



RUSSIAN CONCEPT OF AIR WARFARE
THE IMPACT OF IDEOLOGY ON THE DEVELOPMENT OF AIR
POWER

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ABSTRACT

The pursuit of national security is normally dominated by an overarching ideology that takes into account the political, economic, social and military paradigms that face a nation. In the history of the Soviet Union, this ideology was more than normally influenced by political activism that demanded the continuation of the 'Workers' Revolution' into other parts of the world. Since the military forms an integral part of the governmental apparatus, its utilisation in the pursuit of securing national security is considered a legitimate and normal action.

The Soviet Union built up the world's largest military force in an effort to ensure that the nation would have the necessary 'super power' status to counter-balance the growing power and influence of the United States of America. The ideologies of both the nations were diametrically opposed to each other and formed the basis for the now defunct Cold war that enveloped the entire world for almost five decades. It is therefore not surprising that the military forces of both the sides were influenced heavily by the respective ideologies. In the case of the Soviet Union, the almost paranoid state control of all enterprises gave rise to a particular ethos within the social fabric of the nation, which percolated definitively into the military forces. The Soviet military was almost completely subservient to the Party organisation.

This study looks at the development of the Russian concept of air warfare and studies the impact of ideology on its development. It is seen that in the Soviet Union ideology had always thwarted free flowing doctrinal thinking, the absolute corner stone for the building of a strong and efficient fighting force. The Soviet Air Force, while being numerically very large suffered from the lack of a coherent and independent doctrine till about a decade ago. The analysis of the factors that have affected the formulation of doctrine in the Soviet Union both from a historic as well as from a warfighting point of view reveals the lacunae that existed in the system. While accepting that political control of the military forces is a necessity, the study demonstrates the detrimental effect of excessive control of doctrinal and strategic thinking on the performance of the force.

DECLARATION

This thesis contains no material that has been accepted for the award of any other degree or diploma in any university or other tertiary institution and , to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text of the thesis.

I give consent to this copy of my thesis, when deposited in the University Library, being made available for photocopying and loan.

Premchand Sana Kainikara

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Chapter 1

INTRODUCTION

The intellectual basis for Soviet/Russian military thought, the fountainhead for the development of doctrine, has not always been clearly explained nor is it an easy task to do without meandering. The events of the last century and its impact on the military are difficult to catalogue exclusively with no omissions or commissions. In the Soviet Union, ideology remained a critical determinant in the formulation of military policy and Marxism-Leninism the official basis for the identification of the 'threat' against which the military was designed and structured to fight. The Soviet military was never outside the influence of strong political ideology and evolved in the way it did purely because of overpowering ideological influences on its doctrinal and strategic development.

The current Russian Air Force claims the mantle of the erstwhile 'Red Air Force' of the Soviet Union as its logical successor. Under these circumstances the Russian Air Force can lay claim to a long and illustrious history backed by grand traditions and customs. Through out its history the Soviet Air Force has always delivered the required support to the armed forces and the Russian Air Force continues to do so even today under extremely difficult politico-economic circumstances. This fact alone speaks volumes about the resilience of the force that is in the throes of reform and reorganisation while beset with grave threats emanating from extraneous factors. Indeed, after nearly fourteen years of its 'new life', the Russian state remains an uncertain proposition with shaky economic foundations and is still in the process of redefining and refining its social structure. The best chances that it had for overhauling the military with minimum effort were in 1992 and then again in 1996 but both these reform opportunities were not completely utilised. Historically, the Soviet military reaction to reform has always been slow and cautious yet once it had been embarked upon, the military has been known to carry it forward with some success. Based on this historical precedent and considering

that, to a large extent, the Russian military carries the same ethos as the Soviet military the slow progress of the current reform cannot as yet be considered a failure.¹

Currently the military is looked upon as a stabilising influence within the nation that is trying to come to terms with the traumatic collapse of the erstwhile USSR and only now emerging in its own right. Russia is still not out of the doldrums nor is the Russian Air Force in a state to conduct uninterrupted operations in support of government policy, but it is in the best shape amongst the three armed forces to be able to lend credence to the Russian Federation's claim to international influence and power projection.

Military doctrine typically deals with a broad spectrum of military issues ranging from the strategic to the operational and tactical levels of warfare. At the strategic level military doctrine establishes the principles that guide the design of military force structure and operations. Its crucial importance lies in its role as the connecting link between defence policy and national strategy on the one hand and the operational plans of the armed forces on the other.² National strategy is in other words the national security policy, which is sometimes referred to as 'grand strategy'. The term 'military doctrine' is applied to that sub-component of grand strategy that deals explicitly with military means.³

Doctrine is very much a reflection of a nation's character and influences the structure, decision making process and employment concepts of a force and dictates its entire *modus operandi*.⁴ Air power doctrine is dependent on a number of factors and the strategic culture of the nation has an important role to play in its formulation. Nowhere else is this more apparent than in the case of the Russian Air Force. Air power is also the most flexible of force projection capabilities and even this truism is borne out by the transformations that the Russian Air Force has undergone in its history. The inherent

¹ A Kokoshin, *The Soviet Strategic Thought, 1917-1991*, The MIT Press, Cambridge, 1998, p. 36.

² Ariel Levite *Offence and Defence in Military Doctrine*, West View Press, San Fransisco, 1989, p. 10.

³ Sanu Kainikara, *An Air Power Doctrine for Regional Air Forces*, BDM Services Ltd., Fairfax, VA, 1997, pp. 2-3.

⁴ Major General Waldo D. Freeman, USAF, 'The Challenges of Combined Operations', *Military Review*, November, U.S. Army War College, Carlisle, PA, 1992, p. 7.

flexibility of the concept of air power itself has been demonstrated in no uncertain terms by the stalwart nature of the Russian Air Force.

After the Bolshevik Revolution, the Imperial Air Force was built up again, initially as an 'Air Fleet' and then as an independent Air Force. The change in name did not however bestow a clear independent doctrine on the Air Force but changes were instituted in a lackadaisical manner, with new doctrine and tactics being imposed even before the earlier change had taken effect. During the Second World War, the Soviet Air force made up in numbers what it lacked in tactical appreciation. The performance of the Air Force was almost completely dependent on personal proficiency of the pilots because both doctrinally and technologically very little consideration was given to optimising the employment of air assets. There was no clear understanding or analysis of the impact of strategic bombing and it is also reasonable to believe that the decision-making bodies, the Councils, had almost no knowledge regarding the conduct of aerial warfare.⁵ The main reasons for the poor performance was the lack of efficient command and control system and the auxiliary status of the air force as a purely support arm of the army. These drawbacks had been realised during the Winter Campaign in Finland in the early part of the Second World War, and measures were instituted to overcome them. These initiatives however, did not come to fruition before the German invasion. Total emphasis was given to the support of army formations and in the initial phases of the war the German *Luftwaffe* were able to have virtually uncontested air superiority.

The strategic circumstances changed considerably after the Second World War as the Soviet Union emerged as the only power with the perceived capacity to challenge the ascendancy of the United States. The emergence of nuclear weapons added impetus to the building of the strategic air force as a delivery system. Simultaneously fighter aircraft design and development also started in earnest, mainly because of the ideological thrust to project Communism and the Soviet model as the ideal for world order. Development

⁵ The Councils were all made up of party members with almost no participation from the professional military cadre. Knowledge and understanding of the conduct of an aerial campaign was non-existent in these councils, much to the long-term detriment of the Soviet Air Force.

of tactical air forces was forced by the limited wars that were fought in the Middle East and Asia where the use of strategic air forces was not warranted.

By closely following the example of the North Atlantic Treaty Organisation (NATO), the Soviet Union built up an air force with global power projection capabilities while giving further attention to improving air combat capabilities of the force. In the area of aircraft manufacture, the maturing of design capabilities was demonstrated by the fielding of the MiG-29 'Fulcrum' and the Su-27 'Flanker' fighter aircraft that have been acknowledged as superior in design and performance to any other contemporary aircraft.

Throughout its history, the Soviet ideology has always considered the Army as the basic arm of defence with the Air Force being an essential but subservient component. The overriding concern therefore has been the availability of adequate air support to the ground forces. This secondary status of the Air Force as a support arm of the army resulted in a desultory doctrine development process mainly stemming from ideological influence that gave the Army primacy of place. Analysis also reveals that the majority of generals in the Soviet higher command structure were army officers with very limited understanding of air power issues. The underlying principle of operation for any campaign was for an inexorable forward movement of the army with the air force purely in support of army objectives. The concept was based on the Soviet willingness to accept unnaturally heavy casualties in order to capture ground at a fast pace, thereby denying the NATO forces the opportunity to recoup after the initial engagement. In this concept of operations, the capture of enemy airfields was also envisaged and therefore, it was assumed that the accompanying air elements would be able to use these fields to support further forward movement of the army. This was the cardinal reason for the Soviet Tactical Air Forces lacking range and weapon carrying capability when compared to Western standards. Design of aircraft was completely influenced and shaped by the ideology that supported a strategy of physically overwhelming the enemy lines of defence

on the ground.⁶

Soviet military, as an integral component of the Communist Party, was the embodiment of the creation, sovereignty and stability of the Soviet Empire. By ensuring the security and stability of the nation state, the Soviet Armed Forces contributed to the sustainment of socialism and by covert involvements in fostering armed revolution in some instances they encouraged the spread of the idea of Communism.⁷ Soviet military power therefore cannot be viewed apart from Soviet economic and political power and has to be seen as an extension of Soviet ideology. Official ideology was critically important in the formulation of doctrine and the allocation of resources for the military.

Being an integral part of the Communist Party, the civil-military relationship in the Soviet Union was completely different from Western standards. The basic function of the Party, and by extension the military, was to ensure the progress of the international class struggle, eventually overcoming the bourgeois international order. It was therefore imperative for the military to support the ideological advances that were planned and for ideology to be all-pervasive in the doctrinal development of the military.

A potent military force cannot however, be built purely by a combination of political will infused with ideology and the unlimited allocation of resources. It also requires a favourable external environment, healthy national economic performance and stable domestic and international relationships.⁸ The primary aim of the Russian Armed Forces has now become optimising the military structure and eliminating all the risks of disintegration. Achievement of this objective will automatically restore the military's capability to project power externally. Russian leadership seems to be genuinely

⁶ Sanu Kainikara, 'Russian Combat Aircraft: Concept of Operations and Future Employment', Keynote Address in *Proceedings of the Air Warfare Conference 1999*, RAAF Base, Williamtown, Australia, June 1999, Canberra: Defence Publications, 1999.

⁷ The relationship between ideology and warfare in the Soviet strategic thinking was almost completely influenced by Lenin's personal interpretation of Clausewitzian ideas. This is further elaborated in Section 2.2 and 2.3 of Chapter 2.

⁸ Pavel K. Baev, 'Russia's Military – The Best Case', in Ina M. Synge, (ed), *Putin's Russia-Scenarios for 2005*, Jane's Special Report, Jane's Information Group, Surrey, UK, 2001, p. 41.

committed to reorienting the military and withdrawing from unilateral deployments outside its borders. By gathering military resources together it will be possible to streamline the reform process and thin down the structure without losing quality. The need of the hour is to 're-centralise' control over power bases that have sprung up in the past decade both within the military and the military-industrial complex in order to make these security providing elements compatible and complementary. The reforms are evolving in the direction of cutting down unilateral engagements and catching-up in the global technological revolution currently under way.

1.1 SCOPE

This research will examine the Soviet/Russian concept of air warfare, with particular emphasis on the development of air power doctrine, leading to a deeper understanding of the relationship between doctrine and ideology. It focuses on analysing the changes that have taken place in the doctrinal approach to air power, in the Soviet context, mainly in the post-Second World War era.

The analysis will also shed some light on generic air power capabilities so that its doctrinal developments and the progression of its strategic application can be better understood. To a certain degree the thesis is inter-disciplinary in that it compares and combines ideas from purely political ideology to strategies of military forces while examining some aspects of military history. As a result, the coverage and consultative literature is far broader than would have been the case in a more narrowly focussed study.

1.2 THESIS STRUCTURE

There are two underlying themes that are followed throughout the thesis. First is the historical insight that provides a chronological thread to the developments that took place within the Soviet Air Force in response to external stimuli mainly from the political arena. The second deals more in the realm of ideas and concepts and catalogues their

development while analysing their interface with the ideological development of the state.

The chapters enumerate doctrinal developments chronologically in a historical perspective and therefore give certain continuity to the analysis of the intertwining and complex relationships between political ideology, military doctrine and concept of operations.

Chapter 2

WAR, IDEOLOGY AND DOCTRINE

“War, says Heraclitus, is the father of things. From the clash of counterpitched forces in the moment of mortal danger...arise new and most consequential developments”

L. von Ranke¹

War has been a universal phenomenon throughout recorded history. History of mankind is in reality a recording of wars, great and small, which were fought between tribes, nations, civilisations and religions interspersed with accounts of the times of comparative peace. Wars have been fought for reasons bordering on the mundane to the exalted. Nations and people go to war in order to protect and propagate what they perceive as the correct ‘way of life’. The reason why a nation becomes an aggressor in the eyes of the rest of the world is also the same. Even if it is subsequently revealed that the reasons were swathed in personal beliefs and needs of the leaders, at least at the outset the people of the nation will have to believe in the virtuousness of their cause to allow the war to proceed. Study and understanding of war and its impact on a nation is therefore essential to ensure adequate preparedness in the pursuit of national security goals.

War in its many facets can be studied both from experience gained by personal involvement as well as from history. In studying war, its history provides a wider view of practical experience, than is available to a soldier in terms of actual personal combat experience. ‘History is universal experience’ — the experience not of one or a few people, but of a large number of people under manifold conditions.² The foundation for a comprehensive study of warfare must be broad-based and must at all times avoid a narrow outlook. Any analysis of warfare will confirm the truism that the combatants — human beings — are basically similar in nature. But while having the same emotional attributes, individuals are conditioned by the environment in which they grow up and

¹ L.von Ranke, ‘Die grossen Mächte’, in *Sammtliche Werke XXIV*, Duncker & Humblot, Leipzig, 1872, pp 1-40, Translated and Quoted by Torbjorn L. Knutsen in *The Rise and Fall of World Orders*, Manchester University Press, Manchester, 1999, p. 21.

² BH Liddell Hart, *Strategy*, 2nd edn, rev. Penguin Books, New York, 1991, p.4.

display different reactions to the same event. This has far-reaching effects on the development of war fighting capabilities.

Development of human characteristics is always influenced and shaped by a number of factors. Some of these factors, like climate and geography, are clearly outside the realm of human control and therefore completely extraneous, while some others, like religious beliefs and educational perspectives, are the result of human endeavour and can be influenced and moulded by human beings to adhere to stipulated conditions. Heredity, environment and training also influence human reaction and make it more or less sensitive to unfolding events.³ Even as the environment conditions individuals, Government functioning under the same environmental influence will also reflect the same characteristics. A truly representative Government therefore reflects the national characteristics. These disparate factors combine in their effect to determine the economic circumstances and security perceptions of a nation and are also the major contributors to the national ethos of ideals and ideology. National values and the resulting security imperatives are dependent almost entirely on these non-quantifiable yet tangible sentiments. The fighting forces are a microcosm of the nation and are susceptible to the same factors that shape the national ideology.

In warfighting the human element plays a moral and physical part. The general truth of Napoleon's statement that in war 'the moral is to the physical as three to one'⁴ is accepted universally. Historically in most conflicts, moral factors have constantly predominated the decision making process as well as the formulation of strategy. All issues of war and battle are therefore subject to moral forces in a disproportionate manner. In effect this indicates that the strength and resilience of any nation is fundamentally dependent on its balance, stability of control, effectiveness of the leadership at the highest level, morale and supply. The outward indications of strength, numbers and resources, are secondary in nature.⁵ War is by itself an uncertain activity, and non-quantifiable human qualities play a crucial role in its successful pursuit. 'An operation of war cannot be thought out like

³ *ibid.*

⁴ Quoted in Liddel Hart, *Strategy*, p.4

⁵ *ibid.*, pp.5-6

building a bridge; certainty is not demanded, but genius, improvisation and energy of mind must have their parts'.⁶

2.1 STRATEGY, DOCTRINE AND TACTICS

*"The term 'strategy' is ubiquitous"*⁷

In the history of warfare, politics has always determined the combatants.⁸ The combatants determine the strategy, doctrine and tactics that will be used to achieve political aims or pursue laid down policy. 'Strategy' and 'doctrine' are two words that are often used in a very vague and generic sense leading to a certain amount of confusion.⁹ In order to have a clear-cut delineation of the meaning within the context of the usage of these words, it is necessary to define them in precise words. Literally the word 'strategy' means 'generalship' and its usage should be confined to mean the actual direction of military force and the way in which they are employed to achieve military objectives.¹⁰

2.1.1 Strategy

The policy that governs the employment of military forces is a function of a number of factors considered and applied at a higher level. The major factors that influence policy, other than military strength, are economic viability, political balance and psychological resilience of the nation. Since this governing policy functions at a higher level as the overall guiding factor in the development of military strategy, it is termed 'grand strategy'.¹¹ The relationship and interaction between 'military strategy' and 'grand strategy' and the leadership responsible for laying them down has in recent times become

⁶ Quoted in Michael Howard, 'Grand Strategy, August 1942-September 1943', in *History of the Second World War*, vol. 4, Her Majesty's Stationary Office, London 1972, p. 295.

⁷ Hugh Smith, 'On Strategy and Strategists' in High Smith (ed), *The Strategists*, Australian Defence Studies Centre, Canberra, 2001, p.1.

⁸ John Warry, *Warfare in the Classical World*, Salamander Books, London, 1998, p 7.

⁹ This is more so in the case of cursory studies of strategy and doctrine done without much care

¹⁰ Liddel Hart, p.10.

¹¹ *ibid.*

contentious. It is accepted, at least in the democratic world, that the military commander is responsible to the government to ensure that the resources placed under his command are utilised optimally in the furtherance of grand strategy.¹² In developed democracies, military leadership is always subservient to the political and essentially civilian leadership. 'Grand Strategy' therefore becomes the domain of elected leadership, albeit with direct and indirect inputs from the military leadership. On the other hand, in an ideal situation military strategy should be completely devoid of civilian interference. Military strategy has been defined in a number of ways. Moltke's definition 'the practical adaptation of the means placed at a general's disposal to the attainment of the object in view',¹³ is very clear and perhaps the best interpretation of its meaning under the prevailing circumstances.

2.1.2 Doctrine

Armies and navies — military forces fighting in a land or sea environment — have traditionally evolved their doctrine from historical experience and theory. The impact of technology on doctrine development had been minimal till the advent of air power. Land and maritime forces have never been directly subjected to the technological rate of change associated with the development of air power. With the addition of the third dimension to the realm of warfare, the basics of doctrinal thinking underwent a rapid overhaul. In the modern context, doctrine is derived from a judicious combination of the lessons from the history of warfare, developmental thought on war fighting theory and the impact of emerging technologies. In the case of air power, technology is one of the prime moving forces in the development of its doctrine.¹⁴ Doctrine establishes the fundamental philosophy underlying the employment of military power, land naval or air, and explains their influence on grand strategy and military strategy. Good doctrine should endure for a long period while retaining its relevance to emerging situations.

¹² *ibid*, pp. 13-21.

¹³ Quoted in Liddel Hart, *Strategy*, p.320.

¹⁴ Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, Paper No 61, Air Power Studies Centre, Canberra, 1998, p. 1.

Even though technology impacts strongly on doctrinal thinking, development and formulation, the history of warfare clearly demonstrates that while technological superiority clearly gives an edge to one side, this advantage is transitory. In the long-term, the deciding factor on the battlefield will not be technology, but the superiority and circumstantial aptness of one military philosophy over the other.¹⁵ Therefore, any comprehensive study of warfighting capabilities of a nation would have to be double pronged. It must consider the factors that affect the technological developments in a nation while delving into the conditions that shape the strategy and doctrine of the force itself. The perspectives and prejudices that have long-term implications on the development of national military strategy and doctrine can be appreciated by the analysis of the factors that influence the thinking of the population of a nation as whole and the soldier in particular.

2.1.3 Tactics

Tactics implement strategy by short-term measures and decisions regarding employment of weapons, movement and deployment of troops and equipment etc., on the field of battle. Views on strategy and tactics have differed throughout the history of warfare. Differences in the understanding and interpretation of these terms have been basically one of scope as the human society and the nature of war have undergone continuous change brought about by rapid advances in warfighting technology. Technology impacts more on the definition of tactics than on strategy in a comparative analysis but the two have always been difficult to distinguish because of their interdependent nature.¹⁶ Tactics used in battle are largely governed by strategic considerations while strategic development can become constrained by innovative tactical capabilities.

Historical roots of strategic development date back to the origins of human warfare and the establishment of nation states. The developments also run parallel with the growth, spread and clash of civilisations; technological inventions and refinements; and the

¹⁵ John Warry, p. 26.

¹⁶ Ronald E.M. Goodman, *Military Strategy and Tactics*, Website of Grolier Electronic Publishing Inc, 1993, p. 1, accessed on 05 May 2003.

evolution of modern state power, ideology and nationalism.¹⁷ Modern warfare and strategy could be identified as the product of the French Revolution, carefully nurtured and improved by the brilliance of Napoleon I. The first great theorists of war in the Western world, Carl von Clausewitz (1780-1831) and Antoine Jomini (1779-1869), closely studied Napoleonic strategy. The importance of the principles of mass, economy of force, the destruction of enemy forces and the occupation of enemy territory were underlined as central to winning a war.¹⁸ Formalising military thought was one of the great achievements of the 19th century. Simultaneously, far-reaching technological changes vastly altered the scope of strategy in the pursuance of national security goals. Transportation and communications revolutions - railways and telegraphy - linked disparate theatres of war and for the first time made the imposition of large-scale, nationwide strategy possible. This led to the concept of total war in which the consistent support of the war industry, essentially civilian in nature, is a critical factor in the conduct of a successful campaign.

2.2 NATIONAL IDEOLOGY AND WARFARE

Nations put in place a number of active and dormant initiatives in the pursuit of their goals and the protection of their national interests. The implementation of these initiatives are greatly influenced by the national ideology as perceived at the highest level of decision-making. This ideology becomes the underlying basis to lay down policies, both domestic and foreign, that a nation would follow to achieve its political ends. National security imperatives and initiatives are particularly affected by national ideology and war is considered an extension of the logic of political action. Carl von Clausewitz wrote, 'The only source of war is politics'¹⁹ and emphasised the centrality of politics in war, for ideally the political activity of a nation must vigorously pursue the enhancement of the welfare and interests of the state.²⁰ The armed forces, being one of the tools employed to implement policies, is indirectly but critically influenced by national ideology through the

¹⁷ *ibid*, p.3.

¹⁸ *ibid*.

¹⁹ Carl von Clausewitz, *On War*, ed and tr. Michael Howard and Peter Paret, Princeton University Press, Princeton, NJ, 1986, p. 605.

²⁰ Michael I. Handen, (ed) *Clausewitz and Modern Strategy*, Frank Cass and Company, London, 1986, p. 7.

entire spectrum of its operations. It is therefore evident that to be successful in war, the grand strategy must be a manifestation of national policies and the military strategy must flow from the grand strategy without ambiguity. In essence, the strategy and doctrine of the armed forces must truthfully reflect the national ideology at the highest conceptual level.

Modern warfare is extremely complex in nature with an infinite number of variables, 'ranging from the quantifiable to the intuitive, from the moral to the material'.²¹ The outcome of most modern wars have been equally affected by a nation's industrial base and war making potential as by the performance of its armed forces in the field. Wars between nations are now clashes between armies, industries, economic resources and the entire population. The winning of a war with a decisive battle – in the non-nuclear realm – is now an outmoded concept. National ideology plays an equally critical part in orienting the industrial and technological base to enhance war making potential and ensuring the rapid mobilisation of these resources when necessary. Therefore, viewed purely from a military perspective, national ideology is the most crucial element in establishing a nation's warfighting capabilities.

2.3 THE SOVIET VIEW OF STATE AND WAR

Although Clausewitz's definition of war has universal applicability in a very broad manner, the Leninist image in the Soviet Union fundamentally differed from this by the paradigm that social classes have interests and the ruling class use 'it' (the state) to promote its own. The concept of 'national interest' in this context was seen purely as the interest of the ruling class, devoid of any representation of the interest of the exploited class.²² In Leninist theory war was not rational since its outbreak was not always necessarily a deliberate act and its consequences were almost always completely

²¹ Michael I. Handel, 'Clausewitz in the Age of Technology', in Michael I. Handel (ed), *Clausewitz and Modern Strategy*, p. 51.

²² Anatol Rapoport, (ed). 'Editor's Introduction' to *Clausewitz On War*, Penguin Books, London, 1968, p.32.

unforeseen.²³ An extreme example of the unpredictability of the consequences of war was the dissolution of three empires at the end of the First World War. Lenin's concept of war was more acceptable to the war-weary Soviet masses, but the end of the First World War saw Russia being denied membership of the League of Nations, which propagated a system of 'collective security'.²⁴ Since this placed the new Soviet republic in a position of having to depend on its own resources to consolidate its position, the Soviet State was established in the same mould as a nation state. Threats to Soviet power were identified with threats to the Soviet State to be countered with military power.

Since the Bolshevik Revolution had almost completely destroyed the Russian military forces, the creation and reorganisation of the war machine became a very difficult process. It could only be accomplished by the re-induction of former tsarist officers in positions of leadership. This move, initiated by Leon Trotsky, was generally opposed because of the ideological shock of the concept. The debate on the merits of forming a standing army as opposed to the 'people's guerrilla army' encompassed all aspects of military doctrine, strategy and tactics. With the consolidation of absolute power in the person of J.V. Stalin, the building of a war machine similar to those of other militarised nations was begun. This involved resurrecting the officer-class and saw the resurgence of military-nationalist traditions.²⁵

Stalin relied exclusively on the military to pursue what was proclaimed as 'national interests'. There are differences of opinion around the world regarding the military threat posed by the Soviet Union, but it is certain that Soviet military forces were instrumental in the establishment of Communist regimes in Eastern Europe.²⁶ It would seem that the Soviet Union had wholeheartedly accepted international relations and foreign policy in Clausewitzian terms. This was indeed the case and in his remarks on Clausewitz's 'On War', Lenin stressed that 'politics is the reason, and war is the tool, not the other way

²³ *ibid.*

²⁴ *ibid.*, p.34.

²⁵ *ibid.*, p. 36.

²⁶ Richard Pipes, *Communism: A Brief History*, Weidenfeld and Nicolson, London, 2001, p. 51.

around. Consequently it remains only to subordinate the military point of view to the political'.²⁷

While Clausewitzian theory influenced the Soviet thinking on the relationship between the state and war, the avowed foreign policy of the Soviet Union was one of ensuring enduring world peace.²⁸ The discarding of aggressive war as an instrument of state policy in the Soviet context could have been because of two primary reasons. Firstly, the climate of world opinion changed perceptibly towards the pursuance of peace after the Second World War and secondly, the aversion that the Soviet population felt for war because of the enormity of the suffering inflicted on them did not give the government any support for an aggressive stand. In an indirect manner, the government's desire to build a communist nation, accepted as a 'great power', also contributed to their desire to contribute towards peace.²⁹ Whatever the reason, the policy of aggressive pursuit of national interests culminating in war was never firmly established as a Soviet policy and once the Soviet state was 'stabilised' war was seen as a disaster to be guarded against.³⁰

2.3.1 The Impact of Technology

The most important and path breaking changes in the evolution of warfare were brought about by two of the greatest revolutions in history, the French and Industrial Revolutions. The French Revolution changed the nature and scope of war from being fairly limited to one of total mobilisation releasing large amounts of latent energy into its conduct. A new concept of a 'national' army as opposed to the hitherto professional or conscript army was established for the first time and 'the high-pitched morale of the [voluntary] French soldier was an entirely new factor in war'.³¹ The Industrial Revolution brought about changes in the world that were more profound, irreversible and all encompassing. In the case of warfare, the military-technological environment changed so radically that it

²⁷ Quoted in Vasilii D. Sokolovsky, (ed), *Military Strategy. Soviet Doctrine and Concepts*, Fredrick A. Praeger, New York 1963, p. 17.

²⁸ *ibid.*

²⁹ Anatol Rapoport, pp. 38-39.

³⁰ *ibid.*

³¹ *ibid.*, p. 21.

brought about a paradigm shift in the basic organisation and nature of war itself. In fact the military-technological revolution actually comprises a number of smaller revolutions — the more significant ones being the revolution in mobility, the revolution in the quantum and effectiveness of firepower, the introduction of air power as the third dimension in warfare, the revolution in communications, and the revolution of computers.³²

Before the advent of these military-technological revolutions, development of military strategy was moulded within the constraints dictated by environmental factors in terms of time and space. Modern technology effectively changed the concept of the application of time and space to warfare, consequently resulting in an enlarged base on which military strategy could be built while effectively reducing the environmental imperatives almost to insignificance. While providing a free rein to strategic development, technology has also added a new dynamic variable to it. Although the initial impact of technology is tactical, it permeates to the strategic level almost simultaneously as the two are closely linked. Any shift in the balance of strength at the tactical level leads to decisive and far-reaching impact at the strategic level. Therefore, technology impacts all facets of warfare, from the effectiveness of new weapon systems at the purely tactical level to the highest political decision-making at the grand strategy level. The Technological Revolution has ensured a quantum revision in the complexity of warfare.³³

The U. S. Civil War is called the first total war because the extensive use of railroads and steamships increased the reach and speed of mobilisation and conscription altering the scope of tactics and strategy. In a similar manner, the First World War also began with rapid national mobilisations, but degenerated into static trench warfare of attrition brought on by the increased volume and rapidity of available firepower. The result was a permanent change in the way wars would thereafter be fought and the attendant doctrinal, strategic and tactical thinking. Changes in the theories of warfighting were also greatly

³² Michael I. Handel, p. 54.

³³ *ibid*, p. 87

influenced by technological developments that took place during the same time.³⁴ The First World War was instrumental in introducing two key technological developments that fashioned the strategic and tactical debate for the next three decades.

First was the introduction of motorised armoured vehicles like the tank, developed as a counter to the static nature of the war and to improve mobility and manoeuvre capabilities. The interwar period saw a great deal of debate regarding the capabilities and probable utilisation of these vehicles.³⁵ Their employment for shock and manoeuvre, in similar lines as the traditional cavalry, was advocated by strategic thinkers such as B. H. Liddell Hart (1895-1970), Charles de Gaulle (1890-1970) and J. F. C. Fuller (1878-1966).

Second was the advent of air power into warfighting capabilities, initially in a passive support role and increasingly as an active participant. The use of air power initiated a totally new thought process in the theories regarding the conduct of war. The debate regarding the optimum utilisation of air power and its primacy in a nation's war fighting capabilities is still on-going as it increasingly becomes the instrument of choice for lethal and accurate power projection. In the beginning, the use of air power was propounded by such theorists as Giulio Douhet (1869-1930), Billy Mitchell, and Hugh Trenchard (1873-1956). These pioneers advocated the theory that air power alone could win wars by not only striking at the enemy forces, but also by massive attacks on cities, industries and lines on supply and communications – at the centre of gravity of the enemy.

2.3.2 Air Power – The Soviet View

The doctrine and strategy behind the employment of air power changed rapidly during the Second World War and are still dynamic concepts. The contribution of air power to the overall war effort and its war winning capabilities were also demonstrated for the first time during this protracted conflict. While great strides were made in air power capabilities after the war, it was only in the last decade of the Twentieth century that air

³⁴ Ronald E.M. Goodman, p. 5.

³⁵ Liddell Hart, pp.280-285

power came to be recognised for its full potential and developed independently into the most efficient instrument of power projection. The years following the end of the Second World War also saw the hardening of basic ideological stances between Western democracies and the communist/socialist USSR and its eastern European allies, leading to the now defunct Cold War *détente*. While the merits and demerits of each system can be debated and some claim the superiority of the Western democratic systems because of the dissolution of the USSR, what is indelible is the fact that the Cold War standoff and ideological differences produced two entirely different views on all aspects of the conduct of warfare. The natural follow on of complete belief and adherence to two opposing ideological commitments was that technological, doctrinal and strategic development of the military apparatus followed disparate paths. Developments in air power were the most coherent and visible in this aspect.³⁶ The philosophy of warfare itself was distinctly different.

During the Cold War and for sometime after its 'official' end, it was normal for Western analysts and media to dismiss design and weapon developments in the Soviet military aviation as crude and inferior copies of older Western models.³⁷ An unbiased analysis will prove these allegations to be baseless, perhaps made purely for propaganda purposes. It is a historically proven fact that the West has continually been taken by surprise by the performance capabilities and operational envelopes of the fighter aircraft that the Soviet Union was able to field against them.³⁸ The MiG-15 during the Korean War and the MiG-21 during the Vietnam War are two examples of this situation. However, the notion that Western technology had an edge over that of the Soviets persisted for a variety of reasons.

This particular idea of Western superiority in avionics and design continued until the public revelation of the flying characteristics of the MiG-29 'Fulcrum' in the 1980s, closely followed by the Su-27 'Flanker', which made the Western evaluators sit up and

³⁶ Sanu Kainikara, 'Russian Combat Aircraft: Concept of Operations and Future Employment', Keynote Address in *Proceedings of the Air Warfare Conference*, RAAF Base, Williamtown, Australia, June 1999, Canberra: Defence Publications, 1999.

³⁷ *ibid.*

³⁸ *ibid.*

take notice of the Soviet aircraft.³⁹ The so-called 'technological edge' on which most of Western air warfare tactics were based was seen to be non-existent. If at all, the shoe now seemed to be on the other foot. This sparked renewed interest in the Soviet concept of air operations and also their military aircraft industry. The collapse of the Soviet Union and the formation of the loosely held Confederation of Independent States (CIS) headed by Russia brought about new dimensions in the geo-political and military scenario. Russia while cooperating with NATO on a variety of issues continues to warily watch its expansion into what used to be until now part of the Soviet Union.

³⁹ Jane's International Defence Review, 1 January 1998.

Chapter 3

THE BEGINNING OF RUSSIAN MILITARY AVIATION

“At first we will only skim the surface of the earth like young starlings, but soon, emboldened by practice and experience, we will spring into the air with the impetuosity of the eagle, diverting ourselves by watching the childish behaviour of the little men crawling miserable around on the earth below us.”

Jean-Jacques Rousseau¹

The origins of human flight are shrouded in the mists of time and there are any number of myths and legends regarding the exaltation and tragedy of man's persistent dream of flight. Evidence of the idea of human flight and the urge of humans to copy the flying machines of nature - birds, insects and bats - has been found in the works of art of the earliest civilisations. Ancient civilisations credited only 'higher beings' with flight, corroborated by the winged-gods that have been worshipped through history. Three thousand years before the birth of Christ the ancient Egyptians had a god of learning called Thoth who had the head of a bird. In Greece 1,500 years later a similar god was worshipped, Hermes, who by the time of the Romans, about 760 BC, had become the god Mercury capable of flying faster than the lightest bird. The Hindu religious text 'Ramayana', traced back in its written form to 700 BC, describes a flying machine that brought the exiled king back to his kingdom.² The advanced society of the 21st century no longer worships the mythical 'flying' gods, but still acknowledge the magical quality of flight by inventing 'super beings' capable of flight.

While mankind has existed for thousands of years, the history of the aeroplane is only a century old. In this brief period, aviation has progressed from the first heavier-than-air flight that was only a hop a few feet off the ground to the flight of aircraft at speeds in excess of 4,000 miles per hour and the conquest of space. However, only during the last

¹ Quoted in Courtland Canby, *A History of Flight*, Hawthorn Books Inc, New York, 1963, p. 9.

² Gauri Parimoo Krishnan, *Ramayana: A Living Tradition*, National Heritage Board, Singapore, 1997, p. 8.

few decades of its brief history has aviation become a major influence in all aspects of human endeavour. Today aircraft play a major role in world transportation and through it the world economy in an indirect manner, air power is the overwhelmingly superior and obviously preferred power projection tool and designers, scientists and engineers are constantly probing and expanding the frontiers of aerodynamic and aerospace knowledge. Never before in recorded history have there been such astonishing developments – so many milestones in so short a time frame!

3.1 THE CONQUEST OF AIR

3.1.1 Lighter-than-Air Flight

Man's conquest of air started with flights in lighter than air balloons. On 4 June 1783, Joseph Montgolfier put together the world's first hot air balloon that rose in the air to 6,000 feet at the town of Annonay in France. On 21 November, Pilatre de Rozier and Marquis d'Arlandes became the first human beings to ascend in a balloon. They flew for around 25 minutes and travelled some five miles from the starting point.³ In a few short years, lighter-than-air flight and associated aeronautics had become a sport cultivated by a number of adventurers who set about the task of making ballooning safe and reliable. Jeane-Pierre Blanchard, Francisque Arban and families such as the Greens, the Sadlers, and the Goddards dominated the flights and contributed much to keep the sport in the public eye, despite a number of accidents and fatalities that served to dampen public enthusiasm.⁴

Balloons were also used in war. The French Republican Army used a captive balloon for observation during the Battle of Fleurus in 1794 and the Federal Army used a balloon during the crossing of the Rappahannock River during the American Civil War in 1862. During the siege of Paris in the Franco-Prussian War, as many as 66 balloons flew out of the city carrying passengers and carrier pigeons which were used to send information

³ Courtland Canby, p. 12.

⁴ *ibid* p.13.

back to the city.⁵ However, balloons could be successfully controlled in flight only after the introduction of the petrol engine in the last decades of the 19th century. This led to steerable balloons – dirigibles – in their most refined and famous form known as Zeppelins after the German airship pioneer Count Ferdinand von Zeppelin.

The Zeppelins were used as bombers in a limited manner to bomb England between 1914 and 1918. The era of the Zeppelins and the balloon age came to an end with the spectacular fire that engulfed the Zeppelin *Hindenburg* while landing in New Jersey on May 6, 1937. The Zeppelins' importance lay in the long ranges that they were capable of flying. Commercially it pioneered transatlantic passenger travel in the 1930s, at a time when heavier-than-air planes did not have the necessary range to carry out the long trip. From a military perspective it fostered the idea of long range bombing missions.⁶

From the time that lighter-than-air flights became feasible, the Russians had been interested in the potential of aeronautics in both civil and military applications. The history of Russian aviation closely follows the country's internal patterns of socio-economic set up and the changes that took place during the twentieth century.⁷ Russian aviation goes back to 1812, when some consideration was given to building a balloon during Napoleon's invasion of Russia, although it was only in 1831 that the first recorded balloon flight took place.⁸

3.1.2 The Flying Machines

The problems that face heavier-than-air flight – power to take it aloft and hold it in the sky, speed to keep it moving, human skill and control to fly it, methods to retrieve it without mishap – which did not have satisfactory solutions explain why the flying

⁵ John Chaplin, *Wings and Space*, Ian Allan Ltd, London, 1970, p. 43.

⁶ *ibid*, p. 44.

⁷ Robin Higham & Jacob W. Kipp (eds), *Soviet Aviation and Air Power: A Historical View*, Brassey's Publishers Ltd, London, p. 1.

⁸ Charles H. Gibbs-Smith, *The Aeroplane: An Historical Survey*, Her Majesty's Stationary Office, London, 1960, p.189.

machine took so much longer to develop than the lighter-than-air balloon.⁹ In the early days few pioneers who were great experimenters and innovative thinkers stand out for their contribution to the development of flying machines – Leonardo da Vinci, George Cayley, Alphonse Penaud to name a few.

Leonardo da Vinci (1452-1519) was the first to scientifically study bird flight. He wrote, “A bird is an instrument working according to mathematical law, which instrument it is within the capacity of man to reproduce with all its movements.”¹⁰ Even though his work is the first eloquent expression of early concepts in defined shapes and artistic representations as well as ample evidence of his fascination with flight, there is no evidence to suggest that Da Vinci actually built and flew his ingenious contraptions.¹¹

From the time of Leonardo da Vinci to the late 18th century there was remarkably very little thought and development devoted to the field of heavier-than-air flight. Ballooning, however, became a success giving great impetus to a number of aeronautical experiments. The chronology and brief explanations of the development of the airplane for a century before the acknowledged first powered flight is provided in Appendix 1.

3.1.3 Early Developments in Russia

There is some evidence to indicate that in 1881, a Russian N. I. Kibaltchitch, suggested the basic design for a ‘rocket’ aeroplane with a swivelling jet for both vertical and horizontal propulsion.¹² A Captain of the Imperial Russian Navy, Alexander F. Mozhaiski, designed an aeroplane in 1875, patented it in 1881 and completed construction in 1883. He is reported to have tested it successfully in a short flight, with I. N. Golubev as pilot, in 1884 at Krasnoye Selo, near St. Petersburg.¹³ The Russian’s claim this as the first powered flight in history a full decade before the Wright Brothers’ flight.

⁹ Courtland Canby, p. 30.

¹⁰ *ibid.*

¹¹ David Baker, *Flight and Flying: A Chronology*, Facts on File Inc, New York, 1994, p. 1.

¹² Charles H. Gibbs-Smith, p.198.

¹³ Website of *Wright Brothers, Aeroplane Company & Museum of Pioneer Aviation*, Page ‘History of the Aeroplane: The Century Before’. Accessed on 23 October 2003.

But the aircraft was assisted in its take off by a down-sloping 'ski-jump' ramp and therefore, cannot qualify as an independent powered flight.¹⁴

The verification of the accuracy of Mozhaiski's alleged powered flight is difficult since there are conflicting reports that emerge even from Russian sources. The official Russian 'General Soviet Encyclopaedia', published in 1954 and the *Soviet News*, 10 June 1948 both claim the flight to have been a success.¹⁵ But in an article in *Problems of History* (1956), a journal published by the Soviet Academy of Sciences, states that there is insufficient evidence to support the claim.¹⁶ However, even the bare technical achievement of leaving the ground under its own power, with or without the assistance of the 'ski-jump', is in itself significant. Mozhaiski must be credited for his ingenuity and enterprise in building and experimenting with what ranks as the first full-size powered aeroplane to be completed and tested. This is clear indication of the technological innovations that were taking place within Russia on a concurrent timeframe as the developments in the rest of the world.

It is clearly evident that Russia recognised the military potential of aviation very early by the fact that the war minister, General D. A. Muliutin, set up the Commission on the Use of Aeronautics for Military Purposes in 1869. The aeronautics section of the Russian Technical Society was established in 1881 and by 1895 balloons were being used regularly in military manoeuvres and the Officers' Aeronautical School was also started.¹⁷

From the beginning, observation balloons were a permanent fixture with Russia's military establishment and played a small role in the Russo-Japanese war of 1904-1905.¹⁸ During this period there was disquiet among the patriotic Russians who were aware of the progress in manned flight being made in Europe regarding the slow progress within their

¹⁴ Charles H. Gibbs-Smith, p. 200.

¹⁵ *ibid.*, p.315.

¹⁶ *ibid.*

¹⁷ David R. Jones, 'The Beginnings of Russian Air Power, 1907-1922', in Robin Higham & Jacob W. Kipp, (eds), *Soviet Aviation and Air Power*, p. 16.

¹⁸ *ibid.*

own country. The first manned flight in Russia was undertaken by Van den Schkrouff who flew a Voisin at Odessa in July 1907 followed by Cattaneo, Legagneux and others at Moscow and St. Petersburg.¹⁹ Russia's tardiness in aviation progress was criticised in the newspaper *Rech'* on 01 January 1908 when the editorial remarked, "In the west they are everywhere flying through the air in piloted aerostats, but we have only just thought of forming a commission on this subject in the Main Engineering Directorate..."²⁰

3.2 DEVELOPMENTS UP TO THE FIRST WORLD WAR

"Where knowledge begins, there begin also conflicting testimonies and competing claims..... When in the light of the present we look back on the past our eyes are opened, and we see many things that were invisible to contemporaries. We are able for the first time, to pay homage to the pioneers, who saw the promised kingdom, but did not enter it."

*Sir Walter Raleigh (1922)*²¹

3.2.1 Europe and United States

After the success at Kitty Hawk, the aviation scene moved forward with inexorable energy. Although the aeroplane was invented in America, it was the French enthusiasts who took to the air in numbers and were the first to dramatise the beauty and zest of flying to the world. Swift technical advances were also made during this period. In 1907, the United States government issued a bid for a flying machine from the Wright brothers. That year Wilbur Wright went to Europe and demonstrated his airplane at Le Mans in France and also set a new world record for time aloft, 1 hour and 31 minutes on September 21, 1908.²² Early in 1909 he entered into manufacturing arrangements Italy, Germany and England.

In England, slightly slower to be enthralled with the new sport, the first official flight was made in October 1908 and between January and September 1909, the first official flights

¹⁹ *ibid*, p. 71.

²⁰ David R. Jones, p. 16.

²¹ Charles H. Gibbs-Smith, p. 159.

²² Website: <http://www.first-to-fly.com/History/firsttofly.com> p. 5. Accessed 20 April 2001.

were made in Germany, Russia and Italy.²³ Taking wing from the United States and spreading from France, flying had become international. From this time on, there was no looking back and almost every month some new record or the other was being set and broken, to be broken again soon.

On July 25, 1909, Louis Bleriot became the first to cross the English Channel by flying from a field near Calais and landing near Dover castle, covering the 20 miles in 37 minutes. While the sport-loving public celebrated the achievement, thinking men saw the national security implications of this flight clearly. Sir Alan Cobham observed, "The day that Bleriot flew the Channel marked the end of our insular safety, and the beginning of the time when Britain must seek other form of defence besides ships."²⁴ Technological progress had once again struck at the basics of national security perceptions and forced a complete reassessment of security imperatives and defence preparedness.

By 1914, prizes were being offered in Britain and America for flights across the Atlantic and round the world. By that time the Mediterranean had been crossed (Roland Garros, France, in 1913 in a time of 7 hours and 53 minutes, distance 460 km) the United States had been crossed from the Atlantic to the Pacific (Calbraith P. Rodgers, in 1911, in a total flying time of 82 hours and 4 minutes, distance 3,220 miles, in 49 days) and aircraft had been flown up to heights of 13,000 feet.²⁵ These achievements underline the tremendous pace at which technology was solving the challenges posed by operator's requirements and to satisfy the basic human craving of wanting to fly faster, longer and higher.

²³ Courtland Canby, p. 45.

²⁴ John Chaplin, p. 52.

²⁵ *ibid*, p. 54.

3.2.2 Developments in Russia

“Although airplanes can at present still not make very long flights or rise to any great heights, and in general they are not suitable for military purposes, in the future they will nevertheless play a tremendous role in military affairs and so will undoubtedly be introduced into the armament of the army”

*Russian War Ministry's Annual Report, 1908*²⁶

By 1909, the Imperial Russian War Ministry had concluded that the aeroplane had great military potential that was as yet not realised²⁷ and there was a significant shift in the perceptions of younger officers of the Russian Army regarding the effectiveness of aeroplanes. They were unanimous and enthusiastic in accepting the superiority of the aeroplane over the cavalry as a tool in the reconnaissance role. This was the first (unofficial) entry of the aeroplane into Russian military doctrinal thinking. Even though a number of senior officers had reservations about its capabilities, the War Ministry acquired a number of foreign machines and established a school for pilot training. The United States Military Attaché to Russia, in his review of events for 1909 stated that a great deal of attention was being paid to aviation at that time in Russia. He reported that the officer staff of the aerostatic park²⁸ had been increased and private aero clubs were putting their machines at the disposal of the Ministry of War.²⁹

The Ministry of War was sufficiently air-minded to acquire five Wright biplanes and a few English Bristols by 1910.³⁰ At that time there were about ten private aviators constituting a special military reserve and in 1909-1910 military aviation schools were established at Sevastopol, in Crimea, and at Gatchina, near St. Petersburg.³¹ In 1909 Igor Sikorsky built the first of his helicopters in Russia, marking the beginning of a world famous career. Another designer, named Porokhovschikov, built a military airplane with

²⁶ David R. Jones, p.17.

²⁷ *ibid.*

²⁸ The Aerostatic park was the first air training establishment formed by the Russian military to encourage the officer cadre to become 'air minded'.

²⁹ Major Stocum, *Military Attaché Review for 1909*, US Military Attaché to Russia, Report No. 506, Washington.

³⁰ *ibid.*

³¹ *Jane's All the World Aircraft - 1912*, S. Low, Marston and Co., London, p. 276.

an armour-plated cabin, which could be considered the ancestor of the famous ground-attack aircraft Sturmovik used in the Second World War.³²

Grand Duke Alexander Mikhailovich and other high-ranking military officers such as General Baron A. Kaulbars actively encouraged early developments in Russian aviation. The Grand Duke, who had headed the Committee for the Strengthening of the Naval Fleet by Voluntary Contributions since the Russo-Japanese war, used the funds thus generated to obtain aircraft and instructors from the French fliers Bleriot and Voisin.³³ The Grand Duke was sufficiently impressed with the aeroplane to remark, "Victory in a future war will be impossible without an aerial fleet"³⁴. Progressive thinkers in Russia, however, felt that the Government and a majority of the General Staff were indifferent to the aeroplane and slow to appreciate the strategic implications of aviation.³⁵ Even if the claim was true, the progress of military aviation in Russia during the first decade of the twentieth century was equal to that of any other nation. In fact, the Imperial General Staff of Russia was more appreciative of the potential of aviation in warfare than their contemporaries in other nations. By comparison, the United States military establishment had acquired only one Wright airplane by 1910.³⁶

Being convinced of its enormous potential, the Grand Duke became a vocal advocate of the aeroplane and his royal patronage contributed considerably to the expansion of aviation activities, both civil and military.³⁷ By 1911, airplanes were taking part in army manoeuvres. There was also a gradual decline in the interest in lighter-than-air ships and it was reported that "The feature of the last few months has been the development of the aeroplane at the expense of the dirigibles."³⁸ From 1912 to 1914 the Russian air services made steady progress in equipment, technology and organisation although the rate of progress was not rapid enough to meet the demands that were placed on the air services at

³² David R. Jones, p.17.

³³ *ibid.*

³⁴ *ibid.* pp. 17-19.

³⁵ Alexander Romanov, Grand Duke of Russia, *Once a Grand Duke*, Cosmopolitan Book Corp., Farrar and Rinehart, New York, 1932, pp. 237-238.

³⁶ Robert A. Kilmarx, *A History of Soviet Air Power*, Faber and Faber Ltd, London, 1962, p. 5.

³⁷ David R. Jones, p.17.

³⁸ *Journal of the Royal United Services Institution* 55, November 1911, p 1529.

the beginning of the First World War. The reasons for the deficiencies lay in the haphazard organization of the Imperial Air Forces, the limited strength of the aircraft and personnel, mediocre training facilities and inadequate production capabilities of the industry.

In mid-1912, operational control of the armed forces was transferred to a council of defence with the Aviation Division of the Chief Administration of the General Staff being directly responsible for all matters in aviation.³⁹ The organization was modelled on that of the French, but proved inefficient because of the addition of a number of independent sub-divisions to the French model. The Imperial Russian Navy had separate control over its own dedicated air element from 1910.⁴⁰ Within the military districts, air units – designated field companies or squadrons – were assigned to the army, normally at basic corps level or at times to higher formations, but always under a single area commander.⁴¹

The War Ministry's Main Engineering Directorate understood the long-term necessity to foster the indigenous industry to create a modern and well-equipped front line air service and tried to establish the basics to achieve this goal.⁴² To fill the gap in the short-term, foreign aircraft were imported.⁴³ The effort by the War Ministry to encourage local aviation industrial development resulted in Sikorsky's three-seat S-6 biplane winning the 1912 military competitions. In 1913, Sikorsky working for the Russ-Baltic Wagon Factory produced the four-engine, 7,000 pound transport aircraft, which was subsequently converted to reconnaissance bombers in 1914. Ten of these aircraft, named after Ilia Muromets (IM), the hero of ancient Kiev, were ordered. By 1914, Russia's aviation industry was showing remarkable progress and mammoth orders of up to 1,000 planes for the three years 1914-1917 were placed with the indigenous industry.⁴⁴ The

³⁹ Captain N.K. Averill, *Report No. 695*, US Military Attaché to Russia, Washington, 16 January, 1913.

⁴⁰ Robert A. Kilmarx, p. 6.

⁴¹ N.N Golovin, *The Russian Campaign of 1914*, The Command and General Staff School Press, Fort Leavenworth, Kansas 1933, p. 7.

⁴² David R. Jones, p.18.

⁴³ *ibid.*

⁴⁴ David R. Jones, p. 19. The sequence of events relating to Sikorsky's pioneering design work (as noted in the preceding sentences) is also obtained from the same source.

effort to establish a sound local industry and indigenously modernise the force was cut short by the outbreak of the First World War in August 1914, and the subsequent turn of events in Russia.⁴⁵

Although the total number of Russian military aircraft increased in the period 1910-1914, the rate of increase declined after 1912. The reasons were two-fold. Russia faced budgetary stringency as well as some political difficulty in obtaining modern aircraft and engines from abroad. More importantly, despite the junior officers' preference for the aeroplane as far back as 1909, the Russian commanders adopted the French military doctrine of *offensive à outrance*, which relied heavily on cavalry and denied the importance of aerial reconnaissance.⁴⁶ On the positive side, during the same period several flying schools were established to provide sufficient trained personnel for the expanding aviation program.⁴⁷ Despite all the efforts to staff the aviation units with trained personnel, the schedules and instructions were themselves flawed and ill-conceived, leading to a situation where only 10 to 15 per cent of available pilots had reached adequate levels of proficiency by 1914.⁴⁸

When war broke out in 1914, Russia's frontline strength was an impressive 244 aircraft compared to Germany's 232 and France's 138. But the machines were largely obsolete or obsolescent and the indigenous production rate was only about 400 per year, whereas Germany produced 1,348 aircraft in 1914 alone.⁴⁹ Even in routine maintenance of aircraft Russia was not geared to fight a prolonged war and as a result the strength was reduced to 145 front-line machines by 1 September, after less than a month of fighting.⁵⁰

⁴⁵ *ibid.*

⁴⁶ JR Cuneo, *The Air Weapon, 1914-1916*, Military Service Publishing Co., Harrisburg, PA 1947, pp. 5-6.

