and decisive these considerations may be, the business of supplying the troops remains an activity essentially separate from their use; its influence shows in its results alone.

The other administrative functions we have mentioned are even further removed from the use of troops. Medical services, though they are vital to an army's welfare, affect it only through a small portion of its men, and therefore exert only a weak and indirect influence on the utilization of the rest. Maintenance of equipment, other than as a constant function of the fighting forces, takes place only periodically, and will therefore rarely be taken into account in strategic calculations.

At this point we must guard against a misunderstanding. In any individual

case these things may indeed be of decisive importance. The distance of

hospitals and supply depots may easily figure as the sole reason for very

important strategic decisions-a fact we do not want to deny or minimize.

However, we are not concerned with the actual circumstances of any individual

case, but with pure theory. Our contention therefore is that this type

of influence occurs so rarely that we should not give the theory of medical

services and replacement of munitions any serious weight in the theory of

the conduct of war. Unlike the supplying of the troops, therefore, it would

not seem worth while to incorporate the various ways and systems those

theories might suggest, and their results, into the theory of the conduct of

war.

To sum up: we clearly see that the activities characteristic of war may be

split into two main categories: those that are merely preparations for war,

and war proper. The same distinction must be made in theory as well.

The knowledge and skills involved in the preparations will be concerned

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with the creation, training and maintenance of the fighting forces. It is

immaterial what label we give them, but they obviously must include such

matters as artillery, fortification, so-called elementary tactics, as well as all

the organization and administration of the fighting forces and the like. The

theory of war proper, on the other hand, is concerned with the use of these

means, once they have been developed, for the purposes of the war. All that

it requires from the first group is the end product, an understanding of their

main characteristics. That is what we call "the art of war" in a narrower

sense, or "the theory of the conduct of war," or "the theory of the use of

the fighting forces." For our purposes, they all mean the same thing.

That narrower theory, then, deals with the engagement, with fighting

itself, and treats such matters as marches, camps, and billets as conditions

that may be more or less identical with it. It does not comprise questions

of supply, but will take these into account on the same basis as other given

factors.

The art of war in the narrower sense must now in its turn be broken down

into tactics and strategy. The first is concerned with the form of the individual

engagement, the second with its use. Both affect the conduct of

marches, camps, and billets only through the engagement; they become tactical

or strategic questions insofar as they concern either the engagement's

form or its significance.

Many readers no doubt will consider it superfluous to make such a careful

distinction between two things so closely related as tactics and strategy,

because they do not directly affect the conduct of operations. Admittedly

only the rankest pedant would expect theoretical distinctions to show direct

results on the battlefield.

The primary purpose of any theory is to clarify concepts and ideas that

have become, as it were, confused and entang-l ed. Not until terms and concepts

have been defined can one hope to make any progress in examining

the question clearly and simply and expect the reader to share one's views.

Tactics and strategy are two activities that permeate one another in time

and suace but are nevertheless essentiallv different. Their inherent laws and

mutuil relationship cannot be understiod without a total comprehension

of both.

Anyone for whom all this is meaningless either will admit no theoretical

analysis at all, or his intelligence has never been insulted by the confused

and confusing welter of ideas that one so often hears and reads on the subject

of the conduct of war. These have no fixed point of view; they lead to no

satisfactory conclusion; they appear sometimes banal, sometimes absurd,

sometimes simply adrift in a sea of vague generalization; and all because this

subject has seldom been examined in a spirit of scientific investigation.

**Allegiance, Ability, and Achievement in the American Civil War: Commander Traits and Battlefield Military Effectiveness**