⁴⁷ *ibid.*

⁴⁸ Robert A. Kilmarx, p. 11.

⁴⁹ David R. Jones, p. 20.

⁵⁰ *ibid.*

3.3 FIRST WORLD WAR (1914-1918)

By 1913-14, a great deal of standardisation in the concepts of flight control had been achieved and the flying machine was regarded as a proven instrument. Although the aeroplane was acknowledged as the ultimate sports machine, two major factors arrested any tangible utilitarian development. First, the aeroplane had not yet advanced enough to be considered a viable commercial asset for the transportation of goods and people, and second, the military had not yet realised its potential capabilities as a weapon of war. The future progression of the aeroplane remained uncertain and a special stimulus was required to accelerate the rate of progress. The First World War provided a timely impetus. During this period the aeroplane transitioned from its position as a tentative and untried military device to a highly scientific weapons system of vital importance to the war fighting capabilities of a nation.

On hindsight, an event of significance in the evolution of air power took place in England during the autumn of 1912. During an Army manoeuvre exercise, the opposing forces were each provided with eight aeroplanes of the Royal Flying Corps for the purposes of reconnaissance.⁵¹ Air reconnaissance provided detailed and timely information to each side regarding the force disposition of the other resulting in the manoeuvres being slowly brought to an absolute standstill. It was a foretaste of the situation that was to develop during the First World War when the opposing forces were similarly immobilised.⁵²

The full significance of the impact that flight would have on warfare was, however, not realised in 1914 for two primary reasons. A large number of high-ranking commanders on both sides were sceptical about the capabilities of the aeroplane and so were disinclined in their minds to understand or accept their application to war.⁵³ There was also a set belief in the conservative thinking circles within the army that cavalry was

⁵¹ MJB Davy, *Interpretive History of Flight*, 2nd ed. Her Majesties Stationary Office, London, 1948, p. 129.

⁵² *ibid.*

⁵³ *ibid* pp.129-131.

irreplaceable as reconnaissance assets and considered such capabilities of the aeroplane suspect.⁵⁴

3.3.1 Russian Air Forces During First World War

Following the declaration of war, the Russian Government made greater efforts to expand and modernise military aviation. Domestic aircraft production was increased and efforts were made to secure additional engines from the West, mainly France and the United States.⁵⁵ While the number of factories and production increased as the war progressed, the aircraft continued to be of inferior quality as compared to the western models.⁵⁶ The poorly trained technical labour force of the Russian industry lacked the necessary scientific educational background to master the complicated production requirements of aero engines and therefore could not meet the increased qualitative requirements.⁵⁷

In order to ensure that sufficient numbers of serviceable machines were available to front line units, the Russian Government ordered aircraft from their French allies. The French supplied the Russians with aircraft that were considered unsuitable for their own forces mainly because of inferior performance. This led to a common belief in the Russian military that the Allied powers considered any obsolete run-down machine good enough for the Russian Air Force. The tardiness of providing what were manifestly inferior machines further rankled the Russian commanders.⁵⁸ The manner in which the Russian leadership dealt with the acquisition of military assets well into the mid-twentieth century would indicate that this lesson of the disadvantages of depending on foreign industry for critical military capabilities was not forgotten in a hurry.

Bomber production during the war centred on Sikorsky's remarkable four-engine IMs. By mid-1917 about 75 of these had been delivered to the Air Force. Although of

⁵⁴ *ibid.*

⁵⁵ *Jane's All the World's Aircraft, 1918*, p. 272.

⁵⁶ David R. Jones, p. 21.

⁵⁷ *ibid.*

⁵⁸ *ibid.*

indigenous design, these aircraft used a number of imported components in their manufacture. Although aero-engines imported from different sources were used in different models (eleven different makes of engines were used) adequate quantities of engines could still not be procured. This lack of adequate number of aero-engines was the major factor in limiting the production of the IM aircraft. In size the IM was remarkably close to the Boeing B-17 Fortress. It was capable of carrying a load of 6,600 lbs, had 600 lbs of armour and could fly at a speed of about 65-70 miles per hour at an altitude of 10,000 feet.⁵⁹

The Imperial Air Force was reorganised in early 1915 in recognition of the need to provide support for the ground forces.⁶⁰ Special bomber, fighter and reconnaissance units were formed and fighter groups were set up according to plans worked out by the Russian ace Staff-Captain E. N. Kruten in the same lines as the French and British air units.⁶¹ The reorganisation saw the assignment of a reconnaissance squadron to each corps; reconnaissance and fighter detachments or squadrons to Army headquarters; and squadrons of large bombers with smaller planes for escort to Front Headquarters. Many aviation groups were formed at army level and every heavy artillery brigade was assigned a flying detachment.⁶²

Apart from the shortage of aircraft and their inferior performance, the Imperial Air Force also suffered from a shortage of aircrew and faulty training schedules.⁶³ Reduction in course content and accelerated course completion schedules to meet the increased wartime requirements further exacerbated the situation, leading to higher losses and increased inefficiency.⁶⁴ While all the warring nations resorted to hasty and short-term training schedules to meet the front-line requirements of pilots and technical personnel, Russia's general backwardness in scientific matters limited the manpower reserves

⁵⁹ John Stroud, *The Red Air Force*, The Pilot Press, London, 1943, p. 9.

⁶⁰ Robert A. Kilmarx, p. 12.

⁶¹ *ibid.*, p. 13.

⁶² Captain T. Stariparloff, 'The Russian Military Air Service up to the Time of the Revolution', *Air Power (U.S.) IV*, December 1918, Washington, p. 339.

⁶³ *ibid.*

⁶⁴ David R. Jones, p. 22.

available to be tapped for any technically advanced positions. Consequently the severe losses that the Russian Air Force suffered could not be effectively covered up.⁶⁵

Senior Russian commanders, like in other countries, continued to be sceptical about the possible contribution of aviation to war fighting and were reluctant to accept its enormous potential. Russian air services achieved administrative autonomy during the war in the form of the Chief Directorate of the Military Aerial Fleet with Grand Duke Alexander in command. However, official apathy, demonstrated by the slow promotions and the lack of senior officers in the service (in mid-1916 the service had only one colonel, the rest of the officers being captains and lieutenants) contributed to lowering of morale.⁶⁶

The Grand Duke had very a clear vision of the potential of an air fleet and he engaged the General Staff in theoretical discussions to educate them regarding the potential of air power. Despite these efforts, Russian aviation continued firmly as a support element catering to the requirements of the land forces with the concept of an independent air force conclusively denied.⁶⁷

Therefore, it is not surprising that the overall combat performance of the Imperial Air Force during the First World War was clearly inferior to that of the flying corps of any other participating nation. The Russian Air Force could only conduct limited operations and 'air superiority', even temporarily on a localised scale, remained beyond its reach.⁶⁸ Even with the availability of the Sikorsky bomber, the high command did not utilise the offensive potential of air power because the IM had proved to be unreliable in its early versions. The Imperial Air Force formed dedicated fighter units for offensive aerial combat in 1916, and although their utilisation was minimal, this marked the beginning of the Russian fighter forces.

⁶⁵ *ibid.*

⁶⁶ *ibid.* p. 23.

⁶⁷ *ibid.* p. 24.

⁶⁸ *ibid.*

Although the number of fighter groups started to increase from 1916, growing in strength to four groups with 12 squadrons in May 1917, the program was cut short by the Bolshevik Revolution and came too late to be of any effective influence in the war.⁶⁹ The bomber production was more successful although once again the activity was fairly limited in its volume. Between February 1915 and October 1917, a squadron of bombers equipped with the Sikorsky IMs made more than 400 raids and dropped in excess of 2,000 bombs on enemy targets, while suffering only three losses to enemy action.⁷⁰ Surprisingly, despite this success and the Grand Duke's understanding of air power, the target selection, mainly trains, bridges and enemy troops, indicated the tactical nature of the operations.⁷¹

It has to be concluded that the Imperial Air Force never managed to match their enemy in terms of performance, production and appreciation of the enormous offensive potential of air power. Throughout the war the Germans retained complete control of the air, even though their air efforts were concentrated in the West.⁷² This was a direct result of the inadequacies in the Imperial Air Force rather than any demonstrated German superiority. The famous German ace Baron Manfred von Richthofen wrote about his experiences on the Russian front, "If a Russian flying man turns up, he is sure to have bad luck and will be shot down... Compared with flying in the West, flying in the East is absolutely a holiday."⁷³

By the time Russia pulled out of the war in 1917, two distinct factors that affect long-term air operations had emerged.⁷⁴ One was the peril inherent in the lack of industrial self-sufficiency, leading to an almost complete reliance on foreign imports and the second, the impact of inadequate technical depth and infrastructure on the effective maintenance of technologically advanced equipment. Although the revolution disrupted

⁶⁹ *ibid*, p. 25.

⁷⁰ Robert A. Kilmarx, p. 24.

⁷¹ *ibid*.

⁷² *ibid*, p. 21.

⁷³ Frieheer Manfred von Richthofen, *The Red Air Fighter*, The 'Aeroplane' and General Publishing Co., London, 1918, p. 70.

⁷⁴ David R. Jones, p. 25.

the operations of the Imperial Air Force in its direct participation in the First World War, the civil war that ensued further emphasised the above limitations.

The basic reason for the failure of the Imperial Air Force was the fact that under the Czarist regime, military aviation was developed without strong economic, political and cultural foundations.⁷⁵ A vigorous self-supporting aviation industry requires broad economic support that was not available in a situation wherein national resources were only partially exploited.⁷⁶ The level of aeronautical development is commensurate with the general level of industrialisation and technical progress in a nation, which was also woefully inadequate in Russia at that time.⁷⁷ Even before the actual revolution, political turmoil had become common and the general population had stopped identifying with the corrupt government. Socially the poor technical education system resulted in human resources that were unprepared for the intricacies of the aviation industry, becoming a major stumbling block in the development, production and operation of military aircraft in sufficient numbers.⁷⁸

3.4 IMPACT OF FIRST WORLD WAR ON AIR POWER

The First World War brought into focus the profound social, economic and military significance of the aeroplane. The war had a great effect on the development of the aeroplane and the aeroplane in its turn had a great impact on the conduct of warfare. In an indirect way, technology altered the basics of war fighting theory that had so far been formulated and accepted.⁷⁹ The optimisation of available aircraft to the identified roles of observation, reconnaissance⁸⁰ and aerial gunnery required design modifications and technological innovations. It was recognised that for military purposes the aircraft needed to have high acceleration and speed, high rate of climb and increased

⁷⁵ Robert A. Kilmarx, p. 31.

⁷⁶ *ibid.*

⁷⁷ Sanu Kainikara, *Russian Combat Aircraft: Design for Toughness*, Paper No 18, BDM Services, Ltd., Fairfax, VA, 1997, p. 3.

⁷⁸ Robert A. Kilmarx, p. 32.

⁷⁹ MJB Davy, p. 132

⁸⁰ There is a distinct difference between observation and reconnaissance; observation being passive and carried out by tethered balloons at the beginning of the war, predominantly operating from one's own air space and reconnaissance being more proactive with the aircraft operating in enemy airspace.

manoeuvrability.⁸¹ The military aircraft thus became a complicated and highly specialised machine. Since the developments were taking place under extreme constraints of time to meet emerging operational requirements, there was a discernable trend to ignore technical and economic efficiency. This trend has continued to dog the military aircraft industry.⁸²

Developments in the field of aero engine technology greatly improved the performance of the aircraft.⁸³ In 1914 the average maximum height attainable – the ‘ceiling’ – was only around 7,000 feet; by 1919 this had increased to 30,000 feet; similarly, the average speed had gone up from around 70-80 m.p.h in 1914 to 140-155 m.p.h by 1918; both made possible by improved engine design.⁸⁴ The fallout of this improved performance range was that skills required in piloting became complex, necessitating the implementation of formal training and improving flying standards considerably.⁸⁵

The creation of the first independent air force in 1918, the Royal Air Force in Britain, facilitated the crystallisation of offensive air power roles. This development was significant because it highlighted two crucial factors that had far reaching consequences to air warfare. First, the formation of a separate force was tacit agreement from the policy makers – army dominated and sometimes openly hostile to the idea of aerial warfare - that air power had a substantial role to play in the conduct of any future operations. Second, in the history of warfare the third dimension was included in the arena of actual combat for the first time and the role of aircraft in the overall scenario was defined.

The war demonstrated that even though the actual damage caused by aerial bombing of cities was not significant, the effect on the morale of the civilian population was disproportionately high and could not be ignored. This factor played a determining role in the development of further air strategy. Throughout the war air supremacy or control of

⁸¹ Sanu Kainikara, *Combat Performance Comparisons*, Paper No 5, BDM Services Ltd., Fairfax, VA, 1996, p.7.

⁸² Sanu Kainikara ‘Defence Aerospace Industry Makes Ground Slowly’, *Asia-Pacific Defence Reporter*, February 2002, Vol 28, No. 2, Asia Pacific Defence Publications Pty Ltd., Engadine, NSW, p. 37.

⁸³ MJB Davy, p. 136.

⁸⁴ *ibid.*

⁸⁵ Sanu Kainikara, *Combat Performance Comparisons*, pp. 8-11.

the air depended largely on superiority in numbers rather than on performance of the machines or the aircrew. It is true that at certain times during the conflict the balance was influenced by the better performance of the aircraft, but on the whole numbers carried the definitive edge. Although the war provided tremendous stimulus to technical development, this opportunity was not guided well enough to ensure proper direction of growth.⁸⁶ More importantly, sufficient and timely attention was not given to the logical growth of doctrine, which resulted in the creation of an abnormal background that at times proved to be a hindrance to true development.⁸⁷

War in the third dimension was a novel concept for the strategic thinkers of the day, most of who were schooled in a land-centric approach to warfare. Therefore, the concepts of air supremacy and strategic strike were not initially accepted within the broader theories of war fighting. The great strategic theorist, Carl von Clausewitz, had concluded that victory in war was assured by defeating the enemy's forces in the field.⁸⁸ Strategic strike capabilities of air power had effectively extended the battlefield to encompass the whole nation making it possible to wage 'total war' against an enemy. The higher aim of war which until then was the destruction of the armies and navies or forces in being itself underwent a subtle change to become the destruction of national will and capacity to wage war. The implications were not lost on any strategic thinking nation.

⁸⁶ Cecil Lewis, *Sagittarius Rising*, 2nd ed. Transworld Publishers Ltd., London, 1969, p. 112.

⁸⁷ *ibid.*

⁸⁸ Anatol Rapoport, (ed), pp. 130-134.

Chapter 4

SOVIET AIR POWER - 1917 TO 1930

4.1 THE BOLSHEVIK REVOLUTION

The Bolshevik propaganda which led to the disintegration of the combat capabilities of the Russian armed forces in early 1917, spread slower in the Imperial Air Force than in the land forces. Even then the effects this revolutionary change had on Russian aviation were profound and far-reaching, especially during the years immediately following the initial period of chaos.¹ Only about one-third of the pilots went over to the Reds, the others either joined anti-Bolshevik groups or sought asylum and employment in the West leading to an acute shortage of qualified fliers in the Red Air Force.²

The effects of the revolution on the aircraft industry were equally disastrous. Some of Russia's most outstanding scientists and aircraft designers were imprisoned and killed and a large majority managed to leave the country.³ The American aviation industry gained a great deal of technological expertise and experience from the contribution that Russian émigrés such as Sikorsky, Seversky, Gluhareff, Timoshenko, Toochokoff and a number of others made to aeronautics.⁴ During the course of the Revolution, many aviation factories were damaged or completely destroyed by workers who were either drafted into the revolutionary forces or went out on strike.⁵ The industry took considerable time to overcome the combined effect of the 'brain drain' and the physical destruction of the manufacturing facilities.⁶

After the success of the Bolshevik coup, a special committee was set up to organise the nucleus of an air arm. Although the development of the air arm was hindered at first by

¹ U.S. War Department, G-2 Report from Riga, Latvia, No. 3457, "*Organization and Condition of the Red Air Fleet of Soviet Russia*", Washington: April 9, 1923.

² *ibid.*

³ Robert A. Kilmarx, *A History of Soviet Air Power*, Faber and Faber, London, 1962, p. 27

⁴ *ibid.*

⁵ Asher Lee, *The Soviet Air Force*, Duckworth Pub Ltd., London, 1952, p. 72.

⁶ *ibid.*

the new regime wanting to stem the counterrevolution by the complete destruction of the Imperial military machine, the need to preserve technically trained personnel was recognised by the leaders of the revolution and hence a large cadre of the aviation arm were saved.⁷ Many of the political and military leaders of the new regime, including Lenin, were impressed with the potential value of air power as a military tool and also as a political and economic means for the consolidation and expansion of the Soviet system.⁸

On February 23, 1918 the Red Army⁹ was officially founded although it had already been functioning for nearly two months.¹⁰ From the beginning, the Soviet leadership understood that lessons must be learned and assimilated from the experience of other nations to hasten the development of air power. Lenin said, "We can only maintain ourselves in power by appropriating all the cultural and technical experience acquired by progressive capitalism and enlisting all its representatives in our service."¹¹ The civil war that followed the Revolution brought on unprecedented political, economic and military turmoil and it was only in late 1920 that any improvement could be planned in aviation.¹² The Red Army, however, managed to build up a force of around 350 airplanes and operated them on a limited scale through this period of extreme confusion.¹³

In early 1921 a special committee was established to work out plans for the long-term development of aviation research, production and education and to build the basics of military air power. The Zhukovski Air Academy and other flight training schools were opened and training reorganised.¹⁴ This program showed tangible results only after 1923-

⁷ Eric Wollenberg, *The Red Army*, Secker and Warburg Publishers, London, 1940, pp. 74-75.

⁸ *ibid.*

⁹ The air force was initially an integral part of the Red Army and did not merit a separate force structure or name. Throughout this chapter, when the term 'Red Army' is used, it is also meant to encompass the fledgling air force element.

¹⁰ White, Fedotoff, D., *The Growth of the Red Army*, Princeton: Princeton University Press, 1944, p.55.

¹¹ Eric Wollenberg, pp. 74-75.

¹² *ibid.*, p. 77.

¹³ David R. Jones, 'The Beginnings of Russian Air Power, 1907-1922', in Robin Higham & Jacob W. Kipp (eds), *Soviet Aviation and Air Power*, p. 27.

¹⁴ Ordin, Colonel A. G., *Lotnictwo ZSSR*, Warsaw: Prasa Wojskowa, 1950, pp 21-24.

24. During the civil war time constraints forced all effort be concentrated on refitting the existing aircraft and making them air worthy rather than the manufacture of new machines. The outcome of this policy was that by 1921, the fleet was completely run-down and badly needed replacement while the industry needed to be expanded and restructured.¹⁵ The same serious shortage was apparent in the non-availability of trained personnel, both pilots and technicians. Even after accepting ex-tsarist officers into the cadre, the force remained critically short of trained fliers.¹⁶

4.1.1 The Red Air Fleet During the Civil War

The Soviet leadership viewed military reorganisation as a basic requirement to defend the new regime against armed counterrevolutionary bands, rebellious nationalist forces, further German advances, invading Allied armies and other opposing forces.¹⁷ In July 1918, universal conscription was introduced and a field staff commanded by Trotsky took over control of all armed forces.¹⁸ 1918 was the nadir of Soviet power for the entire period of civil war and foreign intervention and in September the Revolutionary Military Committee of the Republic was established under the chairmanship of Trotsky.¹⁹

The Air Fleet was also reorganised to contain the civil war. The Revolutionary Military Committee (RMC) amalgamated the newly formed Field Administration of the Air Fleet within its span of control although the Air Fleet was not directly represented on the RMC for several more years.²⁰ The Field Administration exercised control of all air units and the commanding officers, most of whom had no military experience in command or technical expertise, were provided professional guidance by former Imperial Air Force pilots.²¹

¹⁵ *ibid.*

¹⁶ David R. Jones, p. 29.

¹⁷ Robert A. Kilmarx, pp. 38-39

¹⁸ *ibid.*, p. 39.

¹⁹ George F. Kennan, *The Decision to Intervene*, Princeton University Press, Princeton, NJ, 1958, p. 437.

²⁰ Colonel E. Chalik, 'Formation of First Soviet Air Force Units', *Vestnik Vozdushnogo Flota*, No 7, 1952, pp. 70-74.

²¹ U.S. Military Attaché, Warsaw, Report No. 635, December 6, 1920, Washington.

The basic tactical unit in the Red Air Force was the group, made up of two or more squadrons, with each squadron consisting of two flight elements for each ground-force division that it supported. The actual composition of the unit varied depending on aircraft availability and the designated role in terms of combat, reconnaissance or observation.²² Later, as the civil war progressed, two or three groups were further combined into divisions and subsequently several divisions operated under the control of a single headquarters for specific campaigns.²³ After the civil war, reorganised squadrons replaced the divisions and a number of other organisational changes were instituted, modelled on the German Army.²⁴

A separate supply and repair organisation dedicated to the Red Air Fleet evolved during the civil war with mobile railroad workshops undertaking more complicated repair work.²⁵ Aviation parks handled major repairs at the army level. The controlling authority for repair and supply remained with the Red Air Fleet till the Chief Administration for Aircraft Industry (Glavkoavia) was created as an integral part of the Supreme Council of National Economy.²⁶

The total number of aircraft in units of the Red Air Fleet increased from about 140 in July 1918, to 350 by the end of 1920 when the Civil War ended in western Russia and to 400 by October 1922, when the Japanese forces left Vladivostok.²⁷ The approximate strength of aircraft in the fleet can be estimated from the number of operational squadrons, each with an average strength of six aircraft, estimated by different sources to number between 53 and 60 in 1919 increasing to 65 squadrons at the end of 1922.²⁸ It was also normal for the Soviets to form units at less than their assigned strength and to fill the deficiencies as

²² Colonel B. Simakov, 'Soviet Air Force in the Years of Foreign Intervention and Civil War', *Vestnik Vozdushnogo Flota*, No 7, 1952, pp. 75-85.

²³ *ibid.*

²⁴ Colonel A. Aleksandrove & Colonel A. Stepanov, 'National Fighter Aviation', *Vestnik Vozdushnogo Flota*, No 2, February 1954, pp. 65-75.

²⁵ *ibid.*

²⁶ Robert A. Kilmarx, p. 41-42.

²⁷ *Ibid.*, p. 43.

²⁸ Colonel AG Ordin, pp. 15-16.

more aircraft were procured, a system that was continued after the Red Air Fleet became known as the Red Air Force and throughout the Second World War.²⁹

4.2 LESSONS FROM COMBAT OPERATIONS - 1917-1923

The Red Air Fleet supported the army units during all major campaigns during the Civil War but their involvement was on a small scale and their contribution to the success of the Soviet cause was insignificant in comparison to those made by the ground forces.³⁰ The victory of the combined Red armed forces, however, was more political and socio-economic than military. Air power employed in support of the interventionist policy of the West was inadequate to an extent where it was even weaker than the poor response that the Red Air Fleet could muster.³¹ Even though the air force was not very effective, the Soviet regime came to appreciate the potentialities of air power because of the combat experience gained in the Civil War.³²

During this conflict aircraft were employed against the Germans and Romanians, the Czech troops along the Trans-Siberian railroad, the White Finns, against Moslem, Ukrainian and other rebelling nationalist and political groups.³³ They were also employed against Allied forces, particularly those of the United States and Great Britain and their White Russian allies in the Archangel area, the British in the Transcaucasus and Transcaspia, the French in the Ukraine, in the Crimea and along the Black Sea, the Sea of Azov and the Caspian Sea.³⁴ Official figures for the period 1917-1922 maintain that 19,377 sorties were flown, totalling some 27,566 hours in the air and that 94,508

²⁹ The formation of new units without adequate equipment for it to be operationally effective gives an inflated sense of the size of the force as a whole, because there is no way to ascertain the actual aircraft holding within a unit. It is indeed possible to over estimate total aircraft strength by as much as 30-35% in such calculations. This problem of estimating the actual strength was particularly noticeable in the accounts of World War II when comparing strength of opposing forces.

³⁰ Robert A. Kilmarx, p. 48.

³¹ David R. Jones, p. 30.

³² *ibid.*

³³ Robert A. Kilmarx, p. 48.

³⁴ *Ibid*, p. 48-49.

kilograms of bombs were dropped. Aircraft were also used to disseminate propaganda and 9,000 kg of leaflets were also dropped during the same period.³⁵

As a result of these campaigns fought at different levels of intensity and involvement, the military aviation leaders gained considerable knowledge of air doctrine and tactics, command and organisation as well as training and equipment needs, leading to a new perspective, which guided Soviet military aviation development for the next decade.³⁶

Since there was limited air opposition, very little air-to-air combat took place and the emphasis was heavily biased towards reconnaissance and ground attack in support of land forces.³⁷ Further the ground operations were scattered and not entrenched, which necessitated a great deal of importance to be placed on liaison between the two elements.³⁸ The scarcity of air assets resulted in widespread and frequent transfer of aircraft from one front to the other, resulting in the force obtaining extremely diversified operating experiences in terms of climate and terrain. However, these circumstances also posed special problems of maintenance, logistics and operations.³⁹ The fledgling Red Air Fleet was being put through a consolidated baptism of fire.

The organisation of the Red Air Fleet was heavily biased towards German organisational procedures and guidance.⁴⁰ But operational experience gained during these campaigns demonstrated the value of subordinating some air units directly to ground formations and led to the formation of the Corps of Aviation between 1923-26.⁴¹ The importance of centralised control of tactical direction of large numbers of aircraft in support of ground operations, to ensure optimal utilisation of scarce resources and concentration of forces in the most critical sectors, was also understood by the senior commanders.⁴² As a result the

³⁵ David R. Jones, p. 29.

³⁶ 'Aviation in Russia', *Aviation and Aircraft Journal*, London, July 18, 1920, p.76.

³⁷ *ibid.*

³⁸ U.S. Military Attaché, Report No 635, December, 1920, Washington.

³⁹ 'Red Aviation in the Civil War', *Aviation and Chemistry*, No 2, London, 1931.

⁴⁰ Robin Higham, 'Introduction', in Robin Higham & Jacob W. Kipp, (eds) *Soviet Aviation and Air Power: A Historical View*, Brassey's Publishers Ltd, London", p. 2.

⁴¹ 'Red Aviation in the Civil War', *Aviation and Chemistry*, No 2, London, 1931.

⁴² *ibid.*

air force remained strongly under the control of land force commanders. They also saw the desirability of joint operations, including the Navy, under a single command.

From this time on, the Soviet air force remained firmly committed to developing effective ground-attack capabilities. Although the strategic potential originally demonstrated by the bombers were never realised, the Soviets clearly saw the advantages of the strategic use of tactical aviation. The rapid concentration of firepower afforded by air power and the employment of reserves at the crucial juncture of a battle became a hallmark of Soviet doctrine.⁴³ Battlefield air support rather than strategic bombing was the main thrust of development.⁴⁴

The Communist ideology of semiautonomous land force detachments operating in isolation permeated to the Air Fleet and continued to be advocated to the detriment of air power efficacy.⁴⁵ This dichotomy between basic doctrine and practical application was to continue throughout the Soviet era. The Communist military 'science' developed a different view regarding the doctrinal concepts of air power and even when tempered with operational experience tended to adjust them to aggressive local political objectives. The organisation of the Red Air Fleet was determined on political imperatives rather than on sound air power doctrine.

4.3 GERMAN INFLUENCE

The Russian aviation industry had never been able to meet the requirements of the military and this lack of production capacity became even more acute at the end of the First World War when the demand for aircraft increased dramatically. It was proposed to make good the shortfall in numbers by purchases from abroad, mainly from Holland, Italy and even a few British fighters.⁴⁶ Even though these purchases were deemed necessary, they were a great drain on the meagre financial resources available to the

⁴³ Robin Higham, pp. 3-4.

⁴⁴ David R. Jones, p. 30.

⁴⁵ *ibid.*

⁴⁶ Alexander Boyd, *"The Soviet Air Force since 1918"*, London: Macdonald and Jane's Publishers Ltd., 1977, p. 9.

Soviets. There was also the need for Soviet designers to gain experience in all-metal construction and in this sphere Soviet Russia and Germany, both European outcasts at the end of the war, were drawn together.⁴⁷ The initial German aid to the Bolsheviks in 1917 did not include any assistance in aviation, funds were provided to the Bolsheviks for the purchase of arms and their delivery to the Finno-Swedish border.⁴⁸ In April 1919, Germany agreed to provide the Russian Soviet Republic with war materials and deputed 15 general staff and 26 aviation officers for service with the Red Army.⁴⁹

The Soviet-German Trade Agreement was signed in May 1921, and soon after both the governments ratified an agreement for the manufacture of Junkers aircraft at Fili, near Moscow, by Russian labour supervised by German engineers.⁵⁰ This Soviet-German military aviation collaboration from the end of the First World War to 1935 is one of the strangest developments in the history of the Soviet air forces.⁵¹ By 1922, the policy of collaboration with Russia was viewed by the German *Reichswehr* (Imperial Army) as a political and military necessity to counter the terms of the Treaty of Versailles.⁵² Germany established a 'base' in Russia for the development of German military power, primarily in artillery, aviation and mechanised warfare. This collusion between the Red Army and the German *Reichswehr* was a well-guarded secret and the other nations of Western Europe did not then grasp its scope or military and political significance.⁵³

The setting up of the Junkers factory was the most significant contribution Germany made to Soviet aviation industry. In order to circumvent provisions of the Treaty of Versailles, more than 400 German engineers were sent to the Soviet Union and were followed by representatives from all the aviation companies.⁵⁴ The successful development of Soviet aviation would not have been possible without the direct

⁴⁷ *ibid*, pp. 9-10.

⁴⁸ Stefan T. Possony, *A Century of Conflict*, Henry Regnery Co., Chicago, 1953, p. 51.

⁴⁹ Leonard Schapiro, (ed), *Soviet Treaty Series, 1917-1928*, The Georgetown University Press, Washington D.C., 1950, p. 381-382.

⁵⁰ Stefan Possony, p. 53.

⁵¹ Robert A. Kilmarx, p. 68.

⁵² *ibid*.

⁵³ Ruth Fischer, *Stalin and German Communism*, Harvard University Press, Cambridge, Mass, 1948, p. 265.

⁵⁴ Robert A. Kilmarx, p. 73.

involvement of Germany.⁵⁵ Help was also received from other western nations like United States, Italy and Holland.⁵⁶ Combined with the concerted effort by a constantly air-minded government this paved the way for the growth of military aviation industry in the country.

4.4 THE RED AIR FORCE - 1924-1930

4.4.1 Impact of the New Economic Policy

The dominant feature of Russian socio-economic polity in the aftermath of the Civil War was the establishment of the New Economic Policy or NEP. During the NEP period the Soviet Union reorganised the armed forces from the highest headquarters to the lowest unit level.⁵⁷ The political leadership was locked in a leadership power struggle following the death of Lenin and therefore progress was slow and uncertain. It was only in the late 1920s, after consolidating his power base that Stalin began to devote more attention to aviation.⁵⁸

The reorganisation started by Trotsky was carried forward by Frunze who was a great advocate of offensive, manoeuvre warfare.⁵⁹ As a result of programs that emphasised offensive tactical doctrine, the Red Air Force (formerly Red Air Fleet) acquired greater power and influence.⁶⁰ The guiding principles of Soviet air power were completely influenced by a nascent doctrine of war that relied heavily on certain peculiarities of Russian military history as well as on conventional military precepts. Political sophistry combined with revolutionary ideology and dogma made command and control function

⁵⁵ Even though the Soviet aviation industry benefited from this involvement, the German assistance was purely one of self-interest. In order to continue developments in their own industrial base, and yet not breach the provisions of the Treaty of Versailles, it was convenient for the German Government to send their engineers and manufacturing technicians to the Soviet Union to gain experience. If this was not the case it is highly unlikely that the Germans would have assisted the nascent Soviet industry to the level that it did.

⁵⁶ Robert A. Kilmarx, pp. 73-74.

⁵⁷ Michael Berchin, & Eliahu Ben-Horin, *The Red Army*, W. W. Norton and Co., New York, 1942, p. 49.

⁵⁸ *ibid.*

⁵⁹ *ibid.*, pp. 53-59.

⁶⁰ Robert A. Kilmarx, p. 77.

in the Soviet military forces almost completely inflexible.⁶¹ Doctrinal disputes that were raging around the world regarding the role of air power also found its way into the Red Air Force and interfered with changes that were dictated by technological progress, thereby negating any chance to the fledgling service to profit from the lengthy combat experience.⁶²

The highest Air Force headquarters was the Chief Directorate of the Air Force of the Red Army, which formed part of the Commissariat of Military and Naval Affairs. This department had administrative, training and technical control over both land and sea air forces, but very limited tactical control.⁶³ The Red Army military district commander who had operational command over the unit exercised tactical control of the air units.⁶⁴ Tactical command was at times delegated to subordinate army formations, while an Air Force commander and staff were attached to each military district headquarters in an advisory capacity. As a result of this dilution in the command structure, military aviation played only a minor role in the overall offensive strategy that was being devised for the newly reorganised Red Army. The increased importance of the land forces relegated air power to an adjunct to ground operations.⁶⁵

The Red Air Force field units were continuously reorganised during the NEP period.⁶⁶ It was only after 1928 that the organisation of the squadron stabilised to become the principal tactical formation of the Red Air Force. Even then the strength of each squadron varied, dependent on a number of factors, from 18 to as many as 33 aircraft.⁶⁷ Over a period of time the squadrons were formed into brigades, which were then placed under the military district headquarters. By early 1930s no individual squadron was under direct control of the military district commander.⁶⁸ Efforts were also made to achieve greater

⁶¹ *ibid.*

⁶² *ibid.*, pp. 77-78.

⁶³ D Fedotoff White, *The Growth of the Red Army*, Princeton University Press, Princeton, 1944, p. 286.

⁶⁴ *ibid.*

⁶⁵ Neil M Heyman, "NEP and the Industrialization to 1928", in Robin Higham, & Jacob Kipp (eds), *Soviet Aviation and Air Power: A Historical View*, Brassey's Publishers Ltd, London, p. 41.

⁶⁶ *ibid.*

⁶⁷ 'Wings for the Russian Bear', *The Literary Digest*, CXIV, No 9, August 27, 1932, p. 30.

⁶⁸ Robert A. Kilmarx, p. 82-83.

unit mobility by centralising major repair work and allowing operational units to become lighter.

Although the air force was being modernised in terms of organisation, equipment and training, the primary doctrine remained one of massive air strikes close to the battle lines in support of the land offensive.⁶⁹ The theories of doctrinal pioneers like Giulio Douhet about the decisive importance of long-range air power capable of strategic bombing was not considered by the Soviet higher command of policy makers.⁷⁰ German influence only confirmed the Soviet disinclination to seriously consider strategic bombing since the Luftwaffe of the 1920s did not regard the merits of strategic bombing as a war-winning factor even though the heavy-bomber raids of 1917 on England was a demonstrative indicator of the effectiveness of strategic air power.⁷¹

The Red Air Force was used in limited operations against minor rebellions within Soviet borders during this period although the country was ostensibly at peace. The area of most active resistance was the mountainous region of Uzbekistan and Tajikistan where operations were prolonged until 1932.⁷² Air units were also used against Chinese and Japanese forces along the Manchurian border.⁷³ Even though these were isolated incidents, the effectiveness of air power was amply demonstrated and the Red Air Force gained valuable experience from them.

The Soviet Communists directed a great deal of propaganda as well as direct and indirect warfare, mainly against the countries of Asia, to spread the 'revolution'. However, they also attached great importance to political and commercial recognition and ties with the West, directing its politico-military agitation towards China, India, Turkey, Mongolia, Afghanistan and Java. In this program, aimed at undermining Western colonial interests, air power was used extensively to bring these countries closer to the Soviet ideology. The

⁶⁹ Neil M. Heyman, p. 40.

⁷⁰ *ibid.*, p. 41.

⁷¹ *ibid.*, p.42.

⁷² Alexander G. Park, *Bolshevism in Turkestan 1917-1927*, Columbia University Press, New York, 1957, p. 54.

⁷³ *ibid.*

Red Air Force not only organised the transportation of military aid, it also assisted in the formation and organisation of air forces of newly independent nations by constructing airfields, training pilots and technicians and 'donating' aircraft and aeronautical equipment.⁷⁴

Efforts were made to advance the Communist cause in China, without much success initially, and Mongolia was brought under Soviet influence with an aviation school established with Soviet aircraft and instructors. In 1923 The Soviets helped establish an air force in Afghanistan by supplying aircraft, airfield construction equipment, aircraft and establishing civil air services between Kabul and Tashkent.⁷⁵ Efforts to influence Persia and Turkey were not entirely successful and were opposed by the West both on commercial and ideological grounds.⁷⁶ The immediate gains from the efforts to spread Soviet influence and control in Asia were limited. However, the Russians learned the effectiveness of air power as an effective tool to spread political, economic and psychological influence, which was to prove to be of great value in later years.⁷⁷

From almost becoming extinct in the wake of the Bolshevik Revolution and the Civil War that followed, *Jane's All the World's Aircraft* for 1927 credited the Red Air Force with 987 aircraft and 1,210 flying personnel. Further dramatic increases were to occur in the size and status of the Red Air Force in the lead up to the Second World War. Aviation did not play a significant role in the Soviet military and industrial development that followed the Civil War, but it was well positioned to benefit from the massive industrialisation that the Soviet Union embarked on almost immediately.⁷⁸

⁷⁴ Robert A. Kilmarx, p. 98.

⁷⁵ George Marvin, 'Red Skies, Horizons of Soviet Aspirations', *Asia* XXVII, No. 57, January 1927.

⁷⁶ *ibid.*

⁷⁷ Robert A. Kilmarx, p. 101.

⁷⁸ Neil M. Heyman, p. 46.

Chapter 5

RUSSIAN SECURITY PERCEPTIONS

5.1 PERVASIVE FACTORS

Throughout history successive waves of peoples have moved in search of better living environment and more congenial climate where availability of fertile soil and good water favoured settled life. These movements took place all over the world. In many cases the immigrants managed to eliminate the native population by a variety of means and consigned them to irrelevancy as in the Americas and Australia, while in others the indigenous population and civilisation prevailed and absorbed the invaders like in the case of the Indian subcontinent. The clash of civilisations theory espoused by Professor Samuel Huntington has always existed in history. The well-chronicled conflict between Islam and Christianity in the middle ages, the subliminal European expression of the Yellow Peril, the colonial conquests of the Europeans that almost wiped out the Aztecs, Incas, Mayans and Maoris and the impact of decolonisation we are witnessing in the African continent are all conflicts of civilisations.¹ Instances of synthesis between two civilisations in conflict are few and therefore cannot be considered the normal pattern. Such historical perspectives combine with geographical realities, political ideologies and economic imperatives to form national security perceptions

Security, stability and development are symbiotically related and have to be addressed in a holistic manner to ensure a viable environment for progress.² International relationships have different connotations to different nations dependent on a number of factors that affect the daily life of ordinary citizens. These in turn impinge on the security perceptions of the nations.³ There are three major factors to be considered in such an analysis - size of the nation, foreign policy and the perception of the probability of war.

¹ K. Subrahmanyam. in his 'Introduction' to Jaswant Singh, *Defending India*, Macmillan India Ltd., Chennai, India, 1999, p.xix.

² Sanu Kainikara, *Diminishing Relevance: Emergent Air Forces at the Cross Roads*, Aerospace Centre, Canberra, Paper No 10, pp. 3-4.

³ *ibid.*

The size of the nation impinges on the daily life and commerce of a nation. A citizen in a country like Hungary would have to deal with passports, visas, currency exchange etc (before the common Euro was adopted) if he had to drive more than a few hours in any direction, whereas a citizen of a large country like the USA, Australia or the erstwhile Soviet Union could even fly for a number of hours and not cross an international border. The alignment and formulation of foreign policy would be indicative of the internal compulsions of the nation. Nations with aggressive and expansionist foreign policies, those that are highly insecure and those that pursue dominant international roles in trade and commerce would all have national security interests that would be more proactive to external changes, whereas nations that are stable and more inward looking will tend to be less affected by international changes. The perception of the probability of war will be a driving factor in security perceptions. A widespread belief that in the developed world high intensity inter-state wars deploying regular armed forces in a conventional sense have a very low probability of happening could bring on a certain amount of complacency regarding the intricate but essential details of national security. These perspectives do not take into account the nature of emerging threats to national security in terms of covert action by terrorists against national infrastructure who exploit the social and economic openness inherent in a truly democratic state.

Recorded history of the human race is replete with incidence of distrust between nation states, of the pursuit of its own goals by every nation tempered only by considerations of expediency and cold calculations of probable gains, of efforts to secure alliances with complete disregard of moralistic correctness to advance self-interest. Today we observe the same situation and the continued maintenance of intelligence gathering apparatus by all nations that transcends history and time in terms of national security perceptions. It is difficult to see how the basic facts leading to rivalry and the struggle for supremacy between nations can be neutralised and militant nationalism rendered superfluous until some sort of a one-world government or an effective supra-national authority is established.⁴ But until that happens, national security imperatives will guide all actions of

⁴ R. P. Kangle, *The Kautilya Arthashastra*, Part III, A Study, Bombay University Press, Bombay, 1965, p. 283.

a sovereign state. The Soviet Union while pursuing a different ideological goal was also influenced by the same factors in the formulation of its national security paradigms.⁵

In the larger pursuit of national security perceptions, nations have always been willing to go to war. But the nature of war itself to a large extent is governed by how man conceives it and like all man-made phenomena is influenced by the perceptions that are prevalent in the society and nation. Clausewitz viewed war as a rational instrument of national policy.⁶ This means that all wars ought to be national, in the sense that its primary objective should be the furtherance of the interests of the nation state. Once again the overriding factor that would define the interests of a sovereign state is its perceived security needs, which in turn is a reflection of the national ideology, ethos and perceptions.

The history of warfare has clearly demonstrated that while technological superiority provides an edge in the battlefield, this advantage is purely transitory. In any long drawn conflict, the deciding factor will not be superiority of technology but the pitting of one military philosophy against the other.⁷ Recent history has demonstrated that while technology can influence military doctrine and strategy, it alone cannot win a war and is not the panacea to deliver victory.⁸ There exists a non-material qualitative dimension to war that needs to be studied at higher levels as an art and in terms of abstract qualities of leadership in which the 'institution' is paramount.⁹ Neither can war be reduced to simple formulas, nor can the infinite and complex problems that it generates be analysed and solved by modern computer technology.¹⁰ Therefore, a study of the warfighting capabilities of any armed force would have to delve not only into the factors that affect

⁵ Sanu Kainikara, *Russian Employment of Air Power*, Paper No 33, BDM Services Ltd, Fairfax, VA, 1998, p.3.

⁶ Anatol Rapoport, *Clausewitz On War*, Penguin Books Ltd., Harmondsworth, England, 1968, p. 13.

⁷ John Warry, *Warfare in the Classical World*, Salamander Books, London, 1998, p.7

⁸ Sanu Kainikara, *Technology, Air Power and Doctrine*, Paper No 7, BDM Services Ltd, Fairfax, VA, 1996, p. 6.

⁹ *ibid.*

¹⁰ Michael I. Handel (ed), *Clausewitz and Modern Strategy*, Frank Cass and Company Ltd., London, 1986, p. 9.

technological developments in a nation but also to the conditions that shape the ideas and doctrine of the force itself. In order to appreciate the perspectives and prejudices that have long-term implications to the development of a military force, it is necessary to analyse and understand the attitudes and influences that affect the population of a nation as a whole and the soldier in particular.

5.2 IMPACT OF GEOGRAPHY ON SOVIET MILITARY DEVELOPMENT

Security perceptions are moulded by a number of factors, but amongst the most basic factors that impinge on all aspects of security paradigms and determine a nation's concepts of war, probably the single most important one is its geography. Before its break up the USSR was the world's largest country¹¹ and the most significant geographical factors were its global location and extremes of climate. Within the Soviet Union three geographical factors had direct impact on the development of security and military perceptions and continue to do so even today.¹² First, the nation is land-locked and its few seaports remain frozen for much of the year. This has been the state of affairs for centuries – from the state of Muscovy, to the Russian Empire and the Soviet Union. Second, the only warm water ports are in the extreme North and Far East –the Kola and Kamchatka peninsulas, and this has a strategic impact on naval, naval air and amphibious operations. Third, the mountain ranges and deserts of the south and the extensive marshlands in the west formed natural barriers that isolated the country from the rest of the world for much of its history. Because of the above reasons the country remained largely isolated, a situation exacerbated by the severe and extreme climate and long distances for communications because of the large area of the country.

¹¹ Although the erstwhile USSR has now become a number of smaller and less potent states, they still form a kind of loose federation called Confederation of Independent States (CIS), with (at least on paper) defence and foreign policy tie ups. The doctrine and strategy of the defence forces in all the newly independent states are directly derived from the Soviet defence forces and therefore the factors that affected the Soviet military for more than 75 years form the basis for the understanding of the new forces. In this dissertation the term 'Soviet' and 'Russia' are used to indicate the country in its entirety rather than only one part. Since Russia carries forward the legacy of the Soviet Armed Forces, in later parts of the dissertation, the current Russian military forces will be analysed to provide a balanced insight into the recent developments.

¹² Christopher Donnelly, *Red Banner, The Soviet Military System in Peace and War*, Jane's Information Group, Coulsdon, England, 1988, p. 17.

5.2.1 Size, Location and Climate.

The size, location and climate have traditionally hindered free travel within the country and an inward looking political system that discouraged foreigners from extended visits contributed for centuries to a profound ignorance in the Western world about Russia and amongst the Russians about the West.¹³ The harsh climate and the sheer size of the nation have been significant factors in the defeat of invading armies for many centuries – the most obvious and recent examples being Napoleon in 1812 and Hitler in 1943. Even today the same factors deny possible success to any conventional attack, provided Russia maintains a reasonable defensive force.¹⁴ Distances are such that in the event of an invasion sufficient time would be available for the mobilisation of reserves before the attacking force can overrun any strategic objective. This makes the Russian military place a great deal of emphasis and reliance on well-trained reserves.¹⁵

The large size also acts as a facilitator in the deployment of nuclear weapons and would lessen the possible impact of nuclear strikes to some extent. The Soviet military therefore stressed the vulnerability of small nations to both conventional and nuclear attacks in its appreciation of the strategic situation in its area of immediate interest. In the case of the Soviet military, strategic geography had an immense impact on both the Navy and the Air Force. By virtue of the geographic location of the ports, the naval forces were divided into four separate fleets that could not be mutually supportive, leading to a wasteful duplication of assets and disproportionate expenditure of resources. The contribution of the Soviet navy to furthering national war aims in any theatre of operation was therefore minimal.¹⁶

¹³ *ibid.*

¹⁴ *ibid.*, p. 18.

¹⁵ *ibid.*

¹⁶ This changed somewhat during the Cold War era when the Soviet Navy deployed nuclear submarines and they acted as a second-strike capability in case of nuclear attack on the mainland. Their importance, however, was degraded by geography, because the country was vast enough to absorb an initial nuclear strike and still be in a position to retaliate with land-based nuclear missiles, which were well dispersed to ensure that all of them would not be destroyed simultaneously. The Strategic Arms Limitation Treaty (SALT) that attempted to restrict the number of nuclear missiles that could be deployed at any given time also diluted the usefulness of the Soviet Navy as a second-strike option.

The basic structure of air defence in the Soviet Union was different from traditional Western concepts because of the vastness of the area to be defended. The resources required to adequately cover the entire area is so large, that the Soviet Air Force was forced to compromise by investing in large numbers of low cost aircraft of limited capability.¹⁷ While a cost-effective option, this had detrimental effects on pilot training and capability and constrained the versatility and flexibility of air power. A further problem, compounded by the vastness of the land was the discontinuous radar coverage that led to the formation of separate air defence areas with autonomous control.

5.2.2 Terrain

The extreme flatness of the heartland with no significant features¹⁸ has moulded Russian Army's tactical appreciation of the battlefield. In order to mask movement in such a terrain they are heavily dependent on camouflage, concealment, smoke etc., a concept termed '*maskirovka*'.¹⁹ The concepts of manoeuvre and scale of operations are developed taking this into consideration. In addition the marshland north of Kiev exerted a strong influence on the design of armoured vehicles. The Soviet weapons were designed to reduce the ground pressure to the minimum with more than normal cross-country mobility. Military aircraft were also built within the same design parameters to ensure that airfield construction in these areas was not made unduly complicated and costly.

The same attributes of terrain also forced the development of non-military transport and lines of communication in a different manner. Road networks, the primary characteristic of the communication system of modern Western countries, were not as developed because of the low population density and vagaries of weather. Rivers and canals carry the equivalent amount of trade goods as the roads and the bulk of goods and passenger

¹⁷ Sanu Kainikara, *Russian Employment of Air Power*, p. 9.

¹⁸ Christopher Donnelly, p.20.

¹⁹ *ibid*, p.21.

traffic is undertaken by the railroads. As a consequence the USSR had the world's largest rail network.

5.2.3 Population

In comparison to the Western countries, Russian population was large, (five times that of the UK, almost a third bigger than the United States), but given the size of the country, the overall population density was very low and the distribution is unbalanced.²⁰ The differences in the attitude of the population can be analysed according to different criterion, but the most vivid economic distinction forming the basis for distinctly different attitudes, was the difference in living standards in the urban city areas and the rural countryside.²¹

Until the beginning of the Second World War, only about 15 per cent of the total population lived in towns, the rest living in extreme rural backwardness, a condition exacerbated by the poor communications network, harsh climate and oppressive political system.²² Urbanisation that took a painful 200 years or more in the Western world was sought to be achieved within a decade during Stalin's forced industrialisation and resettlement program. Rather than the countryside being urbanised in a gradual manner, this had the effect of bringing the rural attitudes and values to the urban centres in equal if not greater measure.²³ This influence of the under educated rural population was further strengthened by the decline in the number of the urban educated class immediately following the Revolution and during Stalin's purges in the 1930s. This national, historical, cultural and environmental conditioning gave the Russian citizen completely different attitudes and values from his Western counterpart. The Russian citizen and therefore the Russian soldier, thought differently from the Western soldier, had vastly different values and so brought a different set of ideas, doctrinal concepts and strategic development to the waging of war.

²⁰ *ibid.*

²¹ *ibid.*, p. 22.

²² *ibid.*

²³ *ibid.*, p.23.

5.2.4 Effect on Military Development

The geo-strategic, climatic and geographic factors briefly enumerated above affected the organisation and functioning of the Soviet military system as a whole and was instrumental in forming the basic attitudes of the common soldier. The more tangible effects are discussed below.

The extremes of weather that prevail on most of the area mean that the Russian military is able to operate efficiently in harsh climatic conditions. The weapon designers catered to the harsh operating conditions and consequently, the Russian military equipment has always been tough, versatile and easy to maintain.²⁴ Russian winter warfare techniques were also highly developed. Next, the absence of features on the land hindered realistic hilly terrain land warfare training and therefore expertise in this kind of operation was lacking.²⁵ The corollary was that no other military force could match the Soviet technique of warfare in marshland and boggy ground.²⁶ The Soviet armoured fighting vehicles were also designed for use in such terrain and had a very low profile in silhouette and logistic support vehicles had more than normal cross-country capabilities.

The vastness of the land limited the infrastructure available for rapid operational deployment of combat aircraft and they were therefore, designed to ensure operability from short, rough, semi-prepared landing strips. Over a period of time this requirement has provided Russian combat aircraft with an inborn sturdiness.²⁷ Because of the poor state of the road network, the military logistic support vehicles had more than normal cross-country capabilities. The civilian road transport system was also geared for cross-country operations and the vehicles were identical to the military logistic vehicles, which

²⁴ Sanu Kainikara, *Russian Combat Aircraft: Design for Toughness*, Paper No. 18, BDM Services Ltd., Fairfax, VA, 1997, p. 8.

²⁵ Christopher Donnelly, p. 27.

²⁶ *ibid.*

²⁷ Sanu Kainikara, *Russian Combat Aircraft: Design for Toughness*, p. 10.

facilitated the formation of a large pool of transport infrastructure, both in equipment and manpower, available for mobilisation at short notice.

The lack of adequate land transportation resources made the civil air fleet an essential component for the strategic movement of troops and military logistics in large deployments.²⁸ The national civil air carrier was organised and structured to facilitate rapid mobilisation. In fact the Army and the Air Force did not by themselves possess the airlift capabilities required to support the entire airborne (parachute) or assault (helicopter-borne) troops and were reliant on civil assets. Large distances within the country and long borders made the concentration on long-range operation a natural phenomenon for the Soviet military. But the lack of technical and logistical support in the far-flung villages made it imperative for the deployed troops to be self-sufficient in all infrastructure requirements of modern war. Logistic short-range transport and common engineering support equipment formed integral part of manoeuvring troops from their initial deployment.²⁹

Traditionally a farming community of poor peasants, tied to their land by a number of factors, not the least being the centuries old repressive political system, the Russian attitude to all aspects of life was heavily influenced by the climate. The progress of the seasons has moulded and produced a mentality that supports long periods of idleness followed by short-term feverish activity, corresponding to long harsh winters followed by a short window of spring when all agricultural work must be completed.³⁰ This attitude could also be studied in the production factories, where the cycle of near idleness and full-scale production was a noticeable monthly cycle. The same cycle of extreme activity and relative calm is clearly discernable in a careful analysis of Soviet operations during the Second World War after the Red Army seized the initiative in early 1943.³¹

²⁸ Christopher Donnelly, p. 27

²⁹ *ibid*, p. 28.

³⁰ *ibid*, p. 30.

³¹ *ibid*.

Once again because of the climatic conditions that encouraged and enforced long periods of desultory activity that showed no visible and immediate results, the perspective of time for a Russian soldier was greatly different from that of his Western counterpart. The Russians tended to have a long-term view of things, especially in matters of considered importance. This long-term perspective was very evident in national strategy and planning and this innate ability to grasp the 'big picture' instinctively had great influence on military planning, procurement policies and operational strategy of the Russian military.³²

5.3 THE HISTORICAL ROOTS OF SOVIET MILITARY TRADITION

In the late 19th century Russia was considered Britain's most formidable enemy with Afghanistan the area of overlapping interest and therefore the most likely point of conflict. In 1888, Maj Gen Sir Fredrick Maurice wrote in *The Balance of Military Power in Europe*:

My purpose has been to show that Russia, from the enormous masses of her population, and from the extent to which she devotes all her resources to preparation for war, must always be a great military power, but that she has not gained, but lost very heavily indeed, by the changed conditions of modern warfare. That, till she has again to fight with a Great Power, it will be impossible to estimate her military strength. But that the weaknesses she showed in the Turkish War were due, not merely to temporary defects, but to conditions inherent in the nature of her people and her government.³³

5.3.1 Early History

Russia as an entity can be traced to the 9th century when Norse rulers from Scandinavia established Novgorod in the north and Kiev in the south as strongholds to defend the newly united areas from attacks by the nomadic steppe tribes. By 12th century, Moscow had become the strategic centre in the middle but feuding princes had destroyed the earlier tenuous unity weakening the defences and subjecting Russia to a number of

³² *ibid*, p.31.

³³ Quoted in Colonel F. Maurice (ed), *Sir Fredrick Maurice: A Record and Essays*, London, 1913.

invasions.³⁴ Between the years 1055 and 1462 AD when Russia was in its nascent formative state she was attacked 245 times.³⁵ These successive invasions impacted on the national psyche in a manner that cannot be easily understood and the Russia of today still retain some vestiges of the paranoia about being invaded.

The most important conquest was those of the Mongols who first attacked in 1223 and completely overran the country by 1242 establishing their headquarters at Sarai (near the present Volgograd) after destroying Kiev. They imposed an autocratic Asiatic rule for the next two and a half centuries, dominating political and economic life over almost the entire Eastern Europe.³⁶ The Mongols ruled indirectly, by reserving the right to confirm or appoint Russian noblemen as local governors and princes. They also controlled the trade and economy by levying taxes on all movement of goods and livestock. The financial control they exercised can be appreciated by the fact that modern Russian language still uses words of Tartar origin to express such ideas as 'goods', 'money', 'toll', 'exchequer' etc.³⁷ This period of Mongol domination was an unmitigated disaster for Russia. In imposing an indirect rule the Mongols effectively fragmented the nation's political unity while at the same time not ensuring the defence of the country because of its vast size.³⁸ The local princes therefore learned a precious lesson – that only a ruler with a strong and capable armed force could guarantee his people's survival. The loss of access to the seaports effectively isolated Russia from the rest of Europe. There is no doubt that Russian technological and cultural backwardness for centuries following the Mongol domination was a direct result of this forced isolation.³⁹ The further history of the country could be viewed from one perspective as a prolonged and continuous effort at re-establishing contact and parity with the West.

On the positive side, the requirement of 'strong' rule permitted the local princes to enforce absolute power by the use of the military to subjugate even the finer side of

³⁴ Christopher Donnelly, p. 36.

³⁵ *ibid*, p. 37.

³⁶ Lionel Kochan & Richard Abraham *The Making of Modern Russia*, 2nd ed, Penguin Books Ltd., Hammonds worth, England, 1983, p. 22.

³⁷ *ibid*.

³⁸ *ibid*, p. 24.

³⁹ *ibid*.

religious teachings.⁴⁰ They also divested themselves of the doctrine of *ultra vires* (a concept that did not let even the supreme leader do certain things because it was illegal). The Mongol rule has been identified in history as a cultural disaster for Russia. This gave rise in part within the Russian ethos to a collective fear and loathing of the East and Asiatic tribes, which permeates the Russian perspective of the 'Orient' to some extent even today.⁴¹

The grand duchy of Moscovy (Moscow) defeated the Mongols in 1380 and despite repeated Mongol attempts to reconquer was able to dominate the entire nation by the middle of the fifteenth century. Ivan III who ruled Moscovy from 1462 to 1505 avoided confrontation in political matters and used force and violence only as a last resort.⁴² This period saw the rise of a class of landowners with military capabilities that marked a turning point in the economic and political development in the state.⁴³ By the later half of the 16th century, Ivan IV had been crowned with the title of Tsar (Caesar) becoming the first Russian monarch and establishing a despotic tradition that was continued through the 17th and 18th century by a succession of Tsars. The state of Russia had been firmly established.

5.3.2 The Role of the Military in Domestic and Foreign Policy

Russia had always been ruled by force and political objectives were traditionally achieved by military might. The long Mongol rule and the later emergence of the autocratic grand duchy emphasised this concept.⁴⁴ Of the 550 years up to 1900, Russia was at war for 310, clearly underlining the pre-eminence of the military in matters of state.⁴⁵ The Russian Army, however, has always commenced each war on the defensive⁴⁶

⁴⁰ Christopher Donnelly, p. 36.

⁴¹ *ibid*, p. 38.

⁴² Lionel Kochan & Richard Abraham, p. 30.

⁴³ *ibid*.

⁴⁴ Christopher Donnelly, p. 39.

⁴⁵ *ibid*.

⁴⁶ The only exception is the Soviet intervention in Afghanistan in the last part of the 20th century. The intervention and the subsequent military actions for a number of years in Afghanistan was the consequence of ill conceived foreign policy objectives that could not be comprehensively supported by economic or military means in a state already under considerable pressure.

in the protection of its national boundaries and therefore the outcome of each battle has always been of great consequence to the nation. This is in direct contrast for example, to the battles fought by the British Army in far-flung parts of the world wherein even a complete defeat did not pose any immediate or dire consequence to the home country and therefore, could be termed irrelevant. The land-locked location of Russia and the lack of adequate seaports resulted in the absence of a sea-going tradition, which translated to an indifferent development of the naval forces. This situation gave the Soviet Army absolute primacy in all matters of military thinking and organisation, a trend that ensured the indirect domination of the Soviet Navy and the Soviet Air Force by the army concept of land warfare.⁴⁷

The long history of war and the sufferings that the people have endured has been instrumental in creating a national psyche of insecurity. The build up of the huge Soviet Armed Forces was the result of a sequence of historical events and may well have taken place irrespective of the kind of government that came to power during the late 19th and early 20th centuries. There were inter-linked factors that led to this build up. There was general consensus within Russia that it was scientifically behind the Western nations and therefore needed to acquire emerging technology from outside. The realisation that only sufficient interaction in trade and commerce with the more developed countries could bring in advanced technology into the country led to the development of all weather ports as vital elements in this quest, even if it meant expanding the borders.⁴⁸

While accepting the need to interact with the Western world, there was also fear within the Russian/Soviet leadership that such an interaction would also culminate in the exchange of political ideals that could jeopardise the existing but fragile social, political and economic balance of the country. In order to contain any such trends and maintain domestic control as well as to repel foreign invasions and to capture and hold territory

⁴⁷ Christopher Donnelly, p. 40.

⁴⁸ *ibid.*

that would act as both buffer and a window to the West, it became imperative to build and maintain competent armed forces.⁴⁹

The first attempt at 'modernising' Russia was made by Peter the Great who attempted a forced westernisation of the nation and tried to acquire Western technology, especially for shipbuilding in order to found a navy and a merchant fleet.⁵⁰ There was resentment to the changes because there was a prevalent concept within the general populace that the West was decadent and spiritually inferior. Even today, the average Russian does not fully understand Western values and the national attitude towards everything Western is vague and ambiguous. The Soviet understanding of the Western military forces was coloured by these perceptions and was therefore one of derision at the 'softness' of the troops mixed with an awe of the effectiveness of its technology.⁵¹

Throughout its coherent history the Army in Russia has been the primary tool of national survival and territorial conquest while also being used as the system to enhance the powers of the ruling class. In a number of ways the Army was utilised to influence the neighbouring areas and to bring about social and political changes. Russian society has not often questioned their socio-political and economic situation and mostly developed in a direction that was chosen by the leaders. This behaviour pattern also percolated into the military set up.⁵²

5.4 THE BOLSHEVIK REVOLUTION AND THE MILITARY

Although their control of the nation was tenuous during the later part of the 19th century, the Tsars continued to hold on to power till the outbreak of the First World War. During this period the military had developed in organisation and was tactically well versed to operate on home terrain.⁵³ But Russia was experiencing the early stages of a revolution and the First World War expedited a movement that was already gathering momentum.

⁴⁹ Ibid.

⁵⁰ Christopher Donnelly, p. 46.

⁵¹ *ibid*, p.49.

⁵² *ibid*.

⁵³ *ibid*.

The Russian involvement in the First World War brought it to financial ruin and the Tsarist system collapsed under the pressure of a popular uprising. From February till October 1917, when the Bolsheviks seized power, the country was in turmoil and sliding into anarchy.⁵⁴ The disintegration of the Russian Army and the contribution of the armed soldiers returning from the battlefield to the prevalent social unrest were significant influences in the course of the revolution.

The Bolsheviks were opposed by a disparate group consisting of moderate democratic factions, other Marxist groups and a small minority still loyal to the Tsar, collectively referred to as the 'White' forces. This led to a civil war in 1918, which the Bolsheviks managed to win with financial aid from the Germans. Great Britain, France, the United States and Japan intervened on the side of the 'White' forces, mainly to protect their own interests, but their assistance was disjointed and indirectly helped the Bolsheviks to survive.⁵⁵

By 1922 the Bolsheviks were in total control of Russia and the Soviets rejoined the international community, though still excluded from the League of Nations. "The Soviet republics first transferred their rights over foreign policy to the Russian republic and then, in December 1922, submerged their sovereignties in the notionally supernational Union of Soviet Socialist Republics."⁵⁶ The USSR thus formed was controlled by the Communist Party of the Soviet Union (CPSU), which based all its actions on the doctrines of Marx as interpreted and amended by Lenin to suit Russian conditions. The corner stone of CPSU policy was to spread communism and the Armed Forces and if necessary war, were tools to achieve this aim both overtly and covertly.

The Soviet perceptions of national security and therefore its doctrine of war were both derived from Lenin's basic appraisal, modelled on von Clausewitz, that war is nothing other than the continuation of policy by violent means. Lenin interpreted this to mean that if war was the violent continuation of the policies of peace, then as a corollary, policies in

⁵⁴ Lionel Kochan & Richard Abraham, p. 310.

⁵⁵ *ibid*, p. 314.

⁵⁶ *ibid*, p. 323.

peace should be the non-violent continuation of the policies of war.⁵⁷ Therefore, in the Soviet security concept, the armed forces were tools, in both war and peace, to achieve the ultimate objective of policy.⁵⁸

The Soviet Union always maintained that its armed forces were born of the Revolution, formed as a mass volunteer force motivated by ideological zeal.⁵⁹ But the reality was that after the initial success of the Red Militia, the Bolshevik regime was forced to create a regular military force on conventional lines controlled by traditional forms of discipline in order to oppose the threats that emanated from the counter-revolutionary forces and their allies.⁶⁰ A large number of ex-Tsarist officers and NCOs were recruited to be the nucleus of this new army and they in turn influenced the formative years of the Red Army. Through these officers Russian military traditions, military thinking and doctrine passed on to the new Soviet Army, acting as a bridge from the old to the new.⁶¹

The Soviet military in its infancy was aware of its backwardness and technological inferiority and therefore watched the developments in other Western forces minutely for adaptation to their own peculiar creed of doctrine, strategy and tactics. But perhaps most important to the state-military relationship was the fact that the Soviet state was born in war and survived through war in its initial stages, ensuring a predominant status for the military in all matters concerning state security.⁶²

The Bolsheviks combined the principles of international diplomacy with expediency and viewed the relationship of war to the advance of Communism as complementary to the nations ultimate goal. Force was therefore accepted as one more tool to be used in the 'class struggle.' In keeping with the central aim of spreading the global revolution, the fledgling government used military force to incite revolution in Poland but were not

⁵⁷ Christopher Donnelly, p. 62.

⁵⁸ The ideological factors that have impacted on the formulation of military doctrine are discussed in detail in Chapter 8.

⁵⁹ Christopher Donnelly, p. 64.

⁶⁰ *ibid.*

⁶¹ *ibid.*, p.65.

⁶² *ibid.*

successful, leading Lenin to decide that in future Soviet troops were not to be used directly to aid a revolution abroad.⁶³ Military force was again used to establish Communist rule in Georgia in 1921 and also to set up the first satellite Communist regime in Outer Mongolia.⁶⁴ The military was thereafter used in more subtle ways in neighbouring areas to influence the outcome of insipient uprisings by providing support, arms and even personnel in the guise of military advisors at times. Excursions into Iran failed, but covert assistance to the Turkish movement was successful.⁶⁵

At the time of the death of Lenin, Soviet leaders were increasingly preoccupied with internal matters and it became an axiom of Soviet policy that as far as possible war should be avoided. From 1921, till the dramatic changes in the world order in 1939, the Soviets did not overtly use military force.

5.5 SECURITY PERCEPTIONS AND MILITARY DOCTRINE

In the Soviet Union, there were three fundamental factors that affected the use of military power in support of foreign policy and had significant impact on the formulation of its doctrine and strategy.⁶⁶ First, the basic perception of the national leadership regarding international events that impacted on Soviet goals, second, the prevalent geo-political, economic, military and strategic environment of the world, especially in specific areas of national interest and influence, and third, acceptance of the military involvement in national policy-making and the concept of the employment of military capabilities in the pursuit of national policy.

In Russia, as in other contemporary nations of Europe, military factors were taken into account in the formulation of national policy but there was an added stress on military solutions at the cost of more important political and diplomatic considerations and even

⁶³ E. H. Carr, *The Bolshevik Revolution 1917-1923*, Vol III, Penguin Books Ltd., Middlesex, England, 1966, p. 153.

⁶⁴ Georg von Rauch, *A History of Soviet Russia*, Penguin Books Ltd, New York, 1957. p. 122.

⁶⁵ *ibid.*

⁶⁶ Raymond L. Garthoff, *Soviet Military Policy*, Faber and Faber Ltd., London, 1966, p. 3.

the risk of precipitating war.⁶⁷ Towards the end of the Tsarist reign when the threats of revolutionary unrest were already visible and steadily increasing, military action elsewhere was considered a diversion that would delay the onset of the full impact of the revolution. Russia had also entered into alliances to maintain the balance of power with other nations and to bolster its own inferior military preparedness, which further committed it to war.⁶⁸ Prior to the First World War, Russia had used military power as the instrument of choice for colonial expansion in Central Asia where only nominal opposition existed. However, Russia entered the First World War with limited expansionist objectives but the war saw the end of the Russian empire and an era.⁶⁹

5.5.1 Politics, Military and War

Stalin outlined Soviet foreign policy in a speech in 1925 where he noted that it was the Soviet aim to avoid war and in case war became inevitable, "...to enter last. And we must enter in order to throw the decisive weight onto the scales, the weight which can tip the scales."⁷⁰ Because of this clear directive, for over two decades military force was never employed overtly and therefore was not very influential in Soviet foreign policy.⁷¹ However, covert aid in terms of equipment and military advisers was given in all areas that were considered beneficial to spreading the revolution and in a more pragmatic view, containing the capitalist encirclement of Soviet territory. In all cases where aid was given, the Soviet leadership was cautious to ensure the existence of an advantageous political situation as a necessary precondition to direct intervention.

The Marxist attitude to war which influenced Lenin's thoughts and the formulation of the Red Army doctrine was based on the perception that capitalism had already reached its final phase and therefore in any future war the capitalist nations would not have the support of their 'workers', making the moment ripe for the transition to socialism with

⁶⁷ Michael Florinsky, *Russia: A History and Interpretation*, Vol II, Macmillan & Co., New York, 1955 pp. 1329-1338.

⁶⁸ *ibid.*

⁶⁹ Raymond L. Garthoff, p. 9.

⁷⁰ J. V. Stalin, *Sochineniya (Collected Works)*, Vol 7, Moscow, 1947, p. 14, (Translated and quoted in Raymond L. Garthoff, p. 14.)

⁷¹ *ibid.*

the active aid of these workers. The supposed imminence of socialist revolution justified the position that regarded the defeat of all capitalist powers as the basic principle in the conduct of war.⁷²

In principle, cast in the Marxian context of class struggle, Bolshevism originated as a revolutionary movement that extended the struggle to geo-political dimensions, in the process growing into an ideology delineating international relationships.⁷³ Soviet military doctrine was essentially derived from the fundamental Bolshevik conflict-image of the world, where the concept of 'destroy or be destroyed' pervaded the entire spectrum of doctrinal development.⁷⁴ The political dogma of Bolshevism was all-pervasive in the security perceptions and in a sense the distinction between peace and war was obliterated, a factor that became basic to the Soviet military doctrine and strategy. The difference between peace and war as perceived in this concept was only in the degree of involvement of the armed forces.

5.5.2 Influence on the Development of Doctrine

From the beginning in 1917, the Bolsheviks continuously modified their ideological stance to cater to the constantly evolving progress and changing perceptions of the revolution. By 1922 the initial revolutionary ideal of personal freedom from the tyranny of state control, the primary reason for the revolution itself, had been sacrificed in the struggle to overthrow the regime. By this time the Soviet state had also managed to almost completely eliminate the last independence movements and incorporated the republics of Armenia and Georgia into the new union of states. The military was used as an expedient tool to exercise control and became the State's ultimate weapon in imposing its will on the people.⁷⁵ In effect the Soviet people had only traded one set of tyrannical masters for another equally oppressive regime.

⁷² E. H. Carr, p. 560.

⁷³ Raymond L. Garthoff, *How Russia Makes War*, George Allen & Unwin Ltd., London, 1954, p. 9.

⁷⁴ *ibid.* p.10.

⁷⁵ E. H. Carr, p. 560.

The revolution and the ensuing Civil War coalesced three basic influences on Soviet military thinking and development. First, it established the ideological basis for military doctrinal development i.e. that the revolution would spread to the entire working class of the world and that the Red Army would be the preferred revolutionary liberating tool to enhance the process. This ideological belief provided the Soviet military establishment with a peculiar moralistic high-ground attitude to all military intervention. Next, the Red Army staff system was forged during this time and the operational experience gained was used to develop operational concepts and as the formative foundation for establishing doctrine.⁷⁶ The experience gained also reinforced the role of ideological conditioning and indoctrination of troops as a valuable training measure. The third influence was the clear understanding that the State would not survive unless it possessed an effective military force ably supported by a strong industrial power base.⁷⁷

Through the early part of the revolution and Civil War the Red Army meandered along with no clear-cut doctrine or strategy and guided purely by the vague concept of a 'peoples'/workers' army' in control of the state.⁷⁸ Only in the mid-1920s, guided by the brilliant military thinker and organiser, M.V.Frunze, did the Red Army set itself on a path aimed at developing a firm doctrine for the conduct of war, based on careful study and analysis of experience, innovative ideas, strong political backing and incorporation of the latest technology.⁷⁹ The push to establish a unified military doctrine involved more than strategic thought process and the measures that were instituted to disseminate doctrinal understanding had long-term impact on the Soviet military ethos, operations, equipment and technological development.⁸⁰

Standardisation of tactics across the entire force was the first step adopted to ensure a clear perspective of operations especially since majority of the force was mass mobilised and were subject only to minimal basic training. The differences in tactical appreciation and basic training processes were brought about only to cater for changed climatic

⁷⁶ Christopher Donnelly, p. 71.

⁷⁷ *ibid.*

⁷⁸ *ibid.*, p. 72.

⁷⁹ *ibid.*, pp 72-73.

⁸⁰ *ibid.*

conditions, terrain and enemy dispositions. This standardisation of tactics enforced in the land forces was introduced into the air forces leading to what Western observers believed was the negation of flexible tactical innovation at the field unit level in fighter operations.⁸¹ The standardisation in tactics and training led to the drive to standardise weapon systems to the highest possible level. The mainly conscripted composition of the force that translated to an under-trained force made it necessary to maintain continuity in weapons design. Such continuity ensured that the forces would have at least rudimentary knowledge of the weapons systems in the event of mobilisation.⁸² The continuity in design also ensured that when necessary their upgrade could be achieved with very little effort, both technically and in terms of training requirements of operators.

The Russians were not averse to examining tactical and technological developments taking place in the Western military forces, but contrary to general Western belief, these ideas were incorporated only after adequately modifying them to fit within the framework of their own military doctrine and were not slavishly copied.⁸³ For example, the Russians understood the revolutionary effect of speed on the battlefield and the concept of manoeuvre warfare was highly developed. They had developed the concept of 'deep battle' to accomplish the rapid military and political collapse of the opponent much before the *blitzkrieg* was openly demonstrated by the German military. Weapon system design teams were set up and the practice of allocating the best designs for production to centrally controlled factories was initiated.⁸⁴ This is in contrast to the Western system of individual manufacturers producing competing prototypes for evaluation and subsequent production. This system of design and manufacture is still followed today and has the distinct advantage of producing weapons specifically designed to implement laid down doctrinal requirements.

⁸¹ The reasons for this rigidity in tactics within the VVS are discussed in detail at a later stage in the dissertation. The primary reason for the reigning in of innovative and abrasive tactical thought at the junior levels was mainly the poor quality of education at the induction level and the need for the air force itself to educate their officers to the necessary standards before they could produce viable and practical solutions to tactical problems.

⁸² Christopher Donnelly, p. 74.

⁸³ *ibid.*

⁸⁴ *ibid.*, pp 74-75.

By 1924, it was obvious to the Soviet leadership that revolutionary zeal and idealism had to be shored up by disciplined organisation on traditional lines for the military to be efficient. The revolutionary idealism that held the loose organisation together was channelled to inculcate patriotism and the psychological basis for morale became an inexplicable amalgam of ideology and patriotism. The culture of fear of reprisal inhibited tactical initiative at the field command level, but increased the willingness to accept heavy casualties to cater for tactical inefficiencies. From a purely military point of view, the concept of deep offensive became the corner stone of strategic thought, although its practical implementation initially was flawed in terms of offensive deployment of forces.⁸⁵

⁸⁵ *ibid*, p.78.

Chapter 6

THE DEVELOPMENT OF SOVIET AIR POWER DOCTRINE

6.1 OVERVIEW

Towards the end of the First World War, from May 1917 to May 1918, a total of 27 day and night raids were made against English targets by German Gotha bombers, dropping a total of 11,935 kgs of bombs, killing 835 and injuring 1,972 people and causing an officially estimated damage of 1,418,272-pound sterling.¹ Although the actual numbers were trivial compared to the casualty figures from the trench warfare in Europe, these attacks demonstrated the capability of aircraft to transcend beyond the fighting between the armies in the field.² This resulted in two developments. First was the formation, in February 1917, of a dedicated Bomber wing within the Royal Flying Corps, tasked with strategic bombing missions. Second, and even more important, the Royal Air Force was formed as an independent separate service, following the recommendations made by General Jan Smuts who had been asked to conduct a governmental inquiry into Britain's aerial defences.

The first serious and long drawn aerial conflict in human history, fought over the Western Front during the First World War set the pattern for all future air combat.³ It reached peak activity in 1917-18, during which period the air forces also resolved themselves into well-organised and recognisable units that had clear mission capabilities, like fighter squadrons, observation units and bomber squadrons.⁴ Although escort and protection of photoreconnaissance and day-bomber squadrons were important duties for the fighters, their major responsibility remained the support of the land armies' operations.⁵ Despite the glamour attached to air combat exploits of fighter aircraft and pilots, during 1914-18 and ever since, the fighters' prime function was, and continues to be till today, the prevention enemy air intervention in any operation, land, maritime or air that are being undertaken by one's own forces.⁶ This

¹ Chaz Bowyer, *The Age of the Biplane*, Lansdowne Press, Sydney, 1981, p. 33

² *ibid.*

³ Anthony Robinson (ed), *Aerial Warfare: An Illustrated History*, Orbis Publishing, London, 1982, p.128.

⁴ *ibid.*, pp. 128-130.

⁵ *ibid.*

⁶ Chaz Bowyer, p. 38.

fundamental axiom – the need for control of the air - learned by sheer experience during the First World War - has been the bedrock on which air power doctrine has developed over the years.⁷

6.2 FIRST WORLD WAR

“After all, the greatest defence against aerial menace is to attack the enemy’s aircraft as near as possible to their point of departure.”

*Winston Churchill*⁸

Clearly defined air power doctrine did not exist even towards the end of the First World War, but there was a great deal of imaginative as well as informed speculation regarding the utilisation of the aeroplane as a weapon of war.⁹ The perceived potential of air power was such that annexes to the Second Hague Convention of 1907 explicitly prohibited air attacks on towns, villages, houses, hospitals etc., even though the actual capability to do so did not even exist at that time.

At the outbreak of the First World War, on 2 August 1914, the air services of all participating nations were controlled by the respective armies and were employed only for artillery observation and very limited reconnaissance in support of surface operations.¹⁰ But there were airmen who had strategic visions of air power, who speculated on its possible future capabilities. The majority of military leaders, however, failed to fully appreciate its potential and persisted in their treatment of the air forces as subordinate to and an adjunct to the surface forces. When the performance of both aircraft and weapons improved sufficiently, this perception manifested in bombing and strafing of trenches being considered the primary role of the air force, second only to the reconnaissance role.¹¹

⁷ Alan Stephens, *Power Plus Attitude: Ideas, Strategy and Doctrine in the Royal Australian Air Force 1921-1991*, Australian Government Publishing Service, Canberra, 1992, pp. 11-13.

⁸ Memo of 5 September 1914, proposing a combined offensive and defensive counter air campaign.

⁹ Alan Stephens, p. 13.

¹⁰ Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, Air Power Studies Centre, Canberra, 1998, p. 3

¹¹ Anthony Robinson, p. 129.

However, airmen had already started shooting at each other to prevent unopposed reconnaissance, and although not explicitly delineated, control of the air *ipso facto* became a prerequisite for all other air activities. Consequently specialist fighters were designed with enhanced performance and firepower, which in turn made them more effective in the ground attack roles.¹² As their offensive effectiveness increased, aircraft were utilised in support of the land forces more frequently and in larger numbers, necessitating escort protection for them.¹³ Even while no formal doctrine or employment strategy were being enunciated, there was already an implicit understanding, at least within the air force community, of the paramount importance of control of the air. The force structure of the time demonstrated this imperative and fighter and attack aircraft became the mainstay of all the air forces.¹⁴

Two significant doctrinal beliefs were distilled during the First World War. The first was the need to control the air, and the second was an unwavering belief in the offensive potential of air power.¹⁵ The commander of the (British) Royal Flying Corps, General Sir Hugh Trenchard was the first to specifically mention these two ideas in his brief instructions to the RFC in September 1916 entitled 'Future Policy in the Air'. This paper categorically expressed the inherently offensive nature of air operations.¹⁶ But it was not an understanding of the offensive capabilities of air power but the political need to placate popular opinion - by carrying out retaliatory attacks for the German Gotha bomber raids - that led to the formation of a dedicated strategic bomber unit called the Independent Force. This force was amalgamated with the Royal Flying Corps a year later to form an independent Air Force.¹⁷

The formation of the (British) Royal Air Force outside the control of the army was tacit formalisation of two basic ideas. First, it directed the employment of air power as a deterrent to enemy action, a concept that was subsequently developed as a central theme in overall air strategy. Second, it was an 'in principle' acknowledgement of the theory that the optimum employment of air power could win a future war without the

¹² *ibid.*, p. 15.

¹³ *ibid.*

¹⁴ *ibid.* pp. 16-17.

¹⁵ Alan Stephens & Brendan O'Loughlin (eds), *The Decisive Factor: Air Power Doctrine by Air Vice Marshal H.N. Wrigley*, Australian Government Publishing Service, Canberra, 1990, pp. 131-4.

¹⁶ *ibid.*

¹⁷ Walter Raleigh & H.A. Jones, *The War in the Air Vol V*, Clarendon Press, Oxford, 1937, pp. 26-32.

enormous human and material loss that had so far characterised land warfare.¹⁸ The basic premise for the second assumption was the colossal human loss and suffering that took place in the land warfare of the First World War. The idea of a quick and 'painless' victory that air power promised, at least in theory, had a universal appeal as the panacea to all the ills that the Great War had brought on humanity.

Carl von Clausewitz, considered one of the greatest strategic theorists, had believed that an army was better suited for defence, which was a stronger stance to adopt in war than offensive action, as well as simpler to organise and conduct.¹⁹ Clausewitz had also concluded that the destruction of the enemy's armed force in the field of battle was one of the most effectual means to win wars.²⁰ In effect, wars were fought, and won or lost, purely by the armed forces while the civilian population was hardly ever affected directly by the war itself or by its results. The advent of effective air power started to change this perception, initially because the bombing raids brought the war to non-combatants far away from the battlefield, effectively extending it beyond the line of battle between the two armies. Traditional military thinking, based almost completely on Clausewitzian theories, was challenged to encompass this new paradigm of 'total war' against a nation rather than it being an activity confined to the armies and the navies. This concept contained a strong political dimension to it that intrinsically impinged on air power strategy.²¹

At the end of the First World War, there was unanimous agreement that air power could contribute considerably to the success of surface operations even though the concepts of control of the air and strategic bombardment were controversial and radical additions to prevalent strategic thought. In fact every role that air power performs today was evident in the air operations during the war, albeit in amorphous and ill-defined forms.²²

¹⁸ *ibid.*

¹⁹ Anatol Rapoport (ed), *Clausewitz on War*, Penguin Books, Harmondsworth, Middlesex, 1968, p. 114.

²⁰ *ibid.*, p. 134.

²¹ Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, p. 7.

²² Of the current array of air power roles, the only two that were not conducted in the First World War were air-to-air refuelling and electronic warfare.

6.3 THE CLASSICAL THEORISTS OF AIR POWER

The First World War glamorised air warfare and after 1918, the continuing exploits of civilian pioneers ensured that aviation continued to enjoy a public profile and exerted a powerful psychological influence.²³ The technological achievements in improving performance of the airplane had obvious military applications. Popular perceptions of the military potential of air power and the psychological impact of strategic bombing, as examined in H. G. Wells book *The War in the Air* published in 1908, was supplemented by the theories on air power propounded by the ‘classical’ theorists of the interwar period. The most important of these were General Giulio Douhet of the Italian Air Force, Air Marshal Sir Hugh Trenchard for ten years Britain’s Chief of Air Staff, and General William E. Mitchell of the United States Army.²⁴

These three major theorists, and some of their contemporaries,²⁵ raised many issues regarding air power, its role in warfighting and impact on the conduct of future wars. Their ideas were independent, but all three shared a common and overriding belief in the superiority and dominance of air power as a means to win wars by itself.²⁶ This dogma was in direct contradiction to the century old Clausewitzian principle that the enemy’s centre of gravity resided in his army.²⁷ The bomber aircraft was now capable of taking the war direct to the heart of the enemy homeland - his industrial and population centres – thereby shifting the centres of gravity to non-military areas. This new theory based on the concept of strategic bombing denied the pre-eminence that the army and the navy had enjoyed for centuries of warfare. Therefore, the belief in victory through air power did not find favour with the military hierarchy and the ardent advocates of air power tended to be prosecuted. (Rather harshly in the case of Douhet and Mitchell, who were both court-martialled by their respective armies for their outspoken support of air power in 1916 and 1925 respectively).²⁸

²³ Courtland Canby, *A History of Flight*, Hawthorn Books Inc. Publishers, New York, 1963, p. 71.

²⁴ *ibid.*

²⁵ Officers of the US Army like General Carl A. Spaatz and David MacIsaac an instructor at the Tactical School were cautious proponents of air power.

²⁶ Hugh Smith, *The Strategists*, Australian Defence Studies Centre, Canberra, 2001, pp. 21-35.

²⁷ Anatol Rapoport, p. 117.

²⁸ Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, p. 8.

6.3.1 Giulio Douhet (1869 – 1930)

The first comprehensive air power doctrine book was General Giulio Douhet's *The Command of the Air*, first published in 1921. Douhet assimilated two important points from the Great War that provided him with the necessary impetus to develop his theory. One was the absolute stalemate to which the land war ground to an exhausted halt and second, the disproportionate psychological effect that the few, ineffective strategic bombing raids had on the civilian population.²⁹ However, the available aviation technology did not have the capability to achieve Douhet's claims and therefore, the book received very little support even from air power sympathisers.³⁰ He wrote, "The conquest of the command of the air will be a necessary condition of future wars, even if it will not ensure victory by itself. It will always be necessary; it will be sufficient if and when the Independent Air Force is left with enough offensive strength to crush the material and moral resistance of the enemy."³¹

Douhet's central belief, presented under the heading '*The Extreme Consequences*', was uncompromising, and said, "To conquer the command of the air means victory; to be beaten in the air means defeat and acceptance of whatever terms the enemy may be pleased to impose."³² He proclaimed this as an axiom rather than a principle.³³ He derived two further corollaries from this axiom. The first was that in order to assure an adequate national defence, it was necessary – and sufficient – to be in a position, in case of war, to conquer the command of the air. The second, that all preparations undertaken by a nation to assure its own defence should be directed towards procuring those means which, in case of war, would be most effective for the conquest of the command of the air.³⁴

General Douhet defined an independent air force as an offensive force, which can strike rapidly against enemy targets on land or sea in any direction, and can force its

²⁹ David Jablonsky (ed), 'Editor's Introduction' to 'The Command of the Air' in *Roots of Strategy* Book 4, Stackpole Books, Mechanicsburg, PA, 1999. p. 267.

³⁰ *ibid.*

³¹ Giulio Douhet, in David Jablonsky (ed), 'The Command of the Air, Book Two, The Probable Aspects of the War of the Future, (First published in April 1928)' in *Roots of Strategy* Book 4, p. 392.

³² *Ibid* pp. 300-301.

³³ *ibid.*

³⁴ *ibid*, p.301

way through any aerial opposition. From this definition the two basic principles of aerial warfare emerged, that an independent air force should always operate *en masse* and that it should inflict the greatest damage in the shortest possible time.³⁵

Douhet published a revised edition of *Command of the Air* in 1927 that provided a more extreme but comprehensive explanation of his theories regarding the criticality of strategic air power and the need to develop strategic capabilities at the expense of the army and navy and even other aviation activities.³⁶ The veracity of several of his propositions is acknowledged in all serious studies of doctrine. The major theories that have withstood the test of time are: that command of the air is vital; that the primary targets of strategic air attack should be the nation's war making potential and infrastructure rather than the armies in-being; and that it is preferable and easier to destroy the enemy's air forces on the ground rather than in the air.³⁷

In advancing his arguments Douhet adhered to the Italian discipline of strict logical reasoning and therefore the deductions he made were not incorrect, but the premises from which he arrived at the deductions were not robust enough.³⁸ Two erroneous fundamental premises were, one that victory based on superior air power would be swift and complete and second, the gross overestimation of the damage a given tonnage of bombs could cause, both physically and psychologically.³⁹ Because of this, although he emphasised that key target systems should be attacked, he did not feel it necessary to go beyond the basic stage of identifying the 'vital centres' that formed the centre of gravity.

Viewed holistically, Douhet's influence on air power development has to be accepted as universal. By clearly stating the distinctions and choices between offensive and defensive action as well as redefining the strategic roles of the army and the air force,

³⁵ *ibid*, pp. 323-326.

³⁶ Douhet went to the extreme of advocating the development of strategic bombing even at the cost of other forms of air warfare like air defence, army support and battlefield interdiction.

³⁷ Edward Warner, 'Douhet, Mitchell, Seversky: Theories of Air Warfare', in Edward Meade Earle, *Makers of Modern Strategy*, Princeton University Press, Princeton, 1943, pp. 489-91.

³⁸ David Jablonsky (ed), p. 269.

³⁹ Bernard Brodie, *Strategy in the Missile Age*, Princeton University Press, Princeton, 1971, p. 73
Brodie also noted that time has rescued Douhet from the error regarding bomb damage through the development of the nuclear bomb.

he forced contemporary strategists to face up to and reconcile complex and critical doctrinal issues.⁴⁰ His clarity of thought and steadfastness of purpose in publicly espousing the ‘infallibility’ of air power makes Douhet the most enduring and important of the air power theorists.

6.3.2 Hugh Trenchard (1873 – 1956)

As chief of staff for the initial ten formative years of the world’s first independent air force, Sir Hugh Trenchard dominated British air power thought and concepts and he laid the foundation for the growth of the fledgling force.⁴¹ He was uncompromising in his doctrinal commitment to offensive action and to preserving the newly acquired independence of the air force. In the early years Trenchard did not commit himself to strategic bombing as a concept and applied the offensive theory to the use of tactical air power over the battlefield. In Britain it was left to Jan Smuts, who recognised that strategic bombing might be ‘the determining factor’ in future conflicts⁴² and to Sir Fredrick Sykes, Trenchard’s rival for the leadership of the RAF, to promote the idea of strikes against vital targets as a war-winning strategy.

Trenchard set out four principles of air power:⁴³

1. To obtain mastery of the air, and to keep it, which means continually fighting for it.
2. To destroy the enemy’s means of production and his communications by strategic bombing.
3. To maintain the battle without any interference by the enemy.
4. To prevent the enemy being able to maintain the battle.

⁴⁰ Pascal Vennesson, ‘Institution and Air Power: The Making of the French Air Force’, in the *Journal of Strategic Studies*, Vol. 18, No.1, March 1995, p. 57.

⁴¹ Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, p. 9.

⁴² ‘Extracts from a Report by General Smuts on Air Organisation and the Direction of Air Operations’, in Alan Stephen & Brendan O’Loughlin (eds), *The Decisive Factor: Air Power Doctrine by Air Vice Marshal H.N. Wrigley*, pp. 145-147.

⁴³ Quoted in Lt Col Charles M. Westenhoff (Compiled), *Military Air Power, The Cadre Digest of Air Power Opinions and Thoughts*, Air University Press, Alabama, 1990, pp. 25-26.

Although Trenchard appreciated the effectiveness of strategic bombing, he contributed in a more significant manner to the development of air power doctrine by advocating a novel concept called ‘Air Control’ or the ‘Air Method’, which argued that in many circumstances air forces could be ‘substituted’ for land and naval forces and be more cost effective with minimal friendly casualties.⁴⁴ The concept was applied in British territories in the Middle East and the North West Frontier throughout the 1920s, with varying levels of success.⁴⁵ The concept was vehemently opposed by the army and the navy, but highlighted the fundamental advantage of flexibility and rapid deployment that air power has over both land and sea borne forces in the projection of power. In 1929, Trenchard further expostulated the idea in a paper titled *The Fuller Employment of Air Power in Imperial Defence* in which he declared “unequivocally the belief of the Air Staff that real economies with at least no less efficacy could be secured by the substitution of Air Force for other arms over a very wide field.”⁴⁶

Trenchard’s major success was in giving force structure and body to the concepts that he adapted and tailored to the requirements of the RAF.⁴⁷ He also provided decisive leadership to the fledgling force, converting it into a recognisable independent entity with basic doctrines from which to develop further strategies and tactics firmly in place. His status as the pre-eminent British air power theorist cannot be questioned.

6.3.3 William Mitchell (1879 – 1936)

General William ‘Billy’ Mitchell, US Army Air Services, took the debate regarding the efficacy of air power into the public arena and was passionate and outspoken in his opinions regarding the independence of air forces.⁴⁸ He also shared Douhet’s firm commitment and over-riding faith in the dominance of offensive air power. He wrote, “Neither the armies nor navies can exist unless the air is controlled over them. Air

⁴⁴ Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, p.10.

⁴⁵ Bruce Hoffman, *British Air Power in Peripheral Conflict, 1919-1976*, Rand Corporation, Santa Monica 1989, pp. 13-20.

⁴⁶ Quoted in John Slessor, *The Central Blue*, Cassell Books, London, 1956, pp. 45-75.

⁴⁷ In 1928 Trenchard published a paper ‘The War Object of an Airforce’ which put forth the idea of air power in the strategic bombing role. The paper has been published in Charles K. Weber and Noble Frank, *The Strategic Air Offensive Germany 1939-1945*, Volume 4 HM Stationary Office, London, 1961

⁴⁸ Edward Warner, in Edward Mead Earle, *Makers of Modern Strategy*, p. 497-501.

forces on the other hand are the only independent fighting units of the day.”⁴⁹ In addition Mitchell also believed that the technological improvements in military aviation would out pace improvements in other areas of warfare, practically demonstrating the effects of heavy bombardment on surface ships by sinking a captured German ship in trials off Norfolk in 1921.⁵⁰

Mitchell who had been a combat pilot in the First World War, overestimated the technical capabilities of the aircraft as well as the overall effects of strategic bombing.⁵¹ Mitchell met and discussed air power doctrine with Douhet in 1922 and it can be safely presumed that his concept of attacking ‘vital centres’, fully developed only in 1926, was arrived at after he had reflected on his discussions with Douhet.⁵² Mitchell was Assistant Chief of the Army Air Service from 1919 to 1925 and spearheaded a national crusade for the understanding and recognition of air power.⁵³ By his uncompromising and at times offensive advocacy of air power he antagonised a number of conservatives within the military and was court martialled in 1926, resigning before the sentence could take effect.⁵⁴ There is a viewpoint that Mitchell had overstepped his brief in his championing of the cause for an independent air arm much to its detriment.⁵⁵ However, most of Mitchell’s predictions regarding the effectiveness of air power came true and he can be considered the father of American military aviation. Mitchell published a book *Winged Defense* in 1925 which was a compilation of articles that he had written earlier on the development and possibilities of modern air power – both economic and military.

It was in this book that he categorically stated the primacy of strategic bombing over all other applications of air power. He concluded, “the influence of air power on the ability of one nation to impress its will on another in an armed conflict will be

⁴⁹ William Mitchell, quoted in David Jablonsky (ed), ‘Winged Defense’ in *Roots of Strategy*, Book 4, Stackpole Books, Mechanicsburg, PA, 1999, p. 427.

⁵⁰ Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, p. 14.

⁵¹ *ibid.*

⁵² Alfred F. Hurley, *Billy Mitchell: Crusader for Air Power*, Franklin Watts, New York, 1964, p. 167-169.

⁵³ David R. Mets, *Master of Air Power*, Presidio Press, Novato, CA, 1988, p. 64.

⁵⁴ Courtland Canby, p. 72.

⁵⁵ Major General Benjamin D. Foulois, with Colonel C.V. Glines (USAF), *From the Wright Brothers to the Astronauts*, McGraw-Hill Book Company, New York, 1968, pp. 184-202.

decisive.”⁵⁶ He clearly enunciated three points that are still valid regarding the employment of air power.⁵⁷ First, he believed that the air force that was able to preempt its opponent would bring about speedy victory and that once an air force had been destroyed, it would be impossible to build it up after hostilities commence. Second, he contended throughout that an effective air defence was the only efficient way to counter hostile air attacks. Third, he was in complete agreement with Douhet’s premise that the aircraft was unique and potent as an instrument of war. He tied these premises to the notion of air force autonomy, which had to be ensured by leaving its control to aviation officers with special expertise independent of surface commanders. In his testimony before Congress in 1925 he said, “The one thing that has been definitely proved in all flying services is that a man must be an airman to handle air power.”⁵⁸

6.4 CHANGES AND CHOICES BETWEEN THE WARS

During the years between the First and Second World Wars, the idea of air power playing a vital role in all future wars came to be accepted even though the demonstrated capabilities of the aircraft fell woefully short of those prophesied by air power supporters. The novelty and glamour of aviation and the claims of the vociferous champions of air power that strategic bombing was a stand-alone war-winning capability combined with the public mood to forget the unnecessary slaughter of the trenches that characterised the First World War kept air power in constant public debate.⁵⁹ In the 1930s Europe, however reluctantly, accepted the inevitability of military build up and was therefore predisposed to the role of air power in future campaigns although this belief was based on the fragility of civilian morale when faced with irresistible strikes from the sky.⁶⁰

Even though the concept of strategic bombing was accepted as a possible employment option for air forces, no comprehensive analysis or survey was carried out to ascertain the actual effect of bombing or at least to determine the tonnage required to

⁵⁶ William Mitchell, *Winged Defense*, G. P. Putnam’s Sons, New York, 1925, p.214

⁵⁷ David Jablonsky, (ed), p. 415.

⁵⁸ William Mitchell, p. 19.

⁵⁹ Stephens, Alan, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, p 20.

⁶⁰ *ibid*, pp 20-21.

effectively neutralise conventional targets.⁶¹ The proclaimed effectiveness of strategic bombing was built upon the perceived 'terror effect' it would have on civilian population, a concept itself derived from news reports regarding the 'sheer panic and fear' caused by the German raids of 1917. These over exaggerated accounts of the effects of aerial bombardment on civilian population, by both British and German news papers, made the statesmen throughout Europe wary of underestimating the prophesied potential of such a force.⁶²

Realising that warfare was rapidly moving into hitherto unknown realms, both in operational and moralistic grounds, the international community initiated efforts to curtail the emerging omnipotence of air power. The Washington Conference in 1921-22 recommended that only military objectives should be the legitimate targets for aerial bombardment.⁶³ Britain went to the extent of proposing a ban on the manufacture of aircraft weighing more than three tons under the auspices of the League of Nations in 1925.⁶⁴ The proposal was never adopted, the only outcome being the delay in development of heavy bombers in Britain itself.

The fearful effects of terror bombing were demonstrated during the comparatively small scale wars of the 1930s. The Italian Air Force flew hundreds of missions against Ethiopian towns and military targets between October 1935 and May 1936, inflicting large civilian casualties. Japanese air forces bombed major population centres throughout China during the Sino-Japanese War from 1937 to 1939.

By 1935, Germany had built up the new Luftwaffe which was evidently powerful and a formidable force.⁶⁵ The Luftwaffe capabilities were demonstrated during the Spanish Civil War in 1937 when the town of Guernica was bombed with an estimated 1,700 people killed. Although the very idea of bombing non-combatants was labelled

⁶¹ Malcolm Smith, *British Air Strategy Between the Wars*, Clarendon Press, Oxford, 1984, p.280.

⁶² For examples of both the British and German reactions, see 'Examples of Effect of Air Bombardment', in Stephens and O'Loughlin (eds), *The Decisive Factor: Air Power Doctrine by Air Vice Marshal H. N. Wrgley*, pp. 158-162.

⁶³ 'Aerial Bombardment in the Law of War', in *RAF Quarterly*, October 1934, p.463.

⁶⁴ Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, p. 22.

⁶⁵ Courtland Canby, p. 73.

'barbaric',⁶⁶ to some it clearly demonstrated the effectiveness of aerial bombing against unprepared civilian targets.⁶⁷

The air attacks in Ethiopia, China and Spain cannot be classified as the first strategic bombing in the real sense, since the objectives were almost completely tactical rather than strategic. Even though there was no air opposition in both Ethiopia and China, and the attacks were completely one-sided, the panic and shattering of civilian population's morale so emphatically prophesied by Douhet and Mitchell failed to materialise, and in fact there was evidence of the people's resolve and resistance hardening.⁶⁸ But for some obscure reason, the belief that a 'knock-out' blow could be dealt with purely strategic bombing persisted and the RAF and United States Army Air Corps continued to study the possibilities.

6.4.1 The Spanish Civil War – Prelude to the Second World War

The Spanish Civil War, from July 1936 to April 1939, was the first war after the First World War in which air forces of reasonable sizes were employed. The campaign therefore became the testing ground for the conceptual developments and technical advances on military aviation. Air units of Germany and Italy flying in support of the Nationalist forces were opposed by those of the Soviet Union siding with the Republicans.⁶⁹ The first German aid sent to Spain included 20 Junkers 52s and six Heinkel 51 fighter-bombers together with spares and personnel, which arrived on 01 August 1936.⁷⁰ By November, the Germans had formalised their intervention and formed the Condor Legion and gradually their strength increased to around 5,000 men and 200 aircraft.⁷¹

The doctrine of the Luftwaffe was developed and influenced by its first chief of staff, Walther Wever and his successor Albert Kesserling. While Wever supported Douhet's

⁶⁶ Noble Frankland, *The Bombing Offensive Against Germany*, Faber and Faber, London, 1965, p. 42.

⁶⁷ The role of air power in the Spanish Civil War and general conclusions that could be drawn from it has been analysed later in the chapter.

⁶⁸ Report from the Saturday Evening Post of 12-3-38, quoted in Michael S. Sherry, *The Rise of American Air Power*, Yale University Press, New Haven, 1987, p.69.

⁶⁹ Williamson Murray, *Strategy for Defeat: The Luftwaffe, 1939-1945*, Chartwell Books, New Jersey, 1986, p. 25.

⁷⁰ Antony Beevor, *The Spanish Civil War*, Cassell and Co, London, 1982, p.113.

⁷¹ David Irving, *The Rise and Fall of the Luftwaffe*, Futura Publications Ltd, London, 1974, p. 50.

assertion of the efficacy of strategic bombing as a morale destroying entity, he also compromised on its rigidity by accepting that a major war would be a long drawn affair with unpredictable effects. Therefore, instead of striving to place his service doctrine above those of the other services, Wever incorporated the idea of joint operations to his doctrine and placed it within a higher order.⁷² Wever felt that strategic bombing by alone was unlikely to be conclusive and would only be one of a number of air power capabilities that would be employed in support of land, maritime and air operations undertaken in pursuit of the country's national interests. This was perhaps the most comprehensive and forward thinking doctrine to have evolved at that time. It is believed that his death in an aircraft accident in 1936 left the fledgling *Luftwaffe* with a lack of balanced doctrinal view.⁷³

The Spanish Civil War was an invaluable testing ground for the *Luftwaffe* both in terms of the nascent and as yet not formalised doctrine, strategy and tactics as well as for the technically improved fighters and bombers that were being produced.⁷⁴ The Spanish Civil War distilled the doctrinal process and established a number of principles and concepts in a universal manner. It established without doubt the veracity and correctness of the belief regarding the inherent offensive capability of air power. Strategic bombing, although less effective than was propagated by early theorists, came to be accepted as a primary role of air power leading to the emergence of doctrine supporting it. Control of the air, till then not given adequate thought, was seen as a prerequisite for the success of all other operations and therefore, methods to contain the opposing air forces by attacks on its defences, aircraft, fuel supplies and airfields were initiated.⁷⁵ This was the beginning of the 'counter air' role for the air force. The realisation of the requirement for control of the air also led to the military seeking confirmed local air superiority before commencing specific operations.⁷⁶ The vulnerability of heavy and slow bombers to the more agile fighters was recognised. This led to the *Luftwaffe* initiating escort missions, adding yet another classic role to the fighter aircraft. Although the importance of control of the air and the need to protect bombers were recognised as the necessary roles of the air force, paradoxically

⁷² *ibid*, p. 76.

⁷³ *ibid*.

⁷⁴ Antony Beevor, p. 139.

⁷⁵ Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, pp. 30-31 .

⁷⁶ *ibid*, pp.32-34.

the tactical employment of air power within the framework of ground operations was seen as the most important and war winning role of fighter aircraft.⁷⁷ This requirement emphasised the power of joint air/land operations and the systems required to implement such an operation – joint planning, air-ground communications, recognition devices, and identification of forward edge of battle – were developed. The concept of close air support came into being as a clear-cut role for air power.⁷⁸

The Soviets started sending aid in support of the Spanish communists in October 1936 that included 42 Ilyushin 15 (Chato) biplane fighters, and 31 Ilyushin 16 (Rata) monoplane fighters.⁷⁹ Although limited attacks were carried out on airfields, the the Red Air Force was confined mainly to close air support and air defence roles.⁸⁰ In contrast to the Germans, the Soviets were equally involved in a propaganda war as well as actual fighting and therefore their efforts in purely air power terms were considerably diluted. Doctrinally the Soviets seem to have learned only the value of army support from this campaign, effectively relegating air power to a support role.⁸¹ This perception and subsequent inadequate conceptual development were to have a detrimental impact on Soviet air power doctrine in later years.

At the outbreak of the Second World War, all the major air forces of the world had formulated air power doctrines to suit their peculiar conditions. The influences that governed their development were not always the same, although the general concepts were by and large in agreement with each other.⁸² Technological developments and the design capabilities of different aviation industries also varied with a number of disparate factors. The air forces that opposed each other in 1939 were therefore not equally matched either in capabilities or in doctrinal development and comprehensive understanding of air power capabilities. Universally there was no clear indication of the dramatic changes that would take place in doctrine, strategy and tactics as the War progressed.

⁷⁷ Williamson Murray, 'The *Luftwaffe* Before the Second World War: A Mission, A Strategy?', in *Journal of Strategic Studies*, Vol 4, No 3, September 1981, pp. 262-264.

⁷⁸ *ibid*, pp.265-168.

⁷⁹ Antony Beevor, p. 134.

⁸⁰ *ibid*, p. 216

⁸¹ *ibid*, pp.219-221.

⁸² Alan Stephens, *In Search of the Knock-Out Blow: The Development of Air Power Doctrine 1911-1945*, pp. 31-32 .