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**p.2**

**1 Introduction**

* Battlefield victory depends on many factors that may change over time.
  + In the ancient world, military combat was heroic in nature, with aristocrats doing battle and masses of infantry essentially serving auxiliary roles.
  + Greek democracy brought with it the democratization of warfare, in which companies of hoplites fought one another in phalanx formation.
  + Military engagements were further altered when Persia invaded the Greek city-states, and Militiades’ genius was instrumental in developing a strategem to defeat Darius’ forces (Andreatta,2015). Without his insights, the battle might well have been lost.
* The **critical role of command** has long been recognized by military strategists and historians.
  + A. A. Vandegrift, a USMC General in WWII: “positions are seldom lost because they have been destroyed, but because the leader has decided in his mind that the position cannot be held” (United States Marine Corps, 1997, 1).
  + Rulers seek for the right commander to win the conflict:
    - Plutarch (1992) describes Quintus Fabius Maximus as the only man capable of stopping Hannibal’s rampage through Italy, following the defeat of Gaius Flaminius at Lake Trasimene.
    - Liddell Hart (1996) traces the importance of six great commanders in the second millennium.
    - And Taaffe (2011) highlights the decisions made by U.S. Army Chief of Staff George C. Marshall in World War II in selecting officers who could defeat the Axis powers.
* For the American Civil War (hereafter, the “Civil War”), military leadership has been deemed especially important.
  + The Confederacy possessed superior leadership (e.g., Alexander, 2007), enabling its forces to achieve several early victories (McPherson, 1988, 327) (Defeat of Unions at the First Battle of Bull Run).
  + As the war progressed, the gap narrowed, and the Union was able to exploit its own advantages in terms of resources and manpower, turning the tide in its favour (Bond, 1998). This account suggests Lincoln might have appointed more competent commanders later in the war. (It also implies the possibility of learning over the course of the war.)

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* However, while commanding officers were likely chosen for some combination of leadership capabilities and loyalty.
  + Standard theories of executive appointments admin politics suggest a trade-off between loyalty and competence (e.g., Edwards, 2001, Hollibaugh, Horton and Lewis, 2014, Hollibaugh, 2016a, Krause and O’Connell, 2015, Lewis, 2008).
  + The incentives are likely different between context of administrative politics, and that of military leadership in war.
  + Thus, the **Civil War** provides an excellent opportunity to examine not only the **relationship between traits of military leaders and battlefield performance**, but also the generalizability and applicability of extant theories of executive politics.
* Provide several contributions to the study of military success.
  + First, we employ large- scale data on the attributes of battlefield commanders in the Civil War.
  + Then use these data to compute measures of loyalty and competence for commanders on both sides.
  + Finally, we assess the respective roles that loyalty and competence play in determining battlefield outcomes.
  + Our results are broadly supportive of the traditional hypothesis, suggesting that leadership is indeed related to success, and that while the Confederacy began the war with a competence advantage among its commanders, the gap narrowed considerably as the war progressed.

**2 Military Leadership and Battlefield Outcomes**

* While the international relations literature has devoted attention to factors influencing outcomes of military conflict, its focus has been directed primarily at its highest level—wars and militarized disputes—ignoring combat within wars (Gartner, 1998, Reiter, 2009).

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* At the interstate level, researchers have focused on factors such as regime type, alliances, material capabilities, and attributes of political leadership (e.g., Biddle and Long, 2004, Choi, 2004, Lake, 1992, Reiter and Stam, 1998, Wolford, 2007) to explain why one state might defeat or surrender to another.
* At the intrastate level, analyses have emphasized the importance of state capacity, regime type, industrialization, terrain, tactics, and outside intervention (e.g., Balch-Lindsay, Enterline and Joyce, 2008, Chatagnier and Castelli, 2016, Cunningham, Gleditsch and Salehyan, 2009, DeRouen and Sobek, 2004, Fortna, 2012, Mason, Weingarten and Fett, 1999).
* The purpose in each case is to determine the likelihood that one side achieves strategic victory over the other. Neither successes at the tactical or operational level, nor how those successes lead to strategic success, are explained.
* The decision to ignore **battlefield success** is surprising, as many scholars have acknowledged its importance in determining overall outcomes (Reed and Clark, 2000, Slantchev, 2003, Smith and Stam, 2004). Although exceptions exist (e.g., Biddle and Long, 2004, Grauer and Horowitz, 2012, Reiter and Stam, 1998), **little research** has been dedicated to understanding the components of **battle-level effectiveness**. This is noteworthy given claims that traditional quantitative indicators of success in military conflicts are poor predictors of battlefield success (Biddle, 2006, Freedman, 2005), suggesting the need for additional study.
* Moreover, **a crucial determinant of battlefield success**, military leadership, has been particularly understudied.
  + Research on leaders has focused primarily on political leaders, and their incentives to initiate or participate in wars (Bueno De Mesquita and Siverson, 1995, Chiozza and Goemans, 2011, Fuhrmann and Horowitz, 2015, Goemans and Fey, 2009, Horowitz and Stam, 2014).
  + The relationship between leadership and success has mostly been confined to the (often conflict- specific) literature on coup-proofing—that is, where leaders stack officer corps with individuals personally loyal to them, often leaving them ill-prepared to resist domestic uprisings and foreign invasions (Gaub, 2013, Hosmer, 2007, Pilster and Böhmelt, 2011, 2012).