6.5 SOVIET DOCTRINE DEVELOPMENT UP TO 1941

The Soviet emphasis on the development of a strong and independent military force provided the impetus for the Red Air Force to constantly strive for improvement in the lead-up to the Second World War, but the rate of change and progress was sporadic and uneven.⁸³ Despite the growing menace of Japanese and German military build up, there was a lack of focus in the military developments in the Soviet Union.⁸⁴ The reasons for this situation were many and varied.⁸⁵ For long years the military had suffered from a chronic shortage of equipment, inadequate production facilities, poor organisation and lackadaisical training. Notwithstanding all the efforts at industrialisation the rate of industrial progress within the country actually declined in the first half of the 1930s. The government was unable to ensure economic stability and the situation was exacerbated by the forced collectivisation of agriculture and party factionalism. Perhaps the most important reason for the lack of focus on military industrial development was the regular 'purges' of the intelligentsia, mainly scientists, professors and engineers, leading to insufficient capability for research and extremely low morale both in the leadership and the workforce of advanced production facilities.⁸⁶

These factors contributed directly to the poor quality and efficiency of the Red Air Force.⁸⁷ The deficiencies in its performance were revealed when it undertook limited combat operations during the Spanish Civil War, deployments in China and the Finnish War. Since the Soviet military authorities did not consider air power as an independent strategic entity meriting greater appreciation, the VVS was operationally in poor state in the mid-1930s.

⁸³ Robert A. Kilmarx, *A History of Soviet Air Power*, Faber and Faber Ltd, London, 1962, p.118.

⁸⁴ *ibid.*

⁸⁵ *ibid.*

⁸⁶ *ibid.*, pp. 118-119.

⁸⁷ The Soviet military air forces were called different names during the early days, but finally came to be referred to as *Voенно-Vozhdushnie Sili* (VVS) within the USSR establishments and was commonly called the Red Air Force in the outside world.

6.5.1 Aircraft – Production and Strength

From 1928 to the outbreak of the Second World War in 1939, the composition of the Red Air Force underwent radical changes. The proportion of reconnaissance aircraft reduced from 82% in 1929 to 26% by 1934 and 9.5% in 1938, while the proportion of bombers and fighters increased correspondingly. Between 1934 and 1938 half the total combat aircraft were bombers and the number of fighter aircraft increased from 25 to 39 per cent in the same timeframe.⁸⁸

In the early 1930s the Soviet Union had been greatly interested in large, heavy four-engine bombers of much greater performance capability even than the bombers that were being advocated by air strategists elsewhere, notably in the United States.⁸⁹ The experiences of the Spanish Civil War that emphasised the effectiveness of ground support aircraft, however, led to a re-evaluation of the available equipment and projected design directions.⁹⁰ The Red Air Force underwent a number of re-equipment programs during the Second Five Year Plan (1933-37), particularly in the fighter category. The number of aircraft increased to more than 5,400 by 1937, of which around 4,000 were considered front-line machines.⁹¹ The two military aircraft design bureaus involved in aircraft production during this period were Tupolev's Experimental Aerodesign Division and the Central Design Bureau under Ilyushin, which had produced the I-5 fighter.⁹² By 1937-38 the Air Force had been provided with the basic fighters (I-15, I-16 and I-17 fighters) that constituted the majority of its strength at the outbreak of the Second World War.⁹³ These fighters were all of inferior performance to the fighters equipping the *Luftwaffe*.⁹⁴

The Soviet aircraft design bureaus were autonomous bodies and there was great rivalry, jealousy and bitterness amongst them.⁹⁵ There was also direct interference by

⁸⁸ Alexander Boyd, *The Soviet Air Force Since 1918*, Macdonald and Jane's (Publishers) Ltd., London, 1977, p. 35.

⁸⁹ Major General J.E. Fechet, 'Bombardment Aviation', in *Aero Digest*, October 1933, pp.18-19.

⁹⁰ Kenneth R. Whiting, 'Soviet Aviation and Air Power under Stalin, 1928-1941', in Robin Higham & Jacob W. Kipp (eds), *Soviet Aviation and Air Power: A Historical View*, Westview Press, Boulder, CO, 1977, p. 58.

⁹¹ 'New Statistics of Aerial Rearmament', *Interavia*, August 10, 1937, pp.1-3.

⁹² Alexander Boyd, p. 40.

⁹³ Alexander Schriffrin, *The Military Strength of the Powers*, Victor Gollancz, London, 1939, p. 80.

⁹⁴ 'U.S.S.R.', in *Aeronautics III*, No 4, London, November 1940, p. 101.

⁹⁵ Alexander Boyd, p. 41.

Stalin wherein governmental support was withheld from promising designers who were expelled into design wilderness. By 1934, Tupolev and Polikarpov emerged as the senior aircraft designers. Their basic design philosophy as well as their *modus operandi* was totally different from each other. Polikarpov maintained that a successful design must create an aircraft at least equal if not of better performance to those in service with Western air forces and was openly frustrated and contemptuous of the comparatively poor technical and production skills of the Soviet aircraft industry. Tupolev on the other hand emphasised the need to produce designs that could fulfil the functions determined by the doctrinal demands of the Red Army and could be produced by the indigenous industry.⁹⁶

Research and development was independent of the production facilities and therefore it was ensured that the long-term doctrinal needs of the air force were kept in focus from a design perspective. It was this semi-autonomous state of the research sections that led to the production of a small number of autogyros (A-7 designed by Nikolai Kamov) for the Red Army.⁹⁷ However, the need of the hour was the design for an effective anti-tank aircraft and the Red Army specifications were for an aircraft of fighter performance with extensive armour protection, capable of carrying a heavy armament load. The available engine technology precluded the design or production of an aircraft with such disparate requirements in the first half of the thirties and the development of the low-level ground-attack or *shturmovik* aircraft took place only in 1938 when Il'yushin produced the TsKB-55.⁹⁸ Even then production was delayed by interference by Stalin himself who insisted that the design be revised as a faster single-seat machine thereby effectively denying the Red Air Force early familiarity with what was to become one of its basic aircraft. Stalin also promoted a new large calibre recoilless gun that had been developed by Leonid Kurchevski for use in the anti-tank role. Stalin reversed the roles of designers and the aircraft industry was ordered to design a special aircraft to carry two 76-mm Kurchevski cannons.⁹⁹

⁹⁶ *ibid*, p. 42.

⁹⁷ The first Soviet autogyro, the Kaskr, was designed by Kamov and Skrzhinski in 1929 and test flown in 1931. The first Soviet helicopter, the TsAGI-1EA, was designed and flown by Aleksei Cheremukhin in 1932.

⁹⁸ Alexander Boyd, p. 43.

⁹⁹ *ibid*, p.44.

The Kurchevski cannon, demonstrated in 1931, was fitted to the top secret 'Z' fighter and flown in front of Stalin in 1933. But a series of problems and setbacks that were inhibiting the performance of the aircraft and the cannon was not mentioned to Stalin who ordered production.¹⁰⁰ The major drawback was that the cannon by itself was highly unreliable – jamming, bursting and with a very low muzzle velocity denying minimum accuracy in air-gunnery. 21 of these aircraft were built in the next two years before Kurchevski fell from favour. More than the failure to produce a role dedicated and performance capable aircraft, the fall-out from this episode had even more far reaching and damaging impact on the aircraft industry.¹⁰¹ This fiasco enraged Stalin and made him deeply suspicious of engineers and designers engaged in the more unconventional aspects of military technology.¹⁰² It triggered off a wave of arrests, soon compounded by the poor showing of Soviet aircraft against the *Luftwaffe* in Spain. The full effect of Stalin's purge of the technical community on the development of military aircraft design cannot be fully and adequately assessed.

On the positive side, the Second Five Year Plan and Stalin's insistence on a fighter aircraft that met laid down performance criteria continued to give the needed impetus to fighter design development.¹⁰³ By December 1933, the prototype of the I-16 had made its maiden flight. The I-16 was at that time the world's smallest, lightest and fastest fighter¹⁰⁴ and served as the standard Soviet single-seat fighter for the next seven years, continuing operational employment until 1944.

The experience of Soviet fighter pilots in Spain persuaded the Red Air Force Command that the future of fighter warfare would devolve on a synergy of manoeuvrability in terms of tight turns at slower speeds and reliance on fast acceleration and high maximum speed for fast attacks and effective break away from combat. The design developments of Soviet fighters exemplified this approach for a few years.¹⁰⁵

¹⁰⁰ In 1933, there was no one in Soviet Russia who was capable of informing Stalin that one of his pet projects was not capable of the performance he expected without fear of repercussions in terms of personal safety and well-being.

¹⁰¹ Alexander Boyd, p. 45.

¹⁰² *ibid.*

¹⁰³ *ibid.*

¹⁰⁴ The fighter had a wingspan of nine meters, overall length of six and weighed only 1,345 kg.

¹⁰⁵ Alexander Boyd, p. 52.

From 1937, Soviet fighter production was primarily confined to the I-15, I-16 and I-17 whose performance compared favourably with those of fighters such as the Curtiss Hawk and Seversky's P-35 being produced in the United States. The medium bombers included the SB-2 and SB-2bis, both having a combat range of 900 miles and capable of carrying a bombload of 1,700 lbs.¹⁰⁶ Heavy bomber and transport strength was mainly made up of the slow Tupolev T-3s, which were vulnerable to fighters and anti-aircraft defences.¹⁰⁷

6.5.2 Training

Flight training for Soviet pilots in the 1930s began in the aero clubs¹⁰⁸ from where they joined elementary flying schools of the Red Air Force, subsequently moving to the fighter, bomber or other specialist schools.¹⁰⁹ The Air Force training was for about two years after the aero club and at the end of the specialist school the pilots had about 200 to 250 hours of flying experience.¹¹⁰ In 1939, there were only about thirty specialist schools, but the number increased in the years immediately preceding the German invasion to around 150.¹¹¹

During the inter-war years the training imparted to Air Force personnel was not good enough to improve their qualifications and proficiency. This was due to a number of factors that combined to make the training pattern obsolescent.¹¹² To start with the 'purges' had considerably reduced the number of qualified fliers and technicians that not only depleted the available instructor quantity, but also contributed to an overwhelming demoralisation in the force. The lack of experienced instructors and senior pilots also led to the VVS being unable to keep abreast of the tactical refinements that were taking place in modern air warfare, thus further increasing the

¹⁰⁶ John Stroud, *The Red Air Force*, The Pilot Press, London, 1943, pp. 18, 40.

¹⁰⁷ *ibid.* p. 41.

¹⁰⁸ In 1933, the aero clubs numbered around 50, spread across the country and two years later the number rose to 113. (Robert A. Kilmarx, *A History of Soviet Air Power*, p.118, refers).

¹⁰⁹ Asher Lee, *The Soviet Air Force*, Duckworth, London, 1952, pp. 56-71.

¹¹⁰ Major A.S. Hooper, *The Soviet Fighting Forces*, Fredrick Muller, London, 1941. p. 45.

This was about the same amount of flying that was given in training in most of the Western air forces during that period, however, there is no easy way to compare the quality of training that was imparted.

¹¹¹ Erich Wollenberg, *The Red Army*, Secker and Warburg, London, 1940, p. 328.

¹¹² Robert A. Kilmarx, p. 132.

pressure on an already strained training infrastructure.¹¹³ Additionally, the general education level among Soviet youth was inadequate to keep pace with the technical complexities of the more modern aircraft manufacturing processes and led to a decline in the expertise available for routine maintenance.¹¹⁴

A comprehensive reorganisation of the Red Air Force took place in 1940 when Timoshenko¹¹⁵ set up separate schools to impart theoretical education to the aircrew and enlarged the facilities for advanced education at the military academies and civil institutes.¹¹⁶ In 1939 he established a separate Air Force command and navigation academy that also conducted postgraduate technical courses for aeronautical designers and experts who would later become responsible for the technical proficiency of the air force.¹¹⁷ Reserve regiments to be utilised in emergency were also established.

Throughout the 1930s and particularly before the German invasion, large-scale military manoeuvres involving Air Force formations including long-range bombers and airborne troops were held annually. It is reported that up to 3,000 paratroopers and 1,000 aircraft, completing 5,600 hours of flying, participated in the exercise conducted in 1935.¹¹⁸ The primary emphasis in these joint operational training exercises was the utilisation of the air force in direct support of the Red Army. In day-to-day operations, limitations of equipment and also frequent shortages of fuel and spare parts restricted flying in operational units and adversely impacted training. The performance deficiencies in terms of training lacunae were recognised by the Russians who sought help, initially from the Germans and subsequently from the United States to improve their training standards. But they were not very successful in obtaining adequate knowledge on tactics and operational techniques although help in production

¹¹³ Fedotoff D. White, *The Growth of the Red Army*, Princeton University Press, Princeton, 1944, p.378.

¹¹⁴ 'The Soviet Military Organisation: II Rise of the Soviet Army', *Army Information Digest*, V, No 11, November, 1950, p. 58.

¹¹⁵ S. Timoshenko (1895-1970), assumed charge of the Defence Commissariat in 1940 after the war with Finland.

¹¹⁶ Robert A. Kilmarx, p. 135.

¹¹⁷ L. Trilling, *Soviet Education in Aeronautics: A Case Study*, Center for International Studies, Massachusetts Institute of Technology, Cambridge, Mass, 1955, p. 41.

¹¹⁸ Richard E. Stockwell, 'Soviet Aircraft Production', in Asher Lee (ed) *The Soviet Air and Rocket Forces*, Weidenfeld and Nicolson, London, 1959, p. 243.

technology was forthcoming.¹¹⁹

Until about 1936, Western observers considered the Red Air Force to be powerful mainly as a result of the Russian air shows and a concentrated attempt by the Russians to impress foreign reporters at international air shows.¹²⁰ The Russians reinforced this belief by adopting the fashion of ‘showing the flag’ by carrying out diplomatic flights by their large bomber aircraft into neighbouring countries.¹²¹ This further reinforced the opinion of observers regarding the production capabilities of the USSR. The true state of affairs was conveniently hidden behind this façade presented to the rest of the world.

6.6 COMBAT OPERATIONS: PRIOR TO 1941

After 1935, the Soviet Union was able to pursue a policy of covert promotion of Communist revolutions because of the changing international geo-political situation brought on by the excessive militarisation of Germany, Japan and Italy.¹²² The Soviets were able to justify their interference in the internal conflicts in Spain and China because of the actions of these countries although their intervention capability was severely restricted because of the military purges of 1937 and 1938.¹²³ Small-scale action continued on the border with Japan until the signing of the Russo-Japanese pact in April 1941 that effectively lifted the pressure of facing a two-front war from the Soviet military.¹²⁴

¹¹⁹ There are unconfirmed reports that 32 American fliers went to Soviet Union as military flight training instructors and advisors (‘USA-USSR: Russian-American Cooperation’, Article in “*Interavia*” February 22, 1934, p. 20). It would therefore seem that the United States unofficially provided direct training assistance.

¹²⁰ Robert A. Kilmarx, p. 138.

¹²¹ *ibid*, p. 139.

¹²² *ibid*, p. 141.

¹²³ Kenneth R. Whiting, in Robin Higham, & Jacob Kipp (eds), *Soviet Aviation and Air Power: A Historical View*, p.54.

¹²⁴ Robert A. Kilmarx, p. 142.

A large number of books are available on the history and the development of the Soviet military during this phase. *A Century of Conflict* by Stefan T. Possony, *A History of Russia* by Bernard Pares, *From Lenein to Khrushchev* by Hugh Seton-Watson, *The History of the Far East in Modern Times* by H.M. Vinacke are few of them.

6.6.1 The Spanish Civil War

Soviet military aid to the Loyalists in Spain arrived too late and was inadequate to make any serious impact on the final outcome of the war. Their interest was to prolong the war in order to strengthen the Communist cause, obtain combat experience, test new military equipment and techniques and gain time to make further preparations at home with the hope of postponing the inevitable major war.¹²⁵ The Soviets send over 1,000 aircraft with support equipment along with pilots and technicians and undertook the training of Spanish aviators both in Spain and the Soviet Union.¹²⁶ The Red Air Force fought independent of Spanish control and the Russian military advisers were held in high esteem by the general staff.¹²⁷ Although the Russian aircraft were the best available to their forces at that time, the German aircraft were superior in performance to all of them and as a result, Franco's forces won air superiority shortly after mid-1937.¹²⁸ Around the same time the Russians realised that the war was lost and started to reduce their commitment in a gradual manner, withdrawing completely only in the last days. The Soviet fliers gained valuable combat experience in Spain, but from a wider air power perspective the lessons they learned were mostly negative.¹²⁹

Throughout the war air power was used primarily as an auxiliary support element to the army and the few bombing raids conducted were ineffective. From this both the Russians and the Germans drew the conclusion that strategic bombing was an inefficient way to employ combat aircraft although the ineffectiveness of strategic bombing was not a doctrinal flaw but the result of inappropriate technology and aircraft capability.¹³⁰ The technological inferiority of the Soviet combat aircraft was brought home conclusively. As a result the Soviets started to acquire foreign aircraft and also use them as sources to improve the technical information of the designers.¹³¹

¹²⁵ Stefan T. Possony, *A Century of Conflict*, Henry Regenery Co., Chicago, 1953, p. 217.

¹²⁶ John Fricker, *The Air Forces of the World*, Hanover House, New York, 1958, p. 249.

¹²⁷ Robert A. Kilmarx, p. 143.

¹²⁸ *ibid*, p. 144.

¹²⁹ Kenneth R. Whiting, in Robin Higham & Jacob Kipp (eds), *Soviet Aviation and Air Power - A Historical View*, p.58.

¹³⁰ *ibid*.

¹³¹ Cy Caldwell, 'Aerial Bombardment on a Rampage', *Aero Digest*, November, 1937, p. 30.

The main learning failure of the Red Air Force was their inability to apply or even consider developing a doctrine for strategic air warfare. They also failed to appreciate the relative importance of disrupting enemy lines of supply and communications immediately behind the forward line of battle. On the positive side the war demonstrated the need to develop special aircraft for the direct and immediate support of ground operations. The core requirement to obtain air superiority was also clearly demonstrated and the Soviets understood the necessity to develop a fighter with speed and altitude performance to match the Me 109.

The war also provided few positive influences on the Red Air Force, the most important being the experience it gained in organising air warning and air defence systems which had a direct impact on the future development of Soviet anti-aircraft defences.¹³² The planners also learned to emphasise surprise, mobility, flexibility and concentration of mass in doctrinal concepts. The use of airfields with only basic facilities close to the front was seen as a great advantage. This concept had long-term implications not only on the doctrinal concept of air operations but also the design and technological development of future fighter aircraft.¹³³

6.6.2 Operations in the Far East

The major revolutions that brought an end to the Chinese empire in 1911 and the Russian empire in 1917 had created a strategic vacuum in the Far East that Japan wished to fill. The Soviets were reactive rather than aggressive to Japanese expansion policies, although their control of Manchuria made the USSR wary – a wariness that was further increased with the Japanese signing of the Anti-Comintern Pact with Germany in 1936, aimed directly at containing Russia, which was perceived by both as a common enemy.¹³⁴ As a kind of retaliation the Soviet Union concluded a nonaggression pact with China in 1937 and sent an air force contingent and support establishment as direct aid against their war with Japan.¹³⁵ Stalin was relieved that the main Japanese thrust was against China and saw the advantage in helping the Chinese,

¹³² Robert A. Kilmarx, p. 146.

¹³³ *ibid.*

¹³⁴ Laurie Barber & Ken Henshall, *The Last War of Empires: Japan and the Pacific War*, David Bateman Ltd., Auckland, New Zealand, 1999, p.65.

¹³⁵ H.M. Vinacke, *A History of the Far East in Modern Times*, Appleton-Century-Crofts, New York, 1941, p. 610.

thereby tying the Japanese down sufficiently to discourage any forays into Soviet territory.¹³⁶ The main Soviet contribution was aircraft and pilots with at least 450 aircraft and more than 300 pilots being stationed in China by end-1938.¹³⁷

The United States, Great Britain and France also exported some of their aircraft to China and the Red Air Force found that their aircraft compared favourably with these in terms of speed and manoeuvrability.¹³⁸ The Russians conducted most of the Chinese air operations against the Japanese. From May 1939, Soviet bombers attacked Manchukuo and Japanese bombers retaliated, leading to the greatest air battles yet seen with formations of up to 150-200 warplanes deployed at one time. The Soviet anti-aircraft fire was very effective and the Japanese air force barely held its own.¹³⁹ The Red Army, commanded by Lieutenant-General Georgi Zhukov, launched a successful surprise assault on 20 August, which was a fast manoeuvre combination of armour, artillery, air support and infantry, predating the German blitzkrieg concept unveiled in the invasion of Poland by some two weeks. The Red Air Force was equally successful. Their tactics were superior to the Japanese with tighter and better-controlled air formations that refused individual dogfights.¹⁴⁰ During the operations the Japanese lost over 600 aircraft as compared to the 143 lost by the Red Air Force.¹⁴¹ The Soviets were continually involved in the war till the winter of 1939 and was the biggest supporter of China during the entire Sino-Japanese war.¹⁴² The Soviets applied the lessons learned from the Spanish Civil War in the air operations against the Japanese. For example, they applied tactical lessons learned like the use of concentrated air support for manoeuvring army units and the ground control of group air combat activities.¹⁴³ The concept of direct ground control of air combat activity was later refined to a fine art by the Red Air Force. Airlift of cargo and troops to relieve ground troops temporarily cut-off was also effectively done, but the absolute

¹³⁶ Kenneth R. Whiting, in Robin Higham, & Jacob Kipp (eds), *Soviet Aviation and Air Power - A Historical View*, p.58.

¹³⁷ Robert A. Kilmarx, p. 147.

¹³⁸ *ibid*, p. 148.

¹³⁹ Laurie Barber & Ken Henshall, p. 66.

¹⁴⁰ Martin Gilbert, *Second World War*, Guild Publishers, London, 1989, p. 312.

¹⁴¹ Major A.S. Hooper, p. 21.

¹⁴² H.M. Vinacke, *A History of the Far East in Modern Times*, Appleton-Century-Crofts, New York, 1941. p. 610.

¹⁴³ Robert A. Kilmarx, p. 149.

necessity to have air superiority in order to succeed in these missions was not fully understood because of the tactical slant to the doctrinal thinking.

Although victorious, the Russians were not able to derive maximum benefit from the experience, since the continuing purges of top military leaders robbed the armed forces of the necessary guidance to analyse and learn from mistakes and to make necessary doctrinal changes at the higher levels. It is reported that by the end of 1939, about 75 per cent of the senior officers of the Red Air Force had been eliminated.¹⁴⁴

6.6.3 Other Operations

As per a secret agreement with Germany, the USSR entered Poland on 17 September 1939 and advanced towards the pre-determined Narev-Vistula-San dividing line. The Red Army timed its intervention well and invaded only after the Nazis had decimated the Polish forces to avoid any long drawn battle.¹⁴⁵ But even then the Polish Air Force, which had almost ceased to exist, challenged the Soviet advance strenuously from small pockets of resistance. After the occupation of their area of control, the Soviet Union applied an active program for the recovery of foreign combat aircraft for technical exploitation - a procedure that was to become standard practice with the Red Air Force.¹⁴⁶ During this brief operation although the frontal aviation units assigned to the ground forces flew cover, their capabilities were not effectively tested.¹⁴⁷

In contrast, the Soviet invasion of Finland on 30 September 1939 needed a major effort from the Red Air Force both in direct support and attacks on targets in the rear. The Finnish Air Force with a total strength of 145 obsolete aircraft, of which only about 100 were serviceable, was not equipped quantitatively or qualitatively to carry out anything more than a holding action at best.¹⁴⁸ To counter this inadequate force the Red Air Force deployed some 2,000 to 2,500 aircraft.¹⁴⁹ The first Finnish request in March 1940 for at least one hundred bombers with crews was never met by the

¹⁴⁴ Kenneth R. Whiting, in Robin Higham & Jacob Kipp (eds), *Soviet Aviation and Air Power - A Historical View*, p.63.

¹⁴⁵ James T. Shotwell & Max H. Laserson, *Poland and Russia*, King Crown Pres, New York, 1945, p. 53.

¹⁴⁶ W. L. White, *Land of Milk and Honey*, Harcourt, Brace and Co., New York, 1949, p. 44.

¹⁴⁷ *ibid.*

¹⁴⁸ Robert A. Kilmarx, p. 151.

¹⁴⁹ Kenneth R. Whiting, p.64.

Allied governments.¹⁵⁰ But they later received assistance from the Western powers that included more than 200 aircraft, although even this aid was complicated by logistical and political difficulties and therefore the Russian had no difficulty in maintaining air superiority throughout the campaign. The tempo and scope of air operations were high in early 1940 when the Finnish positions were subjected to preparatory bombing and the ground offensive used close air support and reconnaissance missions. On some days between 200 and 400 Soviet aircraft went into action.¹⁵¹ In this one-sided campaign the Finns were forced to accept peace terms on 12 March 1940.¹⁵²

Although the operation was declared a success, the overall performance of Soviet air forces had been less than credible. The main drawback was the poor performance of the Soviet bomber force, which resulted in the prolongation of what should have been a short and swift campaign. Mannerheim, the Finnish commander-in-chief claimed that Russian air power, either in bombing or in close-support role, was not a factor of decisive importance.¹⁵³ The Finns claim to have destroyed more than 700 Soviet aircraft, but also note that the Soviet pilots improved steadily as the campaign progressed, apparently learning from their mistakes. The lack of preparation and conditioning to operate under the extreme weather conditions of winter in such difficult terrain contributed to the failure of the air effort. The poor performance of the air force could also be attributed to the fact that the better-trained and equipped units were held in reserve as a precaution against a German attack.¹⁵⁴ The bomber force that was employed was probably the most expendable component of the Russian air arm at that time. However, their ineffectiveness led to a lowering of support for strategic bombing in the Soviet military councils of that period.

¹⁵⁰ John H. Wuorinin (ed), *Finland and World War II, 1939-1944*, The Ronald Press Company, New York, 1948, pp. 71-75.

¹⁵¹ Robert A. Kilmarx, p. 152.

¹⁵² *ibid*, p. 153.

¹⁵³ Kenneth R. Whiting, p. 65.

¹⁵⁴ 'USA on Soviet Air Force', *Interavia*, April 16, 1940, p.14.

6.6.4 The Impact of Stalin's Purges

From 1937 to 1941, the numerical strength of the Red Air Force increased both in men and machine, but its effectiveness declined continuously. This apparent dichotomy was the result of a combination of factors. Firstly, the technical parity that Soviet designers and engineers had achieved with other European air forces in the early 1930s was lost because of inadequate state support for innovative designs. Secondly, the setbacks suffered in Spain and Finland degraded the operational confidence of the air force and affected the overall strategic planning at a high level. This was compounded by the almost complete destruction of the high command by Stalin's purges. The purges left the entire Soviet military apparatus without the infrastructure with the necessary experience to study the shortcomings and implement remedial measures.¹⁵⁵

The effects of the purges instituted by Stalin to ensure that the military did not become a strong independent body were manifold. As mentioned earlier, Soviet training was grossly inadequate and pilots were discouraged from developing personal judgement traits, being taught to blindly obey instructions from the squadron leader. Night and bad weather flying training was completely neglected. Senior officers, even if aware of the shortcomings were reluctant to exercise individual initiative and remedy the situation for fear of being identified for repercussions.

Technical development was also severely affected by the purges and innovatory voices were silenced.¹⁵⁶ Constant interference by incompetent officers in command diluted the design capabilities of all the bureaus. A classic example is the case of Yakovlev's graceful Ya-22 conceived as a high-speed escort fighter, which was put into production as the Yak-4 close-support bomber at the insistence of General Smushkevich¹⁵⁷ resulting in such degradation of performance that it was withdrawn from production by late 1940. It has been estimated that 450 aircraft designers were interned between 1934 and 1941 and some major aircraft factories lost almost all their key personnel. Failures of prototypes to meet specified performance figures and

¹⁵⁵ Alexander Boyd, p. 88.

¹⁵⁶ *ibid*, p. 99.

¹⁵⁷ General Yakov Smushkevich, known as General Douglas in Spain during the Spanish Civil War, was executed in October 1941.

accidents during flight tests were also punished severely. In brief, Stalin's purges robbed the Red Air Force of an effective command structure and the aircraft industry of forward thinking innovative designers.

Chapter 7

THE GREAT PATRIOTIC WAR 1941-1945

7.1 THE GERMAN INVASION OF THE SOVIET UNION

Operation Barbarossa

“The German invasion of the Soviet Union was the greatest test in its history not only of the capabilities of the Red Air Force and the doctrine of combined-arms warfare but also of all aspects of Soviet state power.”

Robert A. Kilmarx¹

On 16 December 1940, Hitler issued Directive No 21, designated ‘Operation Barbarossa’ which read in part:

The German Armed Forces must be prepared to crush Soviet Russia in a quick campaign even before the end of the war against England.Preparations are to be completed by May 15,1941.....The ultimate objective of the operation is to establish a defensive line against Asiatic Russia from a line running approximately from the Volga river to Archangel.²

The directive was fairly detailed and further went on to task the air force:

B) Air Force

It will be the task of the air force, so far as possible, to damage and destroy the effectiveness of the Russian air force, and to support the operations by the army at the points of main effort, that is to say in the sectors of the central army group and in the area where the southern army group will be making its main effort. The Russian railways will either be destroyed, or, in the case of more important objectives close to hand (i.e. railway bridges) will be captured by the bold use of parachute and airborne troops.³

¹ Robert A. Kilmarx, *A History of Soviet Air Power*, Faber and Faber Ltd, London, 1962, p. 171.

² Quoted in J.F.C. Fuller, *A Military History of the Western World*, Vol III, De Capo Press, New York, 1957, p. 414.

³ Extracted from Translation of German Directive *OKW/WFst/Abt.L(I)Nr. 33408/40g.Kdos dated 16 December 1940*, as given in <<http://www.geocities.com/Area51/Cavern/2941/directive21.html>> ‘Accessed 16 May 2002’.

On 22 June 1941, the German armed forces crossed the Polish border into Soviet Russia to begin the largest land battle in history. At 0340 on that date, the combined air assets of four *Luftwaffe* air fleets struck a devastating blow to the Red Air Force.⁴ The *Luftwaffe* used 1,280 combat aircraft in the first series of attacks, destroying more than 2,000 Soviet aircraft on the first day of the campaign in approximately 18 hours of combat, suffering a loss of only 35 aircraft.⁵

7.1.1 The Land War

The German advance into Russia was three-pronged, with Army Groups North and Centre advancing towards Leningrad and Moscow and Army Group South striking towards Kiev and the Ukraine.⁶ In front of the armoured spearheads, the *Luftwaffe* cleared the way by annihilating artillery positions, command posts and resupply columns on the road in a spectacular repeat of its awesome performance of the previous year in France.⁷ Although the Soviets were not taken by surprise their defence against the advance was totally uncoordinated, depending at this stage purely on individual initiative of whichever local commander dared to exercise that option, and to the instinctive tenacity of the Russian forward troops.

In less than two days, the German army had unhinged the North Western and Western Soviet fronts⁸ and in four days the 56th Panzer Corps had advanced 185 miles and breached the river Dvina. By mid-July Army Group North stood just 60 miles from Leningrad, having largely cleared the Baltic States in an advance averaging 18 miles a day.⁹ The city was subsequently encircled marking the beginning of the famous '900

⁴ The Red Air Force or VVS, was usually referred to during and since the Second World War as the Soviet Air Force, which convention is followed in this dissertation also.

⁵ Cajus Bekker, *The Luftwaffe War Diaries*, Doubleday Books, New York, 1975, p. 317.

⁶ Alan Clark, *Barbarossa: The Russian-German Conflict 1941-45*, Quill, New York: 1985, p. 45.

⁷ John T. Greenwood, 'The Great Patriotic War, 1941-1945', in Robin Higham & Jacob W. Kipp (eds), *Soviet Aviation and Air Power: A Historical View*, Westview Press, Boulder CO: 1978, p. 76.

⁸ John Erickson, *The Road to Stalingrad*, Harper & Row, New York, 1975, pp. 131-32.

⁹ Walter Goerlitz, *The German General Staff*, Praeger, New York, 1961, p. 395.

days' siege. However, the German general staff recognised Moscow as the real centre of gravity of the Soviet defence and wanted to concentrate on its capture.¹⁰

The Army Group Centre achieved the most striking gains. In less than two months, the German army was at Smolensk, the only major city before Moscow. The Soviets elected to fight on the frontiers but once the Germans had broken through, the pace and depth of their attacks prevented any cohesive defences from being formed in the rear. The Soviet army was being decimated and Marshal Timoshenko, Western Theatre commander, reported to Stalin on 16 July that "We have no trained forces of adequate strength covering the Vyazma-Moscow axis; the main deficiency – no tanks."¹¹

In the south, the Germans faced the strongest grouping of Soviet forces supported by a strong tank force. The Soviets had an 8:1 advantage in tank strength over the Army Group South, but failed to hold the Germans back.¹² In less than three weeks, the German army covered 250 miles and took Zhitomir, the last bastion before Kiev.

The basic allocation of forces by the German army high command for the invasion, which gave two panzer groups to Army Group Centre¹³ as opposed to one each for the others, reflected the army's view that Moscow should be the primary goal. Moscow was selected as the primary strategic target because the Army appreciated that only the neutralisation of Moscow as a command centre would eliminate the possibility of a Soviet rebuild of the defeated armed forces and their reestablishment on an operationally effective basis.¹⁴ Moscow was the communications hub of European Russia and its fall would deny the Soviets control over much of their war industry that had not yet been relocated to the east. No movement of strategic reserves would be possible if Moscow fell and a defensive campaign west of the Volga would therefore become impossible at the strategic level. Additionally because of the importance of Moscow to the Soviet war effort, the Soviets

¹⁰ Asher Lee, *The Soviet Air Force*, Duckworth, London, 1952, p. 123.

¹¹ John Erickson, p. 174.

¹² B.H. Liddell Hart, *History of the Second World War*, Cassell and Co Ltd., London, 1970, p. 165-66.

¹³ Alan Clark, p. 45.

¹⁴ Mathew Cooper, *The German Army 1939-1945*, Scarborough House, Lanham, MD, 1990, pp. 320-22.

would have to defend Moscow with the remaining armies, which could then have been convincingly defeated with numerical, technological and tactical superiority.¹⁵ Perhaps the most important factor that made it the prime target was the fact that Moscow was the political and psychological symbol of the communist regime. Its fall could well have destroyed not only the Soviet war fighting capability but also the communist regime by itself.¹⁶

The redeployment of the panzers of the Army Group Centre away from Moscow to complete the capture of Kiev is thought to be the biggest strategic mistake of the Second World War.¹⁷ By this action the Germans lost the only chance they had to achieve a decisive victory in the east that may well have led to overall victory in the Second World War. In historical review, it seems clear that given adequate operational freedom, the *Wehrmacht* would have captured Moscow in September 1941 and prevented Russia from making any further contribution to the war.¹⁸

7.1.2 The *Luftwaffe* Air Campaign

The *Luftwaffe* was tasked with the destruction of the Soviet Air Forces under Directive 21. It prioritised the targets, first being the modern aircraft and the Red Air Force ground organisation, second, production facilities for aircraft and aero engines, followed by old aircraft fitted with modern engines and lastly other miscellaneous aircraft.¹⁹

Traditional Prussian-German military strategy has been dictated by the geographic imperatives of the nation, which was relatively small in size, lacked natural defensive borders and had insufficient natural resources.²⁰ The Germans therefore developed a

¹⁵ R.D. Hooker Jr, 'The World Will Hold Its Breath: Reinterpreting Operation Barbarossa', in *Parameters*, US Army War College Quarterly, Spring 1999, p. 155.

¹⁶ *ibid.*

¹⁷ Kenneth Macksey, *Military Errors of World War Two*, Cassell & Co, London, 1994, pp. 58-60.

¹⁸ *The Second World War: Europe and the Mediterranean*, West Point Military History Series, p. 103.

¹⁹ Major Lonnie O. Ratley III, 'A Lesson of History: The *Luftwaffe* and Barbarossa', in *Aerospace Power Chronicles*, Air University Press, Alabama, 1998, p.2.

²⁰ *ibid.* pp. 2-4.

theory of the 'battle of destruction' (*Vernichtungsschlacht*) that sought a quick and decisive battle with the enemy to knock him out of the war. Under these circumstances, the guiding principles of German military operations allowed for tactical decisions to be made at the lowest possible level in the chain of command (*Auftragstaktik*).²¹ They also excelled in the selection of the critical point of emphasis (*Die Schwebepunkt*) or the centre of gravity of the enemy forces to apply the most pressure. The *Luftwaffe*'s operational doctrine was moulded from the same three principles and was similar to that of the German army.²² The German air campaign in Operation Barbarossa is a classic example of the *Luftwaffe*'s operational style. Lower levels – the squadron level and even flight level at times – decided the tactics, weapons and size of formations to use in destroying targets designated by higher echelons. Interference from higher headquarters was kept to the minimum and aircrew opinion on all matters was highly regarded. The original plan for the campaign led the *Luftwaffe* to believe that they would fight a short war and therefore long-term strategic targets were ignored as irrelevant. The operation was conceived purely as the destruction of the mass of the Red Army and the *Luftwaffe* was totally committed to tactical support of the German Army even at the cost of other priority tasks. Field Marshal Kesselring has later stated: "I instructed my air force and flak generals to consider the wishes of the Army as my orders."²³

The strength of the *Luftwaffe* facing the Soviet Air Forces amounted to 680 fighters, 765 bombers, 317 dive bombers, more than 400 short-range reconnaissance aircraft, 180 transports and 60 long-range reconnaissance aircraft.²⁴ On the first day of the attack the *Luftwaffe* found the Soviet air force still on the ground, despite the Soviets having received warnings of an impending attack from intelligence sources of the Allies. The Soviet airfields were widely dispersed and so the *Luftwaffe* could send only a limited number of aircraft against each, but the Germans' use of fragmentation bombs enabled them to devastate the grounded aircraft.²⁵ The few outdated I-16 fighters that rose to

²¹ *ibid*, p.3 (The German terms in parenthesis have been explained/translated in the article cited.)

²² E. R. Hooton, *Eagle in Flames*, Arms and Armour Press, London, 1997, p. 110.

²³ Kenneth Macksey, *Kesselring: The Making of the Luftwaffe*, David McKay and Co., New York, 1978, p. 83.

²⁴ Anthony Robinson, (ed), *Aerial Warfare*, Orbis Publishing Ltd., London, 1982, p. 201.

²⁵ *ibid*.

defend the bases were easily shot down. The Soviets admitted the loss of more than 1,200 aircraft during the first day.²⁶

The German advance was a copybook repetition of the successful *blitzkrieg* of the earlier campaigns.²⁷ The initial attacks were directed against front-line targets and on armour concentrations and rail junctions in the immediate vicinity of the fighting forces. There was almost no opposition from the Soviet Air Force and the battle for air superiority, if at all it was contested, was singularly one-sided.²⁸ On the second day of the war itself, the *Luftwaffe* was able to bomb Moscow and thereafter continued to do so with impunity at their convenience, suffering only minimal losses in the process. During this phase of the operations, the German fighter pilots were enjoying the finest sport in aerial history. Although many Soviet pilots displayed exemplary courage, the *Luftwaffe* were destroying upwards of 100 aircraft a day.²⁹

The retreating Russians adopted a 'scorched earth' policy, destroying any infrastructure that may be used by the enemy before moving back, straining the transport capabilities of the *Luftwaffe* which was now called upon to deliver prodigious quantities of fuel, ammunition and other stores necessary to sustain the rapid advance of the army.³⁰ Despite the *Luftwaffe* establishing unquestioned air supremacy and carrying out devastating interdiction and close air support missions, the *Wehrmacht* was unable to bring about a decision in the war. The *Luftwaffe* was geared for a short campaign and they gained and held the vitally necessary air superiority longer than what can be realistically called a 'short duration'. However, the necessity to support the advancing army and the limited resources available to the *Luftwaffe* resulted in their failure to eradicate the Red Air Force.³¹ As the war ground on towards autumn and the Russian winter, the geographical

²⁶ Chris Bishop (ed), *20th Century Air Warfare*, Silverdale Books, Leicester, 2001, p. 95.

²⁷ Anthony Robinson (ed), p. 202.

²⁸ *ibid.*

²⁹ The legendary Werner Mölders, who had brought his JG 51 from the Battle of Britain with a personal score of 68 victories, destroyed his 101st victim on 15 July – a total of 33 victories in 24 days. Shortly afterwards even this feat was surpassed when a young pilot of JG 52, Oblt Hermann Graf, shot down 47 Russian aircraft in 17 days, and soon after no fewer than 75 in 28 days!

³⁰ Alan Clark, p. 63.

³¹ Anthony Robinson (ed), p. 203.

immensity of the Eastern Front swallowed the small *Luftwaffe*.³² The first snows effectively brought air operations to a halt and also caught the Germans hopelessly ill prepared for the rigours of the severe winter conditions.³³

During the winter of 1941 almost completely paralysed by weather conditions, the *Luftwaffe* redeployed its fighters to Belgium and the Mediterranean, reducing its strength to 1,700 aircraft on the 3,200-km Eastern Front.³⁴ Unable to effectively cover vast sections of the front, *Luftwaffe* was forced to obtain local air superiority by concentrating at crucial points, but such tactics provided no guarantee of success. As the German front moved more and more eastwards, the *Luftwaffe* reconciled to a long drawn-out war with very little optimistic speculation regarding the final outcome.³⁵

Early in February 1942 The German X Corps was isolated at Demyansk and more than 100,000 soldiers were on the verge of being captured. This would have had a crumbling effect on the German army and the *Luftwaffe* airlifted more than 24,000 tonnes of supplies and another 15,500 reinforcement troops while bringing out 20,000 casualties from the surrounded pocket between February and May.³⁶ However, the losses to anti-aircraft fire were heavy (262 aircraft in three months) and with no replacements available, the *Luftwaffe* realised that their resources did not permit them the luxury to sustain operations in more than one theatre simultaneously.

In April 1942, the Army Group South attacked Ukraine in an effort to capture the Maikop oilfields, supported by VIII *Fliegerkorps* which flew 23,750 sorties against Sevastopol

³² Major William F. Andrews, USAF, 'The Luftwaffe and the Battle for Air Superiority', *Air Power Journal*, Fall 1995, Air University Press, Alabama, 1995, p. 4.

³³ The *Luftwaffe* had planned on a campaign that the *Wehrmacht* was to finish before the onset of the Russian winter with its severe weather conditions that curtailed flying. The severity of the weather also made maintenance of aircraft very difficult, especially since the German fighters were not designed to operate in sub-zero conditions. Both men and machines of the *Luftwaffe* were not prepared for the weather conditions that they encountered.

³⁴ Chris Bishop (ed), p. 121.

³⁵ *ibid.* p. 96.

³⁶ Anthony Robinson (ed), p. 203.

alone, dropping 20,530 tonnes of bombs before its fall on 4 July.³⁷ By winter of 1942, the German 6th Army was encircled near Stalingrad and the *Luftwaffe* once again set about the task of sustaining an army by air. The decision to supply the surrounded force by air was made by Hitler himself, after G6ering had personally assured him that the supply of Stalingrad from the air was possible. "The only way the Reichsmarschall could redeem himself in the F6hrer's eyes was to score a spectacular military victory. Stalingrad deemed to be his ticket. He promised Hitler that the *Luftwaffe* would resupply Stalingrad by air ... It was the major turning point of the war."³⁸ The decision was also supported by the German Army high command that overrode the opposition to the airlift from the *Luftwaffe* commanders in the field. This time round, two basic reasons precluded the airlift from being successful. First, even the assembly of transport fleet assets from all over Europe was not sufficient to match the requirements in terms of the necessary volume of supply for the surrounded army. Second, from the very outset of the airlift the Soviet army was able to dominate every landing ground around Stalingrad by artillery fire, making operations from these fields extremely dangerous.³⁹

As the battle around Stalingrad progressed, the Soviet army was able to overrun the landing grounds one by one, the last one being captured in mid-January 1943. Thereafter, the *Luftwaffe* could undertake only parachute drop of supplies and the 6th Army ceased to exist by 3 February when the last supply sortie was flown.⁴⁰ The *Luftwaffe* suffered the loss of a number of its transport fleet in this operation, but it was the loss of 165 Heinkel He 111s that was felt more keenly for the rest of the campaign. In more ways than one, Stalingrad was one of major turning points in the war.⁴¹

By early 1943, the *Luftwaffe* had started to feel the growing shortage of fighter planes since operational losses were not made good. This situation was compounded by the fact that the German factories were manufacturing bombers on priority at the cost of reduced

³⁷ Chris Bishop (ed), p. 123.

³⁸ Samuel W. Mitcham, *Men of the Luftwaffe*, Presidio Press, Novato, CA, 1988, p. 184.

³⁹ *ibid*, p.187.

⁴⁰ Anthony Robinson (ed), p. 208.

⁴¹ *ibid*.

fighter production. The *Luftwaffe* thereafter supported the last great offensive of the German army in July 1943, 'Operation Zitadelle', with massed anti-tank aircraft formations that inflicted enormous damage to Russian tanks and artillery.⁴² During this operation around Kursk the Germans lost more than 900 aircraft to the Soviets 600. But more important than the aircraft losses was the fact that for the first time during the campaign in the east, the *Luftwaffe* did not have the unquestioned air superiority that they had so far enjoyed.⁴³ The priority in the allocation of Luftwaffe resources that the eastern front had so far enjoyed was also abolished around the same time, leaving the skies clear for the Soviet Air Forces to exploit with increasing dominance.

7.2 THE SOVIET AIR FORCES

When the Germans invaded in June 1941, the Soviet Union was caught in the midst of an extensive and fundamental reorganisation, rearmament, expansion, retraining and redeployment of its armed forces.⁴⁴ Although started in 1939 and given added impetus by the less than adequate performance of the Soviet forces in the Winter war against Finland (1939-40), the program was still well short of its laid down goals when the German invasion started.⁴⁵ In terms of air power capabilities there was a fundamental difference between the VVS and other contemporary air forces. From its inception, the VVS was never developed as an independent fighting arm like the RAF or the *Luftwaffe* but considered an auxiliary of the Red Army as an essential but subsidiary part of the combined ground-air team. Operationally the air units were subordinate to the ground-force commander, although a separate air force chain of command existed for administration, logistics and training.⁴⁶

The Soviet Air Forces had their share of air power enthusiasts advocating the primacy of strategic bombing in the early and mid-1930s. Under their influence the Soviets built the

⁴² Alan Clark, p. 277.

⁴³ Chris Bishop (ed), p. 158.

⁴⁴ Robert A. Kilmarx, p. 171.

⁴⁵ John T. Greenwood, p.69.

⁴⁶ Alexander Boyd, *The Soviet Air Force*, Macdonald and Jane's, London, 1977, p.109.

largest fleet of multi-engine bombers in the world at that time.⁴⁷ However, this thrust towards independent strategic capabilities did not last long as the leading exponents of strategic air operations became victims of Stalin's purges of the military high command (1937-39) leaving the bomber force open to further degradation in capabilities, compounded by stringent resource constraints. The Soviets wrongly assumed that strategic bombing operations would be ineffective, based on their flawed analysis of the Spanish Civil War and was therefore reluctant to pursue the build-up of a strategic air force.⁴⁸ The impact of direct ground support in the same war highlighted the importance of tactical aviation and seemed to disprove Douhet's concepts. The concept of direct support to the army was easier to accept, as it was more in line with the traditional Soviet emphasis on tactical air operations.⁴⁹

Therefore, in June 1941 the VVS was predominantly a tactical force with hardly any real strategic capability, although a separate bomber force was in existence.

7.2.1 Organisation

The first noteworthy change in Soviet military organisation was at the highest level when operational command of the Soviet armed forces was separated from the Commissariat of Defence and assigned to a newly established Supreme Headquarters, the *Stavka*, which included two air force advisors.⁵⁰ Simultaneously a general reorganisation of the Soviet fronts was also carried out.⁵¹ Among the most important changes that affected the Soviet Air Force were the formation of an independent long-range bomber force (Long Range Aviation, ADD) and also an airborne forces command removed from army control. The fighter arm of the air defence forces was also subjected to radical organisational changes. The concept of a separate long-range bomber force was an advanced doctrinal thought, but the Soviet reasons for establishing the force was not so much doctrinal and

⁴⁷ John T. Greenwood, p.70.

⁴⁸ Anthony Robinson (ed), p. 140.

⁴⁹ John T. Greenwood, p.70.

⁵⁰ Richard E. Stockwell, *Soviet Air Power*, Pageant Press, New York, 1956, p. 61.

⁵¹ *ibid.*

operational innovation but a result of the Soviet desire to economically maximise the utilisation of their large, if redundant, bomber force. This was borne out by their concept of strategic air operations that still centred around bombing offensive against rear-area military targets and not against strategic centres of gravity like production centres and command and control hubs.⁵² The Russians also believed that the issue of air superiority would be decided over the battle field or at best in the immediate vicinity of it and therefore made the bombing of airfields near the battlefield the primary target of their bomber force.⁵³

The creation of independent air armies within the Soviet Air Force during the ongoing changes in 1941 gave the air force more autonomy and responsibility in planning operations and deployment of air assets. By 1941 the operational changes of the VVS were in a fairly advanced stage and the various Front, Army and Corps aviation units, almost all of them tactical, were assigned to army units. The number of aircraft in each air army, which were of mixed composition, varied from 600 to over 2,400 and averaged 1,400, the variation in numbers dependent on the anticipated intensity of fighting at a particular front and availability of aircraft.⁵⁴ The operational mission priorities for the air-army units were determined by the front commander on the advise of a subordinate air-army chief.

The number of air armies continued to grow as the war progressed and at the end there were at least two of them active in each front and a total of eighteen in the Soviet Air Force.⁵⁵ Since the air armies were composite formations, air corps were developed within them, each being equipped with one type of aircraft and having well defined roles designated ground-attack, fighter or bomber elements.⁵⁶ These air corps had an average

⁵² Robert A. Kilmarx, p. 177.

⁵³ *ibid.*

⁵⁴ Charles William Cain & Denys J. Voaden, *Military Aircraft of the USSR*, Herbert Jenkins, London, 1952, p. 16.

⁵⁵ Peter Williams, 'From Stalingrad to Berlin', in Aher Lee (ed), *The Soviet Air and Rocket Forces*, Fredrick A. Praeger, New York, 1959, p. 63.

⁵⁶ Colonel Louis B. Ely, *The Red Army Today*, The Military Service Publishing Co., Harrisburg, Penn, 1949, p. 89.

strength of three to four divisions (ranged from one to seven) each with three or four regiments.⁵⁷ The air regiment remained the largest formation with a fixed approved establishment⁵⁸ for the duration of the war although strength levels varied with battle losses and replacement aircraft availability. Each fighter and ground attack regiment contained three squadrons and every squadron three flights (called *zveno*) of four aircraft each. The basic fighting formation was the *para* with two aircraft and the *gruppe* of six or eight aircraft.

Although caught on the wrong foot, with fundamental changes being incorporated into the force, at the beginning of the German invasion, the Soviets managed to organise their military aviation during the course of the War with great flexibility, incorporating lessons learned as the war progressed. The quality of leadership, lacking pitifully at the beginning of the conflict especially at the lower echelon command, improved remarkably with battle training.⁵⁹ According to Adolf Galland (former General of the *Luftwaffe* and Second World War ace): “As an integral part of the Red Army, the SAF [Soviet Air Force] perhaps was better organised and suited to its purpose ... than the *Luftwaffe*.”⁶⁰

7.2.2 Doctrine

In the early 1930s, Vasili Khripin and Aleksander Lapchinski spearheaded the air power doctrine debate. Khripin had served in the Imperial Air Force but was one of the few air force officers who was completely loyal to the Bolshevik cause. He supported Douhet’s vision of strategic bombing and even wrote the introduction for the first Russian translation of Douhet’s book ‘*Command of the Air*’. Under Khripin the bomber component of the VVS increased rapidly to about 60% of total holdings. Lapchinski also supported strategic bombing, although he saw aviation as an integral part of the combined forces of the country and favoured heavy commitment to close air support. Unfortunately,

⁵⁷ *ibid*, p.90.

⁵⁸ The term ‘Establishment’ denotes the approved numbers (both men and machines) in a military unit whereas the term ‘Strength’ denotes the actual numbers that are available at any given time.

⁵⁹ Department of the Army, United States Government, *Russian Combat Methods in World War II*, Pamphlet No 20-230, Washington DC, November 1950, pp. 8-12.

⁶⁰ Adolf Galland, *The First and the Last*, Mervyn Savill (tr), Henry Holt and Co, New York, 1954, p. 80.

both these advocates for autonomous air forces were liquidated during the pre-war purges. The cause of the independent air force with strategic bombing capabilities, vociferously advocated by the then head of VVS Aleksander Filin, was already a lost cause, since Stalin had concluded from the lessons of the Spanish Civil War that the value of air power lay in its role of close support to the army rather than in long-range strategic bombing.⁶¹ The concept of the utilisation of strategic bombers immediately behind the frontline also stemmed from Stalin's rather ignorant and naïve views regarding the effectiveness and optimum employment of air power.

By 1939, after having flirted very briefly with the concept of strategic bombing, the Soviet Air Force doctrine was firmly rooted in its subordinate role of tactical support of ground operations.⁶² The massive restructuring of the VVS was initiated partly because of the desire to increase cooperation between the air and ground forces and to facilitate its rapid combat deployment in conjunction with army movements. The Soviet command aligned air force unit organisation with that of the army and also assigned units direct to the ground element they were to support in the mistaken belief that it would foster greater coordination at the operational level.⁶³ Unfortunately this led to the dissipation of air power assets into penny packets with tactical units dispersed to subordinate formations. They could not be rapidly concentrated when needed, like for major front air operations, and centralised control became impossible to achieve.⁶⁴

Soviet air doctrine was unambiguous about the responsibilities of the various combat elements and laid down the tasks of the VVS.⁶⁵ In order of priority the three main objectives of the VVS were achieving air superiority - both tactical and strategic, support of ground forces (and the navy) in the efficient conduct of their operations, and performing air reconnaissance.⁶⁶

⁶¹ Alexander Boyd, p. 69.

⁶² John T. Greenwood, p.72.

⁶³ *ibid.*

⁶⁴ *ibid.*, p. 73.

⁶⁵ Alexander Boyd, pp. 109-115.

⁶⁶ *ibid.*

The winter war in Finland had revealed major shortcomings in the logistics and maintenance and also the fact that sufficient number of airfields were not available close to the forward area.⁶⁷ In order to ensure that adequate airfield facilities would be available to pursue the concept of army-air cooperation, a number of airfields were built close to the forward locations of the army. Once again, as in the case of decentralised control, the decision to co-locate air power with the army did not bear fruit when the Germans attacked. The airfields were positioned too close to the front line and could not be defended, especially since adequate early warning systems were not in place.⁶⁸ The acquisition of parts of Poland added to the problem by increasing the buffer area and pushing the Soviet border further west.

When the Red Air Force finally had to go to all out war in 1941, on paper they were numerically superior to the invaders, but the frontline aircraft themselves were reaching the end of their useful service life and modern replacements in sufficient numbers were not in the pipeline.⁶⁹ Even if one-on-one replacement was available, the demand for trained technical manpower that would exponentially rise in the operational units could not have been met. In comparison with the other major western military powers of the time, the VVS was years behind in training and public technical awareness that provide the reserve for potential recruits. In terms of air power doctrine, the only facet that had been seriously considered and adapted sufficiently to the Soviet Armed Forces operational ethos was the concept of close air support within the context of almost complete subjugation of the air element to the ground forces in all operational matters.

⁶⁷ John T. Greenwood, pp.80-86.

⁶⁸ *ibid.*

⁶⁹ *ibid.*, p. 75.

7.3 COMBAT OPERATIONS OF THE RED AIR FORCE

The Soviets officially dated the Second World War from September 1939 to August 1945. 'The Great Patriotic War'⁷⁰ was the term used to denote the war between the USSR and Fascist Germany and her European allies. The Soviets divided the war into three distinct periods.⁷¹ The first period began with the German attack on 22 June 1941 to 18 November 1942, a period during which the German forces held the strategic initiative and prosecuted the war successfully from their perspective. The second period ran from 19 November 1942 to the end of 1943. This was the period of contest for the strategic initiative between the two forces that was ultimately won by the Soviets. The third period was delineated from July 1944 to the German capitulation on 9 May 1945 and saw the successful development of the Soviet concept of operations.

7.3.1 Stemming the Tide: 22 June 1941 – 18 November 1942

The German attacks that commenced on 22 June 1941 was so successful that the VVS in the west and north were all but completely destroyed on the ground. The Western Front lost 47.3 per cent of its aircraft holdings on the first day itself. So grievous were the losses that the VVS commander Lt. Gen I.I. Kopets committed suicide on June 23.⁷² The North western Front was also annihilated and the commander Lt. Gen P.V. Rychagov was executed as a scapegoat for the losses. The South western Front in the Ukraine suffered the least damage with a loss of only 277 aircraft on the first day.

The invasion resulted in a major defeat for the Soviet Air Forces. Tactically the Luftwaffe was a tested force, having ironed out all its operational problems while gaining extensive combat experience in the campaigns in Western Europe⁷³ and the unexpectedness of the attack, at least in the field, combined with their technical superiority accounted for the

⁷⁰ The actual Russian term is also translated by some as 'The Great Fatherland War'.

⁷¹ The division of the War into three phases has been adopted from John T. Greenwood, pp. 69-136.

⁷² *ibid*, p. 77.

⁷³ Robert A. Kilmarx, p. 181.

Soviet losses. The majority of the Soviet Air Forces were based in vulnerable forward airfields in keeping with the prevalent doctrine, but no attempt at dispersal or camouflage had been attempted, a fact that aided the *Luftwaffe*.⁷⁴ The Soviets were constrained to abandon a sizeable proportion of their fleet because of inadequacies in the maintenance and supply organisation and/or the lack of trained pilots.

Further, the Soviet high command⁷⁵ was not able to correlate the available information and staff work was clumsy, which extended the period required to complete the reequipping of the force that was started in 1939. This led to front line units being either partially equipped or still holding obsolete equipment. Another factor that contributed in no small measure to the Soviet Air Forces debacle was that the Soviet tacticians had underestimated the effectiveness of air superiority as a prerequisite for the ground campaign.

It is clear now from available evidence that Stalin had been given ample warning regarding German intentions.⁷⁶ As early as August 1940 the United States was aware of the German preparations to attack Russia and by January 1941 the Allies knew of Hitler's Directive No 21 for the 'Barbarossa' campaign. The Soviet ambassador to the United States was informed of the plans in March and Churchill himself warned Stalin of German troop movements that indicated an imminent attack.⁷⁷ Yet for some inexplicable reason, Stalin chose to keep his forward units in the dark regarding the German moves. It has been suggested that the Soviet leadership anticipated that the attack would only materialise in end-July, which accounted for the feverish attempts at modernising the western units. But there is no evidence to substantiate this speculation.⁷⁸

⁷⁴ *ibid.*

⁷⁵ The terms 'high command' and 'headquarters' can be interchanged in certain cases, both meaning the highest level of the command structure prevalent at that time. More strictly, 'high command' would mean the highest level of operational command, in the case of the Soviet Union, the politburo and 'headquarters' would mean the highest level of military command within the theatre of operations.

⁷⁶ A number of reports that have been translated from the original by the Parallel History project and published in English is indicative of this. Website <http://www.isn.ethz.ch/php>

⁷⁷ Raymond H. Dawson, *The Decision to Aid Russia*, University of North Carolina Press, Chapel Hill, 1959, pp. 21, 57.

⁷⁸ *ibid.*, pp. 25-37.

Except for sporadic defensive action, the first three months of the war was an unending Soviet retreat from the Baltic to the Black Sea.⁷⁹ However, the Soviet Air Force continued to fight the advancing German forces with every type of aircraft available to it. Despite obtaining air superiority at the outset and large-scale destruction of aircraft, the *Luftwaffe* was not able to completely eliminate the VVS. The Russians were able to mount 73,000 sorties in July 1941 alone even though the effort lacked any semblance of coherence and coordination.⁸⁰ From July 1941 to April 1942, the Germans carried out limited bombing of Moscow, but their bomber force like that of the Soviet Air Force was not geared for effective strategic operations. These bombings did not have any serious or lasting effects and after April 1942, the *Luftwaffe* could not continue the bombing effort because of shortages in the number of available aircraft.⁸¹ By the time the Germans overcame the defences of Kiev and encircled Leningrad in end-September 1941, the Soviet Air Force began to reappear in strength.⁸² The German forces at this juncture were facing the prospect of having to fight an unplanned winter war, something they had wanted to avoid from the outset.

The Soviet Air Force was better trained and equipped to fight a winter campaign than the *Luftwaffe* purely by virtue of laid down standard procedures.⁸³ To add to the woes of the *Luftwaffe* the winter of 1941 was more severe than usual and also set in earlier than normal. This climatic advantage combined with the strain of over commitment of the depleted strength of the *Luftwaffe*, enabled the VVS to claim 300 enemy aircraft near Moscow alone in the autumn of 1941.⁸⁴ Many more German aircraft were lost to accidents caused by technical failures and weather induced pilot error while a large number were grounded because of freezing engine lubricants.⁸⁵ The VVS supported the

⁷⁹ Asher Lee, p. 123.

⁸⁰ General Augustin Guillaume, *Soviet Arms and Soviet Power*, Infantry Journal press, Washington D.C., 1949, p. 170.

⁸¹ Robert A. Kilmarx, p. 183.

⁸² *ibid.*

⁸³ Walter Kerr, *The Russian Army: Its Men, Its Leaders and Its Battles*, Alfred A. Knopf, New York, 1944, p. 132.

⁸⁴ Colonel A. Aleksandrov & Colonel A. Stepanov, 'National Fighter Aviation', *Vestnik Vozdushnogo Flota*, No 2, February 1954, pp. 65-69.

⁸⁵ *ibid.*

Red Army's winter counter offensive with a strength of 1,500 mainly Il-2 ground attack aircraft.⁸⁶

Even though the contribution of the Soviet Air Force to this offensive was minimal, it indicated the recovery of the Soviet war making capability from the initial shock. In August 1941, General Halder, Chief of the German General Staff confessed in his diary: "The whole situation makes it increasingly plain that we have underestimated the Russian colossus."⁸⁷ The Soviet recovery was a self-accomplished effort and the latent power of the USSR was slowly mustered during the time gained by the offensive. At this stage it was clear to the German officer cadre that complete victory in the war in the east was going to be an extremely difficult objective to achieve. "The curve of the graph indicating the German victories had passed its peak and would descend from now on."⁸⁸ In addition to increased local production, the Soviet Air Force was being strengthened by the delivery of over 3,000 American and British aircraft and as early as the summer of 1942, Soviet fighters outnumbered the Luftwaffe three to one.⁸⁹

The Soviet high command (*Stavka*) had wisely decided to trade territory for time and so were able to painstakingly create both ground and air reserves for the conduct of defensive and offensive operations at a later stage. A number of organisational changes aimed at improving centralised control of air assets were also instituted to reverse the dilution in concentration that had taken place because of earlier changes. The inflexible structure of the rear services (maintenance) was also addressed and logistical services were strengthened.⁹⁰ This reestablishment of centralised control and flexible approach to maintenance and logistics formed the base structure on which the future expansion and fighting capability of the VVS later depended.⁹¹ The *Luftwaffe's* fixation with tactical

⁸⁶ General Augustin Guillaume, p. 166.

⁸⁷ General Franz Halder, *The Halder Diaries*, Vol VII, The Infantry Journal Press, Washington D.C., 1950. p. 36.

⁸⁸ Adolf Galland, p. 101.

⁸⁹ Robert A. Kilmarx, p. 184.

⁹⁰ John T. Greenwood, p.80.

⁹¹ *ibid.*

support and their lack of resources to carry out an effective strategic campaign could be cited as the two major reasons for the respite given to the VVS that enabled it to effect a reasonable recovery after the early debacle. Although the Luftwaffe enjoyed almost unquestioned air superiority, the Soviet Air Force was able to operate with some success and interfere with German ground operations.

In early 1941, Soviet air tactics were outdated, inadequate, stereotyped and rigid.⁹² The VVS fighter pilot lacked initiative and flexible offensive thinking, the hallmark of successful air combat pilots, a direct reflection of pre-war training deficiencies. The VVS also suffered from tactical and technical inferiority, shortages of critical supplies, the loss of confidence because of the severe losses early in the war and the paucity of qualified commanders at all levels. However, after the initial setback, the Soviet air doctrine stressed the need to gain air superiority so that all other missions could be effectively carried out.⁹³ In order to gain the lost air superiority, the VVS was slowly converted from a sub-standard tactical air arm subsidiary to the army into an elite force. Emphasis was laid on the production of better performance fighters in large numbers. The VVS studied the German tactics, both fighter and bomber, and adapted them to suit their own peculiar constraints. But the Soviet Air Force did not effectively master the strategy or the tactics of the fighter-escort mission, leaving the bombers and at times the ground attack fighters vulnerable to enemy air activity.

The *Luftwaffe* in the meantime was being depleted of combat reserves and suffered a lowering of combat effectiveness because of uninterrupted operations for a long time. Frequent changes of priorities in terms of operational training, aircraft production and campaign aims led to a situation where even training reserves had to be drawn on to plan the summer offensive for 1942.⁹⁴ The primitive nature of the Russian terrain, and the vast spread of the region hindered support logistics leading to reduced combat performance of the *Luftwaffe*.⁹⁵ By the time the siege of Stalingrad had progressed beyond the first three

⁹² *ibid*, p. 84.

⁹³ John T. Greenwood, pp. 72-120.

⁹⁴ Adolf Galland, p. 146.

⁹⁵ *ibid*, p. 81.

weeks, the German Army was wearing down with the effort of trying to storm the city, while new Russian air elements (and armies) were forming at the flanks.⁹⁶ The turning point in the air war came with the Soviet Air Force's ability to deny the *Luftwaffe* the freedom to supply the surrounded German Sixth Army, leading to their surrender. The new Soviet LA-5 and improved Yak fighters and ground attack aircraft proved very effective in destroying German bombers and transport aircraft, denying the necessary lifeline air supply to the trapped army.⁹⁷ The VVS also provided extensive aerial support to the offensive forays of the Red Army on the battlefield and in the enemy's rear. From this point on the air initiative on the Eastern Front gradually but definitely passed to the Soviets.⁹⁸

The Soviet Air Force learned four major lessons from this phase of the war. The foremost was the need for a cohesive and powerful reserve element in being for use in decisive battles in order to ensure concentration of forces on a continuous basis for offensive action. The second was that employment of air power was most effective when centrally controlled. Third, that uninterrupted and flexible logistics support was a prime requirement for the air force to operate effectively, especially from the forward bases, and fourth, air-ground coordination was vital for the success of any joint operation.⁹⁹

Learning from the experience, some basic structural changes were initiated aimed at providing unity of organisation and command to the large air units that were deemed necessary for future offensive air operations. While the changes impinged on all formations, from the smallest to the largest, basic to the reorganisation was the restructuring of the frontal VVS into homogeneous air divisions, a paradigm shift from the composite units in existence till then.¹⁰⁰ The advantages of these sweeping changes were many. The transition to integral air divisions simplified operational, logistical, training, maintenance and command problems and provided the operational mobility and

⁹⁶ B. H. Liddel Hart (ed), *The Red Army*, Harcourt, Brace and Co., New York, 1959, p. 112.

⁹⁷ Robert A. Kilmarx, pp. 184-186.

⁹⁸ *ibid*, p. 186.

⁹⁹ *ibid*.

¹⁰⁰ Colonel E.K. Fedorov, *The Red Army*, Cobbett Publishing Co., London, 1944, pp. 32-43.

flexibility that are vital to successful air operations. Attack units that were scattered among the combined-arms armies were gathered into viable divisions, greatly increasing their effectiveness and providing the capability to concentrate force at the point of emphasis while coordination with the ground forces was enhanced. With these changes the air armies became balanced tactical combat units with the capability to alter their composition rapidly and easily to meet emerging frontal requirements.

The large operational formations and reserves created in 1942 led to the development of the Soviet doctrine of the air offensive.¹⁰¹ Epitomising the Soviet concept of air power, the doctrine of air offensive was the combined, massed action of VVS and ground forces with unrelenting and continuous air support in all operations from the preparatory stage of the breakthrough to the culminating phase of pursuit.

7.3.2 Air Superiority: 19 November 1942 – December 1943

In the aftermath of the victory at Stalingrad, the Russians advanced to capture most of the German held areas that had so far threatened Moscow.¹⁰² 2,000 Soviet aircraft averaging 5,000 to 6,000 sorties a day supported this drive against a mere 400 German fighters.¹⁰³ More than adequate air support was made available for the offensive not only because the increased output from the production facilities gave the VVS numerical superiority but also because of the vastly improved performance characteristics of the fighters reaching the front line. By November, a full 73 per cent of all aircraft at the front and 97 per cent of all fighters were newer models, whereas in the summer less than 33 per cent of total holdings were newer models.¹⁰⁴

During the winter period, the Soviet Air Force adapted to the poor flying conditions brought on by the inclement weather much better than the *Luftwaffe*. In January 1943, the Leningrad blockade was broken and Russian forces reportedly captured or destroyed

¹⁰¹ Robert A. Kilmarx, p. 185.

¹⁰² Colonel E.K. Fedorov, p. 33.

¹⁰³ *ibid.*

¹⁰⁴ John T. Greenwood, p. 93.

5.090 aircraft during the winter offensive of 1942/43.¹⁰⁵ Meanwhile, in Germany the heavy allied bombing necessitated the shift in priority of production to fighter aircraft at the expense of the bomber force and the Luftwaffe bomber element in the Eastern theatre never recovered from the losses suffered at Stalingrad.

During the summer of 1943, the Germans made a last outstanding attempt to regain the initiative and conclude the war. The two opposing forces met at the Kuban peninsula in April. The VVS and the *Luftwaffe* struggled for air superiority over the battlefield and the control swung both ways a number of times.¹⁰⁶ The Soviet fighter tactics had improved considerably and they were able to claim 800 aerial victories between 17 April and 7 June. Although there was an increased output of fighters from the factories, the *Luftwaffe* was unable to capitalise on it because of nonavailability of sufficient trained aircrew.¹⁰⁷ This factor along with the heavy attrition of experienced aircrew had a debilitating effect on the overall operational efficacy of the Luftwaffe, in sharp contrast to the Red Air Force, which was enjoying a stabilisation of quality in both aircrew and aircraft.¹⁰⁸

From the view point of the Soviet Air Force, the battle of Kursk in July 1943 was the proving ground for the changes that had been made in all aspects of the force, starting from the design of the aircraft for improved performance to complete restructuring of the force and effective changes to the basic tactics that were employed by fighters in battle. 'Operation Zitadelle' as the Germans named this initiative, saw some of the heaviest air action of the war in Russia.¹⁰⁹ The Luftwaffe managed to grasp control over the battlefields in the initial phase of the operation but could not establish the kind of air superiority that it had enjoyed the previous two summers.¹¹⁰ The *Luftwaffe* gave close support mission demands the highest priority so much so that at times they did not have the resources to even challenge the VVS in the air. They also did not have the numbers to

¹⁰⁵ S. Golikow, *Die Sowjetarmee in Grossen Vaterlandischen Krieg*, Hans Schrenk (tr), Verlag Kultur und Fortschritt, Berlin, 1954, p. 103.

¹⁰⁶ Robert A. Kilmarx, p. 188.

¹⁰⁷ *ibid.*

¹⁰⁸ Alexander Boyd, pp. 127-139.

¹⁰⁹ Anthony Robinson, p. 208.

¹¹⁰ Alan Clark, pp. 278-300.

provide close support to all ground operations in the entire front and had to contend with shifting their focus from sector to sector on an as required and daily basis. As the battle progressed, the Soviets perfected the use of fighter divisions to clear the way for a massed bomber and ground assault with the help of air control teams.¹¹¹ At the same time the Luftwaffe was clearly showing signs of fatigue and lacked the strength to affect the outcome of the ground fighting. Control of the air passed to the Soviet Air Force as the German armoured and infantry drives ground to a halt and the Luftwaffe became incapable of offering any credible challenge in the air. The Battle of Kursk was as decisive in the air as it was on the ground – the VVS thereafter never relinquished the definitive air superiority that was gained.¹¹²

The *Stavka* launched their summer offensive simultaneously in the north and the south effectively splitting the *Luftwaffe* concentration into three roughly equal groups each of about 450 aircraft.¹¹³ By forcing such dispersion, the Soviet command ensured the growing superiority of the VVS and that strategic air superiority would now never change hands. More than 100 air divisions supported the Soviet summer offensive with more than 10,000 aircraft.¹¹⁴ The Soviet fighters were also able to match the Luftwaffe in terms of performance with the new Yak fighter (maximum speed 370 m.p.h) equalling the later models of Bf-109.¹¹⁵ Central to the success of both the offensive thrusts were air cover and fire support for the tank armies. The VVS provided the most mobile, flexible and effective means of fire support to fast moving armour during offensive manoeuvres.¹¹⁶

There is still a contention that the Soviets won air supremacy purely as a result of numerical superiority and the flagging *Luftwaffe*'s inability to remain an effective fighting force while courage, persistence and sacrifice on the part of the VVS played only a negligible role in it.¹¹⁷ This perception is further emphasised by the opinion of the

¹¹¹ John T. Greenwood, p. 102.

¹¹² *ibid.*

¹¹³ *ibid.*, p.103.

¹¹⁴ Asher Lee, p. 155.

¹¹⁵ Curtis Fuller, 'How the Red Air Force Fights', *Flying*, XXXVI, No 5, London: May 1945, p. 23.

¹¹⁶ *ibid.*

¹¹⁷ Alexander Boyd, p. 152.

Luftwaffe of Russian pilots being inferior in tactics and flying ability, a view that has been published in several accounts written during and after the war.¹¹⁸ However, this was not really the case. Even when lacking in cohesive tactics, the Russian aircrew were extremely courageous and displayed suicidal bravery throughout the war, earning the respect of their opponents for their sheer stubbornness in attack.¹¹⁹

7.3.3 Maturation of the Red Air Force and Victory July 1944 – 09 May 1945

By January 1944, the Soviet frontal advances extended from the Black Sea to Leningrad.¹²⁰ Before opening their main offensive on the Central Front in the summer of 1944, they waited till the Allied invasion of France was assured, commencing only 20 days after the Normandy landings.¹²¹ By this time the Soviet forces had improvised a general pattern of offensive action, which was repeated again and again for the rest of the war. All offensive action began with the gaining of air superiority in a narrow sector in the direction of the proposed main thrust of the Red Army.¹²² The rest of the battle was conducted in three distinct phases. Phase I started well before a major offensive, when the front-line strength was reduced and reserves built up. This action was at times initiated as much as three months in advance of the actual offensive, while reconnaissance efforts were stepped up. Phase II involved increased air activity against the enemy rear areas, sometimes as much as 120 miles behind the front line. The primary targets at this stage were command and control centres and transport and communication nodes. Phase III consisted of fighter operations to ensure air superiority and was intensified immediately before the offensive breakthrough, which itself was directly supported by all types of combat aircraft at the front.¹²³

¹¹⁸ *ibid.*

¹¹⁹ *ibid.*

¹²⁰ Alan Clark, p. 385-396.

¹²¹ Adolf Galland, p. 300.

¹²² Sanu Kainikara, *Russian Employment of Air Power*, Paper No 33, Fairfax, VA: BDM Services Ltd., 1998, p. 5.

¹²³ *ibid.*

Air units were deployed behind the front lines by 40 to 60 miles and the force for the operation was built up gradually. The initial support for the breakthrough came from units that flew from 'springboard' landing fields at times only few miles behind the front. As the assault progressed fighter and attack aircraft operated from captured airfields and crude airfields were constructed for operations wherever the army was unable to capture enemy airfields on the move.¹²⁴ By June, the German army was retreating from Byelorussia and Soviet armoured and mechanised units carried the offensive westward to the Baltic States, East Prussia and Poland. By this time, although the Luftwaffe was in better shape than it had been for some time, they were outnumbered at least 7:1 in total aircraft, more than 6:1 in operational aircraft, and more than 10:1 in fighters.¹²⁵

In the battle for Byelorussia the German army suffered one of the worst defeats in its history. The magnitude and swiftness of the Soviet victory must be credited to the decisive and extremely effective role played by the VVS. The air operations during this offensive demonstrated the vastly improved skills of the commanders and units of the VVS. The land operation was characterised by several distinct phases and widely separated drives, which meant that air support for the offensive could only be assured through swift and well-planned deployment of air units. The rapid advance of the army, at times outstripping the ability of the VVS to redeploy in time, further complicated this process. However, the VVS was able to achieve the desired concentration of air assets during all major offensives. The use of redeployed air units also ensured that the VVS would have numerical superiority in key sectors while providing the necessary support to different ground operations along the front and in depth.¹²⁶

The final Soviet ground offensive of the war opened on 13 January 1945, buttressed by five Soviet air armies with about 7,700 aircraft. In one week the Red offensive had moved 100 miles on a front 400 miles wide. In these operations the air units moved with amazing speed to hastily constructed forward bases and even operated off German

¹²⁴ *ibid*, p. 7.

¹²⁵ John T. Greenwood, p. 115.

¹²⁶ Sanu Kainikara, p. 17.

autobahns. From here on till the end of the war, *Luftwaffe* opposition to the Soviet advance was comparatively negligible, in spite of the transfer of over 700 aircraft from the West. Intensive air preparations for the final offensive were marked by the greatest Soviet Air Force sortie rate of the war: 17,500 flights on 16 March 1945.¹²⁷

In the battle for Berlin which lasted two months and ended the war in Europe, the *Luftwaffe* fought with desperation and distinction, flying more than 1,100 sorties a day with a daily loss in excess of 200 aircraft until all airfields were overrun by the Allied forces.¹²⁸ The Russians were by then averaging 15,000 sorties daily and in April alone the Soviet Air Force carried out 215,000 combat flights, dropping about 45,000 tons of bombs on enemy targets.¹²⁹ During the seventeen-day Berlin operations, the VVS flew 91,384 sorties, fought 1,317 air combats, and claimed 1,232 enemy aircraft destroyed in the air and on the ground, for a loss of 527 aircraft.¹³⁰ The unconditional surrender of Germany on 8 May 1945 ended the war in Europe. Victory came to the USSR at a time when the Soviet factories were capable of even greater production and the strength of the VVS was such that it was holding back new aircraft from the front.¹³¹ The Soviet Air Force and its support infrastructure was by that time well on their way to becoming self-sufficient, supported by the economic aid from the United States.¹³²

7.4 THE ROLE OF THE RED AIR FORCE IN THE SECOND WORLD WAR

At the end of the Second World War there was a tendency to deny the proper credit to the Soviet Union's contribution and principal role in the defeat of Germany.¹³³ With the advantage of time and hindsight, it has to be accepted that the Soviet-German front was undoubtedly decisive in the war's final outcome. The Eastern Front consumed the German resources, both military and economic, at a rate that could not be sustained, so

¹²⁷ Robert A. Kilmarx, p. 192.

¹²⁸ 'U.S.S.R: Red Air Fleet's Role', *Interavia*, 7 June 1945, p.4.

¹²⁹ *ibid.*

¹³⁰ John T. Greenwood, p. 124.

¹³¹ Robert A. Kilmarx, pp. 200-206.

¹³² Charles M. Cook, 'The Truth About Russian Plane Production', *Flying*, XLIII, No 4, October 1948, p. 20.

¹³³ John T. Greenwood, p. 126.

much so that historians now claim that German defeat had become inevitable even before the Normandy landings of 1944. Almost completely annihilated in 1941, the recovery of the Soviet Air Force to pre-eminence in 1944 can be counted amongst one of the most remarkable achievements of modern military history.

During the years after the Second World War and the following Cold War, the role of the Soviet Air Force has been relegated to insignificance and the importance of the military and economic assistance provided to USSR by the Western Allies during the war exaggerated.¹³⁴ Another common thread in post war histories, mainly from German sources, is the attempts at exonerating the German military leadership for the reverses suffered in the Eastern front and attributing Soviet victories to numbers rather than skill. The Soviet obsession with secrecy and the denial of access to military archives until recently also contributed to this one-sided narratives and analysis.¹³⁵ The Second World War was essentially a war of logistics and material. The victory of the Allies was as much a victory of optimised production facilities as of battles won in the field and it is most obvious in the air war. The strategic mistakes of the German high command enabled the Soviet industries to continue production unhindered, leading to parity in the quality of aircraft and exceeding the numbers produced by the enemy.

Although the fighters supplied to the VVS by the United States under the Lend-Lease arrangement were models¹³⁶ unwanted in the US Army Air Force because of inferior performance, the Soviet pilots put them to good use. It has now been revealed that the stocks of basic goods that the Soviet industry could use for its own aircraft manufacture were more important to the USSR.¹³⁷ Other than for strategic bombing doctrine, the foundation for continued developments in doctrine, tactics and organisation in the VVS had been the experiences and lessons that were imbibed during the Great Patriotic War.¹³⁸

¹³⁴ Robert A. Kilmarx, pp. 200-206.

¹³⁵ John T. Greenwood, pp. 128-129.

¹³⁶ For example Bell P-39 'Airacobra' and P-63 'King Cobra'.

¹³⁷ John T. Greenwood, pp. 128-129.

¹³⁸ Robert A. Kilmarx, pp. 213-216.

The Soviet leadership, for very valid reasons, overwhelmingly emphasised tactical aviation during the war. This stemmed from the fact that the struggle with Germany was one of survival, to be won or lost in the vast expanses of the Soviet Union. The need of the hour was to build and operate aircraft that could directly influence the immediate frontal battle in terms of ground attack. The fighter arm had the primary role in Soviet doctrine of air warfare and battled for air supremacy, but developed rather slowly. From late-1942, they were able to assure the ground and attacking air forces of unchallenged air superiority over the battlefield. The struggle for air superiority has always remained the overriding priority of the Soviet fighter forces.¹³⁹

As the war progressed, the *Stavka* was able to plan their 'air offensives' because of the great success of the tactical aircraft in providing ground support. The concept was refined through the conduct of several operations and by 1944-45 it could provide concentrated and continuous air support from preparation through exploitation. The VVS was however, deficient in strategic bombing doctrine and capabilities since the Soviet doctrine throughout the war relied heavily on tactical employment of air power to achieve the primary strategic objective – to stop and roll back the German advance. The war demonstrated the inherent flexibility and adaptability of Soviet air power, evident in the organisational changes that were instituted within the VVS in response to shifting circumstances in the battlefield.

The Soviet Air Force definitely contributed to ultimate victory in the war and defeated the Luftwaffe. At the time of commencement of hostilities, the VVS was still distilling the lessons from the Spanish Civil War and was only learning the great potential of military air power. Luftwaffe General Klaus Uebe best summed up the role of the Red Air Force in the Second World War:

As events show, Russian reactions to German Air Force operations, however primitive and makeshift in character, and however crude they might have first appeared to their more enlightened Western opponents,

¹³⁹ John T. Greenwood, pp. 129-130.

proved throughout the course of the war to be highly efficient, effective, and ultimately an important factor in the defeat of Germany.¹⁴⁰

7.4.1 Impact of the Second World War on Security and Military Perceptions

The euphoria of victory over Germany at the end of the Second World War was extremely short-lived, for the Soviet Union had come out of the war in a weakened state and found itself in direct confrontation with a resurgent America at the height of its power and self confidence. But the war and the brutality of the German army towards the Slavic people who they considered 'sub-human', brought the Russian government and the Russian peoples together in a combined feeling of patriotic zeal.¹⁴¹ In the evolution of a national ethos within the greater Union of the Soviet Republics, the 'Great Patriotic War' became the cementing centrepiece for an entire generation of leaders and commanders who forged much of its security and defence policies in the following decades.¹⁴² It is therefore not surprising that the military continued to examine the Second World War and adapt the lessons learned while forging new strategy, doctrine and tactics. The Soviet Union learned a number of lessons from the Second World War. Some of them, listed below impacted on the security and military perceptions and subsequently the formulation of doctrine.

First, it was very clear from the outset that the nation and its armed forces were not ready for war in 1941.¹⁴³ The re-equipment program that had commenced in 1939 had not yet been implemented in earnest and there were a number of areas wherein reorganisation had not even been contemplated. In 1941, the armed forces were oriented towards an offensive doctrine and could not adapt to a strategic defence rapidly. The result was a conscious attempt at imbuing a 'readiness to fight' creed within the entire armed forces

¹⁴⁰ As quoted in John T. Greenwood, p.133.

¹⁴¹ Lionel Kochan & Richard Abraham, *The Making of Modern Russia*, Penguin Books Ltd., Hammondsworth, England, 1983, p. 423.

¹⁴² *ibid.*

¹⁴³ Christopher Donnelly, *Red Banner, The Soviet Military System in Peace and War*, Jane's Information Group, Coulsdon, England, 1988, p. 80.

and the clear understanding that a predominantly offensive doctrine is susceptible to disruption when forced on the defensive.¹⁴⁴

Second, the Soviet military accomplished radical organisational and structural changes during the first phase of the war. These were instituted after careful analysis of each battle and deriving lessons from them immediately, in order to remedy shortcomings before the next battle. The armed forces needed extreme flexibility within their command structure to achieve any tangible benefit under these conditions. Flexibility of organisational structure at all levels therefore became a cardinal doctrinal principle.¹⁴⁵

Third, if there was to be another war the Soviet Union expected it to be fought on its western plains and adjoining European flatlands. The terrain reinforced the importance of manoeuvre and speed of advance and as a corollary, any fortified defensive structure was seen as capable of breaking the momentum. The perceived need to ensure that defensive structures could be reached and overwhelmed before they were reinforced made operational surprise an important factor in planning and executing a campaign.

Fourth, from a purely land warfare point of view, it was accepted that any well defended built up area along the line of the advance would need enormous resources to overcome. These points also acted as delaying fortifications and defensive communications hubs. In order to maintain the momentum of advance and manoeuvre warfare, encircling pockets of defended areas, became the tactical choice.

Fifth, the Russians saw the absorption of casualties as a means to deny victory to the enemy.¹⁴⁶ Compared to the losses of the Western allies in the period 1941-45, the Russian losses were enormous. The Russian attitude to authority, tempered by generations of acceptance of tyrannical rule and draconian discipline combined to make this acceptable to the common soldier. Willingness to accept heavy attrition, both in men and material, to achieve the aim of the campaign became a creed within the Soviet military leadership.

¹⁴⁴ *ibid.*

¹⁴⁵ *ibid.*, p.81.

¹⁴⁶ *ibid.*

Sixth, the Russian lack of economic strength to maintain a standing armed force of the size necessary to defend its vast frontiers forced the formulation of a system wherein large formations are routinely manned only by key personnel during peacetime. This enabled rapid generation of large formations with reserves at short notice, a feat that surprised the German Army in 1941.¹⁴⁷ This system was further refined by the Soviet forces and it became normal to have a basic squadron with only three or four aircraft flying at one time with the rest of the aircraft 'mothballed', for use when the squadron moved up in the readiness scale. It has been estimated that the Soviet armed forces were capable of doubling their strength in all fighting arms within ten days of declaring hostilities.¹⁴⁸

Seventh, the need to field a massive force at short notice led to the Soviet forces conserving all their equipment to be able to arm the large induction.¹⁴⁹ No military equipment was made redundant and removed from service completely. This situation brought on the requirement to maintain design continuity in order to facilitate maintenance and also to ease the burden of training.¹⁵⁰ Design continuity and standardisation also simplified upgrades, even under pressure of imminent hostilities or actual operations.

Eighth, it was also acknowledged by the senior military leadership that a number of problems existed in the structure of the Soviet armed forces. It was possible for a wily enemy to capitalise on the sentiments of the ethnic minorities that served in the forces and considered the majority Russians as subjugating them. The Germans, however, failed to recognise and take advantage of a great deal of anti-Russian and anti-Soviet feelings, especially during 1941-42.¹⁵¹ Soon after the war the Soviet forces ensured that no unit was manned entirely by an ethnic minority and mixed units with majority Russian

¹⁴⁷ *ibid*, p.82.

¹⁴⁸ *ibid*, p.83.

¹⁴⁹ *ibid*, p.84.

¹⁵⁰ See Note 82.

¹⁵¹ Christopher Donnelly, p. 85.

soldiers became the norm. At least within the armed forces 'Soviet patriotism' became the cementing glue to hold the unit together.

Ninth, since the strength of the armed forces was based on mass mobilisation concept, it negated any capability within the service to inculcate initiative and foster truly innovative tactical thinking at the lower levels of command. The Soviet high command recognised this drawback and therefore insisted on implicit obedience on the part of field level commanders at the cost of versatility and flexibility in the tactical battle.¹⁵² The result was the involvement of the formation commanders in the actual conduct of operations, even to the smallest skirmishes, from forward positions at the edge of the battlefield.¹⁵³ The advantage of such rigid control was the ability of the Soviet forces to concentrate force at the critical points of impact far more rapidly than any other contemporary force.

The Soviet forces had the ability to think in very large scale and complexity. The military art and science of warfighting was characterised in the Soviet forces by the concept of strategic offensive accepted as the basis for further development of doctrine, strategy and tactics.¹⁵⁴ Today's Russian military system in its current shape is the result of continuous refinement of the lessons learned from the 'Great Patriotic War'.

¹⁵² *ibid.*

¹⁵³ *ibid.*

¹⁵⁴ *ibid.*, p.86.

Chapter 8

THE CONFLUENCE OF POLITICAL IDEOLOGY AND DOCTRINE IN THE SOVIET MILITARY

"I do not think that we can look forward to a tranquil world so long as the Soviet Union operates in its present form. The only hope, and this is a fairly thin one, is that at some point [it] will begin to act like a country instead of a cause."

Charles E. Bohlen¹

The Soviet Union emerged from the Second World War in a greatly weakened state but the military defeat of the two great powers in the east and west of the country (Japan and Germany) gave it the opportunity to influence the future of a number of neighbouring states. The understanding it managed to forge with the Western wartime allies regarding the status of smaller European nations further enhanced this capability. In addition, the Red Army's occupation of the major part of Eastern and Central Europe facilitated a fairly quick Communist take-over of Poland, Hungary, Rumania and Bulgaria and later the formation of East Germany.²

The Soviet Union initiated a number of covert processes to induce nations weakened by the war or 'conquered' by the Allied forces to come under Communist rule. However, these attempts were hesitant and cautious because its own exhausted economy and turbulent domestic situation did not allow the Soviet Union to take the risk of a new clash with the Western powers in case the attempts were challenged.³ The general post-war Soviet foreign policy was determined by the emerging rough division of the world in the concept of "the two camps" - an idea that was mainly political than ideological.⁴ The passage of time, hardening of attitudes and emergence of Communist regimes in other countries brought about a sense of ideological distinction that hastened the invisible

¹ Charles E. Bohlen, *Witness to History, 1929-1969*, W.W.Norton, New York, 1973.

² Raymond L. Garthoff, *Soviet Military Policy*, Faber and Faber, London, 1966, p. 20.

³ *ibid.*

⁴ At least in the initial phases, the Soviet Union perceived the division of the world into two camps based on the differences in the type of government and the differing aspirations of the people.

division of the world into socialist and capitalist camps. At the same time three major changes, influenced by international events, had already been instituted within the Soviet military instrument.⁵ In 1946, the “Workers’ and Peasants’ Red Army” was renamed the “Soviet Army”, reflecting the long-drawn change the institution had undergone from being a fragmented civil war militia to become the national army and arm of the state.⁶ Second, although the military doctrine remained unchanged, the political structure was altered in order to build up the power of the Soviet State and the post war efforts of the armed forces were concentrated almost completely in this direction.⁷ Third, a great deal of effort was concentrated on modernising the armed forces and providing the air force with long-range nuclear capability.⁸

Of all the changes that were being instituted, the one that impacted on military doctrine the most was the recognition within the political leadership of the potential of the armed forces to be developed into an instrument capable of exploiting and furthering the political strategy of the nation.⁹

8.1 THE BEGINNING - MARX, ENGELS AND LENIN

“The power of the Marxist-Leninist theory lies in the fact that it enables the party to find the right orientation in any situation, to understand the inner connection of current events, to foresee their course and to perceive not only how and in what direction they are developing in the present, but how and in what direction they are bound to develop in the future.”¹⁰

In 1917, the Communists believed that war, revolution, politics and society were inseparable, based on the writings of Marx and Engels that very clearly explained the

⁵ Raymond L. Garthoff, p. 21.

⁶ *ibid*, p. 22.

⁷ *ibid*, p.23.

⁸ *ibid*.

⁹ *ibid*.

¹⁰ From the official Soviet textbook, *The History of the Communist Party of the Soviet Union*, International Publications, New York, 1939, as quoted in W. Gurian (ed), *The Soviet Union, Background, Ideology, Reality*, University of Notre Dame Press, Notre Dame, 1951, p. 1.

inseparability of foreign policy, war and internal affairs.¹¹ Although some analysts consider Marx and Engels to have supported a policy of enmity towards the military establishment as a whole, the fact is that they gave unremitting attention to military considerations in their writings. In reality, they were some of the earliest advocates of total war.¹²

During the inter-war years the international military community considered the First World War to have been won by defensive positioning, but Marxism as a dynamic theory saw defence only as a temporary condition until the offensive could be seized.¹³ Historically, however, most of Russia's wars have been primarily of a defensive nature, fought on Russian territory. Napoleon's invasion of Russia in 1812, the German-Russian confrontation of 1914-18 and the Nazi invasion of Russia in 1941 are the best examples. In all these cases Soviet Strategy had been to take advantage of the vastness of the land and the extreme climate to immobilise the enemy and then drive them out, in a very slow transformation of the defensive to the offensive.¹⁴ The decidedly offensive tilt of Marxism provided the necessary impetus to make the offensive option a cardinal principle in Soviet military doctrine.¹⁵

In the early days of the Soviet Union, the national policy making structure itself was divided over the offence-defence debate, leading to an unresolved dichotomy wherein a necessarily defensive political doctrine was wedded to an inherently offensive and pragmatic military strategy.¹⁶ But Lenin considered the nascent Soviet regime more a facilitator of the coming world revolution and did not envisage an important role in the international world order.¹⁷ In his concept, the Soviet Union was to be a link in ensuring victory of the communist world over capitalism and therefore the need was to ensure that

¹¹ Peter Paret (ed), *Makers of Modern Strategy*, Princeton University Press, Princeton, 1986, p. 264.

¹² *ibid*, pp. 262-263.

¹³ *ibid*, p. 267.

¹⁴ G. E. Thibault (ed), *The Art and Practice of Military Strategy*, National Defence University, Washington D.C, 1984, p. 737.

¹⁵ *ibid*.

¹⁶ W. Gurian (ed), *Soviet Imperialism, Its Origins and Tactics*, University of Notre Dame Press, Notre Dame, 1953, p.6.

¹⁷ *ibid*, p.8.

all weaknesses in the Soviet system was erased before they could be exploited by Capitalist states.¹⁸ Towards this end, Lenin advocated a policy of peaceful coexistence with the Western world in order to garner domestic strength and he did not consider building up military capabilities a critical factor to achieve this.

8.2 THE MILITARISATION OF IDEOLOGY

After Lenin's death, Stalin concentrated on publicly espousing peace while he pursued the development of an international Communist conspiracy to spread the revolution in a covert manner. The lip service given to peaceful coexistence was designed to lull the Western capitalist countries into a false sense of security during a period in which the Soviet Union considered itself extremely vulnerable domestically, both politically and economically.¹⁹ Both Lenin and Stalin were totally committed to the international workers' revolution and used every means available to further its cause and accomplish its goals.²⁰ Stalin's tyrannical and totalitarian rule gave the Soviet Union an all encompassing program of industrialisation aimed at exceeding the technical achievements of the western societies and a foreign policy aimed at securing the maximum advantage to the Soviet state while avoiding direct involvement in international affairs.²¹

By the end of the Second World War Stalin realised that the military apparatus had gained greater emphasis and status in normal life than the party and therefore, he commenced a process of tightening the control of the party over the military and all other aspects of Soviet life.²² The military started to be used as a fundamental tool in the imposition of the party's will on the people that led to a militaristic orientation to party

¹⁸ L. J. Oliva (ed), *Russia and the West from Peter to Khrushchev*, D.C Heath and Company, Boston, 1965, p. 185.

¹⁹ *ibid*, p. 195.

²⁰ *ibid*.

²¹ *Ibid* pp.195-197.

²² Royce D. Zant, National Security Report, *Soviet National Strategy*, The Library of Congress, Washington D.C, 1989. p.6. <http://www.globalsecurity.org/military/library/report/1989/ZRD.htm>. Accessed on 02 July 2002.

ideology.²³ From this unlikely amalgam of party ideology and offensive military doctrine, the Soviet foreign policy was distilled. Stalin shifted the emphasis from military to the state by including leading marshals of the military into the Supreme Soviet and then removing them after a year or two in apparent disgrace from their political positions.²⁴ He also gave 'military' positions to Politburo members while himself retaining the title of Generalissimo. In this surreptitious way Stalin 'purged' the military of powerful and influential marshals while retaining and promoting more pliable and party adherent officers.²⁵ This process gradually eroded the professional capability of the military and reduced it to being purely administrators of an entrenched military bureaucracy. From 1946 to 1953, the military leadership was not allowed to exercise initiative even in their own spheres of competence. Instead of the military being strengthened as a nation building measure, the party ideology was thrust on it in a warped militarised manner, because of the extreme paranoia of the dictator.

8.2.1 Soviet Post War Strategy

The Bolshevik revolution in 1917 provided a social and political alternative option to the underprivileged classes of the world. Although the subsequent political development within the Soviet Union was tyrannical and oppressive, there existed a flexible relationship between Marxist theory and Soviet practice.²⁶ In particular social revolutionary challenge was never far from the surface in the international conduct of the Soviet leadership. The social, economic and political trends that evolved after the Second World War were very different from even Lenin's broad interpretation of Marxist ideals and the Soviet Union was forced to change its attitude towards the pursuit of world revolution.²⁷

²³ Raymond L. Garthoff, p. 43.

²⁴ *ibid*, p. 44

²⁵ *ibid*, pp. 44-46.

²⁶ Gerhard Rempel, *Stalin and World Revolution*,

<http://mars.vnet.wnec.edu/grempel/curriculum/papers/stalin.pdf>. Accessed on 02 July 2002

²⁷ *ibid*.

The end of the Second World War brought on a spate of global decolonisation and Stalin envisaged a Soviet Communist leadership of the world revolution centred on the newly independent states. He therefore, steered the relationship between ideology and foreign policy towards his vision of world strategy - a strategy that was rooted in the need to disintegrate imperialism. "The very development of world revolution ... will be more rapid and more thorough the more thoroughly socialism fortifies itself in the first victorious country, the further this country is transformed into a base for the further unfolding of world revolutions into a lever for the further disintegration of imperialism."²⁸ It was also acknowledged that the armed forces would have to be used to aid the revolution in other countries since only a consciously led revolution could seize power from the capitalists.²⁹

In reality, however, Stalin was more pragmatic regarding the direct use of military force and was more interested in guaranteeing the security and survival of the Soviet Union, which was undergoing perhaps the biggest economic crisis in its short history.³⁰ Stalin was, therefore, keen to balance the capitalist influences and the need to spread global Communism while continuing to maintain peace in order to ensure domestic progress. The Soviet post-war policy was one of ideological dogmatism compromised by economic necessity. The Soviet leadership saw specific action as the culmination of the transformation of principles underpinned by theory and such specific action when executed by a powerful state like the USSR, "will [would] take the form of Realpolitik."³¹ Stalin started the move away from military confrontation and set the stage for the Soviet leadership to understand the fundamental changes in military strategy that were taking place in the capitalist world as a direct result of the Communist threat. Communist expansion in the immediate aftermath of the Second World War stimulated rapid capitalist reaction expressed in the formation of the North Atlantic Treaty Organisation (NATO), the rearming of West Germany and the conflict in Korea. In a carefully thought out long-term perspective, Stalin decreed that global revolution would

²⁸ Stalin Quoted by George A. Morgan, in 'Historicus', in Alexander Dallin (ed), *Soviet Conduct in World Affairs: A Selection of Readings*, Columbia University Press, New York, 1960, pp.167-168.

²⁹ George A. Morgan, p. 173.

³⁰ *ibid.*

³¹ R. N. Carew Hunt, 'Importance of Doctrine', in Alexander Dallin, (ed), p. 46.

have to be realised by a conjuncture of various elements; acceptance of Soviet military ascendancy, demonstrated superiority of the Soviet economic system, rapid organisation of human and material resources in underdeveloped areas and the gradual elevation of the Soviet Union to leadership status in this new political unity.³²

8.3 SOVIET NATIONAL STRATEGY

At the end of the Second World War and the defeat of Germany and its allies, the major problem that faced the Allies was the necessity to fill the political void left by the ousted powers with legitimate governments that were capable of economic, social and moral reconstruction of the war devastated countries of Europe.³³ The Soviet national strategy at this time was primarily aimed at spreading the influence of Communism, and its enviable success in Eastern Europe can be attributed to the physical presence of the Red Army in great strength throughout the entire region of interest and the Communist dominated resistance movements that already existed within these countries.³⁴

The death of Stalin on 5 March 1953 was followed by momentous changes within the political and military establishments in the Soviet Union as well as its satellite countries. The context of these changes were unclear till the early 1990s, when new documentary sources were released and newly declassified archival materials were made available, permitting more nuances to the understanding of the policy-making structure, deliberations and procedures in the erstwhile Soviet Union.³⁵ The new documents indicate that a number of factors had influenced the formulation of Soviet national strategy at all levels.³⁶ The decision-makers were cognisant of the diverse population of the nation that was conditioned to autocratic rule, centralised bureaucracy and control by intimidation and therefore were able to formulate the strategic policy without any national debate or consensus.

³² Marshall D. Shulman, *Stalin's Foreign Policy Reappraised*, Harvard University Press, Cambridge, MA, 1963, p.271

³³ Henry Bogden, *From Warsaw to Sofia*, p. 272. <http://www.hungary.com/corvinus/lib/bogden>. Accessed on 04 July 2002.

³⁴ *ibid*, p.275.

³⁵ Parallel History Project Website <http://www.isn.ethz.ch/php> accessed 05 January 2004.

³⁶ *ibid*.

8.3.1 National Strategy: 1953 to Perestroika

Khrushchev came to power after Stalin's death³⁷ and in a short while reoriented the relationship of the Soviet Union with the West by his firm belief that war was not inevitable with the capitalist society and that a policy of coexistence was possible between "societies of varying social systems."³⁸ In spite of the clear understanding that both the sides had sufficient military power to deter any possible war and that economic actions were more appropriate to exercise international influence, this period saw the beginning of an arms race, both conventional and nuclear, between the two superpowers.³⁹ This development can be attributed to the different views on war and military preparedness held by the Soviet Union and the Western democracies. Political thinking in the Soviet Union continued to nurture a military strategy aimed at preparing for war in order to defend the workers and crush aggressors, while the Western strategy was to prepare for war as a means of solving international problems.⁴⁰

The mid-1960s saw a perceptible change in the Soviet view of possible war from a pre-emptive nuclear one to a conventional conflict, mainly of a limited nature. Limited actions were referred to as low intensity conflicts and led to wide-ranging modernisation of the conventional forces, although the nuclear build up was also continued in order to have assured parity with the West.⁴¹ It was only during the 1970s that the Soviet Union finally conceded that the possibility of any conflict escalating into a nuclear exchange was very remote and therefore, started to concentrate more heavily on conventional warfare capabilities.⁴² Soviet military doctrine was accordingly adapted towards a combined-arms doctrine, wherein a mix of strategic and conventional tactical weapons

³⁷ There was a brief period of succession tussle when no clear or far reaching decisions regarding foreign policy was made.

³⁸ Royce D. Zant, p. 7.

³⁹ *ibid*, p.9.

⁴⁰ W. G. Andrews (ed), *Soviet Institutions and Policies, Inside Views*, D. Van Nostrand Co. Inc., Princeton, 1966, p. 403.

⁴¹ U.S. Department of Defence, *Soviet Military Power, An Assessment of the Threat, 1988*, U.S. Government Printing Office, Washington D.C, 1988, p. 9.

⁴² *ibid*, p.10.

would achieve maximum effectiveness when employed in concert, although strategic offensive action continued to be the preferred option to wage war. In this new concept, strategic and tactical surprise, overwhelming offensive on all fronts and the acceptance of pre-emption as an absolute necessity to cement these, formed the doctrine of the military in direct contrast to the defensive tilt in the political statements, which proclaimed that weapons would only be used in response to provocation.⁴³

In the 1980s, the Soviet military was compelled to incorporate defensive operations into their offensive strategy after examining NATO's offensive concepts of Follow-on-Force Attack and Air-Land Battle doctrine.⁴⁴ Even then the underlying ethos of all military thinking in the Soviet Union remained firmly committed to the offensive, tempered with the understanding that short term defensive manoeuvring may be required prior to embarking on the offensive, in case the pre-emptive could not be launched.⁴⁵

Even in the early 1990s, when President Gorbachev was emphasising the reduction of both conventional and nuclear forces to ensure a continued declining "balance of reasonable sufficiency",⁴⁶ the military remained fully committed to the offensive, leading one to believe that "sufficiency" is defined by the extent of the perceived threat to the state.⁴⁷ The leadership, both political and military, understood implicitly that the status enjoyed by the Soviet Union in the world order, a mantle that Russia hopes would automatically become its own, was derived purely from military power. The only difference was that at this stage there seemed to be recognition of the will of the people and the fact that one-sided reliance on pure military power would ultimately weaken other equally important components of national security.⁴⁸ There was speculation within the defence analysis community that the Soviet Union/Russia is finally changing its

⁴³ *ibid*, pp.11-12.

⁴⁴ Air-Land Battle Doctrine advocated a combined arms offensive of rapid mobility that prevented the adversary from taking advantage of their numerical superiority. The concept was devised to overcome the numerically superior Soviet military that faced NATO forces at the height of the Cold War. Follow-on-Force Attack was the offensive element in a manoeuvre battle that would tie down and then defeat enemy forces while the forward elements continued to manoeuvre.

⁴⁵ Royce D. Zant, pp. 7-9.

⁴⁶ U.S. Department of Defence, *Soviet Military Power, An Assessment of the Threat, 1988*, p. 8.

⁴⁷ *ibid*.

⁴⁸ *ibid*, pp.8-14.

military perceptions from one of offensive preparation for a “World War” to one of offence being part of necessary defence, indicated by the unilateral defence budgetary cuts that were instituted.⁴⁹ There was also a cynical point of view that these cuts were only aimed at weeding out old and technologically inferior weapons systems.

In 1989, the Warsaw Pact countries rejected the hegemony of the Soviet Union in Eastern Europe and in 1991 the USSR divested itself of the legitimising ideology that had so far united the nation. This was a major contributory factor to its self-destruction shortly thereafter.⁵⁰ Since ideology had played such a guiding role in the sustenance of the Soviet Union as an entity, it was but natural that it would also have been equally dominant in moulding foreign and security policy. In the initial formation and consolidation of the USSR, ideology was a truly independent force directing national policy and security perceptions. Since the Soviet Union was always ‘ruled’ by strong dictatorial leaders, an interrelated mixture of ideology, security needs and personalities combined with a memory of wartime devastation, slowly fading as the older generation of political and military leaders have retired, were the basic policy-guiding factors that governed the nation.⁵¹

The current Russian national strategy is a broad continuation of the Soviet strategy aimed at strengthening the economic and military systems. The continued economic problems that have plagued the country have led to some reforms being instituted in the military, but they have to be viewed as a long term measure to enhance defence modernisation and strengthen military capabilities. It is felt that technologies that contribute to “scientific-technical progress” would also contribute to improving “military-technical progress” leading to the making of a Russian state stronger than the West and capable of dominating and influencing the international community.