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* One notable focus on battlefield success is Reiter and Wagstaff:
  + Analyses how battlefield success in World War II affected decisions to promote or remove commanders.
  + They outline how tactical expertise, the ability to inspire soldiers, the choice of competent subordinates, and the provision of better strategic options allow leaders to affect battlefield outcomes.
  + Their analysis, however, focuses on the effects of tactical victories, rather than their causes. Here, we opt for the opposite tack and examine how commander qualities affect the likelihood of success.
* The Civil War is ideal for this purpose.
  + Though the conflict was an intrastate dispute, the manner of fighting by the combatants—two standing armies engaging in pitched battles over territory—was more akin to conventional warfare than the insurgency combat more common to civil conflicts.
  + Indeed, although it has generally been overlooked within the subfield, the Civil War has been analyzed in several recent works by IR scholars (Poast, 2015, Reiter, 2009). Second, while historical within-war data are scarce, the Civil War is well-documented (Weiss, 1966). This may be due to its place as “the single most important event in American history” (Reiter, 2009, 140), as well as its idiosyncrasies.
  + Using these data, we can show precisely how individual-level commander competence contributed to tactical victory, addressing an issue that has long been ignored by conflict scholars.

**3 Military Appointments in the American Civil War**

* Focusing on leadership in the Civil War provides us with an opportunity to speak to a second literature and examine the generalizability of extant theories of executive appointments.
* Whereas foundational works focused on several personal traits, recent research has focused on loyalty and competence, with a consensus emerging regarding a trade-off between the two (e.g., Edwards, 2001, Hollibaugh, Horton and Lewis, 2014, Krause and O’Connell, 2015, Lewis, 2008, 2009).
* Although these works were (largely) situated within the contexts of appointments to executive agencies and cabinet departments, there is reason to believe the negative relationship between loyalty and competence is applicable to questions of martial prowess. This is especially true of the Civil War, the background of which made loyalty an important criterion.4 Indeed, there is evidence that both Lincoln and Davis considered questions of loyalty when deciding whom to promote. After General Don Carlos Buell’s failure to defeat Braxton Bragg’s forces in Kentucky, Union leaders relieved him of command and searched for a replacement. General George Thomas—a top tactical mind, and one of the only Union commanders to enjoy early success—was a natural successor. Lincoln, however, expressed a reluctance to “replace one Southern-born commander for another,” and opted for William Rosecrans, whose partisan and religious identification were politically expedient (Broadwater, 2009, 87). When Secretary of War Edwin Stanton expressed little confidence in Rosecrans, urging Lincoln to replace him with Thomas, Lincoln referenced Thomas’ origin, saying, “Let the Virginian wait” (Piatt and Van Boynton, 1893, 327), illustrating a willingness to trade competence for loyalty. Thomas was given command of the Army of the Cumberland at the end of 1863, but only after he prevented Rosecrans’ defeat at Chickamauga from turning into a disaster.
* Loyalty played an important role in the selection of Confederate commanders as well, though Davis arguably placed a premium on personal loyalty, rather than birthplace.5 Indeed, the most senior officer in the Confederate military—outranking Generals Robert E. Lee and P. G. T. Beauregard—was New York native Samuel Cooper, who was appointed adjutant general of the Confederate Army, responsible only to President Davis himself. William Davis (1996, 360) argues that Cooper was awarded his lofty rank because of his friendship with the Confederate president, and his willingness to do Davis’ bidding, allowing the latter to “solidify [his] control over his armies. Davis could act through Cooper, and the rank insulated Cooper from question.”
* These anecdotes suggest that perceptions of loyalty influenced both Confederate and Union decision making during the war. This does not mean, however, that loyalty was the only—or even paramount—criterion. Indeed, relative to bureaucratic appointments, the importance of battlefield competence and the existential threat posed to the Confederate government (as well as uncertainty over repercussions in the event of capture or a Confederate loss) likely rendered competence even more critical.6,7 Moreover, the unique context of the war may have mitigated any relationship between loyalty and competence. For example, uncertainty over punishment in the case of a Confederate loss might have ensured the pool of potential flag officer nominees was disproportionately loyal. Current models rarely consider the pool of potential nominees (but see Hollibaugh, 2015) and none, to our knowledge, endogenize self-selection into the pool. Conceivably, the inclusion of high penalties for failure and self-selection might affect longstanding results.
* Additionally, cultural differences might alter the aforementioned effects, or even exert their own influence. Indeed, while both the Union and the Confederacy were part of the United States prior to secession, cultural differences existed between the two—and persist to this day. One of those most relevant to our analysis is honor, which has long been valorized within the American South (Nisbett and Cohen, 1996). Characterizing honor as a reputation for resolve, Dafoe and Caughey (2016) find that Southern presidents have been more likely to initiate, continue, and win militarized disputes.If the same dynamic held in the Civil War, then those commanders who most identified with the Confederacy (i.e., those most “loyal”) likely also identified most with Southern honor, and would be more likely to achieve success on the battlefield due to the desire to maintain a reputation of unwillingness to back down. This should not hold (at least not to the same extent) for Union commanders, not having grown up in a culture that placed the same emphasis on honor; in these cases, the standard loyalty-competence tradeoff would be more likely to be observed, with loyalty having neutral—or even negative—effects on outcomes.