⁴⁹ Margaret Roth, ‘Soviet Troop Cuts Could Vastly Change East-West Relations’, *The Navy Times*, Washington D.C.: December 19, 1988, p. 14.

⁵⁰ Lawrence G. Kelley, ‘From the Unknown Lenin to the Unknown Cold War: New Perspectives on Russian History’, *Parameters*, Summer 1998, US Army War College Quarterly, Carlisle, PA, p. 137.

⁵¹ *ibid*, p.139.

8.4 INFLUENCES ON SOVIET MILITARY DOCTRINE

From a purely military perspective three factors have influenced the basic principles of Soviet doctrine: tsarist military traditions, Marxism-Leninism, and non-Russian military thought.

8.4.1 Tsarist Military Traditions

The considerable influence exerted by Tsarist military traditions on Soviet military thinking is not acknowledged in official Soviet histories. In order to train the Red Army, the revolutionary leadership led by Trotsky enlisted the help of “the better qualified and more honest of the old generals”.⁵² This was tacit acceptance of the fact that the Tsarist army had a fairly well developed concept of military science, which the Red Army had to master before it could improve. The policy of using former Imperial officers as “military specialists” necessitated the induction of party officials as “military commissars” to oversee them in order to ensure that the party position was not undermined within the military.⁵³ In 1920, the Red Army had 48,409 former Imperial officers on its command cadre.⁵⁴ At this juncture the majority of officers who studied matters of strategy and tactics and debated military doctrine were from the erstwhile Imperial staff and, therefore, they exerted considerable influence on military affairs.⁵⁵ Trotsky was a staunch supporter of the tsarist officers as professionally competent soldiers and with his fall from grace the Tsarist officers lost their champion.

Although the initial Soviet attitude towards Imperial military doctrine was one of rejection, following Stalin’s consolidation of power, Russian heritage was elevated to a place of pride and became a praiseworthy factor.⁵⁶ In military terms this led to a resurrection of the works of Russian military strategists and thinkers of the past. It was

⁵² J. D. Hittle, *The Military Staff*, Rev ed, Military Service Publishing Co., Harrisburgh, Pa, 1949, p. 183.

⁵³ *ibid*, p. 192.

⁵⁴ *ibid*, p. 239.

⁵⁵ *ibid*, pp. 227-243.

⁵⁶ Raymond L. Garthoff, *How Russia Makes War*, George Allen & Unwin Ltd., London, 1954, p.37.

said, "The foundation of the Russian art of war was laid by Peter the Great."⁵⁷ Members of the Imperial staff who joined the Red Army brought with them prevalent strategic ideas most of which had originated or been influenced by earlier Russian strategists, thus perpetuating their influence on Soviet military doctrine. The Bolshevik military leadership studied the Civil War minutely and benefited from the mistakes of the White forces. The Bolshevik's concepts of unity of command and higher strategic planning was reinforced by the failure of the White forces to adhere to it, which was the primary reason for their defeat.⁵⁸ The importance of maintaining a secure rear was also similarly demonstrated by the inability of the White forces to contain rebellion within their rear areas. Lastly, the tactical importance of high manoeuvrability, exemplified by the White forces in light cavalry raids was also appreciated and adapted.⁵⁹

8.4.2 Marxism-Leninism

Military doctrine was the least affected of all activities by the revolutionary impact of establishing Bolshevik Marxism. "Marxist and Soviet thinking assumes that all policy (and doctrine) is fundamentally based on the inherent material-economic dialectical course of history, which has been chartered by Marx-Engles-Lenin-Stalin".⁶⁰ It was clear that any war in which the Soviet Union might engage would always be termed a "just" war, fought on behalf of and by the people. In the actual development of military doctrine, the legacy of Marx, Engels and Lenin has played a rather small role, but it has been the bed-rock on which the basis for the entire political-ideological pervasion of the military, morale evaluation and control, officer selection and promotion and most importantly the continuous fusion of military and political aspects of Soviet strategy has been built.⁶¹

⁵⁷ *ibid*, p. 49.

⁵⁸ *ibid*, p.51.

⁵⁹ *ibid*.

⁶⁰ *ibid*, p. 38.

⁶¹ *ibid*, pp.38-39.

Prior to the Revolution and even for sometime after it, Lenin and the Bolshevik leaders preferred to have “a people’s army with elected officers”.⁶² However, they realised very quickly that a voluntary army could not defend the new country and that the formation of a strict regular army on conventional lines was a requirement for the establishment of a new state.⁶³ A standing military force has thereafter been a firm principle of Soviet doctrine and therefore, official Soviet histories show Lenin and Stalin as always having preferred regular forces. Marxist-Leninist Ideology was stressed as the basis for all Soviet military theory, but the entire concept of the ‘loose voluntary’ territorial militia had been completely abandoned by 1939.⁶⁴ Changes to the military organisation were instituted at times gradually and at others at a rapid pace. These changes were aimed at the inculcation of political ideology into the rank and file of the military and brought in a complex mixture of strict discipline and camaraderie between the soldiers and the officer corps.⁶⁵ It also affected the way in which military science was studied by the Soviet armed forces.

8.4.3 Non-Russian Military Thought

The Imperial officer cadre was responsible for Soviet doctrine being influenced by the basic ideas of non-Russian military theoreticians during the early stages of its development.⁶⁶ Jomini, who had been in Napoleon’s service till 1813 and thereafter in the Tsar’s service until his death in 1869, influenced the training of the officers on intellectual lines. He stressed concentration of forces in the decisive direction,⁶⁷ manoeuvre warfare to maintain the strategic initiative and the need for a basic offensive doctrine to dominate the battle in all actions.⁶⁸ These basic doctrinal innovations were

⁶² Vladimir I. Lenin, ‘Ten Thesis of Soviet Power’, (March 1918), in *Sochineniia (Collected Works)*, Vol 22, 2nd ed, The Marx-Engels-Lenin Institute for the C.C of the CPSU(B), Moscow, 1929 pp. 80-88. Tr. by Raymond L. Garthoff.

⁶³ Raymond L. Garthoff, pp. 37-43.

⁶⁴ *ibid.*

⁶⁵ *ibid.*

⁶⁶ *ibid.*, p.51.

⁶⁷ *ibid.* Major General Glatinov quoted Jomini, “it is necessary to deal one’s blow in the most decisive direction.”

⁶⁸ N. Levitsky, ‘The Creative Genius of the Army of the Socialist Revolution,’ in *Bol’shevik*, No4, February 1938, Moscow: 1938, p. 59.

passed on by the Imperial officers to the Bolsheviks and characterised the Soviet doctrine.

Although Soviet denial of any external influence in the formulation of their warfighting doctrine obscured Jomini's influence, exact terms that he used can be found in Soviet military writing on doctrine. The air force doctrine, the concept of the domination of the 'zone of operations' and the term by itself was an example of the use of Jomini's ideas and phrases.⁶⁹

While Jomini's influence may have been peripheral, the ideas of Clausewitz had more direct influence on Soviet military doctrine.⁷⁰ Although he served in the Russian Army from 1811 to 1815, his influence on the Imperial staff came only after the publication of his famous work *Vom Kriege (On War)* in 1927. His book also had a strong influence on the works of Marx, Engels and Lenin.⁷¹ Lenin was greatly impressed by the book and was more interested on the views of Clausewitz on military philosophy rather than on the art of war *per se*. Clausewitz' concern with the interaction and close relationship of politics and war was particularly studied since it also formed part of the Bolshevik doctrine.⁷²

German influence on operational matters was very pronounced in the inter-war years, although the extent of doctrinal interaction between the forces cannot be clearly determined.⁷³ However, it is certain that German military doctrine was studied extensively during the period because of the stress that the Germans placed on the offensive in their doctrine. During the period immediately before the Second World War,

⁶⁹ Raymond L. Garthoff, p.53.

⁷⁰ *ibid.*

⁷¹ Byron Dexter, 'Clausewitz and Soviet Strategy', *Foreign Affairs*, Vol 29, No 1, Council of Foreign Relations, New York, October 1950 pp. 42-44.

⁷² Lenin's annotations on Clausewitz was published in 1931 (Molotov served in the editorial committee) and the Clausewitzian dictum that war is the continuation of politics by other means was complimented and used by Lenin in a number of his own writings. Lenin thought that the section heading "War as an Instrument of Policy" was the "the most important chapter".

⁷³ For evidence and detailed discussion of the military and war supply production arrangements between Germany and the Soviet Union, see Gustav Hilger & Alfred Meyer, *The Incompatible Allies: German-Soviet Relations, 1918-1941*, Harvard, 1953, Chapter 7.

both Douhet and Fuller had been listed as compulsory study in higher military academies.⁷⁴ It is also noteworthy that there had been criticism of both these theoreticians in the Soviet military circles for their partisan support of one arm of the military, armour in the case of Fuller and air power in the case of Douhet.⁷⁵ This provides a clear indication of the strong support that existed within the establishment for the Soviet military doctrine of combined arms offensive on an extended front.

8.5 IDEOLOGY AND MILITARY THEORY

Over the past two centuries, the Russian/Soviet experience of war has been more painful and devastating than in almost any other western country. In the combined consciousness of the people, the impact of war was very sharply etched and therefore there was a prevalent culture of the study of war as a social phenomenon.⁷⁶ Not only was war studied in its professional aspects of its conduct, but it was also studied as an academic subject analysing the economic and technical aspects that influenced warfighting methods and techniques.⁷⁷ In the Soviet psyche war was accepted as an element of policy. This great preoccupation with the conduct of war in all its aspects ensured that there was well thought out and documented theoretical framework on which to base the development of military theory and doctrine.⁷⁸

Marxism-Leninism held the pervasive view that while war was the violent continuation of both domestic and foreign policy and wars were fought not exclusively by the use of armed forces, but also by other means - ideological, economic, diplomatic etc., In other ways, policy was the central theme around which military doctrine was developed, the prime factor that influenced the planning and conduct of war, and the guiding force that

⁷⁴ Raymond L. Garthoff, p.57.

⁷⁵ *ibid*, p.58.

⁷⁶ Christopher Donnelly, *Red Banner, The Soviet Military System in Peace and War*, Jane's Information Group Ltd., Surrey, UK, 1988, p. 102.

⁷⁷ *ibid*.

⁷⁸ *ibid*.

determined the development of military activity through strategy.⁷⁹ In a complex relationship, war also reflected on policy thereby influencing it in a reversal of roles and since war strained the stability and viability of a state in being, it also influenced domestic politics.

Soviet doctrine defined wars as 'just' or 'unjust' judged purely from a viewpoint to determine whether it progressed the move towards world communism or not.⁸⁰ The threat of an invasion had shaped the thinking of generations and therefore it was easy for the ideologists to convince the general populace that war is unavoidable.⁸¹ The structured view of war within the Soviet Union made it very difficult even for influential leaders to change this perception. If war was unavoidable, then the only logical way to cope with it was to be prepared for it and to evolve strategies that would turn it to political advantage for the nation. The preparation of the nation for war in terms of integrating military and civilian elements that maximised military potential was enshrined in Soviet military theory and doctrine.⁸² In this context it was also recognised that thermonuclear war would bring such catastrophic global destruction that it could not be used as a tool of policy.⁸³

The framework for the theoretical structure depicting the relationship with the various elements that constituted the study of war and the formulation of military doctrine is given in the table at Appendix B.

⁷⁹ *ibid.*

⁸⁰ Under this delineation, all wars in which the Soviet Union would be involved would automatically be termed 'just'. 'Unjust' wars were the ones that were fought by other states since they did not support the expansion of world communism.

⁸¹ Christopher Donnelly, p. 103.

⁸² *ibid.*, p. 104.

⁸³ P. H. Vigor, *The Soviet View of War, Peace and Neutrality*, RKP: 1975, pp. 96-99, 136-139.

Chapter 9

SOVIET AIR FORCES IN THE NEW AGE OF AIR POWER

"It is not the crate, but the man who flies it!"

Manfred Von Richthofen¹

9.1 PRELUDE TO FUTURE CONFLICTS

The dominant military feature of the half-century following the Second World War was the undeclared war known as the Cold War, which drew a large part of the world into two blocs centred on the military might of the United States of America and the Union of Soviet Socialist Republics. The key to the rivalry was the five decades of titanic military confrontation between members of the NATO and the Warsaw Pact countries, the heart of which was across the 'Iron Curtain' that divided Europe between East and West soon after the fall of the Third Reich.

During the long period of the Cold War, almost all material pertaining to the strategic arms race was classified and since the primary sources were unavailable, analysis of Soviet military policy was always "inferences drawn by long chains of logic".² Even with the end of the Cold War and the availability of new information from Russian archives, political scientists still have to rely on perceptions, because a pervasive culture of secrecy continues to inhibit free access to Soviet-era military records.³ It is therefore difficult even today to fully fathom the way in which Soviet military leadership viewed the world

¹ Manfred von Richthofen, *The Red Air Fighter*, Greenhill Books, London, 1999, p. 89.

² Ernst May, John Steinbruner & Thomas Wolfe in Alfred Goldberg (ed), *History of the Strategic Arms Competition, 1945-1972*, Historical Office, Office of the Secretary of Defence, Washington D.C, March 1981, declassified with deletions, December 1990, p. 634.

³ There was a brief window immediately after the collapse of the Soviet Union during which period a great deal of information was available, but the timeframe before the society became obsessed with secrecy was very limited and there is only scanty information available in open resources.

at the end of the Second World War or the role of the military in the nation's security-decision making process.⁴

The military strategy of the Soviet Union during the Cold War era is still clouded in misinformation and official papers that are released by Russia as well as the United States are heavily censored to delete sensitive information. However, it seems certain that the rapid development of cheap Inter Continental Ballistic Missiles (ICBMs) and increase in the quantity of nuclear weapons on both sides was a direct result of the Cuban missile crisis. The Cuban crisis also led to a power struggle within the Soviet Union. Historically, in the Soviet Union, drastic changes in military strategy and preparation always followed a time of internal strife and reorganisation of power at the highest level.

Contrary to the then-prevalent conventional Soviet doctrine that emphasised the offensive concept in formulating strategy,⁵ there is an argument that in the case of nuclear weapons, the Soviet thinking was characterised by strategic defensive thinking. Although this cannot be conclusively verified, it can be ascertained that there was a great deal of acrimonious debate within the Soviet military regarding the extent to which the overall strategy should depend on nuclear weapons and the role of conventional forces *per se*.⁶ The impact of the induction of nuclear weapons to the overall military strategy was considerable, but the doctrine of air power was not greatly altered other than to form a strategic arm for its delivery.⁷

The complete lack of trust between the victorious Allies that led to the formation of two mutually antagonistic power blocs almost immediately after the defeat of Germany was also instrumental in the formation of the North Atlantic Treaty Organisation (NATO). This alliance was formed on 4 April 1949 with seven founder nations and later expanded to cover most of Western Europe, all the way South to Turkey and Greece. Air power in

⁴ William Burr, *Soviet Cold War Military Strategy: Using Declassified History*, Cold War International History Project, Woodrow Wilson International Centre for Scholars, Washington D.C, 1995, p. 1.

⁵ Explained earlier in Chapter 8.

⁶ Colonel-General A. Gastilovich, 'Military Thought: Theory of Military Art Needs Review', quoted in *CIA Documents on the Cuban Missile Crisis, 1962*, History Staff, Centre for the Study of Intelligence, Central Intelligence Agency, Washington D.C, Declassified October 1992, pp. 16-19.

⁷ *ibid.*

Europe was transformed by the provisions of the NATO Mutual Defence Assistance Programs within which the air forces of the member nations were equipped with the latest jet fighters from the United States. In 1953 Italy was given licence to manufacture the F-86 for European use which became the most widely used fighter until then.

This rearmament of Western Europe was viewed with increasing misgivings by the Soviet Union. Feeble attempts were made by the Soviet leadership to ensure a demilitarised West Germany, and as a broader ideal, a demilitarised Europe, but the concept itself was seen as one-sided by NATO and rejected.⁸ It was also reported that in a remarkable attempt to render the NATO impotent, the USSR suggested on 31 March 1954 that it was prepared to join NATO, a proposal firmly rejected by the principal participants in the treaty.⁹ With this rejection, the Soviet Union had no other recourse but to form its own security organisation.¹⁰

The Treaty of Friendship, Mutual Assistance and Co-operation (Warsaw Pact) between Moscow and its client states in Eastern Europe was dedicated to the defence of European territory and excluded central and eastern USSR. Unlike NATO, this alliance only formalised bilateral treaties, but it afforded a platform for Soviet propaganda as a 'response to capitalist aggression'. From May 1955, when both the treaties were formalised, the two sides of the Cold War became clearly demarcated. The strategic balance between the two super powers was ensured by the introduction of the nuclear bomber and ICBM on both sides.

In order to understand the doctrinal, strategic and technological developments that took place in the air forces of the Soviet Union as compared to those of the NATO countries, it is necessary to study some of the limited wars that have been fought since the end of the Second World War in which the antagonists were forces owing military allegiance to

⁸ *ibid*, p.21.

⁹ *ibid*.

¹⁰ There must be a great sense of déjà vu within both the NATO and the Russian leadership with the current situation where Russia has been invited to become a member of the organisation with special status and participatory rights. The wheel has indeed come full circle!

either side of the iron curtain. Since the training patterns and equipment originated from the West and the Soviet Union in these cases, such a comparative analysis is likely to provide an insight into the merits and demerits of both the military systems in its entirety. The analysis here is restricted to air power assets and capabilities with particular emphasis on the employment of Soviet equipment.

9.2 RUSSIAN AIR FORCES AND EMERGING TECHNOLOGIES

The Soviet military was the first to propound the theory that the declining politico-military utility of nuclear weapons and the enhanced combat capabilities afforded by emerging technologies would lead to a comprehensive revolution in military affairs, especially in the developed world. The Soviet military thought process had accepted that these technologies would revolutionise military doctrine, operational strategy, battlefield tactics, training and research and development within the defence industries and therefore would become the nucleus of all future warfare. There are compelling reasons to believe that the direction of technological thrust in the Russian military would in fact be the harbinger of the overall direction of military-technological developments. Russian contribution to military theory and practice throughout history has been worth studying, and the most creative surges in Russian military thinking has occurred in the wake of domestic political and military disasters.

Russian military scientists believed that R & D must be consistent with the long-term requirements of the service, long-term being defined in terms of fifty years or more. The industrial and scientific potential within Russia to develop emerging technologies was undeniable and their capability to develop new concepts and organisations to support them at times surpassed those of the West. Innovative training and organisational changes overcame the slight disadvantages that accrued with limited access to state-of-the-art technology and the steadfastness of the Russian military leadership in this regard is noteworthy. The trend in the West to dismiss Russia as 'a Third World nation with nuclear weapons' was clearly a short-sighted appreciation. In the Soviet Union there has always existed a civil-military understanding regarding the need for a national industrial policy that supported the military requirements. In recent years the emerging technologies

required for revolutionising military capabilities and those required for industrial growth have grown closer together, leading to an even better synergy between the two.

It was widely believed that the developments in emerging technologies had triggered a completely new doctrinal orientation within the Russian military.¹¹ The doctrinal developments were conceived as an essentially new 'sixth generation' warfare that was referred to as the 'air-space war'. In the Russian view a war that started with offensive air-space operations by both the protagonists would be one without delineated battlefronts with space becoming an independent theatre of operations.¹²

9.2.1 Technology, Industry and Economy

The Soviet Union's expenditure on defence was not easy to comprehend or compare with another country because of the peculiarities in their calculation of GNP that has universally been used for the purpose. There was also the added problem of the figures being done in roubles with no accurate exchange rate available for calculation. The prices of everyday goods were centrally planned in the Soviet Union and not determined by the market, which was yet another hurdle to be overcome in order to arrive at a reasonable expenditure figure.¹³ The most reliable estimate of Soviet defence spending assumes that 15-17% of GNP was used for the entire range of defence commitments, including paramilitary forces.¹⁴

Although the defence forces were being reduced in numbers from the 1980s, there were certain difficulties in cutting down the defence industry. The defence industry formed the

¹¹ FitzGerald, Mary C., "*The New Revolution in Russian Military Affairs*", RUSI Whitehall Paper Series, No 26, London: Royal United Services Institute for Defence Studies, 1994, p. 3.

¹² *ibid.*

¹³ Christopher Donnelly, *Red Banner, The Soviet Military System in Peace and War*, Jane's Publishing Inc., Surrey, UK, 1988, p. 119.

¹⁴ *The Military Balance 1987-88*, International Institute of Strategic Studies, 1987, pp. 32-35.

The figures for 1988 has been taken as an average figure for the Soviet Union in order to understand the relationship between defence spending and military hardware development and production, since the actual expenditure thereafter cannot be taken for a study with any assumption of accuracy because of the ensuing economic chaos. The figures available for Russia in mid-1990s have been considered later in the dissertation.

core of the industrial strength of the nation with priority allocation of resources and any major change in the resource allocation pattern would have required significant changes in the entire economic system. The political system in the Soviet Union was such that it took an inordinately long time to achieve a reduction in the defence resource allocation, which in turn meant that the benefits of the reallocation of additional resources thus generated to other base industries would not have any immediate and dramatic effect for the people. Perhaps most important was the fact that it was the military might of the Soviet Union that made it a world player in international politics on equal terms with the countries of the West.

The Soviet Union had also realised the need to keep abreast of the technological revolution that was sweeping the military forces of the West and had reoriented the defence economy in a bid to channel it towards basic research in an attempt to modernise its weapon systems. The intermingling of national economy and the military forces had its advantages as well as disadvantages. While it may have been comparatively simple to rapidly increase the production rate in a defence production plant, the downsizing of any defence industry had a domino effect on the entire economy. Under the prevalent economic situation within the state, it was one chance that the government would have been unwilling to even consider. Therefore, all reforms were instituted at a very slow pace in order to keep the balance of economy.

9.2.2 Military Procurement

The overriding principle of Soviet military procurement was that its primary driver was doctrine. In a rather straight forward way, the procurement policy reflected the basic thinking that if military might was to be an effective tool of policy, then it followed that the military must decide what its capabilities should be in the battlefield and the industry must provide them with that capability. This was in contrast to the policy of the West, where a number of procurement initiatives were originated by the industry.

In times of rapid technological progress it may happen that a doctrinal change could be brought about by a radically new weapon system, but the Soviet Union studied every new and emerging technology to determine how best it could be incorporated into the weapon systems. In this way it ensured that technology, irrespective of how it had been obtained, could be fitted into the existing Soviet military system. There was a very stable relationship between technology and utility within the military as well as the industry which ensured that the sense of inadequacy that could prevail if a weapon was not of the latest technology did not permeate the operational areas.¹⁵ An added advantage that the Soviet defence industry had over its Western counterparts was that 'success' was measured more in terms of fulfilling the allotted quota of weapon systems to be produced rather than on profit and loss basis. Considering that the Western industries have always had to compete with each other to obtain sufficient orders, the situation purely from the point of view of the efficacy of the weapon system, may not have been very good. From a military perspective, the Soviet system ensured stability in resource allocation because of centralised planning for production and the understanding of the core doctrine of the military by all other elements in the production and procurement chain.¹⁶ Effective standardisation of all components, civilian and military, through the entire process of manufacturing had the added advantage of lowered overall production cost, shortened logistic tails and ease of maintenance at the field unit level.

9.2.3 Post-War Soviet Aviation Industry

More than his Western counterparts, Stalin was acutely aware of the opportunities to exploit German expertise in military technical developments.¹⁷ It was also fortuitous that two thirds of the German aircraft industry and its research and development facilities fell into Soviet hands as the Red Army advanced westwards. Almost all the factories were dismantled and transported to interior Russia and German designers and technicians were

¹⁵ Christopher Donnelly, p. 123.

¹⁶ *ibid*, p. 124.

¹⁷ Alexander Boyd, *The Soviet Air Force Since 1918*, Macdonald and Jane's (Publishers) Ltd., London, 1977, pp. 205-206.

enticed to continue their work in the Soviet Union.¹⁸ The main contribution of these scientists to the Soviet military aviation industry was their innovative and already well advanced work on jet and rocket engine technology.

From the research that the German scientists had been engaged in at the time of their capture, the Soviets realised the strategic requirement to have a fighter for use against high-altitude bombers. They were doubtful regarding the usefulness of copying German airframe designs but were convinced that the German gas-turbine engine technology was the best in the world.¹⁹ The Soviet Air Force had already issued the specifications for high-altitude intercept capabilities in 1946 and the winning design from the Mikoyan bureau²⁰ entered production as the MiG-15. After initial trials and modifications the production fighter was capable of a top speed of 1,050 kph at sea level with a total all-up weight of 4,806 kg, making it the world's lightest as well as one of the fastest jet fighters at that time.²¹

German technology was not the only impetus behind the post-war development of the Soviet Air Force. The Soviets had the opportunity to strip and copy the USAF B-29 Superfortress, after three of them had force landed on Soviet territory in 1944 after raids over Japan. Over 1,500 of these copied bombers, designated Tu-4, were built before production was stopped in 1954. This blatant copy of a western design gave rise to the even now prevalent thinking in some circles that Soviet military aircraft were all poor copies of their western equivalents.²² While the Russians took advantage of every opportunity to learn more from post-war developments in the United States, they also undertook systematic improvements in aircraft production capabilities and design research, while the research and development in the United States languished, permitting

¹⁸ *ibid.*

¹⁹ *ibid.*, p. 208.

²⁰ The Soviet aerospace industry had already set up different design units named after the lead designer to increase competition and thus ensure optimised performance of aircraft.

²¹ Alexander Boyd, p. 213.

²² Sanu Kainikara, *Russian Combat Aircraft: Concept of Operations*, Keynote Address, Air Warfare Conference, Williamstown, June 1999.

the Soviet Union to catch up with and even surpass the West in certain areas.²³ Contrary to popular belief, the USSR was not dependent on foreign help in most aviation fields. Selective import of advanced Western aeronautical products²⁴ was only done to facilitate Soviet progress by enabling short cuts and resource savings in research and development. By the time the Korean War had started, the Soviets had entered a period where air power was self-sufficient in new technologies. There was enough expertise available indigenously within the country to develop and bring to fruition original ideas and projects that would astound the West.²⁵

9.3 THE KOREAN WAR – A LIMITED TEST FOR THE SOVIET AIR FORCE

The invasion of the Republic of Korea (ROK/South Korea) by forces of the Democratic People's Republic of Korea (North Korea) on 25 June 1950 is widely considered a defining moment of the Cold War. The North Korean assault was viewed by the United States as a case of Soviet aggression.²⁶ This US perception of the Soviet role and aims in the outbreak of the Korean War escalated the simmering Cold War and also shaped its future course.²⁷ Whether or not Stalin had expansionist aims in the Korean peninsula is a question still being debated by scholars, but there is no doubt that the Korean War is a classic case of combat by proxy.

Although the Soviet Union provided political direction, laid out the war plans and sent in thousands of military 'advisors', the façade of North Korean independence was scrupulously maintained. The Soviets used this war as a test of their tactics with the Soviet Air Force evaluating and improving its air defence equipment and capabilities. The lessons learned and experience acquired considerably increased the combat

²³ News Report, 'AF Chief says Reds Ahead in Air Buildup', *Aviation Week*, 5 January, 1953, McGraw-Hill Companies, New York, 1953, p. 13.

²⁴ Robert H. Wood, 'Russian Angle', *Aviation Week*, 8 December 1947, McGraw-Hill Companies, New York, 1947, p. 7.

²⁵ Kilmarx, Robert A., *"A History of Soviet Air Power"*, London: Faber and Faber Ltd., 1962, p. 233.

²⁶ Weathersby, Kathryn, *"Soviet Aims in Korea and the Origins of the Korean War, 1945-1950: New Evidence from Russian Archives"*, Washington D.C: Cold War International History Project, Working paper No 8, Woodrow Wilson International Centre for Scholars, p. 5.

²⁷ Rees, David, *"Korea: The Limited War"*, Baltimore: Penguin Books, 1964, p. 19.

effectiveness of the Soviet air defence forces and also influenced the later development of Soviet military policy.²⁸ The Soviet air force restricted its activities to defensive missions north of the bomb line²⁹ and the Russian pilots had strict instructions never to fly over territory from which the United States forces could pick them up in case they were shot down.³⁰

The air war in Korea could be divided into three phases – first, the early months (June – October 1950) second, the Chinese Intervention (1950 – 1951) and third, the years of jet combat (July 1951 – July 1953).

9.3.1 The Early Months (June – October 1950)

At the outbreak of hostilities in June 1950, South Korea possessed only 16 unarmed trainers against which the North Korean Air Force could pit 70 Yak-9 fighters and 62 Il-10 ground attack aircraft. These were both Soviet aircraft of late Second World War vintage. However, the United Nations decision to immediately resist the attack brought a small number of readily available USAF aircraft into the fray. These consisted of short-ranged F-80C Shooting Star jet fighter-bombers and few obsolescent F-82 Twin Mustang piston-engined fighters.³¹ Since the North Korean advance was very swift, the USAF moved three wings of F-51 Mustangs into the theatre for ground attack support of the Army.

While ground forces were being assembled to stem the North Korean advance, Japan based bombers joined the attack on North Korean industrial bases and supply routes. By September only a small area around Pusan in the South east of the peninsula remained under UN control and all air activity was launched from aircraft carriers and bases in Japan. The Communist advance was halted mainly because of the relentless air attacks on

²⁸ Kilmarx, Robert A., *op. cit.* pp. 236-237.

²⁹ Bomb line is the forward most position of own ground troops that are in contact with the enemy. All ground attack missions are flown beyond the bomb line to ensure that own forces are not attacked.

³⁰ Monat, Pawel, 'Russians in Korea', in "*Life*", New York, USA: Life-Time Publishers Incorporated, 27 June 1960, p.76.

³¹ Bishop, Chris (Ed), "*The Encyclopaedia of 20th Century Air Warfare*", Leicester, UK: Silverdale Books, 2001, pp. 334-335.

their stretched supply lines in which even B-29 strategic bombers were used in the ground support role. The North Korean air bases were also targeted to contain the air force, which had been attacking air bases in the south with good effect. The growing UN air superiority was to be the key to the entire war.³² The counter offensive launched on 15 September 1950 was supported by carrier based attack aircraft and within a short time the Communist forces were driven back to their original positions and the status quo at the 38th parallel³³ was retained.

The Korean War may well have ended at this juncture but for two actions that were inter-linked. First, Communist China aligned itself on the side of the North Koreans and reconnaissance flights confirmed heavy build up of Chinese military forces at the border with North Korea. There was also a noticeable increase in Chinese MiG-15 jet fighter activity just north of the Yalu River, which divided North Korea from China. Second, the UN forces advanced across the 38th parallel, with the declared aim of occupying the whole of North Korea despite warnings by Communist China of direct intervention if such a course of action was undertaken. The advance of UN forces into North Korea led to a protracted struggle.

9.3.2 The Chinese Intervention (1950 – 1951)

As the advancing UN forces reached the Yalu River, the tough and determined opposition that was encountered made it apparent that Communist China had entered the war. For political reasons, American air operations were restricted to North Korean air space and therefore the Chinese fighters could not be attacked in their airfields, making the air opposition once again a force to be reckoned with. It was at this juncture that the swept-wing Soviet designed MiG-15 jet fighter made its operational debut.³⁴ The Chinese had

³² Ibid, p. 336.

³³ In 1945 after the surrender of Japan, 38th parallel north was established as the boundary between the Soviet (north) and American (south) occupation zones in Korea. The parallel divided the peninsula roughly in the middle. In 1948, the dividing line became the boundary between the newly independent countries of North and South Korea.

³⁴ Robinson, Anthony (Ed), *"Aerial Warfare"*, London: Orbis Publishing, 1982, p. 264.

entered the war at the urging of USSR, which reasoned that its strategic plans could still succeed.

New evidence available from Russian archives indicate that the decision to invade South Korea was approved by Stalin and Mao Zedung after the USSR had ensured that the North Korean forces had overwhelming superiority in numbers in all aspects of manpower and equipment. It is also evident now that a US led United Nations opposition was not envisaged. The Soviet reaction to the US intervention as well as the subsequent pattern of Soviet involvement in the war indicate that the leadership, especially Stalin, was alarmed by the immediacy and strength of the US response and was very reluctant to enter into a direct military confrontation over Korea.³⁵ This is substantiated by the fact that the Soviet Foreign Ministry did not even have a contingency plan to put forward in case of American intervention and the first draft of their statement in reaction was only ready one week after the commencement of the war.³⁶ It has also been revealed now that immediate instructions were given to Soviet troops to avoid engagement, signified by the orders to the naval ships to return to their own defensive zones immediately. Throughout the war Soviet naval ships stayed clear of the war zone.³⁷ The Soviet government tried to distance itself from the conflict, indicated by their refusal to grant permission to Soviet citizens of Korean nationality to join the fight voluntarily.

By November 1950, the Chinese advance was well organised and the United Nations forces were in retreat leaving the air forces as the only means to slow the advance. The MiG-15s were now being opposed by North American F-86A 'Sabres'. However, the Chinese advance continued despite heavy losses to air attacks. By January 1951, Seoul was evacuated and the United Nations was forced to operate its aircraft from bases in Japan. Although the MiG-15 was seen to be equal and at times superior in performance to all other aircraft employed in the war, they were not able to make an impact on the overall outcome of the conflict because of both operational and political reasons.

³⁵ Weathersby, Kathryn, *op. cit.* p. 31.

³⁶ *ibid.*

³⁷ Cumings, Bruce, "*The Origins of the Korean War, Volume II, The Roaring of the Cataract, 1947-1950*", Princeton: Princeton University Press, 1990, pp.643-644.

Operationally, other than for the MiG-15s, which were not available in large numbers, the Communist/Chinese air forces did not have any other type that could be utilised with a reasonable chance of success against the American-dominated air space. Political restrictions forced the MiG-15s to operate from airfields in Manchuria, which were beyond the range of enemy attacks. Paradoxically, the distance involved in transit to the battle area and back reduced the staying power of the MiG-15s in combat and their effectiveness in ground battle intervention. Political constraints also restrained the uninhibited use of the Communist air forces in attacks against ground targets. Interceptions were also restricted to certain designated areas from where a downed pilot would not fall into the hands of the United Nations.

Under such artificial restrictions, the Communist/Chinese air force was not able to perform its role to satisfaction. This situation also made it easier for the American-led forces to obtain and continue to maintain an unquestioned control over air space. Even in retrospect, the performance of the MiG-15 has always been praised and it is the strategic employment methods that have been listed as the reasons for the comparatively poor performance of the air force.

The USAF concentrated more on ground support in order to stop the advance of the Chinese army, forcing the Chinese to change tactics to movement by night and lying-up in camouflaged positions during the day. Although the advance continued, the front stabilised by end-January south of Suwon and Wonju. The limited range of the MiG-15s precluded their effective support of the ground operations, but they continued to engage American aircraft on interdiction missions in the North-West of the country. This area was soon christened 'MiG Alley' by the USAF.

9.3.3 The Years of Jet Combat (July 1951 – July 1953)

The communist spring offensive failed to overrun the entire peninsula, but the Chinese intervention had forced the United Nations to abandon its original aim of unification of

North and South Korea.³⁸ Peace talks that were initiated dragged on for two years while the fighting ground to a stalemate. An all-out air offensive was mounted against the road network, which was the vital supply lines for the communist troops but failed to produce any tangible results because of their unexpected repair capabilities. However, this attempt pitted the F-86 'Sabre' against the MiG-15 in air-to-air combat and battles between 50 F-86s and an equal or even more number of MiGs became commonplace. It is widely believed that experienced Soviet pilots flew missions during this period.

Although armistice talks were continuing, the air operations against ground targets were never eased. However, the attacks suffered from frequent changes of priority targets with the air force never at liberty to completely concentrate on one target system. In turn the roadways, railway network and industrial targets were attacked. Bridges and supply routes and nodal points were also attacked regularly. By May 1953, it was noticed that the MiG-15s were not as active as before, leading to the conclusion that the Soviet pilots were withdrawn from the conflict around this time, which also coincided with the death of Josef Stalin. The Chinese delegation agreed to a ceasefire on 27 July 1953 and brought the conflict to an end.

9.3.4 Lessons from the Air Fighting

From an air power perspective, the lessons from this conflict are difficult to assess, but in general emerge from two completely separate employment concepts; one of ground attack and the other of air superiority.

In the ground attack role there is no doubt that air intervention in terms of concentrated close air support prevented the complete rout of the United Nations forces on more than one occasion.³⁹ The interdiction campaign hampered the Communists' offensive operations throughout the war.

³⁸ Bishop, Chris, (Ed), *op. cit.* p. 346.

³⁹ Robinson, Anthony (Ed), *op. cit.* p. 269.

In terms of air superiority, the United Nations forces established control at an early stage. This was also the first time that large numbers of jet fighters engaged each other in a major conflict. It was seen that although control of the air was repeatedly challenged by the Communist air forces, they were never able to assume air superiority over any part of the campaign because of the political constraints under which they were forced to operate. The fleeting nature of the all-jet combats graphically demonstrated that the days of the gun-only armed fighters were numbered and that the air-to-air missile would become more important in aerial combat.⁴⁰

9.3.5 The Soviet Air Force

By late 1950, when the United Nations commenced its offensive, the USSR was prepared to be more actively involved in the war and the Soviet air power was in a better position to increase the Sino-Soviet commitment. This was made possible partly because a great deal of progress had been made in the production of jet fighters. But even more important was the availability of the atom bomb to the Soviet Union, which meant that the United States had lost its atomic monopoly, thus ensuring a greater measure of assurance that the conflict would remain localised. The Soviets also increased their involvement in order to ensure that the Chinese were more firmly established in their camp while negating any rapprochement between the Peoples Republic of China and the United States.

Although the Soviet military doctrine at that time did not consider nuclear weapons decisive in war, possession of nuclear weapons was a contributory factor in their approving direct Chinese intervention. From early 1951, through the entire period of the armistice negotiations, MiG-15s flew an average of 2,000 daytime sorties a month.⁴¹ Soviet MiG-15 operations were meant to provide combat training to pilots, improve tactics and equipment performance and to furnish logistical and maintenance experience. This was apparent from the fact that as the war progressed, the MiG-15 tactics and

⁴⁰ Bishop, Chris, (Ed), *op. cit.* p. 350.

⁴¹ Greenough, Major Robert B., 'Communist Lessons from the Korean Air War', "*Air University Quarterly Review*", Winter 1952/53, Vol 4, Maxwell AFB, AI: Air University Press, p. 25.

combat performance continuously improved.⁴² By late 1952 the Soviet air strength was such that they could have convincingly wrested air superiority from UN forces. But they feared that such an action would trigger a global war and therefore did not employ their air force to the fullest extent.

From the Soviet viewpoint, a comprehensive analysis of the campaign was done and their experiences were integrated into valuable lessons for future implementation. It was accepted by both the sides that the MiG-15 was in fact a better aircraft than the F-86 in rate of climb, acceleration, ceiling, maximum speed and turn performance.⁴³ But the better gun sight and more stable performance of the F-86 at higher speeds made it a better weapons platform. The United States fighter pilots were found by and large to be more aggressive and innovative in combat, leading to the conclusion that Soviet flying training schedules needed to be revamped. One major area of concern was the lack of initiative shown by Soviet pilots. The experience gained in integrated interceptor operations demonstrated that even first-rate ground-radar coverage and effective co-ordination and control were not a viable substitute for airborne radar. The necessity for improved early warning and air defence network was clearly understood.⁴⁴

The potential of strategic bombing to be effective in the long-term destruction of military industrial complexes was also demonstrated by the rapidity with which the North Korean industry was decimated.⁴⁵ Since the air war was fought mainly over Communist held territory for most of the war, the Russians were able to acquire and exploit enemy equipment that were vastly superior in terms of electronics including airborne radar. US tactics, logistics and training patterns were also studied with great care. The tactical value of the helicopter and the importance of aerial reconnaissance were also realised.

⁴² Christian, George L. 'Combat Pilot View of MiG', *Aviation Week*, , June 23, 1952, New York: McGraw-Hill Companies, 1952, p. 15.

⁴³ Green, William, 'The Development of Jet Fighters and Fighter Bombers', in Lee, Asher (Ed), *The Soviet Air and Rocket Forces*, New York: Fredrick A. Praeger, 1959, pp. 139-140.

⁴⁴ Kilmarx, Robert A., *op. cit.* p. 240.

⁴⁵ Stewart, Colonel James T., (Ed), *Airpower – The Decisive Force in Korea*, Princeton, N.J: D. Van Nostrand Company, 1957, p. 131.

Although the final outcome of the campaign was a stalemate, the UN forces dominated the air war, even though numerically outnumbered by superior performance aircraft. This was not because of lack of understanding at the tactical level of air combat and its attendant requirements on the part of the Communist/Chinese air force, but because of politically generated embargoes on operational utilisation of forces. The Korean War provides a clear case of political and ideological interference influencing air power doctrine and strategy and curtailing tactical operational employment of superior equipment to its detriment, both in the short and long-term.

9.4 THE WARS IN THE MIDDLE EAST

The wars in the Middle- East between Israel and the Arab nations of the area have also been the test of Soviet equipment ranged against Western designs. The major air forces of the Arab nations were equipped and very often trained by the Soviet Union as part of the opposition to 'capitalist' intervention in the region and at its height comprised of even Soviet pilots flying combat missions. American military assistance to almost all the nations in the region, as seen today, has been provided only in the last two decades as a part of peace initiatives from Washington.

9.4.1 Six Day War 1967

On the eve of the Six Day War, the Israel Air Force's combat squadrons were exclusively equipped with French aircraft consisting of Dassault Mirage IIICJs, Super Mystere B2s, Mystere IVAs and the older Ouragans and totalled around 350. In opposition was the Arab force of more than 800 aircraft, with Egypt alone possessing 450 warplanes. Other than for two squadrons of Hawker Hunters (one from Jordan and the other from Lebanon) the force was almost entirely equipped with Soviet aircraft comprising of MiG-21s, -19s, -17s, Il-28 and Tu-16 bombers.⁴⁶

⁴⁶ Robinson, Anthony (Ed), *op. cit.* p. 293.

If wars were won purely on superior strength alone, then the outcome of an Arab-Israeli clash would have been a foregone conclusion. However, such non-quantifiable factors like, morale, doctrine, training and tactical skills are more significant in the actual conduct and winning of wars. The pre-emptive strike on the Arab air forces, carried out in the morning of 05 June 1967, is even today considered a classic example of audacious planning and tactical surprise. During a three-hour assault on almost all the Egyptian airfields, over 300 aircraft were destroyed or damaged, mostly on the ground.⁴⁷ The Jordanian Air Force and the Syrian Air Force were also equally mauled during the same day. The first day of the war ensured almost complete Israeli air superiority over the battle areas.

Although the war lasted only six days and a UN ceasefire became effective on 09 June, the Arab air forces, or what was left of it, contested the air battle from the second day onwards. They tried valiantly to support their ground troops who were being pushed back by Israeli ground forces ably assisted by the overwhelming close air support and interdiction missions that the Israeli Air Force was able to provide. The Arab air forces kept up small-scale but increasingly effective strikes for the rest of the war, although they did not affect the outcome of the war. In the air combat arena, the Arab air forces suffered more losses, but were also able to shoot down a number of Israeli aircraft.⁴⁸

Although the competing forces were equipped with Western aircraft on the one side and predominantly Soviet aircraft on the other, the war did not bring out any clear cut comparative effectiveness or superiority of either one, mainly because the Arab air forces were almost completely decimated on the ground at the start itself. Thereafter both the sides concentrated more on support to the ground forces and the few air-to-air encounters were purely incidental. However, the Israeli Air Force encountered the SA-2 surface-to-air missile for the first time in the Golan Heights, which should have warned them of the intense ground-to-air defences that were being built up by the opposition.

⁴⁷ Bishop, Chris, (Ed), *op. cit.* p. 411.

⁴⁸ *Ibid*, p. 414. At the end of the war the tally of aircraft losses was almost one sided, with Israel claiming 381 aircraft destroyed (approximately 60 in air combat) for a loss of only 45 aircraft (probably more).

9.4.2 The War of Attrition 1969 – 1970

The ceasefire at the end of the Six-Day War brought about only a brief respite in the fighting and periodic artillery attacks and air space intrusions continued till the outbreak of hostilities again in 1973. France placed an embargo on the export of fighter aircraft to Israel forcing a major shift in the Israeli order of battle. They obtained large number of F-4E 'Phantoms' and A-4E 'Skyhawks' from the United States marking the beginning of a complete reliance on American equipment for the air force.

During the period 1969-1973, although war had not been officially declared, cross-Canal⁴⁹ shelling and air raids were very common. In the initial stages Israel was able to control much of the air war, but by early 1970 the Egyptian Air Force was successfully mounting hit-and-run raids across the Canal. In the air also the Israeli Air Force losses were almost the same as the Egyptians, especially after 'volunteer' Soviet pilots operating squadrons of MiG-21s from Egyptian bases entered the fray.

While the War of Attrition is not significant in the larger perspective of the Middle-Eastern conflict, it demonstrated that the Soviet aircraft were equally effective as the Western aircraft when operated by adequately trained pilots. It also brought out the fact that strategic planning and tactical appreciation and innovation were required to win engagements, battles and wars.

9.4.3 The Yom Kippur War - October 1973

The Yom Kippur war caught the Israelis unprepared for a number of reasons, all of them political. The Arab forces had made good the losses they had suffered and there was a general feeling that their superiority in numbers could even out the disparity in quality and efficiency. The Egyptian and Syrian forces alone fielded more than 1,000 aircraft against less than 500 Israeli aircraft.⁵⁰

⁴⁹ 'Canal' refers to the Suez- Canal.

⁵⁰ Robinson, Anthony (Ed), *op. cit.* p. 296.

There was a major lacuna in the Arab planning. They had overestimated the capability of the MiG-21's multi-role capability, especially in the ground-attack role. It was primarily an efficient point-defence interceptor and not ideally suited for the ground attack role since it had very limited loiter time and range and could carry only very small amount of ordnance. The other aircraft in the Arab inventory also were not capable of carrying the weightage of ordnance that the American F-4 Phantom could carry in a ground attack mission.

The Egyptians held the initiative on the ground and in the air from the outset. A belt of surface-to-air missiles and radar-controlled flak defended the west bank and the ground-attack aircraft struck every Israeli airfield and command centre. The Israeli air force took more than two hours to respond, a clear indication of the success of the initial Egyptian strategy. The Israeli Air Force had to concentrate on attacking the missile defences in order to ensure interference free operations of their own ground attack aircraft. Even if they had attacked airfields, there would not have been much damage caused since the Egyptian air bases were almost invulnerable as they were concrete protected and well dispersed. The Israeli Air Force suffered major losses to the ground defences, so much so that the United States airlifted electronic warfare equipment to counter the threat of the surface-to-air missiles. The whole war was bloody and fought to a stalemate before the inevitable ceasefire agreement, but the air war was particularly heavy in terms of losses to both sides.

The Six Day war of 1967 had been won by the Israelis mainly by the use of their superior air power in the pre-emptive strike. The Arab nations had learned their lessons well and had built up a very comprehensive air defence network. But they failed to acquire really modern aircraft with the necessary capabilities to carry the fight to the enemy. The Arab nations in general, but Egypt and Syria in particular, relied more heavily on the ground based missile systems for their air defence. However, the missile systems were rendered ineffective by the Israeli Air Force who concentrated on attacking them even at the cost

of heavy losses. The American electronic countermeasures further degraded the performance of the missile network.

The Yom Kippur War highlighted a number of factors. The difference in attitude to their allies between the two Super Powers was demonstrated by the United States releasing a number of highly sophisticated aircraft and equipment to ensure the survival of Israel, while the Soviet Union was reluctant to do the same for their Arab allies. Although the exact number of aircraft losses are still disputed, it is clear that losses on both sides were extraordinarily heavy, attributed mainly to ground fire. A number of air-to-air combats took place (estimated to be around 400) and the effectiveness of training and superior tactical skills was once again very clearly demonstrated by the Israeli Air Force, who claimed a kill ratio in excess of 10:1.⁵¹ The Soviet surface-to-air missiles performed extremely well and gained new respect within air force circles, as did their concept of ground-based, layered battlefield air defence. The importance of electronic warfare and electronic intelligence to provide accurate countermeasures became very clear. For the first time drones and Remotely Piloted Vehicles were extensively used for reconnaissance and data gathering and thereafter became important equipment in any modern army.

9.5 INDO-PAKISTAN WARS

Following the end of the British Raj in 1947, the Indian sub-continent was bloodily partitioned into the independent nations of Muslim Pakistan and secular but predominantly Hindu India. Almost immediately, the new nations went to war over the disputed state of Jammu and Kashmir after its accession to India. Thereafter the nations have been at declared war three times, been in countless skirmishes and are still in a state of confrontation and punitive actions.

⁵¹ Bishop, Chris, (Ed), *op. cit.* p. 421.

Initially the air forces of both the nations were equipped with ex-RAF and ex-RIAF aircraft and the UK continued to supply aircraft to both countries for some more years. Subsequently Pakistan obtained the bulk of its equipment from the United States and India began to rely on the Soviet Union. By the time of the 17-day conflict in September 1965, the Pakistani Air Force (PAF) was predominantly equipped with F-86Fs and few F-104s while the Indian Air Force (IAF) had a mixture of French (Ouragan and Mystere IVAs), British (Hunters) and Soviet (MiG-21) aircraft on its inventory.

9.5.1 The 1965 Conflict

During this conflict both the air forces flew a large number of missions - defensive combat air patrols, offensive counter-air missions, close air support to the ground forces and interdiction. The IAF retained much of its air force based in the East as a precaution against a possible Chinese intervention and therefore the forces that faced each other were almost evenly matched in numbers. Discounting extravagant claims by both countries regarding the losses suffered by the other, the war is seen as a stalemate both on the ground and in the air. Although PAF suffered lesser losses in terms of numbers, it lost more than 17 per cent of its front-line strength while the Indian losses mounted to less than 10 per cent. More importantly, the loss rates had started to even out towards the end of the war and it was estimated that another three weeks of fighting would have seen the PAF losses mounting to 33 percent against the IAF's less than 15 per cent loss.

It is acknowledged that in the final reckoning PAF was indeed more successful, although this was tainted by ridiculously exaggerated propaganda. The two air forces learned different lessons from the conflict. India realised that the IAF had been something of a glorified flying club before the conflict and that serious efforts were required to establish improved training and operations readiness patterns. The IAF also understood the importance of ground defence and the requirement to provide the basic necessities like camouflage netting and other ground defence equipment. The lack of an efficient ground-based early warning system was highlighted. With Soviet aid, the IAF established a

modern radar network, linked with SA-3 'Guideline' surface-to-air missiles and a large number of AA guns.

The PAF began to believe its own propaganda and failed to realise that the slight margin in kill ratio was not good enough to win a sustained war against a numerically larger force. They did not perceive that although the air war was a victory of sorts, the ground war had ended in at best a stalemate for their forces. There was no understanding that despite a better kill ratio, the sizes of the forces almost completely denied victory in any long drawn war of attrition. Even though half the IAF had been tied down in the East, had the war lasted a little longer, sheer numbers would have defeated the PAF. The PAF also did not fully appreciate their reliance on ground-based radar coverage and adequate supply of air-to-air missiles.

The most striking after-effect of the 1965 conflict was the 10-year arms embargo imposed by the USA on both the nations. This did not affect the IAF which was traditionally equipped with British, French and Soviet equipment, but was disastrous for the PAF, which was forced to acquire 90 obsolete second-hand F-86s through Iran, 28 Mirage IIIs from France and 74 Shenyang F-6s from China. The PAF was unable to procure a modern interceptor in realistic numbers.

9.5.2 The Bangladesh War of 1971

The war to liberate East Pakistan from Islamabad rule was mainly fought by the ground forces since the PAF did not have any significant air element located there at the outbreak of hostilities. The IAF was therefore able to mount airborne and heliborne attacks without any hindrance and from the fourth day of the war enjoyed air superiority over the entire eastern theatre.

The campaign in the west saw the IAF undertaking a series of anti-radar, anti-airfield and close air support missions and achieving definitive air superiority in most of the theatre. The PAF employed their aircraft mainly in defensive combat air patrols over their own

bases and without air superiority was unable to conduct any effective offensive operations. The PAF was reinforced by F-104s from Jordan, Mirages from Libya and F-86 from Saudi Arabia, which helped to camouflage the extent of PAF losses. By the end of the war on 17 December, IAF had flown 1,978 sorties in the Eastern theatre and 4,000 in the West, while the PAF flew 30 and 2,840.⁵² More than 80 per cent of the IAF sorties were close air support and interdiction and it lost 65 aircraft (54 were officially accepted), most of them to ground fire. PAF lost 72 aircraft (admitting only 25) half of them being air combat losses. The imbalance in the loss rate is explained by the IAF's high sortie rate and its emphasis on ground support missions.

More than the actual losses or tactical lessons that emerged at the end of the conflict, it was noteworthy that Soviet equipment when used in the appropriate manner and by crew with adequate training was equal in performance to its western counter part. Even the Soviet concept of employment and also tactical appreciation of operational deployment were suited for the equipment and vice versa. This lesson emerged clearly since the IAF was by then predominantly reliant on Soviet equipment for aircraft as well as ground defence. In the six years that had elapsed from the 1965 conflict, the IAF had emerged with sound doctrine, bolstered by strategy linked to the equipment versatility.⁵³ Tactically the IAF had grown beyond the PAF in more than sheer numbers and the result was a resounding victory.

9.6 THE VIETNAM WAR

In Vietnam, the air war was affected by a different factor than sheer pilot performance and training; political interference. While the tactics of the two opposing forces were themselves very different, it was the political decisions that proved more costly to the American forces. The US air forces were forbidden from attacking beyond laid down geographical features and the lack of reliable identification systems reduced the effectiveness of air-to-air missiles. In fact the new F-4 Phantom was introduced into the

⁵² Bishop, Chris, (Ed), *op. cit.* p. 387.

⁵³ Kainikara, Sanu, "*Lessons in Air Power from Limited Armed Conflicts*," Paper No 32, Fairfax, VA: BDM Services Ltd, 1997, p. 16.

war without internal guns which became a distinct disadvantage in air combat with such restrictions. The Soviet Union and China equipped, devised the tactics and trained the North Vietnamese Air Force. Although opposition to the US air attacks were minimal in comparison to the weight of the attack, the MiGs were very successful in thwarting ground attack missions. The North Vietnamese emphasised ground-controlled interceptions and since the entire force was trained in Russia, they operated completely within the Russian principles of air combat.

The North Vietnamese pilots were trained to optimally use the better performance traits of their aircraft and very seldom stayed long in combat. The few times that they entered into long drawn combat situations, the results were almost even. The North Vietnamese fighter tactics were designed mainly to disrupt attacking formations and then pick off straggling aircraft.⁵⁴ This was done by using the superior acceleration and maximum speed of the MiG-21 fighters. The US Navy took concrete steps to ensure that their training was adequate to meet the threat and formed the 'Top Gun' schools to teach their pilots tactics that would be specifically effective against the MiG-21. This resulted in a better combat win ratio for the Navy as opposed to the US Air Force.

The MiG-21 was considered an advanced threat by the US air forces because of its performance and also the fact that it carried a twin-barrel 23-mm cannon, at a time when the F-4s had no guns. The KA-13 (NATO Codename - AA-2 'Atoll') missile gave the aircraft further capability. On closer examination the earlier MiG-21s gave the impression of being crude and primitive, but the aircraft was actually optimised for the air-to-air role and was agile and easy to maintain. In comparison to the American fighters, which were expensive, complex and heavy the MiG-21 gave great performance at much lesser cost.⁵⁵ The F-4 Phantom without a gun was decidedly at a disadvantage in close combat, when the missiles could not effectively engage the adversary.

⁵⁴ Flaherty, Thomas H., (Managing Ed), "*The New Face of War: Air Combat*", Alexandria, VA: Time-Life Books, 1990, p. 30.

⁵⁵ Dorr, Robert F & Bishop, Chris (Eds), "*Vietnam Air War Debrief*", London: Aerospace Publishing Ltd, 1996, pp.72-73.

The North Vietnamese Air Force however operated under the constraint of limited aircraft availability and also without its own training system for pilots. Therefore, it was not able to muster the numbers required, both in terms of combat aircraft and qualified pilots to put up any effective aerial opposition. Their fighters were used in the classic 'snipe and run' tactics against the heavily loaded fighter-bombers. The tactics they employed also represented this situation. The pilots were clearly not looking for air combat and aerial victories, but to ensure that the attacking aircraft were forced to drop their load in order to fight the airborne threat thereby neutralising the aim of the raid. The North Vietnamese relied much more on surface-to-air missiles (SAM) for air defence of vital targets and the fighter pilots also used the tactics of disrupting the fighter-bomber formations to make it easier for the SAM batteries to shoot them down. Majority of the American losses were attributed to anti-aircraft fire, both ack-ack and SAMs.⁵⁶

Two important innovations came out of the Vietnam War. First, the need to suppress enemy air defences (SEAD) before the arrival of the main strike force was realised and the role was formalised by the formation of the 'Wild Weasel' squadrons specialising in the destruction of SAM sites. Second, electronic warfare (EW) was recognised as a necessity and the role by itself emerged as an independent consideration in air warfare. A few other generic but valuable conclusions also emerged. The war showed that technological superiority could not guarantee victory. It was recognised that Air-to-Air Missiles, while attractive in theory, needed tremendous improvement before they could become the primary armament in air combat. The war proved that in the quest for air superiority, no amount of technological innovations would replace the need to finally enter into close combat.

From a purely Soviet perspective also some lessons were learned. The effectiveness of SAMs as anti-aircraft weapons was reinforced and the Soviets went on to develop the largest number of SAM types with varying ranges and operational heights, that created an unbroken umbrella of SAM defences, a concept that was effectively used in later

⁵⁶ Ibid, p. 83.

conflicts. The gun became standard equipment for all fighters and the Soviets never designed or produced an aircraft without an internal gun after the first version of the MiG-21. Superiority in numbers was seen to redress the balance in case of inferior performance aircraft provided one was willing to accept the attrition and had the resources to absorb it before the campaign could be won. The Soviets realised that purely ground-controlled interceptions would never prepare a pilot for the demands of air combat in a free for all scenario and dedicated training was required to inculcate the necessary aggressiveness that assures success in combat.

The reasons for the failure of the American forces to win the war are not connected to the air war directly. The Americans were able to rule the skies for most of the time, especially towards the end of the war. However, they were not able to completely neutralise the SAM threat that continued to take a toll of attack aircraft throughout the war. The Vietnam War demonstrated to the world the technological advances and doctrinal changes that Soviet air defences had made. Its effectiveness was an eye opener to the Western observers who until then had looked at the Soviet equipment with disdain. The same was not the case with the fighter aircraft. Observers and even some of the American fliers themselves thought of the MiG-21 as inferior, without realising that their effectiveness in combat was restricted not because of performance deficiencies, but because of the limited numbers available, the mission allotment in terms of tasking, tactical restrictions imposed to ensure conservation of resources by minimising combat losses and training deficiencies within the North Vietnamese Air Force.⁵⁷

9.7 AIR COMBAT: WEAPONS, PERFORMANCE AND MANOEUVRABILITY

The early 1950s saw the design of high-speed high altitude interceptors peaking at the American F-106 Delta Dart and the Russian MiG-25 Foxbat. But the perceived need was for a 100 per cent kill rate to counter nuclear-armed bombers, which was not achieved. The uneasy peace and strategic balance were preserved by building bigger and better bombers at the cost of fighter development. The introduction of SAMs changed the

⁵⁷ Kainikara, Sanu, *op. cit.* p. 23

equation in air power employment since they had a high kill ratio probability and were far more affordable. Accordingly tactics were changed to deliver all attacks from extreme low levels below the radar and missile cover. Miniaturisation of nuclear devices brought the tactical fighter to centre stage and the introduction of air-to-air missiles combined with the reduced turning ability of supersonic fighters decidedly worked to remove the gun from fighter aircraft.

AAMs, although increasing the range of effectiveness of the fighter had its own drawbacks, both in performance and tactical application. Their performance was dependent on altitude, seeker-head 'look angle' and type. In tactical application, the necessity to have positive identification of friend or foe to eliminate chances of fratricide became a stumbling block to its unrestricted use. They were first used in 1958 by Nationalist Taiwanese Air Force against PRC forces with limited success.⁵⁸ The heat-seeking missile changed fighter tactics by reinforcing the effectiveness of turning capability to neutralise the missile as opposed to fast acceleration against a gun attack.

From mid-1960s four fighter types dominated the combat arena for the next decade; the Russian MiG-17 and MiG-21, the French Mirage IIIC and the American F-4 Phantom II. These aircraft fought each other in a number of minor wars and when their performance was evaluated, the result showed that they were all of similar capabilities, with one being better in one aspect and the other in another.⁵⁹ In all the air combat skirmishes that took place in the limited wars that were fought during this time, the results indicate not the superiority of an aircraft type, but the reinforcement of the fact that intensive and realistic training combined with effective and aggressive leadership and well-formulated tactics were the combat winning factors for any air force.⁶⁰ The Yom Kippur War of 1973, discussed earlier is a classic example of this factor when the Israelis were able to gain the upper hand in the air campaign after having started the war on the defensive and at a distinct numerical disadvantage.

⁵⁸ Spick, Mike, *Fighters at War, The Story of Air Combat*, Greenhill Books, London, 1997, p. 117.

⁵⁹ The evaluation is done taking into account restrictions imposed on their employment for political and other non-combat reasons,

⁶⁰ Kainikara, Sanu, *op. cit.* p. 29.

Almost all air combat during the 15 years from 1958 was tactical in nature where the enormous maximum speeds were never used to full effect. In the Vietnam War, the Russian aircraft had a distinct advantage in close combat because of their superior turning performance and smaller silhouette that delayed visual contact. However, the US forces put the lessons that they learned in the initial years to good use and their dissimilar air combat tactics improved distinctly as the war progressed.

New ideas and new shapes were introduced into the design of fighter aircraft to cater for the wide speed range that they operate in. The swing-wing, fly-by-wire and glass cockpit configurations were the result of design innovations to optimise performance. The Russian design houses have produced the MiG-29 'Fulcrum' and Su-27 'Flanker', both of which are equal in air combat performance to any other aircraft in the world. The Su-27 is an extremely capable aircraft carrying up to ten missiles and internal gun and its helmet-mounted sight gives it a high off-boresight capability. Both these aircraft are capable of high acceleration and also tremendous agility throughout the flight envelope. These have been used in combat only in the 1991 Gulf War, but the Iraqi Air Force never committed them to the war, opting to withdraw them in the initial stages itself.

Great technological innovations are being made at an incredibly fast pace in the sphere of aircraft avionics. Visionaries even foresee a day when an aircraft filled with computers and their attendant sensors will obviate the need for an on-board pilot.⁶¹ But the current trend in development seems to be to have a variable mix of manned and unmanned vehicles operating in tandem. There has not been much resources devoted to the development of unmanned vehicles in Russia currently and they lag behind in this aspect as compared to the Western aircraft manufacturers. But in all the wars that have taken place around the globe after the Second World War, the Russian combat aircraft have acquitted themselves well and suffered in their overall performance only because of

⁶¹ Flaherty, Thomas H., (Managing Ed), *op. cit.* p. 160.

extraneous factors like pilot training, lacuna in tactical appreciation and flawed doctrinal approach to air warfare.⁶²

⁶² Kainikara, Sanu, 'Sukhoi's Formidable Flanker Family', in *Asia-Pacific Defence Reporter*, Volume XXV, No 3, Sydney: The Magazine Group, April/May 1999, p. 69.

Chapter 10

THE INTERFACE OF IDEOLOGY, HISTORY, DOCTRINE AND TECHNOLOGY

The period immediately following the Second World War saw two developments that had long lasting influence on the formulation and refinement of the Soviet air power doctrine. First, the main strategic centre of gravity of the enemy moved beyond the effective reach of the combined air-ground team for the first time in the Soviet Union's historical experience. This dictated a re-examination of the Second World War doctrine based on the assumed primacy of ground forces and the dedicated support role of tactical air forces. Second, the technological-military revolution gave an unprecedented boost to the development of air power capabilities thereby increasing the importance of its role in the overall context of military operations. These fundamental changes forced the modification of existing doctrine and techniques for the employment of air power. The Soviets however retained the basic framework of their Second World War air doctrine and incorporated changes and new ideas periodically to obtain a slow but regular evolution in their approach to the employment of air power.

Prior to the Second World War Soviet military thinking had concentrated on land-centric European warfare and the broadening of the area of operational interest brought the concept of intercontinental warfare into focus. Even though this gave added impetus to intercontinental strategic warfare, the Soviet military continued to place the same importance to land-centric operations in the Eurasian Theatre. The basic doctrine of the armed forces was adapted and regarded any strategic nuclear-missile strikes in the initial phases of a war as being decisive to the final outcome of a general war in the future.¹ It was also agreed that a general war would be the precursor to total war and although the initial phases would be crucial, in the long term it would still be a potent and large ground

¹ Raymond L. Garthoff, in 'Introduction' to Marshal V. D. Sokolovsky, (ed), *Military Strategy: Soviet Doctrine and Concepts*, Pall Mall Press, London, 1963, p. xi.

force that would seize and occupy territory and win final victory.² The logical conclusion was that the Soviet armed forces would have to be built around a strong and mobile ground force supported by tactical air forces and battlefield missiles based on a balanced foundation of strategic rocket and air forces, anti-missile and air defences, and with a navy increasingly dependent on submarines.

In the Soviet military, the concept of intercontinental offence and defence complemented by ground campaigns in the theatre scale was given the highest priority. These changes however did not give a clear and independent status to the Air Force and its strategic utility was never fully acknowledged or explored. The newly formed strategic missile force was not assigned to the Air Force and long-range strategic aviation was given secondary preference to the development of missiles. Further evidence of the dismissive nature with which air power in general was dealt with is provided by the reduction of the tactical air forces to facilitate the increase in missile forces and the distinctive preference for surface-to-air missiles as the first line of defence rather than fighter interceptors in the Air Defence forces.³ On the contrary, the importance of air transport and aerial reconnaissance were well understood and recognised.⁴

10.1 THE POST WAR SOVIET AIR FORCE

Like its American counterpart, Soviet air power was also distributed among the three mission-oriented services although the command and control structure was very different. The Soviet Navy had a large land- and sea-based aviation arm that it controlled both tactically and administratively. The strategic air defence force, termed *PVO Strany*, was an independent service that operated more than 2000 aircraft and a large number of missiles from over 1,200 locations. The Soviet Air Force had administrative control over three large functional commands: Long Range Aviation, Frontal Aviation and Military Transport Aviation. While the air force also had operational control over the Long Range

² *ibid.*

³ Marshal V. D. Sokolovsky, (ed), *Military Strategy: Soviet Doctrine and Concepts*, Pall Mall Press, London, 1963, p. 232.

⁴ *ibid.*

Aviation and Military Transport Aviation, the Frontal Aviation was placed under the operational control of ground force commanders. This was unique among all the major air forces of the world and led to dilution in doctrinal development and effectiveness of operational application.

Even though the Soviet Air Forces possessed the entire spectrum of offensive and defensive air power assets, there were no strong and independent advocates of the strategic effectiveness of air power and the concept of independent air action had no historical precedent or support.⁵ The air force ranked fourth, above the Navy, in precedence within the armed forces hierarchy and contributed only to part of the broader military doctrine. While there was acceptance within the military strategists that air power was an important multi-dimensional element in combat, its primary role was seen as dominantly tactical, in support of combined-arms theatre operations.⁶ Even though the Soviet Air Force had a comprehensive doctrine, its combat capabilities and the support infrastructure to effectively pursue it were inhibited because they were built around the secondary status accorded to the force.

10.1.1 Long Range Aviation (Strategic Bombers)

The effectiveness of Western strategic bombing during the Second World War was analysed and appreciated by the Soviet military. More than this recognition, the impetus to build a strategic bomber force was provided by the pressing geo-political requirement to develop adequate long-range nuclear delivery systems. The initial development of capable bombers (Tu-95 'Bear', Tu-16 'Badger') was essentially aimed as an interim measure to bridge the gap until a sufficiently large ICBM force could be built and deployed. Their operational performance in the long-range strategic bombing role however ensured the bombers' continued retention in service in other complementary roles. A notable feature of these aircraft was that they were capable of intercontinental mission effectiveness without air-to-air refuelling. When initially deployed the Tu-95 was

⁵ William Koenig & Peter Scofield, *Soviet Military Power*, Bison Books Corp, Greenwich, CT, 1983, p. 111.

⁶ *ibid.*

a difficult target to intercept for most of the available all-weather interceptors and caused distinct concern in US defence circles.⁷ They reacted by instituting changes to the defensive doctrine, the rapid design and development of surface-to-air missiles and the introduction of supersonic, radar-equipped, missile-armed fighters. These counter measures effectively ended the concept of long range strategic bombing using free-fall bombs and shifted the utilisation of these aircraft to standoff weapon delivery platforms. Their nuclear delivery capabilities were however retained for medium range deployment.

When the Strategic Rocket Force absorbed most of the theatre nuclear delivery missions, the bombers' mission was further modified. The primary role of the Long Range Aviation was formulated as strategic strike and reinforcement of the naval air forces in the anti-shipping role during war and long-range strategic reconnaissance in peacetime. The substantial Tu-95 'Badger' force was augmented by the introduction of the supersonic medium bomber Tu-22 'Blinder' which served in the force with distinction.

10.1.2 Frontal Aviation

The entire tactical air power of the Soviet forces was concentrated in Frontal Aviation. Its order of battle included air superiority/defence fighters, fighter-bombers, light to medium bombers, reconnaissance and electronic warfare aircraft and also attack and transport helicopters. During the Cold War, around 80 percent of Frontal Aviation assets were deployed for employment in the European theatre, clearly indicating the importance the Soviet Union placed in containing the NATO forces.

The Frontal Aviation was organised into air armies that were directly controlled by the ground commander of a front with the air commander functioning as a deputy and air adviser. The greatest drawback in this arrangement was that, although in theory the air commander was permitted to exercise initiative in planning the air campaign, in practice he lacked the freedom to employ air assets as independent forces. This situation was not conducive to optimum employment of air power and was the biggest impediment to the

⁷ Ibid, pp. 113-120.

formulation of comprehensive air doctrine as well as the strategy and tactics required to implement it.

Soviet military doctrine envisioned the Frontal Aviation as part of an air-ground strike force designed for large-scale offensive operations.⁸ Although Frontal Aviation doctrine had always emphasised all-round air superiority and support of offensive operations, it was only in the 1980s that they acquired the capabilities necessary to support such a doctrine. Until then Frontal Aviation was only a battlefield air defence and limited close support organisation despite the fluid doctrine that the air force espoused.

The concept of operations in the Frontal Aviation units devolved around a doctrine aimed at air supremacy through conventional, large-scale offensive operations that would numerically overwhelm the enemy forces. Simultaneous and independent operations against command and control centres, airfields and air defence sites were envisaged while also ensuring battlefield air defence and close support was provided as required. It is certain that close support did not have priority in the Soviet Frontal Aviation doctrine as the ground forces were supposed to be self-sufficient in firepower and manoeuvre.

10.2 CONTINUITY THROUGH MILITARY HISTORY

In Soviet understanding, military doctrine and military art were two distinctly different parts of the overall concept of warfare. Military doctrine was the structured framework of ideas and views that formed the basis on which the nation identified the different ways in which future wars would have to be fought. Military art was the practical implementation of the requirements of doctrine, the theory and practice of the conduct of warfare on land, sea and in the air.⁹ The Soviet idea of military art was different from the all-encompassing concept of the 'Art of War' as understood in the West.¹⁰ In the Soviet defence forces military art was clearly defined and had three main levels: strategy,

⁸ *ibid.*, p. 113.

⁹ Christopher Donnelly, *Red Banner, The Soviet Military System in Peace and War*, Jane's Information Group, Surrey, UK, 1988, p. 199.

¹⁰ *ibid.*

operational art and tactics. The basis for the military art was provided by a framework of Marxist-Leninist ideology and conditioned by economic trends, technical development and the social structure of the country.¹¹

The Soviet military forces studied developments from ancient times to the present day to identify and establish the main and perhaps unchanging principles of military art and the special features that indicated the ideological aspect of warfare.¹² The Soviet military leadership as well as theorists held that any serious military analysis could be considered complete only after it had been viewed holistically from a historical perspective, a process that in turn provided a number of advantages. This process made it comparatively easier to analyse contemporary developments and determine whether new principles were emerging or if the changes were merely transitory in nature. Since a long-term historical perspective was less prone to the pitfalls of the prevailing feelings and emotions regarding a current campaign, such an analysis almost completely negated the chances of misinterpretation of Soviet victories and defeats. This approach was more capable of correlating the developments in each aspect of warfare vis-a-vis the corresponding requirements for change and innovation in strategy, operational concepts and tactical implementation.

The impact of ideology on the historical perspective was that all wars in which the Soviet Union had been involved were seen as 'just'. Therefore, in the Soviet Union military history played a propagandist role, which was in direct contrast to the very idealistic aims of studying military history for the sake of improvement and innovation in warfighting capabilities.¹³ On the other hand, military development was seen as an integral part of the formal framework of military doctrine and so there was a constant attempt to create a better military organisation from both within and outside the force.¹⁴ The military concepts were developed to ensure that the structure of the system was as near optimum

¹¹ *ibid.*

¹² Sanu Kainikara, *Technology, Air Power and Doctrine*, Paper No 7, BDM Services Ltd, Fairfax, VA, 1996, p. 14.

¹³ Christopher Donnelly, p. 200.

¹⁴ *ibid.*

as possible so that its tactics and operational forms, its command and control mechanisms and the integration of new weapon systems were seamless in implementation.¹⁵

Historical experiences formed a large database from which the Soviet concepts of strategic operational analysis and planning were developed. The 1980s was a period of great cataclysmic changes in the entire Soviet forces because of three simultaneous but independent developments. First, the rapid changes that took place in the international geo-political environment and the realignment of military balance in a very broad spectrum needed careful consideration to rebut, while not allowing its own influence to flag. Second, this was also the time when rapid advances in technology complicated the development of doctrine in the same timeframe, leading to a less than optimum understanding of higher strategy at the operational and tactical level of warfighting. Third, the situation was further complicated by the Soviet intervention in Afghanistan purely in the pursuit of politico-ideological emphasis.¹⁶

The combination of these factors forced the Soviet military to review its organisational structure, doctrine and strategic operational concepts, as well as training and weapon-system induction programmes. A historical perspective helped the military retain a visible thread of continuity in the operational development, while keeping in mind the lessons garnered from their own as well as conflicts abroad, as changes were instituted not only at the political-strategy level but all the way down to the mundane tactical level.¹⁷

10.2.1 Major Events that Influenced Soviet Military Art

In the Soviet view, military art as a cohesive entity could be traced back to the Fourth century BC.¹⁸ They gave credit for the development of some of the timeless principles of war to few great military commanders of the ancient world. Epaminondas the Theban general was credited with the refinement of the principle of concentration of force for the

¹⁵ *ibid.*

¹⁶ Patrick Brogan, *World Conflicts*, Bloomsbury Publishing, London, 1998, p. 128.

¹⁷ Christopher Donnelly, p. 201.

¹⁸ *ibid.*, p. 202.

main thrust on a decisive sector or front, in Fourth century BC.¹⁹ Next, in chronological order, Alexander the Great was thought to have developed the cavalry as a 'shock' troop and established one of the most enduring principles of simultaneous flanking attacks at Cannae in 216 BC.²⁰ Hannibal's encirclement tactics against the numerically superior Romans was also studied as a classic example of flanking technique. Julius Caesar was studied for his introduction of the art of manoeuvre warfare and the concept of maintaining and using elite reserves at critical junctures in battles.

The major factor that changed the face of warfare in the 'Middle Ages' was understood to be the introduction of firearms, which brought about what was termed as 'linear tactics'.²¹ The same period also saw the development of standing Naval forces and their use for the blockade of enemy ports and naval bases. According to modern Soviet military analysts, the most influential General of the period (18th Century) was Alexander Suvorov (1729-1800), who was credited with having emphasised the importance of seizing the initiative and carrying out bold manoeuvres in the offensive role. Napoleon's introduction of the mass army and its inevitable supremacy in a battle by means of a general engagement as opposed to the seizure of territory or fortress was studied for its impact on changes that were brought about because of the departure from the prevalent style of the time.²² In early 19th century, Soviet General Mikhail Kutuzov (1745-1813) played a major role in shaping Soviet military strategy and tactics. He successfully used his new methods of warfare²³ against Napoleon in what the Soviets called the 'Patriotic War of 1812'.²⁴ These principles laid the foundation for the doctrinal concepts of deep manoeuvre and powerful reserves.²⁵

¹⁹ John Warry, *Warfare in the Classical World*, Salamander Books Ltd., London, 1998, pp 87-88.

²⁰ *ibid*, pp. 97-99, 159.

²¹ *ibid*, pp. 159-161.

²² Christopher Donnelly, p. 203.

²³ The new methods that were used involved the achievement of strategic aims by bold active offensive, concentration of force over the decisive axis by unity of command, and winning successive engagements in a running battle rather than in one single general engagement.

²⁴ Christopher Donnelly, p. 203.

²⁵ *ibid*.

Military art was greatly influenced by the invention of the railways, telegraph and rapid-fire weapons. These facilitated the concentration of forces at a rapid rate and their more effective control, while volume of fire power itself was greatly enhanced.²⁶ The Russo-Japanese War (1904-5) and the First World War saw the appearance of offensive by large formations with sufficient reserves, but this period also saw the primacy of defence as a strategic option.²⁷

The major lesson derived from the First World War was the need to have contingency plans that could be carried out in the case of failure of the primary plan. The Soviet analysis of the First World War was categorical that the stalemate that resulted in the horrible trench warfare was the result of the European states not having a viable alternative to short duration mobile warfare that they had so far practiced. This perception and the Civil war that immediately followed led to the reorientation of doctrine aimed at avoiding the pitfalls that were identified.²⁸ It involved the formulation of new forms of strategy by basic analysis to arrive at accurate identification of decisive strategic objectives. This was followed by the selection of the decisive axes and concentrating forces on them. The Soviets were completely committed to ensuring the offensive character of all operations while identifying the main enemy threat at each stage of the campaign. The analysis also permitted the option of choosing the best strategy to counter the enemy in terms of offensive, defensive, pursuit etc and retaining the flexibility to switch from one to the other or combining them dependent on emerging situations.²⁹ The Soviets also laid great emphasis on the use of moral-political factors to generate support for own cause.

10.2.2 Impact of the Great Patriotic War

The most important stage in the development of Soviet military art was the Great Patriotic War of 1941-45 against Nazi Germany. The greatest achievements were thought to be the development of the 'strategic offensive operational capability' and the selection

²⁶ Sanu Kainikara, p. 16-17.

²⁷ Christopher Donnelly, p. 203.

²⁸ *ibid*, p. 204.

²⁹ *ibid*.

of the main axes of attack that takes not only military but also economic and political factors into account.³⁰ The Soviets also believed that 1941-45 saw the perfection of the complex concept of counter-offensive and tactics of the various arms and services in support of this strategy.³¹

It was during this period that the principle of using aviation on a large scale was established and air tactics, both in ground support and air combat developed rapidly to contain the *Luftwaffe*.³² The theory of 'air offensive' was introduced into the doctrine and the Soviet air forces developed the strategy of rapid concentration over critical axes and tactics to obtain command of the air.³³

There are four major lessons that can be drawn from the development of Soviet military art up to the immediate post-Second World War years. The Soviet approach to the development of doctrine and strategy was based purely on their own experiences leading to a completely ethnocentric approach. The Western examples were studied more as a means to understand the enemy than to have a balanced view of military history.³⁴ The attempts by the theorists to avoid discussion of military failures, or gloss over them was a serious flaw in their analysis. Second, the Russians did not subscribe to the 'small army' enabled by high technology concept. They firmly believed that the West over estimated the impact of technology although they had an exaggeratedly healthy respect for Western technology.³⁵ They were also constantly wary of the situation when Western technological breakthrough would make their current weaponry obsolete.³⁶ On the other hand they believed that technological superiority of a weapons system was only transitory and that every system would ultimately be neutralised by a technological counter measure.

³⁰ *ibid*, p. 205.

³¹ *ibid*, p. 206.

³² Chris Bishop (ed), *The Encyclopaedia of 20th Century Air Warfare*, Leicester: Silverdale Books, Leicester, 2001, pp. 95-97.

³³ *ibid*.

³⁴ Christopher Donnelly, p. 206.

³⁵ Sanu Kainikara, p. 18.

³⁶ *ibid*.

Third, the Soviet military art was land warfare oriented.³⁷ The role of air power and naval forces was acknowledged, but they were seen as part of the larger whole, dominated by the land battle, and only providing the ‘third dimension’. The Russian doctrine had evolved from their own experiences of war over the centuries, which had been mainly land battles fought on Russian terrain. The Imperial Russian Army had adopted and adapted foreign military ideas to suit their own peculiar circumstances and the Soviet military forces continued to do so.³⁸ Lastly, the Soviet perception of the scale of operations was distinctly different from that of the Western powers. In terms of doctrine, the Soviets had an intermediate level between strategy and tactics, which they had named operational art. This concept of operational scale – the skill of planning and conducting ‘operations’ – was central to their success.³⁹ The ability to execute manoeuvres on a vast scale was a necessity in the Soviet forces because of the flat terrain and the sheer size of the battlefield. The same geographical factors necessitated the devolution of control to strategic and operational commanders and therefore provided a high degree of operational flexibility.

10.2.3 Soviet Military Art

The three levels of Soviet military art were based on the scale of their implementation. Tactics referred to activity up to and including a division in scale, strategy was activity on the theatre scale and operational art the level in between.⁴⁰ At each level, the tasks were delineated to an appropriate level of command and the scale could be applied to missions or the force deployed to execute the mission.⁴¹

Soviet strategists identified geographical areas of interest at different levels of the scale. The broadest classification was that of Theatre of War (*Teatr Voyny*), a general term that

³⁷ Christopher Donnelly, p. 207.

³⁸ *ibid.*

³⁹ *ibid.*, p. 208.

⁴⁰ *ibid.*

⁴¹ The Russian words used to define the scale of an operation have no direct and accurate equivalent in English that would convey the exact concept of scale. There is also no ready means to distinguish the scale of ‘*bitva*’, which translates roughly to large-scale long running battles for control of a given area.

referred to the vast areas of land, sea and air (continents and oceans) over which a war was fought.⁴² Within this larger area there were specific and well defined areas in which activity at a strategic level was planned, called Theatres of Military Activity (*Teatr Voyennykh Deystvii – TVD*). Within each TVD, military action against the enemy's political, economic and military centres were conducted in one or more 'strategic directions' (*strategicheskoye napravleniye*).⁴³

The levels mentioned above were not by themselves levels of command. Overall command in war was vested with the General Headquarters of the Supreme High Command, which directed and supported military activity in the Theatres of War.⁴⁴ High Commands that were directly subordinate to it exercised strategic control within a TVD with subordinate elements set up on an as required basis to run major forces in a strategic direction.

10.2.4 Strategy, Operational Art and Tactics

Soviet military writing defined an operation as, "the sum of a series of battles, engagements and manoeuvres which are integrated as to aim, objectives, place and time, which are conducted simultaneously and successively, and which follow a single concept and plan."⁴⁵ An operation was defined by scale as 'strategic', 'front' and 'army' and could be defensive or offensive, initial or subsequent, combined arms, joint or independent.

In the Soviet Union, strategy was the highest level of military art and was defined as, "the theory and practice of preparing a country and its armed forces for war; the planning and conducting of strategic operations and of wars as a whole; and the study of war-fighting."⁴⁶ In Soviet military understanding, strategy involved all arms and any action by

⁴² J.G. Hines & P.A. Peterson, 'Changing the Soviet System of Control', *International Defence Review*, No 3, 1986, Jane's Publishing, London, p. 281.

⁴³ Christopher Donnelly, p. 214.

⁴⁴ *ibid.*

⁴⁵ *ibid.*, p. 218.

⁴⁶ *ibid.*

a single arm of service (like the navy or the air force) could not be 'strategy' because strategy involved the integration of all means of waging war. Strategy flowed directly from policy and was the practical manifestation of doctrine.⁴⁷ In this context, both policy and doctrine were extensions of ideology and also driven by it. This was the crux of the relationship between military art and ideological evolution in the Soviet Union.⁴⁸

Just as policy drove strategy, strategy directed operational art and was also in turn influenced by them in so far as the necessity to take into account the capabilities and limitations of equipment and training. Operational art was the theory and practice of preparing for and conducting combined or independent operations and involved five generic steps.

Some of these steps were concurrent while a few flow from one to the other. Analysis of the principles and characteristics of operational employment of large formations flowed on to laying down the methods for conducting operations, organising the resources and maintaining command and control of the forces involved. The next logical step was calculating the operational requirements for organising and arming the formations and making recommendations regarding the requirements for the operational preparedness of the TVD. Concurrent to the four steps enumerated above, researching the enemy's views on waging war at the operational scale was an on-going process.

Tactics was the military activity at divisional level and below and could also be arms-specific, like air combat tactics.⁴⁹ The major difference between Russian tactics and those of the Western forces was the standardisation of tactics to be found in the Soviet forces. The use of imagination and inventiveness that is fostered from a very junior level in most of the Western forces was conspicuous by its absence in the training schedule of the Soviet officer cadre. This was partially the effect of having to fight on geographically sterile terrain and the reliance on conscript armies in times of war. A Soviet commander

⁴⁷ *ibid*, pp. 218-219.

⁴⁸ *ibid*, p. 219.

⁴⁹ *ibid*, p. 221.

did not so much make a plan of actions, but made a decision regarding the course of action to be adopted from an already set number of alternatives.

While this system works commendably in the case of land forces, the same training ethos carried forward to the air forces has had detrimental effect on the performance of pilots in air combat.⁵⁰ While reliance on laid-down procedures are conducive to accelerated progress in the initial phases of flying training, it becomes less than optimum in the advanced stages when tactical innovation in the air is of paramount importance to victory.⁵¹

The practice of military art has evolved over the years in the Russian armed forces. In doing so it also maintained continuity in the doctrinal process without changing the basic ideological influence on strategy.⁵² Their concepts of operations were firmly rooted in the primacy of land warfare and air power was, in a vague sense, relegated to a secondary role, albeit one that directly influenced the outcome of a war. The need for control of the air for the success of any operation was clearly acknowledged, but the military art did not provide the necessary impetus to bring air power to the fore in terms of its acknowledged capabilities.⁵³ This dichotomy between practical need and theoretical perception was a clear weakness in an otherwise sound doctrinal mould.

10.3 DEVELOPMENT OF MODERN WARFARE CONCEPTS

Three major factors greatly affected the formulation of Soviet military doctrine as the Cold War hardened into palpable stand-offs in many parts of the world⁵⁴- the development and deployment of nuclear warheads and long-range strategic delivery systems; the unprecedented technological breakthroughs in the design of conventional

⁵⁰ Sanu Kainikara, *Training for Victory in Air Combat*, Paper No 23, BDM Services Ltd, Fairfax, VA, 1997, p. 14.

⁵¹ *ibid.*

⁵² Christopher Donnelly, p. 221.

⁵³ Sanu Kainikara, *Training for Victory in Air Combat*, p. 17.

⁵⁴ *ibid.*, p. 277.

weapon systems and their impact on strategic and tactical warfighting capability of modern forces; and the constantly changing international politico-economic environment.

Influenced by these, the main objectives of operations were modified from purely military targets to encompass enemy centres of gravity that were to be neutralised to achieve political and strategic aims. The focal point of combat operations therefore shifted deep inside enemy territory while military theatres near the front line were still considered subject to large-scale combat.

The fundamental doctrine remained one of offensive operations, the main role being played by armour, mechanised infantry and airborne troops supported by tactical aircraft and mobile missiles. The strategy was based on rapid mobility and reliance on overwhelming force projection on the land and in the air. The military strategists were also pragmatic enough to accept that there may be a need to temporarily go on the defensive under certain conditions even at the theatre scale of operations.⁵⁵ Defensive operations were planned around the principle of rigid holding of regions and perimeters combined with manoeuvre operations. This inclusion of premeditated withdrawal as a doctrinal concept was prompted by Lenin's writing: "One who knows how to advance and has not learned how to withdraw will lose the war. Wars that have begun and ended with a continuous victorious offensive are not evident in history or, if they occurred, are exceptions."⁵⁶

The death of Stalin in 1953 heralded a new era in Soviet military doctrinal thought and conceptual development. This period also saw Soviet breakthroughs in nuclear arms manufacture, intercontinental ballistic missile technology and artificial satellites. These important technological changes brought about considerable debate regarding the validity of the existing 'operating principles' of the military. A new military doctrine was outlined in January 1960 that indicated the radically changed perceptions of the Soviet military. The doctrine emphasised that war was no longer inevitable and that in case of break out

⁵⁵ *ibid*, p. 293.

⁵⁶ V. I. Lenin, *Works*, State Political Publishing House, Moscow, 1941-51, Vol XXXIII, p.74.

of hostilities, it would commence with nuclear rocket strikes deep in the interior as opposed to invasions across the geographical borders.⁵⁷ It was also felt that although the Soviet Union should expect a surprise attack, this attack in itself would not be decisive and with the availability of alternative weapon systems to retaliate, the Soviet Union would be able to deal successfully with the aggressor. The retaliation would in itself be nuclear in nature even if the attack was purely conventional, with the clear understanding that the Soviet Union would survive a nuclear war.⁵⁸ There was added impetus given to maintaining the technological edge that the Soviet Union possessed in the field of missile development. The doctrine tacitly accepted the primacy of firepower over fielded armies in the defence of the nation and commenced a reduction in military manpower. This was further proof and a clear assertion that the USSR would initiate a nuclear war if attacked.⁵⁹

With the passage of time however, the inevitability of a nuclear war was slowly tempered with the recognition that such a conflict in itself might prove to be protracted and also that it was possible for a war to start with the use of only conventional weapons. The build up of nuclear arsenal was therefore paralleled by an equal investment in conventional forces. Throughout the 1970s and early 1980s the Soviet Union pursued an ideology-dominated agenda in military build up to project itself as a capable 'super power' and a counter balance to the United States in international politics. This strategy hinged almost completely on the build up of a large and powerful conventional force, which not only gave a 'sense of power' but also brought about a gradual but perceptible shift in the balance of power. The Soviet intention was to achieve 'equal security' with the United States; 'equal security' being defined not merely as parity in numbers but assured equality in the crucial factor of weapons technology as well.⁶⁰ National security was measured in terms of political and ideological perceptions and the military viewed as a tool to ensure the appropriate international image.

⁵⁷ Harriet Fast Scott, & William F. Scott, *The Armed Forces of the USSR*, 2nd ed, Westview Press, Inc., Colorado, 1981, pp. 39-42.

⁵⁸ *ibid.*

⁵⁹ *ibid.*

⁶⁰ William Koenig, & Peter Scofield, *Soviet Military Power*, Bison Books Corp, Greenwich, CT, 1983, p.17.

10.3.1 The Impact of Economy

The USSR had two economic sectors, defence and the rest. From the end of the Second World War to its break up in the 1990s, around 14 per cent of GNP was devoted to defence and military expenditure regularly increased in real terms. At the height of its production capabilities, the Soviet military industry base was the world's largest in terms of physical size and number of facilities.⁶¹ Throughout the 1980s when the Soviet economy was slowing and growth rates declining, the defence sector continued to be unaffected. This insensitivity of the defence industry to variations in national economic circumstances resulted in declining investment and consumption leading to a downward spiral in the growth rate.

Although the defence industrial sector was given the highest priority in all matters of resource allocation it was unable to withstand external economic pressure because of two major drawbacks. The embedded command economy was extremely rigid and did not have the necessary flexibility to deal with sudden shifts in production priorities and the introduction of new systems. Secondly, the research and design bureaus were completely independent of the manufacturing units, leading to incompatibility and slow integration in the technological sphere. The history of Soviet defence industry is replete with instances of extremely high calibre state-of-the-art weapons designs being complete failures at the production level because of the inability of the manufacturing units to master the advanced technology needed to produce them to specifications. As a result of this dichotomy Soviet weapons systems that were eventually put into production tended to be slightly simplistic but rugged and reliable with long production runs that led to very large quantities being manufactured.

Another reason for the long production runs was the imperatives of the military economy, which necessitated the production of massive numbers. In combination, both these factors kept the designs simple and basic. Over a period of time this resulted in the defence

⁶¹ *ibid*, p.20.

industry becoming lethargic and unable to enhance its capabilities to produce large numbers of sophisticated goods. The improvements in the quality of their products were slow to be made effective and were normally done at the cost of their quantity capability. From an air force perspective this accounted for the inability of the military aviation industry to produce the extremely sophisticated MiG-29 'Fulcrum' and Su-27 'Flanker' fighter aircraft in numbers sufficient to tilt the balance in favour of the Soviets in the last few years of the Cold War. It has been opined that had the industry been able to mass-produce these aircraft in the same way that the MiG-21s were at an earlier time, the NATO forces would have been completely overwhelmed in quantity and quality almost immediately on the commencement of hostilities.⁶²

Even with these serious failings, the defence industry was a crucial factor in the development of Soviet military power as well as the evolution of its doctrine. The Soviet forces were acutely aware of the military industrial limitations, evolving their doctrine with more than a little attention being paid to industrial capability to produce the necessary weapon systems. In a lopsided manner, at times the military adapted its strategy and tactics to optimise the performance of the equipment rather than the other way around.

10.3.2 The Command of Military Power

The Soviet military was subservient to the executive arm of the Communist Party - the Politburo - and operated in support of its decisions and objectives. The broad military policy and direction was at all times provided by the political leadership, but during war the Soviets planned to revert to the 'Stavka' or General Headquarters concept established in the Second World War. Soviet Marshal Sokolovsky wrote in his seminal work '*Military Strategy*':

⁶² Sanu Kainikara, 'Russian Combat Aircraft: Concept of Operations and Future Employment', Keynote Address, *Proceedings of the Air Warfare Conference, RAAF Williamtown, NSW, June 1999*, Defence Publishing Service, Canberra, 1999.

The direct leadership of the Armed Forces in a war will obviously be accomplished, as before, by the Stavka of the Supreme High Command. The Stavka will be a collegial agency of leadership under the chairmanship of the supreme commander-in-chief.

This higher command agency exercised control through the General Staff, which was the main locus of activity within the Defence Ministry.

The task of the military leadership was to optimally utilise all resources placed at its command to achieve the laid down objectives of the conflict that were in turn derived from a holistic appraisal of the goals of the 'revolution' at a given stage of its development. The basic military doctrine therefore encompassed the preparation and optimised, cohesive and timely employment of all resources to achieve victory. Military strategy to conduct operations was derived directly from the party ideology and took into account the tenet of Marxism-Leninism that one must be able to retreat when required to gain time and accumulate forces to initiate the offensive at an opportune moment.⁶³ The Soviet military command identified steadfast maintenance of aim, concentration of force, context and timeliness, and manoeuvre warfare as the four primary factors and basic requirements that made military strategy viable.

Steadfast maintenance of aim involved maintaining the selected course of action without deviation even in the face of the most difficult and complicated opposition while concentration of force aimed at concentrating the main forces at the decisive moment at the most vulnerable point of the enemy. In order to achieve maximum advantage in the decisive strike, context and timeliness, the selection of the right moment assumed vital importance. Manoeuvring while retaining the capability to retreat if necessary was also considered important in prosecuting a laid out plan of attack.

⁶³ Pavel A. Chuvikov, 'Factors Determining the Fate of Contemporary War', in Harriet Fast Scott & William F. Scott, (eds), *The Soviet Art of War, Doctrine, Strategy and Tactics*, Westview Press Inc, Boulder, CO, 1982, p. 133.

10.4 DOCTRINAL IMPACT ON TRAINING AND AIRCRAFT DESIGN

Western analysts have faulted Frontal Aviation with two major shortcomings. First was the perceived qualitative inferiority of the Soviet pilot training program in a number of aspects. The annual flying time of a Soviet pilot was less by around 40 percent as compared to his Western counterpart. The training schedule was very rigid and did not encourage individuality and initiative. Interceptions and even air superiority missions were controlled by ground radar and did not give the pilots and formation leaders the necessary flexibility. Analysed from a Western doctrinal point of view, these allegations were correct. But the crux of the matter was that Soviet training was oriented to the doctrine of the Frontal Aviation, which was in itself only a part, albeit a crucial one, of the air-ground operational team. The Soviet doctrine required a pilot to carry out a given mission without failure and the tasking was so formulated to ensure that individual decisions would not be necessary. The rigidity of the training pattern supported this attitude. The comparison of flying hours was also lopsided in that the Soviet Air Force missions were of far shorter duration as compared to the Western forces. The design of the aircraft was heavily influenced by the doctrine and concept of operations that envisaged the rapid capture of enemy airfields from which the air force would operate thereby keeping pace with the army advance. Under these conditions air-to-air refuelling that leads to long duration missions was not considered necessary. A more realistic comparison would therefore be the number of sorties⁶⁴ that each pilot flew, which is favourable to the Soviets. The perception of inferior training in the Soviet Air Force could therefore be considered a fallacy.

Second was the perception of the aircraft being technologically inferior and needing intensive maintenance support. It was reported that the Soviet fighter aircraft spend 80 percent more time in maintenance as compared to their Western equivalents. Once again this is a lopsided argument. The standardisation and simplicity of design in most of the Soviet aircraft were such that they were capable of much greater intensity and tempo of

⁶⁴ A sortie is a flight from take off to landing irrespective of the time airborne. It could be as little as 20 minutes or as long as 2 hours or more dependent on the mission profile. A sortie requires the same effort and involves the same preparations irrespective of duration.

operations than the NATO forces.⁶⁵ The Soviet concept of centralised but mobile maintenance units co-located with operational units at the forward bases optimised flexibility and unit mobility.

The fighter aircraft and weapon design development in the Soviet Union was clearly indicative of doctrinal development and the strategic support requirements. The aircraft and weapons in the two decades following the Second World War demonstrated a direct link to the prevalent concept of air defence. This was gradually changed to designs that supported air combat and hence air superiority missions in keeping with the doctrinal changes that took place at the same time. In a timeframe analysis, the aircraft produced were all comparable in performance to contemporary Western designs and even better in some aspects of the capability spectrum. The MiG-29 'Fulcrum' and the Su-27 'Flanker' are both examples of fighter aircraft that far out perform the equivalent designs of the West. Essentially, Soviet fighter aircraft designs were driven by the projected strategic and tactical combat requirements from the air force, which in turn based these demands on the prevalent doctrine. Doctrinal development by itself was a direct product of the Party and Politburo perceptions of the security environment and concepts regarding the conduct of contemporary warfare.

The Soviet design bureaus tended to emphasis standardisation and incremental design changes almost to a fault. All fighter aircraft went through improvements and changes as their operational roles were modified or elaborated by the air force. The basic aircraft was designed with built-in upgrade possibilities. The main advantage of this system was that it provided an extremely cost effective solution to the problem of providing an economical and yet more capable successor to widely used aircraft without having to create a totally new logistic support infrastructure.⁶⁶

⁶⁵ Sanu Kainikara, p. 16.

⁶⁶ The modifications to the Su-7 'Fitter' fixed wing fighter-bomber that resulted in it becoming a variable geometry (swing-wing) aircraft with greater range, weapon load and runway performance is a classic example of this sort of incremental modifications dependent on strategic and tactical requirements at minimum cost.

Drawing on the American experience in Vietnam, the Soviets developed the attack helicopter and also converted a number of transport helicopters to the assault role. There was an unsuccessful design attempt to combine the assault and anti-armour roles in the same helicopter, but the roles were later bifurcated and dedicated types designed. The attack helicopters were heavily armoured aircraft dedicated to close support with limited air-to-air capability. The concept of employment of attack helicopters was derived almost entirely from the experience of the US forces since the Soviets themselves had no first hand experience of their use. Obviously the operational level doctrine was different from the normal Soviet doctrine since it was culled from the US employment ethos. It was only during their extensive combat employment in Afghanistan that the Soviet Air Force was able to refine their employment concepts to coincide with the overall air power doctrine. This graphically demonstrated the adaptability of the Soviet strategic thinking at the operational level and the flexibility of their doctrinal concepts.

The Soviet government often used the military forces to further their political objectives. By virtue of its inherent capabilities, Soviet air power has been used more extensively in support of political agenda than both the army and the navy. It was used to reinforce territorial claims in Eastern Europe and elsewhere and also to provide tangible proof of Soviet support to various client states. Soviet pilots flew with North Korean forces during the Korean War and gained valuable combat experience. Soviet air units were deployed in China during the Quemoy and Matsu Islands crisis in 1958. The largest involvement of Soviet combat air power was during early 1970s in Egypt where Soviet-manned air superiority fighters and surface-to-air missile systems were deployed to stiffen Egyptian air defences against Israeli deep penetration raids.

Provision of direct air support and more frequently willingness to provide advanced combat aircraft has been the hallmark of Soviet political pursuits throughout its post war history. The peacetime political and military utility of air power was clearly demonstrated by the Soviet Union wherein they were able to utilise the air bases in the client state for their own clandestine operations and also to base Soviet personnel as training teams in a number of areas. Access to such facilities also served to plug the gaps in the Soviet

surveillance systems. The Soviet air force experienced the most dynamic growth amongst the services and even though air power has been the most widely exported military capability, it is surprising that the air forces remained a supporting service in the larger military perspective with no primary and independent role of its own.⁶⁷

⁶⁷ William Koenig & Peter Scofield, p. 141.

Chapter 11

CONTINUITY AND CHANGE IN THE SOVIET TACTICAL AIR FORCES

At the end of the Korean War the Soviet Union instituted far reaching changes in military policy, doctrine and tactics because of four significant factors. To start with, as early as 1950, the USSR had started to seek a different and more effective approach to international relations realising that the emphasis on unambiguous and forceful techniques in support of Communist goals had increased the strength and solidarity of the Western nations.¹ Second, the development and operational employment of technologically sophisticated weapon systems led to the acknowledgement that the prevalent military strategy was inadequate.² Next, there was also the understanding that the strategic attack capability of the United States had demonstrably increased with the induction of nuclear weapons and the proclaimed American strategy of 'massive retaliation'. Lastly, economic, industrial and agricultural organisation within the Soviet Union remained in confusion and security and political support was not guaranteed from the satellite states.³

With the restructuring of the Soviet foreign policy to one that was more subtle and flexible, the immediate threat of war receded.⁴ However, foreign policy remained the focus of the Soviet political leadership while they strived to achieve the formal requirements of international legality and respectability.⁵ The stress was laid in the development of systematic long-term programs to swing the balance of overall global power to the Communist side.⁶ Tactics of total war that furthered Soviet interests without raising the Western nations' suspicions were formulated and pursued.⁷

¹ Robert A. Kilmarx, *A History of Soviet Air Power*, Faber and Faber Limited, London, 1962, p. 242.

² Ibid, p. 243.

³ ibid.

⁴ Ibid, p. 244.

⁵ Hanson W. Baldwin, *The Great Arms Race*, Fredrick A. Praeger, New York, 1958, p. 18.

⁶ ibid.

⁷ ibid, pp. 19-21.

11.1 THE ROLE OF IDEOLOGY IN DOCTRINAL DEVELOPMENT

In the Soviet Air Force, the understanding of the inputs that changed military doctrine underwent a great deal of change after the Second World War. From being derived mainly from historical sources, it has evolved to encompass operational art, which played a crucial role in linking together tactics and strategy within the context of modern war. The development of operational art was not direct and followed diverse paths in the West and the Soviet Union. The Soviet Air Forces underwent changes that had far reaching implications on the immediate aftermath of 'The Great Patriotic War'.⁸ Its resurgence enhanced the Soviet military's ability to conduct theatre-strategic operations with heavy reliance on combined arms operations. The confluence of ideology and technology in doctrinal development started in the immediate aftermath of the Second World War.

11.1.1 Post-war Period, 1945-1954

During this period, the Soviet military needed to rationalise an obvious dichotomy that existed within its tactical aviation forces. On the one hand, Soviet Frontal Aviation had proved to be most effective when air divisions operated as part of a combined arms force in multi-front deep operations. On the other hand, prevalent air doctrine incorporated the basic assumptions outlined in A. N. Lapchinsky's *Vozdushnaia Armiia (The Air Army)* of 1939 that stressed the centralised control of air assets to ensure optimal application of air power throughout the depth of the enemy's operational defences.⁹ From a technical perspective, Frontal Aviation aircraft reflected a maturity of design and optimisation of available technology, to cater for the East European theatre of operations, which emphasised ruggedness, dependability and sustainability. These three traits subsequently became the basics on which later Russian fighter designs were developed.¹⁰

⁸ Dr. Jacob W. Kipp, 'Soviet Tactical Aviation in the Postwar Period', in *Aerospace Power Journal – Spring 1988*, Air University Press, Maxwell Air Force Base, Alabama, 1988, pp.21-26.

⁹ *ibid.*

¹⁰ Sanu Kainikara, *Russian Combat Aircraft: Design for Toughness*, Paper No 18, BDM Services Ltd, Fairfax, VA, 1997, p. 5.

The emergence of the Cold War and ideological developments in the post-Stalin era as well as the pace of technological developments forced the military leadership into a major remodelling of the composition and structure of its air forces.¹¹ The emerging geo-strategic competition with the United States necessitated a structural reorganisation that needed to take into account the efficacy of long-range aviation.¹² Therefore, the Soviet Air Forces were divided into Frontal Aviation and Long-Range Aviation. The Frontal Aviation was organised into formations and units dependent on functional specialisation – bomber, attack, fighter and general category of ‘aviation of special designation’ that catered for reconnaissance, transport, medical, utility etc.¹³

Although developments in Soviet aviation always encompassed long-range aviation for a number of reasons, the concept of strategic bombing never became a mainstream policy of the Soviet forces.¹⁴ The geo-strategic position of the USSR did not permit the forward basing of strategic bombers that some strategists thought limited its effective range. Combined with the earlier stated political support for ballistic missiles as the preferred option to carry the war to the enemy’s rear, strategic bombing was denied the unique position it would otherwise have enjoyed.¹⁵ Within the Soviet General Staff there was only limited understanding of the role of strategic bombing and therefore it did not feature as a definitive military posture in the development of Soviet military art and science. Added to this, nuclear weapons were considered purely as weapons of mass destruction with little or no strategic utilisation.¹⁶

The Soviets also reorganised their air defence network in response to the US atomic threat.¹⁷ The entire country was divided into border and interior regions. Targets deep in the interior were defended and there was a shift in emphasis from point defence to an

¹¹ Dr. Jacob W. Kipp, pp. 21-26.