Finally, for Confederates with military backgrounds, traits related to competence may be associated with increased (personal) loyalty. Unlike Lincoln, Davis was a Mexican War veteran and a West Point graduate. As such, he maintained personal connections within the officer corps. When putting together the Confederate government and military, he “looked to West Pointers and to men he knew and trusted” (Davis, 1996, 316). For Davis, some attributes associated with competence as an officer—such as training at West Point—might also have been related to personal loyalty. Thus, the circumstances involved in military appointments—as well as the characteristics of the South—could result in a positive association between loyalty and competence for Confederate commanders, in contrast to the long literature on the loyalty-competence tradeoff among executive appointees.8 However, these considerations should be absent for Union commanders, who (for the most part) neither grew up in the culture of the American South nor faced uncertainty over the possible outcomes in the case of a Union loss (e.g., they faced no possibility of being executed for treason, as conquest of the Union was not among the goals of the Confederacy).

**Opening Up the Black Box of War**

**Scott Sigmund Gartner**

The Journal of Conflict Resolution; June 1998, 42, 252-258

**p.252**

* What factors influence victory or defeat in war?
  + **Realist approaches to IR**, with their emphasis on system structure: Ken Woltz, 1979 Theory of international politics, Random House
    - Wartime decisions and behaviour are largely unimportant in determining the nature of politics during and after a conflict.
    - View war as a scale that balances bundles of pre-war capabilities.
  + **Dominance of realist approach for the last 40 years:**
    - Analyses focused on the initiation of war, rather than behaviour within war.
    - Siverson and Starr(1991,The diffusion of war: a study of opportunity and willingness ), Licklider (1993, Stop the killing: how civil wars end)
    - Cold war: focus was on how to avoid conflict initiation or deterrence,
    - CoW data set of interstate wars treats each war as an exclusive, single observation. (Small and Singer, 1982)
  + Democracies don’t fight literature, fail to examine wartime behaviour.

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* **A New wave of research:** 
  + Wartime decisions influence;
    - War’s outcome: Ray and wang, 1994
    - Duration: Benneth and Stam, 1996
    - How is conducted: Gartner in press
  + Wartime factors influence domestic politics: during, Downs and Rocke, 1994, after, Bueno de Mesquita and Siverson, 1995
  + Domestic politics influences the conduct of war: Avant, 1993
  + These studies suggests that politics does not stop with war onset.
  + How war and politics jointly interact.
* **Why a new wave now?**

1. Though explanation is given like this: 23\*√2=32.5, means since combined fleet is divided, they need √2 plus force to make equation with the UK fleet. I make this deduction to reach 2/1 force equation: 32²=23²+23², thus in the first battle would be fight with 32²=23² this portion. Equals to 1024 vs 529. [↑](#footnote-ref-1)