¹² *ibid.*

¹³ A.S. Yakovlev, *Sovetskogo Samoletstveniiia*, Voenizdat, Moscow, 1968, pp 117-119. (Translated by Dr, Jacob W. Kipp).

¹⁴ Vannevar Bush, *Modern Arms and Free Men: A Discussion of the Role of Science in Preserving Democracy*, Simon & Schuster, Boston, 1949, p. 107-109.

¹⁵ *ibid.*

¹⁶ *ibid.*

¹⁷ Raymond L. Garthoff, ‘Soviet Air Power: Organisation and Staff Work’, in Asher Lee, (ed), *The Soviet Air and Rocket Forces*, Fredrick A. Praeger, New York, 1959, p. 178.

integrated system designed to inflict maximum damage to invading bombers. The priority in air defence was given to the protection of the interior of the state from strategic bomber threat.¹⁸

The notions of strategic operations were being reformulated simultaneous to the developments in aviation. By drawing on the lessons of the Second World War the General Staff was able to work out the means to carry out strategic offensives.¹⁹ The most important change in Soviet operational art was the decision to implement deeper strikes into the enemy defences at an accelerated pace of advance, which was to be achieved by mechanisation of ground troops and development of airborne troops.²⁰ In order to permit the ground forces to implement this deep strike strategy, the Frontal Aviation was expected to win command of the air in the initial phase of any future conflict, at least over the crucial offensive axes.

The Frontal Aviation divided the air offensive into two parts: preparation and support. The preparation phase was pre-planned and designed to neutralise enemy air assets, thus gaining initial air superiority.²¹ The phase envisaged a change in the selection of targets immediately prior to the ground offensive when the air effort would be concentrated on direct attacks on enemy defensive positions. Timed to coincide with artillery support, this was meant to disrupt the enemy's system of fire throughout the depth of their defence. The support phase was to commence after the initial breakthrough when air units were to provide complete support on an as required basis for the advancing ground forces.

In the immediate years following the Second World War, the technological advances in aviation were tailored by ideology and doctrinal thinking to fit the perceived model, rather than being allowed free flowing development.²² While strategic bombing and an integrated air defence system were comparatively new roles for aviation, ideology

¹⁸ *ibid.*

¹⁹ Dr. Jacob W. Kipp, pp. 21-26.

²⁰ *ibid.*

²¹ David Holloway, *The Soviet Union and the Arms Race*, Yale University Press, New Haven, 1983, pp. 30-35.

²² *ibid.*

dictated the priority allocation of scarce resources from within a lethargic national economy to other areas of research and development. The outcome was that aviation developed at a slower technological pace in USSR than prevailing and emerging doctrine and military art required. This situation continued for a decade and started to be corrected only after the death of Stalin in 1953.²³

11.2 THE PHASE OF RE-EVALUATION AND PEACEFUL COEXISTENCE

From the mid-1950s, Soviet military leaders gave the revision of military doctrine related to strategic bombing and use of nuclear weapons the highest priority.²⁴ There was consensus that in order to counter the American threat of massive strategic retaliation, a more powerful air force capable of delivering devastating attacks far in the rear of the enemy had to be built up.²⁵ Although the basic doctrine remained emphatically based on land operations, the necessity to deliver nuclear weapons was added to the doctrine which now included, “. . . the combined efforts of all arms of the armed forces. . .”²⁶

Accordingly the role of strategic air power was seen more in terms of its effectiveness against military targets rather than as a tool to achieve ultimate victory. The debate regarding mutually assured destruction within the Soviet armed forces decidedly reduced the importance of nuclear weapons and they were not an overriding consideration in the formulation of doctrine and development of military strategy. However, by 1957, the Soviet Union had developed both a nuclear capability and delivery system.²⁷ Although their air defence systems, built to counter strategic nuclear attacks were not capable of preventing an attack, a number of new fighter aircraft with greatly improved performance and the first generation surface-to-air missiles were introduced to the air force inventory.²⁸

²³ *ibid.*

²⁴ Robert A. Kilmarx, p. 246.

²⁵ *ibid.*

²⁶ Joseph P. Mastro, ‘The Lessons of World War II and the Cold War’, in Robin Higham, & Jacob W. Kipp, (eds), *Soviet Aviation and Air Power, A Historical View*, Brassey’s Publishers Ltd, London, 1978, p. 202.

²⁷ Robert A. Kilmarx, p. 245.

²⁸ *ibid.*

Khrushchev stressed the concept of peaceful-coexistence at the Twentieth Party Congress of the CPSU in February 1956. For the first time, this Congress raised fundamental questions regarding basic Soviet ideology and the complementary military doctrine based on the inevitability of war.²⁹ The doctrine was altered, at least outwardly, to a defensive posture since it was argued that nuclear weapons would be a deterrent to all out war while the conventional forces would only have to engage in limited wars.³⁰ Since long-range aircraft were necessary for the delivery of nuclear weapons, strategic bombing forces were developed.

Even while pursuing nuclear delivery capabilities, a low-key development of well-rounded attack capabilities were continued.³¹ Surface-to-surface missiles were developed to try and maintain an edge in this area, particularly in the development of the Inter Continental Ballistic Missile (ICBM) for nuclear weapon delivery.³² The Soviets also demonstrated increased militancy by intimidation tactics, increased spending on defence budgets, development of advanced fighter aircraft, staging major military manoeuvres and conducting overt nuclear tests. The apparent objective was to deter the West from taking any decisive action in Berlin and coercing it to make concessions, which in turn would indicate a weakening of the Western political strength and military security.³³

The development of a dependable ICBM brought about some changes in the military thought in the Soviet Union and altered the face off in Europe. The temporary edge in offensive capabilities brought on by the fielding of the ICBMs gave the military a supposed superiority against the NATO forces.³⁴ The political leadership, led by Khrushchev, believed completely in this perceived superiority and acted on the international stage in a bellicose manner.³⁵ As a countermeasure, the United States speeded up its own development of the ICBM, but there was doubt in Western Europe

²⁹ Hanson W. Baldwin, pp.24-34.

³⁰ Joseph P. Mastro, p. 202.

³¹ Hanson W. Baldwin, p. 34.

³² *ibid.*, p. 18.

³³ Robert A. Kilmarx, p. 245-248.

³⁴ *ibid.*

³⁵ *ibid.*

regarding the US commitment to their protection, prompting first the French and then other countries to nuclearise their weapons inventory. In the Soviet military the induction of the ICBM gave rise to the suggestion that substantial cuts could be made to the Soviet Army without diminishing the overall military potential.³⁶

For some time the supporters of the Soviet version of massive retaliation were able to persuade the government regarding the efficacy of a doctrine based on such a concept, and called for increased emphasis on technology, nuclear weapons and missiles.³⁷ However, there was also a traditionalist school of thought within the military, supported by some members of the political spectrum, that continued to advocate the conventional view of military preparedness. They argued that military doctrine could not be solely dependent on any one weapon and emphasised the need to combine tactical air power, ground forces and artillery where missiles and nuclear weapons would also form part of the whole to provide a balanced doctrine.

It has now come to be understood that the Soviets did not actually possess all the capabilities that were advertised in the late 1950s and early 1960s, but at that time the declarations and demonstrations of strategic might presented an image of the Soviet Union emerging as a the predominant strategic power.³⁸ The Cuban missile crisis gave the first indication of the real state of affairs, but the Soviets backed out of a possible confrontation, and subsequent exposure, before any real damage to their capability claims could be done.³⁹

During this entire period, the Soviet forces in the European theatre remained unchanged in organisation and constitution, although a few tactical nuclear weapons were introduced. In this context, the role of the Air Force was limited and the operational advent of the missiles led to its relegation to almost complete irrelevancy. Their previously limited strategic and tactical roles were both handed over to the missile

³⁶ Joseph P. Mastro, p. 204-207.

³⁷ *ibid.*

³⁸ *ibid.*

³⁹ Thomas Wolfe, *Impact of Krushchev's Downfall on Soviet Military Policy and Doctrine*, Rand Corporation Publications, Santa Monica, 1964, p. ix.

forces.⁴⁰ The number of medium-range bombers capable of striking European targets was increased but apparently this was only intended as a stopgap measure to tide over the delay in fielding sufficient ICBMs.

This strategy did not raise any serious objections within the military primarily because the military leadership was still dominated by Army officers with experience during the Second World War. Since there was no historical precedent within the Soviet Army to understand and rely on strategic air power it was difficult for the senior officers to accept the drastic alteration in the doctrine this necessitated. Finally, the few supporters of strategic air force were silenced by the rapid development of ICBMs and the political support that facilitated it.⁴¹

The air defence assets were made into a separate arm in the mid-1950s and were constantly improved and modernised.⁴² By 1962 it had more than 4,000 of the latest fighter interceptors and large numbers of operational SAMs. However, the Soviet military leaders pragmatically accepted that defence against strategic air attacks would never be completely foolproof.⁴³ In a broad perspective, it is seen that during this period the development of military theory underwent some radical changes. The primary change was the acceptance of the deterrent power of nuclear weapons and use of strategic missiles that in turn brought about a shift in resource allocation that gave higher priority to the strategic weapons systems at the expense of the ground forces.⁴⁴ These moves underscored the recognition of the increasing role that technology would play in military affairs.

It is also significant that the military became an important institutional group in Soviet politics during this period. The military controlled the Ministry of Defence and were also given more representation on the Central Committee as full voting members. There is also indication, now emerging, that military leaders from all branches were routinely

⁴⁰ Joseph P. Mastro, p. 206-207.

⁴¹ *ibid.*

⁴² Thomas Wolfe, p. 22.

⁴³ Joseph P. Mastro, pp. 207-208.

⁴⁴ *ibid.*

consulted regarding foreign-policy decisions.⁴⁵ From this pre-eminent position of influence, the Soviet military found a new stature both in domestic and in international affairs.

11.2.1 Scientific-Technological Revolution in Military Aviation

From the introduction of nuclear weapons into the equation in warfare, the Soviet military theorists had tried to negate the influence of past experiences in the formulation of new doctrine and associated military art. But from 1955 the General Staff was guided by the Communist Party's directive to treat science as an independent element to be developed on priority. Since strategic warfare had been relegated to a subordinate status in the years immediately following the Second World War, the Soviet military had to start the process of catch-up with the United States in this sphere from a position of comparative inferiority.⁴⁶ The constitution of the air defence forces into an independent service was the first step in the restructuring of the air forces along technological lines and making it more role-oriented.⁴⁷

The impact of emerging technology was accepted by the formation of the Strategic Rocket Forces, a new service specifically created to cater for the new emphasis being placed on weapons of mass destruction and their delivery systems other than aircraft. At the same time a study of military strategy was authorised and conducted by the Voroshilov General Staff Academy, for the first time since 1926. This was officially published in 1962 under the title '*Voennia Strategia*' or Military Strategy⁴⁸ and in parts summed up the General Staff's understanding and assumptions regarding the impact of ballistic missiles and nuclear weapons on military affairs.

⁴⁵ *ibid*, p. 210.

⁴⁶ Dr Jacob W. Kipp, pp. 21-26.

⁴⁷ The roles that air power performs can be very broadly divided into air combat (in both offensive and defensive roles) and a variety of strike missions (both strategic and tactical). In this instance the Soviet air forces were being reorganised with a bias towards their primary role.

⁴⁸ The work was done by a group of authors, mostly senior staff at the Academy and was published openly under the editorship of Marshal V. D. Sokolovsky, who had been chief of the General Staff when the work was composed.

Military Strategy under conditions of modern war has become the strategy of deep nuclear rocket strikes in conjunction with the operations of all services of the armed forces in order to effect the simultaneous defeat and destruction of the economic potential and armed forces throughout the entire depth of the opponent's territory in order to accomplish the aims of war in a short period of time.⁴⁹

This ideological emphasis on deep nuclear strike, fuelled by the enthusiasm of the political leadership of the party, had profound doctrinal, organisational and technological implications for all the services.⁵⁰ For the Air Force this meant that strategic attack capabilities were emphasised and long-range aviation became truly intercontinental with the carriage of air-to-surface missiles. Frontal Aviation was also reconfigured to cater for the delivery of nuclear weapons in strategic-operational tasks. The ascendens of missile technology brought with it new conditions of offensive concepts in the employment of air power. The reliance on ballistic missiles relegated the concept of command of the air to the background and the primary role of the air force was seen as the destruction of the enemy's means of nuclear attack. Accordingly, the basic tactics of the air force shifted from one of massing of forces to massing of fire.⁵¹

Two factors were derived from this nuclear-centric ideological and doctrinal thinking. First, the nuclear ballistic missiles and rockets provided a means to execute crucial missions in a modern nuclear dominated war. Second, aviation technology produced supersonic bombers, which were not effective in the near battlefield interdiction duties.⁵² These developments and the inadequacy of the existing attack aviation assets to meet the demands of ground forces support ensured the development of a new type of aircraft - the fighter-bomber - to provide dedicated support in the battlefield.

⁴⁹ V. D. Sokolovsky, (ed) *Voennia Strategiia*, 2nd ed, Voenizdat, Moscow, 1963, p. 10. (As translated by Dr. Jacob W. Kipp)

⁵⁰ Dr. Jacob W. Kipp, pp. 21-26.

⁵¹ *ibid.*

⁵² *ibid.*

From 1954 to 1965, the Soviet leadership led by Khrushchev, aggressively pursued the ideology of nuclear standoff and deterrence with the United States, forcing the military to become fixated on a single, nuclear warfighting posture.⁵³ This was a classic case, wherein ideology completely overrode the powerful institutional interests within the Soviet armed forces and dismissed the doubts and criticisms of Soviet military theorists associated with the General Staff.⁵⁴ It has now been accepted that the one-sided emphasis on ballistic nuclear weapons at the cost of accepting the relevance existing conventional limited warfare theories as well as discounting the experiences of the Second World War was detrimental to the doctrinal and tactical development of the Soviet armed forces.⁵⁵

11.3 THE CONSOLIDATION OF SOVIET TACTICAL AVIATION

The Cuban Crisis and the subsequent power struggle within the Soviet Union had a salutary effect in the development of military strategy.⁵⁶ Military Strategy, the major Soviet work on military art, went through several revisions in a short span of time.⁵⁷ The US policy of 'flexible response' made the Soviet military recognise that in the event of a conflict with the Western powers there would be conventional warfare for an indefinite period and that nuclear exchange was clearly not a possibility.

Even while ideology was pushing the ballistic nuclear forces as the panacea for war winning doctrine, there were reassertions within the Soviet military of the deep operations developed in the Second World War.⁵⁸ There emerged a slow but deliberate understanding of the synergy of tactical aviation with ground operations and an 'alliance' of mutual support was proposed between the strategic rocket forces and tactical aviation in the pursuit of the ultimate aim of victory. The tactical air forces had the advantage of flexible manoeuvrability and the rocket forces could deliver strikes over a great distance

⁵³ Mastro, Joseph P., in *Soviet Aviation and Air Power, A Historical View*, p. 206.

⁵⁴ Khrushchev, Nikita, *Khrushchev Remembers: The Last Testament*, New York: Bantam Books, 1976, pp. 250-262.

⁵⁵ Penkovsky, Olog, *The Penkovsky Papers*, New York: Doubleday & Company, 1965, pp. 254-256.

⁵⁶ Dr. Jacob W. Kipp, pp. 21-26.

⁵⁷ Ibid.

⁵⁸ This was one of the factors that were discussed in the 'Military Strategy', revised editions.

in very short periods of time.⁵⁹ Major General of Aviation S. L. Sokolov addressed the role of tactical aviation comprehensively. Enemy nuclear-delivery systems were designated as the top priority targets at the commencement of any war and it was accepted that ballistic missiles were not effective against these mobile targets.⁶⁰ It was therefore, recognised that tactical aviation with air-to-surface missiles had greater chances of success against these priority targets.⁶¹ Accordingly, tactical aviation was given two groups of missions. First the attainment of air superiority and second, operational and tactical cooperation with the ground forces in their support during the course of the battle.

The two missions when viewed in combination was the classic concept of air offensive with strict centralised control of all air assets to coordinate the air operations throughout the entire theatre. This was a dramatic departure from the air offensive as practiced by the Soviet forces in the Second World War when the army front commander controlled the air assets.

Even while these doctrinal changes were being instituted and experience gained from modern air combat in local limited wars indicated that conventional warfare was more of a possibility than nuclear exchanges, nuclear weapons and their delivery systems still dominated the organisational structure of the military. There was active thought exploring the dual-track capability necessary for the forces to commence a campaign in the conventional mode and shift to nuclear employment as and when, and only if, the need arose. The ideology of the early 1960s did not permit the development of the necessary technologies to deliver these capabilities and the planners therefore could not provide the force structure to implement this doctrinal requirement. But this concept became the underlying principle for the modernisation of tactical aviation and the entire Soviet combat arms well into the next few decades.⁶²

⁵⁹ Dr. Jacob W. Kipp, pp. 21-26.

⁶⁰ *ibid.*

⁶¹ *ibid.*

⁶² *ibid.*

In 1967, the West was given a first glimpse of the improved new generation Soviet aircraft that clearly demonstrated the commitment to combined arms doctrine. Aircraft with variable geometry wings and vertical/short takeoff and landing capabilities were displayed. The new models of existing aircraft also displayed substantial improvement in non-nuclear capabilities and performance. By 1968, the concept of '*command of the air*' that had been relegated to the background in the 1950s, was back in the Soviet military doctrinal writing and thinking. This was clearly indicated by Colonel N. Semenov when he wrote:

It is becoming quite obvious from the above [a discussion of the increased capabilities of modern aircraft] that the necessity of gaining air supremacy in conducting military operations without the use of nuclear weapons in modern conditions is becoming even more acute than in the past. However, it is clear that it will be considerably more difficult to resolve this problem. It will require a re-evaluation of many factors and a different approach to the use of forces and means.⁶³

Around the same time the political leadership had also reconciled basic ideology to accept the possibility of a non-nuclear war of uncertain duration and, therefore, doctrine and technology were permitted to explore the feasibility of such a conventional option.⁶⁴

Throughout the 1960s and 1970s there was a distinct difference in the doctrinal developments between the US/NATO forces and those of the Soviet/Warsaw pact. The Soviets had successfully negated the strategic superiority that the United States enjoyed in the early 1960s. They were able to undermine the NATO doctrine of symmetrical 'flexible response' and 'forward defence' by making the conventional/theatre-nuclear/strategic linkage, the keystone of NATO doctrine and force structure, irrelevant.⁶⁵

⁶³ N. Semenov, 'Gaining Supremacy in the Air', *Voennaia Mysl*, No 4 (April 1968), as translated, FPD 0052/69 in Joseph Douglas Jr., and Amoretta M. Hoerber, *Selected Readings from Military Thought, 1963-73*, Vol 5, *Studies in Communist Affairs*, Pt 1, Government Printing Office, Washington D.C, 1982, p. 203.

⁶⁴ Lynn Hansen, 'The Resurgence of Soviet Frontal Aviation', in *Strategic Review Fall 1978*, United States Strategic Institute, Washington D.C, 1978, pp. 73-74.

⁶⁵ Dr Jacob W. Kipp, p. 26.

By mid-1970 the Soviet/Warsaw pact forces had conventional superiority and superpower nuclear parity in both strategic and theatre level forces. The Soviets had managed to modernise both strategic nuclear and conventional capabilities ensuring that the military instrument remained a viable and effective extension of its political ideology.⁶⁶

11.3.1 Tactical Aviation and Conventional Warfare Options

After having achieved strategic parity and conventional weapons preponderance, the Soviet Union tried to bring in a conventional solution to the use of military power in a nuclear context. The operational application of a new generation of conventional weapons was relied upon to support the ideology of Communism within the allied states.⁶⁷ However, the force structure of the air forces continued to reflect a search for optimal conventional impact while still being able to shift to nuclear combat if necessary.

At this stage, the Soviets relied almost totally on three sources for the formulation of their conventional warfare doctrine - the experiences from the Second World War, lessons that emerged from limited local wars that were subsequently fought and lessons that were learned from their own field exercises and war games.⁶⁸

The experiences from the Second World War were the key factors in considering the initial phase of any war as the most decisive period in determining the further progression of the war and also precluding the enemy use of weapons of mass destruction.⁶⁹ In order to deny the enemy the use of weapons of mass destruction, the tempo of advance was to be ensured with the employment of operational manoeuvre groups, which was a

⁶⁶ *ibid.*

⁶⁷ Michael McGwire, *Military Objectives in Soviet Foreign Policy*, Brookings Institution Press, Washington D. C, 1987, p. 115.

⁶⁸ *ibid.*

⁶⁹ *ibid* p. 117.

combined arms formation. This formation was first employed in 1981 during a field exercise - Zapad-81.⁷⁰

The second source that provided conventional options was the lessons that were gleaned from local wars fought after the Korean War. Close air support clearly emerged as a problem area, especially in an asymmetrical conflict like the Vietnam War.⁷¹ This was partly responsible for the emergence of the helicopter as a combat platform. Although the Soviets had been pursuing both autogiro and helicopter technology even in the pre-Second World War period, by the 1950s the military applications of helicopters were being seriously studied.⁷² The advent of the 'gunship' in Vietnam and the earlier use of armed helicopters by the French in Algeria made the Soviets respond by arming the Mi-8T (NATO Codename Hip-E), which went into production in 1966.⁷³

This modification was soon followed by the development of a helicopter designed and built purely for air assault and fire support missions, the Mi-24 (NATO Codename 'Hind') that went into production in 1972.⁷⁴ The Mi-24 was perhaps the first really dedicated close air support weapon that was provided to the Soviet armed forces.⁷⁵ The induction of this capable gunship, in a number of variants, initiated the process of the creation of Air Assault Brigades supported by around 40 Mi-24 and around 20 Mi-8 helicopters.⁷⁶

Study of local, limited, conventional wars in Vietnam, the Indian sub-continent and the Middle East also raised four crucial doctrinal/technological problems that impinged on

⁷⁰ Jeffrey Simon, *Warsaw Pact Forces: Problems of Command and Control*, Westview Press, Boulder CO, 1985, pp. 192-194.

⁷¹ *ibid.*

⁷² Sanu Kainikara, 'Helicopters – Expanding with Sophisticated Capabilities', *Asia-Pacific Defence Reporter*, January 2000, PN News & Media, 2000, Sydney, pp. 23-24.

⁷³ Bill Gunston, Bill, *Aircraft of the Soviet Union*, Osprey Publishing Ltd., London, 1983, pp. 196-197.

⁷⁴ *ibid.*

⁷⁵ Christopher Chant, *Fighting Helicopters of the 20th Century*, Tiger Books International, London, 1996, pp. 108-110.

⁷⁶ Roger E. Bort, 'Air Assault Brigades: New Element if the Soviet Desant Force Structure', in *Military Review*, No 10, US Army Command and General Staff College. Fort Leavenworth, Kansas, October 1983, p. 34.

the optimisation of warfighting capability. These issues, although brought on by ideological pressures during the period of technological race with the West, also demanded clear doctrinal directions for the future development of air power assets. It also provided an avenue for Soviet theorists to address critical problems of mutual support and cooperation at the tactical and operational levels that invariably accompany doctrinal changes.⁷⁷

First, the decision to develop a multi-role 'fighter-bomber' aircraft in the early 1950s had produced a number of platforms that were not optimised for any one role and therefore were unsuitable for either role in a dedicated fashion.⁷⁸ The recognition of this pitfall led to the decision to shift the design and development back towards aircraft optimised for independent fighter, interdiction and close-air-support missions.

Second, even the monolithic Soviet defence industry understood the cost factor involved in the production of modern high-performance aircraft. It was therefore deemed necessary to develop stand-off, precision-guided munitions for use in close-support missions so that these expensive aircraft could be employed in the role while being kept

⁷⁷ The Soviet Air Operations in Afghanistan from December 1979 to February 1989 has not been analysed for the following reasons. 1) The action was predominantly one of occupation and the employment of air power (albeit in almost all its forms, other than for air superiority missions that were not needed) was completely in support of army operations. This was in keeping with the prevalent Soviet doctrine of the time which did not recognise the individual status of air power as an entity. 2) By the time of their pull-out from Afghanistan, the Soviet Union was well on its way to collapse and therefore the military did not have the opportunity to carry out a detailed analysis of lessons learned. 3) The interest from Western analysts at that time was focussed on obtaining information regarding the performance capabilities of the Soviet helicopter gunships and other ground attack aircraft that were being operationally employed in such a scale for the first time. 4) These evaluations also record that a number of Mi-24/25 helicopters were shot down. What is not clearly mentioned in these reports are the facts that the losses were of early versions operating inside the valleys where the American made 'Stinger' heat seeking, man portable anti-aircraft missiles were fired straight or even down on the exposed engines rather than upward as would normally have been the case. The Soviets made immediate modifications to their heat-shields and the loss rate reduced dramatically. 5) The Soviets also improvised tactics that saw the missile-bearing Mujahideen being targeted by a second helicopter that would fly 'top cover' for the one in the valley doing the ground attack. 6) Similarly bombers and ground attack fighters were employed to soften up the targets before the army moved in, but these were not particularly successful. Both the above changes were purely tactical in nature and did not in any way impact or change the doctrine or strategic outlook of the Soviet military towards the employment of air power, which remained a support tool. Effectively the air operations in Afghanistan did not in any significant way add to the development of Soviet Air Operations Concept other than few innovations at the tactical level.

⁷⁸ Bill Sweetman, 'Sukhoi Su-25 Frogfoot', *International Defence Review* No 11, Jane's Publishing, London, November 1985, pp. 1760-61.

outside the lethal envelope of enhanced battlefield air defence systems. The development of smart weapons also had the added advantage of increased probability of destroying the target. The outcome was the design and development of the first generation stand-off precision-guided munitions and a fourth generation of role-dedicated fighter aircraft.⁷⁹

Third, these local wars underscored the need to recast air defence concepts and effectively combine SAMs, AAA and interceptors into an integrated air defence network with enhanced manoeuvre capability that increased its employment flexibility during the course of an operation and for subsequent redeployment. The air defence of ground forces also received added impetus to counter the proliferation of cruise missiles.⁸⁰ These changes in doctrine brought about a reorganisation of the air defence forces that led to a shift in assets away from the strategic homeland air defence towards combined arms employment with Frontal Aviation in deep operations.⁸¹ Prevalent international geopolitics assured homeland security, allowing an ideological shift in the perception of future wars.⁸² This manifested in the design and development process as a clear decline in the number of heavy interceptors and an increased thrust towards the design of fighters suited for forward air defence and the contest for air superiority, demonstrated by the operational debut of the MiG-29 'Fulcrum' with Short Take Off and Landing (STOL) capability and advanced avionics and weapons around the same time.⁸³

Fourth, the Soviets were forced to re-examine their air combat training and tactics based on the performance of the air forces they trained and also the experience gained by Soviet pilots unofficially flying combat missions in the wars in the Middle East.⁸⁴ Technological innovations in terms of improved stand-off weapons for middle distance and even beyond visual range combat, development of increasingly sophisticated electronic warfare

⁷⁹ *ibid.*

⁸⁰ Russell G. Breighner, 'Air Defence Forces', in David Jones, (ed), *Soviet Armed Forces Review Annual*, Vol 7 (1982-1983), Academic International Press, Gulf Breeze, Fla, 1984, pp. 160-165.

⁸¹ *ibid.*

⁸² *ibid.*

⁸³ Georg Panyalev, 'MiG-29 Fulcrum: Details to Date', *International Defence Review* No 2, Jane's Publishing, London, February 1987, pp. 145-147.

⁸⁴ Sanu Kainikara, 'MiG-29 Fulcrum – An Agile Fighter', *Asia-Pacific Defence Reporter*, Vol XXV, No 2, February/March 1999, APN News & Media, Sydney, 1999, pp. 13-16.

capabilities and the performance of third and fourth generation fighter aircraft in close combat made this reassessment an absolute necessity.⁸⁵

Their own exercises and wargames provided the necessary focus for the Soviet efforts at tailoring the frontal aviation force structure to cater for theatre-strategic operations. The operational manoeuvre group was employed in conjunction with helicopter assault and fire support in number of exercises. These exercises demonstrated the Soviet belief in the critical role of air operations within the context of their concept of theatre-strategic operations.⁸⁶ The process of obtaining and maintaining command of the air over the main axes of advance was linked with the overall struggle for air superiority, and anti-air operations were given the highest priority in the initial phase of the war necessitating the co-location of frontal aviation air units and their logistics support with the army to sustain the tempo of operations.

The Soviet approach to theatre-strategic operations as a conventional option remained true to the basics of the classic deep-operations theory. The adaptation of modern arms to this doctrine could be compared to blitzkrieg warfare. The emphasis was on offensive operations and the key to success in any such operations was clearly identified as the achievement of command of the air over the theatre of operations at the outset. In Soviet doctrine command of the air was conceptually achieved through a combination of actions aimed at destroying the enemy's basic aviation assets, defeating the opposing air defence systems and neutralising enemy command and control infrastructure.⁸⁷ Within the Soviet Air Forces, the core element of doctrinal continuity remained despite ideological and technological changes.

⁸⁵ *ibid.*

⁸⁶ Jeffrey Simon, pp. 192-194.

⁸⁷ Dr. Jacob W. Kipp, p. 26.

11.4 COLD WAR NATIONAL STRATEGY AND AIR POWER DOCTRINE

Krushchev propagated the theory that war was not inevitable, but until late 1964 when he was removed from power, it was accepted by the Soviet leadership that the next war would begin with a nuclear exchange. Conventional forces were to be used as a follow-up action to capitalise on early nuclear success to seize and hold territory.⁸⁸ Thereafter, through the mid- and late 1960s there was a clear change in the perception of how a war would begin and be fought in the initial phases. The Soviets believed that it would begin as a conventional small-scale war and only become nuclear if considerable escalation took place at a later stage. This clear change in the national strategy supported by ideology led to wide ranging changes in the military. Accordingly, large-scale modernisation of the conventional forces was undertaken. The biggest beneficiary of this drive was the air force, which received unprecedented priority in resource allocation that saw the induction of a number of sophisticated aircraft and weapon systems into its order of battle. The primacy so far given to the Rocket Forces was diluted and although the air force was still considered in a support role in the doctrine of all-arms offensive, its importance to the overall achievement of objectives was greatly increased. Air power doctrine was accordingly amended and gave priority to the achievement of favourable air situations throughout the theatre of operations while assuring overwhelming air superiority in times of major offensive action.

During the 1970s there was clear understanding that nuclear parity had been achieved and that the chances of any war escalating into nuclear exchange was extremely remote. The continuing and rapid improvements in conventional weapons capability underlined the fact that only a combination of strategic (nuclear) and conventional forces could achieve maximum effect in any war. Accordingly offensive combined-arms doctrine pervaded Soviet thinking as the preferred method to wage war. Surprise, offensive and pre-emption formed the basis of the doctrine. The air force was elevated to an equal partner status in

⁸⁸ U.S. Department of Defence, *Soviet Military Power, An Assessment of the Threat, 1988*, Government Printing Office, Washington D. C, 1988. p. 11.

the pursuance of this doctrine. Air power doctrine by itself adapted to the new paradigm and the composition of the various air armies was brought in line with this requirement. Once again the necessity to achieve air superiority at the earliest in any campaign was clearly delineated as the primary objective of the air campaign.

As the 1980s began, the Soviet leaders wanted to reassure the world that their military was not a threat to the world. In the backdrop of the Soviet intervention in Afghanistan this was seen as a necessary diplomatic requirement. General Secretary Brezhnev had declared in his speech to mark the twenty-fifth anniversary of the Warsaw Pact, "There is not now, never was and never will be any strategic doctrine other than a defensive one. There is not now, never was and never will be the intention of creating a potential for a first nuclear strike."⁸⁹ Considering the immense arms build up that had taken place through out the 1970s and coming as it did in the wake of the Afghanistan imbroglio, analysts did not consider this declaration as anything other than an attempt to smoothen international wariness.

There was also a change in the overall military doctrine brought about by NATO's adoption of the Air-Land Battle and the concept of Follow-on-Forces Attack. The Soviets consciously incorporated defensive operations into their offensive strategy. This marginal change in overall doctrine did not alter air power doctrine in any significant manner. Brezhnev's death however brought about significant changes in the Party hierarchy that resulted in modifications to the Party's national strategy and military doctrine.⁹⁰ Brezhnev had ruled for eighteen years and his death was followed by a quick succession of new Party leaders who remained in power for short periods of time. The period also saw major reassignments in key command and general staff appointments in the Soviet Armed Forces. At the same time new technologies and scientific discoveries led to the development of new weapon systems that forced changes in the military structure. The end of the Brezhnev era also coincided with the acknowledgment of serious economic

⁸⁹ *Declaration of Warsaw-Treaty Member Countries*, Pravda, TASS, Moscow, May 16, 1980, p. 1.

⁹⁰ Harriet Fast Scott & William F. Scott, *Soviet Military Doctrine: Continuity, Formulation and Dissemination*, p. 98.

and social problems within the Soviet Union that compelled the leadership to seek significant arms control agreements with the West.

The Western anticipation of change within the Soviet Union was reminiscent of the expectations of Soviet liberalisation during the de-Stalinization in the early 1960s. The 26th Party Congress in 1981 and the 27th Party Congress in 1986 are significant for having made Party-military decisions that had the most far-reaching impact on military doctrine. The 26th Party Congress devoted an inordinately long time on arms control and the military directives. The defensive aspects of the predominantly offensive doctrine were clearly enunciated in an explanatory report that quoted Breznev, "Our strategic doctrine has a purely defensive orientation."⁹¹

11.5 THE ROLE OF THE CPSU⁹² IN FORMULATING MILITARY DOCTRINE

The delegates to the Congress of the CPSU of the Soviet Union met every five years, but historical experience has shown that nothing new was decided in these Party Congresses. Resolutions that were announced in the name of the Congress would have been made prior to its convening. The press releases, articles and editorials that appeared in the state-controlled press gave the outside world an indication of intent of the Soviet state as a whole. Even if the goals that were set in the previous Congress had not been achieved, the new ideas and objectives that were published reflected the party-approved decisions on all matters. Military aims may also not have been realised, but the statements of the Party-military leadership gave a clear indication of military intentions.

All major doctrinal changes in the military have traditionally been announced immediately prior to, during or after the Party Congresses. Examples are the doctrinal changes brought about during Congresses in 1960 that resulted in the ICBM deployments and the almost complete shift to massive nuclear strike/retaliation, the 1966 session

⁹¹ N. V. Ogarkov, 'On Guard Over Peaceful Labor', *Kommunist*, Moscow, 10 July 1981, p. 85

⁹² Communist Party of the Soviet Union

wherein increased attention was given to the possibility of a conventional phase in future conflicts and the Party congresses of 1981 and 1986 mentioned earlier.

There has been a lot of effort devoted in the West, especially in the United States to compare the policy formulation and decision-making processes of the Soviet Union with those of Western democratic nations. Extreme differences in the political structure and culture make these comparisons meaningless.⁹³ A clearer understanding of the political influence on Soviet military doctrine development is necessary to understand the operational art and strategic ethos under which the Soviet military functioned.

The ruling bureaucracy of the Soviet Union was constituted of a group called the *nomenklatura*, which simply means a 'list of names'. Estimates of how many people made up this group vary from 75,000 to 3 million.⁹⁴ Three major groups made up this ruling elite - people high in the Party apparatus, the controlling members of the KGB and MVD, the security intelligence organisations and the military high-command. The Party hierarchy was almost always the most powerful of the three, and produced most of the General Secretaries of the Party, with the exception of Andropov. The power struggle for prominence was mostly between the KGB and the military with the military normally coming out second-best. Even then, during the period from 1957 to 1975, when the Minister for Defence was not on the Politburo even as a part member, the Soviet Armed Forces were responsible for bringing the Soviet Union to a military superpower position. This indicated the confluence of interests of the three groups in maintaining the Soviet Union's economic, political and military position and posture.

There was also a view amongst the Western observers that the Party and the Armed Forces were in constant conflict, but nothing was further from the truth. Within the Politburo there may have been incessant power struggles, but there was an understanding intermarriage of party and military leaders at the highest level that permeated down to the district level officials. Another incorrect presumption was that Soviet military doctrine

⁹³ Harriet Fast Scott & William F. Scott, *Soviet Military Doctrine: Continuity, Formulation and Dissemination*, p. 166.

⁹⁴ Michael S. Voslensky, *Nomenklatura*, Doubleday & Company Inc., New York, 1984, pp. 95-96.

was completely dictated by the Party Congress. It was true that the Party controlled the military apparatus and that the highest leadership of the Party and government showed a great interest in military policies, but the fundamental work on military doctrine was carried out at a much lower level and was influenced by a number of institutions, groups and agencies. Soviet military doctrine development had two distinct sides, the political and the military-technical.⁹⁵ From the first formal development of doctrine in the 1920s it was very clear that the political side predominated in its formulation, evident from the stress laid on political priority in Soviet writings.

Three paradigms were entrenched in the development process of the Soviet military doctrine - Marxism-Leninism and its teachings on war and the military forces, the socialist economy that encompassed all branches of heavy industry, transport, communication and even the agricultural sector and the socialist social system based on collective public ownership of all enterprises.

Over the years the theme of the Party controlling the armed forces had been repeatedly stressed in military writing. The official transcript of the 1986 Program of the Communist Party elaborated fairly well on this relationship and put it in perspective:

The leadership exercised by the Communist Party over the country's military development and the Armed Forces is the basis for strengthening the defences of the socialist homeland. *It is under the Party's guidance that the country's policy in the field of defence and security and the Soviet military doctrine, which is purely defensive in nature and geared to ensuring protection against outside attack, are worked out and implemented.*

The CPSU will make every effort to ensure that the Soviet Armed Forces remain at a level that rules out strategic superiority of the forces of

⁹⁵ Harriet Fast Scott & William F. Scott, *Soviet Military Doctrine: Continuity, Formulation and Dissemination*, p. 169.

imperialism, that the Soviet state's defence capacity continues to be improved in every way, and that military cooperation between the armies of the fraternal socialist countries is strengthened.⁹⁶

Soviet theoreticians explained that the underlying principles of development of the Party, State and Military were common and that further development of the individual entities would have to stem from the three basic principles identified.

1. *The principle of Party leadership.* In all resolutions of the Congress of the Party, the decisive role of the Communist Party in managing the Soviet military organisation was clearly defined. The Party approved all military developments before implementation and most important, *the Party formulated the military and military-technical policy of the state and drew up its military doctrine.*
2. *The principle of the unity of the armed force and the people.* Great efforts were made to ensure that the general population was aware and proud of the armed forces by establishing patronages of military units by factories, schools and communities. Solidarity with the armed forces was expressed by people from all walks of life with the youth being particularly targeted.
3. *The principle of internationalism.* In the military this was expressed in the fighting cooperation between the armed forces of socialist nations, joint defences as embodied in the Warsaw Pact and in bilateral agreements with other friendly countries.⁹⁷

The Soviet leadership had always emphasised the belief that the communist ideology of Marxism-Leninism was the source and driving force of all activities in Soviet society. In consonance with this ideology the military policy of the Party guided the planning of the developmental thrust of military-technological design for weapon systems, the force structure planning of the military at the highest level and developed the military doctrine.

⁹⁶ *The Programme of the Communist Party of the Soviet Union – a New Edition*, Novosti Press, Moscow, 1986, p. 53. (Author's emphasis)

⁹⁷ M. A. Gareyev, *M. V. Frunze – Voyennyy Teoretik* p. 250; as translated and explained in Harriet Fast Scott & William F. Scott, *Soviet Military Doctrine: Continuity, Formulation and Dissemination*, p. 171. (Author's emphasis)

The Central Committee of the CPSU was the body that was directly responsible for the development of military doctrine. Soviet defence-intellectuals have repeatedly restated the role of the Central Committee and it can be presumed with assurance that the body did in fact formulate doctrine at the highest levels. From the writings of Frunze in the 1920s to works that have been referred to as seminal in the 1970s and 80s, the theme of Central Committee dictating doctrine has remained relatively unaltered. Since the Central Committee was charged with the formulation of military doctrine, there were a number of senior officers of the Soviet Armed Forces nominated to be full and candidate members of the Committee. The military representation was always predominated by Ground Forces officers with only one or at best two Air Force officers serving in the Committee at any one time. This situation partly accounted for the land-centric orientation of the doctrine and the secondary role assigned to the air forces and the navy.

Chapter 12

PERESTROIKA: NEW PARADIGMS FOR THE RUSSIAN AIR FORCES

In the late 1970s and early 1980s the USSR believed that the West was provoking a fresh Cold War in Europe, and concentrated its energies in preparing for a face-off.¹ There was no indication that a period of extreme turbulence leading to the demise of the socialist system and the break up of the Soviet Block lay ahead of the nation.² In March 1985 Mikhail Gorbachev came to power and immediately commenced far reaching reformation of the Soviet Union. In terms of the military, he attempted to refine certain aspects of its doctrine. This was necessitated because around the same time NATO had once again changed their doctrinal approach to war by introducing the offensive concepts of Follow-on-Forces Attack and AirLand Battle supported by greatly improved capabilities in their conventional forces.³ Since these improved capabilities could not be matched immediately by the their fielded forces, the Soviet military, despite a built-in resistance to adopting defensive concepts felt compelled to incorporate defensive postures into their offensive doctrine.

At the 27th Party Congress in February 1986, Gorbachev declared that Soviet military doctrine “is unequivocally defensive” and that “in the military sphere we intend to act in such a way as to give nobody grounds for fears, even imagined ones, about their security.”⁴ The re-evaluation of Soviet security policy that was subsequently instituted led to the freezing of further missile deployments in Eastern Europe and to the USSR returning to the Geneva disarmament negotiations.⁵ It is believed that the driving force in getting this new concept of ‘reasonable sufficiency’ accepted was the clear understanding within the leadership that the Soviet Union’s weak economy could not withstand a new

¹ *Soviet Military Power*, U.S. Government Printing Office, Washington D.C, 1988, p. 10-12.

² *ibid*, p.11.

³ *ibid*, p. 12.

⁴ Mikhail S. Gorbachev, *XXVII S'yezd Kommunisticheskoy Partii Sovetskogo Soyuza* 27th Congress of the CPSU, Officially published stenographic notes, Politizad, Moscow, 1986, p. 89.

⁵ Archie Brown, *The Gorbachev Factor*, Oxford University Press, New York, 1996, p. 115-120.

arms race against the West in the long term.⁶ This realisation and the changed doctrinal approach should have brought about an immediate reduction in defence spending. The policy, however, did not manifest in any reduction in actual spending on military in the Soviet Union at least in the initial stages.⁷ Despite the rhetoric about the shift from offensive to defensive doctrine, the expenditure continued to be between 15 and 17 per cent of Gross national Product and the armament production continued unabated at the same level as before.⁸

Gorbachev recognised that the will of the people dictated a profound and dynamic change to the entire system and was pragmatic regarding the weakness of a national security concept based on one-sided reliance on military power at the expense of other contributory components such as a strong domestic economy. He was also concerned that the Western goal of destroying socialism was being achieved economically by the arms race and was therefore keen to emphasise the political rather than the military aspects of the competition.⁹ Gorbachev was steadfast in his attempts to gradually decrease the financial outlay of the military and also in his efforts to transform the military to the defensive doctrinal mould that he ardently advocated.¹⁰ In a historic speech to the United Nations General Assembly on December 7, 1988 he stated, “their [*the Soviet military*] structure will be different from what it is now”, and that, “after a major cut back [sic] of tanks their purpose will become clearly defensive”.¹¹ There was still considerable scepticism within the Western analysts that while Gorbachev did indeed mean that the Soviet Union would stop the constant preparation for a world war, the actual cuts announced would only amount to the selective weeding out of old and technologically inferior weapon systems.¹²

⁶ *ibid.*

⁷ George F. Will, *Real Iron From the USSR*, The Washington Post, Washington DC, December 4, 1988.

⁸ *ibid.*

⁹ Christian Nunlist, *Cold War Generals: The Warsaw Pact Committee of Defence Ministers, 1969-90*, The Parallel History Project on NATO and Warsaw Pact, Washington DC, 1993, p. 13.

¹⁰ *ibid.* p.15-17.

¹¹ Margaret Roth, *Soviet Troop Cuts Could Vastly Change East-West Relations*, The Navy Times, Washington DC, December 19, 1988, p. 14.

¹² *ibid.* p.14. (Quoting Michael McGuin, Soviet national security policy analyst for the Brooklyn Institute)

Gorbachev embarked on the modernisation of the economy with *Glasnost* which publicly acknowledged the economic problems faced by the Soviet Union and strongly advocated *perestroika* designed to rebuild a stagnant economy. The Soviet military wholeheartedly supported these measures because the end result was meant to strengthen rather than weaken the military structure and enhance their modernisation plans.¹³ By 1987-88 *perestroika* became the centrepiece of the *novoe myshlenie* or 'new political thinking' in the Kremlin with attention completely focussed on the floundering economy.

The rate of increase of the GNP was too slow to sustain the already strained social framework and the government was aware that if economic growth was not accelerated by economic reorientation, the standard of living would plummet.¹⁴ The alternative to this unacceptable option was to reduce spending on state sponsored social programs like health and education initiatives.¹⁵

It is noteworthy that during this continuing debate there was no official mention on defence spending other than to assert the doctrine of 'reasonable sufficiency'. Since no clear indication was forthcoming that defence spending was being reduced in keeping with the new defensive doctrinal shift, some Western analysts continued to believe that the Soviet military was still pursuing an offensive doctrine. As the process of *perestroika* progressed, the inadequacies of the science and technology infrastructure within the Soviet Union were exposed. The relative decline in the scientific-technical potential translated to a major drawback for the military-industrial complex, as advanced weapons systems need sophisticated technology to back their designs.

Military doctrine in the Soviet Union had always been oriented towards the moral-political indoctrination of the general public and in mentally preparing them for the

¹³ Royce D. Zant, *Soviet National Strategy*, <http://www.globalsecurity.org/military/library/report/1989/ZRD.htm> accessed on 02 July 2002.

¹⁴ Mikhail S. Gorbachev, *Perestroika: New Thinking for Our Country and the World*, Harper & Row Publishers, New York, 1987, pp. 19-20.

¹⁵ *ibid.*

prospect of future war.¹⁶ The philosophy of war as interpreted in the Marxism-Leninism philosophy clearly identified the direct impact of the economic, scientific-technical, moral-political and military potential on the war waging capacity of a nation.¹⁷ The outcome of any war was, therefore, considered to be the result of the application of this combined capability of a nation.¹⁸ The acknowledged deficiency in the scientific-technological area made the military leaders to believe that the military superpower status of the Soviet Union was endangered.¹⁹ From a military perspective the concept of perestroika came to be viewed as the panacea to this problem. Marxism-Leninism required that the war winning capabilities be kept in one's own favour and that was what *perestroika* set out to accomplish in the Soviet Union.²⁰ That the attempt failed, leading to cataclysmic changes of a different nature, is a separate issue.²¹

Since the very beginning of the Soviet state, peace and peaceful coexistence had been proclaimed as an avowed policy.²² The realities of Soviet military doctrine however defined the term 'peaceful coexistence' in a somewhat different manner. For the Soviet military, "peaceful coexistence of states with different social systems is today a struggle against imperialism".²³ It was seen as an extension of the class struggle, a continuation of this struggle by peaceful means avoiding war. The broad Soviet doctrine explained peaceful coexistence as an "economic, political and ideological struggle, but not a military struggle".²⁴

¹⁶ Harriet Fast Scott, & William F. Scott, *Soviet Military Doctrine, Continuity, Formulation and Dissemination*, Westview Press, London, 1988, p. 262.

¹⁷ *ibid.*

¹⁸ Richard Pipes, *Communism: A Brief History*, Weidenfield and Nicolson, London, 2001, pp 33-42.

¹⁹ Harriet Fast Scott, & William F. Scott, pp.261-263.

²⁰ *ibid.*, p.263.

²¹ *ibid.*

²² V. Afanasyev, *Fundamentals of Scientific Communism*, 2nd Edition, Progress Publishers, Moscow, 1977, p. 115.

²³ *Ibid.* p.116.

²⁴ Afanasyev, V. "Marxist Philosophy", Moscow: Foreign Languages Publishing House, 1962. p. 343.

12.1 THE APPLICATION OF 'NEW THINKING' TO MILITARY DOCTRINE

'New Thinking', the original idea of Dr Albert Einstein and Lord Bertrand Russell, was basically an impetus to readjust thinking to the realities of the nuclear age in terms of the new international security imperatives.²⁵ It was also not really 'new' in the Soviet Union either, having been discussed as early as 1970 in terms of restructuring international relations. In a sense what was new was that Gorbachev really applied the new thinking to Soviet policy positions and actions.²⁶

The most elemental factor in 'New Thinking' was a different evaluation of the international political, social and economic developmental processes.²⁷ In military terms this led to an understanding of the insufficiency of the concept of deterrence as a security paradigm in the nuclear age. The economic realities that forced the decision by the Soviet leadership to restructure the nuclear military also led them to accept the reduced role that the military would be able to play in providing security or supporting other state goals. It was fervently believed by the Soviet leadership that *perestroika*, the social, political and economic transformation of the Soviet Union, would produce the success that would more than compensate for what would have to be given up as a result of the loss of status as a military superpower.²⁸ The first step in addressing this obvious dichotomy was the decision to reduce or even completely eliminate nuclear weapons.²⁹ The decision was however taken with the caveat of the United States making comparable changes to its nuclear arsenal.³⁰ The decision by the Soviet leadership was noted by the international community not so much for the actual or proposed reduction in arms, but the changed

²⁵ Raymond L. Garthoff, 'Soviet 'New Thinking' on the World and Foreign Policy', *The Fletcher Forum*, Edinburgh, UK, Summer 1988, pp. 231-238.

²⁶ *ibid.*

²⁷ *ibid.*

²⁸ Raymond L. Garthoff, 'New Thinking and Soviet Military Doctrine', in Willard C. Frank Jr, & Philip S. Gillette (ed) *Soviet Military Doctrine from Lenin to Gorbachev (1915 – 1991)*, Greenwood Press, Westport CT, 1992, p. 196.

²⁹ *ibid.*

³⁰ *ibid.* pp. 196-201.

view of the role of military power within the Soviet hierarchy in furthering its power projection capabilities and interaction in world politics.

During the early stages of this debate deterrence was still the underlying strategic policy of the Soviet Union, but a process that diminished the adequacy of deterrence as a doctrine for the future had commenced.³¹ It is interesting that the inadequacy of deterrence as a long-term security doctrine had also been debated in the United States.³² Soviet 'New Thinking' sought an alternative through a new and broader conception of security, a reduction of arms, reduced role of the military in international affairs, and fundamental changes in military doctrine and strategy.³³

Historically, Soviet military doctrine had developed as an evolutionary process retaining its basic continuity despite changes brought about by the influence of political, economic, strategic and technological developments.³⁴ Revolutionary changes took place in the development of doctrine in 1985 and therefore, this year was considered a significant turning point in the evolution of Soviet military doctrine. This was so despite the fact that the changes were mostly gradual and at times not carried forward to complete fruition. The Soviets had started to formulate the no-first-use nuclear policy as early as 1970-1973.³⁵ Secret materials from the General staff Academy courses in the mid-1970s, now available, indicate that all the options and alternatives that were war gamed involved the application of no-first-use of nuclear weapons policy and demonstrates a clear preference to keep the hostilities non nuclear.³⁶

During the Brezhnev era the political level of military doctrine was decidedly defensive in orientation, although the assurance of mutual destruction helped to continue the arms

³¹ Raymond L. Garthoff, *Deterrence and the Revolution in Soviet Military Doctrine*, Brookings Institute, Washington DC, 1990, p. 86.

³² *ibid.*

³³ *ibid.*, pp. 86-87.

³⁴ The Voroshilov Lectures: Materials from the Soviet General Staff Academy, Vol 1, *Issues of Soviet Military Strategy*, National Defence University Press, Washington DC, 1989, p. 12-13.

³⁵ *ibid.*

³⁶ *ibid.*

race. This situation favoured Gorbachev in his attempt to give a defensive doctrinal thrust to the overall military doctrine since the military-technical level of doctrine up to 1985 was unequivocally offensive.³⁷ If war were to be fought in Europe, which was the theatre that was most likely to be engaged, Soviet strategy was one of a rapid, powerful conventional thrust all the way to the English Channel.³⁸ This strategy was adopted firstly because the Soviet Union believed that a protracted conflict in Europe would escalate hostilities and certainly lead to nuclear exchange. Secondly, this strategy stemmed from the acceptance that if defensive holding patterns were resorted to, the greater economic and military potential of the NATO alliance would drive the Soviet Union out of Eastern Europe.³⁹ Such a situation posed unsustainable political risks to the state and as a consequence Soviet military doctrine, even in the case of a politically defensive war, stressed the offensive nature of its military strategy.

Gorbachev's 'New Thinking' was first and foremost a foreign policy initiative. Its application to the military initially manifested in the imposition of economic constraints on capital expenditure. The statement made in 1985 regarding the military having to do more with less was only the beginning of financial stringency as the enormity of the economic problems facing the Soviet Union was not apparent even to the leadership at that time. Moreover, although resource constraints were an important factor in effecting doctrinal changes, they were only one of many equally important factors. 'New Thinking' on foreign policy matters was the foundation block on which the idea of 'reasonable sufficiency' in military capabilities was slowly built up.⁴⁰

At the strategic nuclear level, 'reasonable sufficiency', which was later also termed 'defensive sufficiency', came to mean the maintenance of strategic forces sufficient for deterrence in terms of providing assured retaliatory capability. There was also the proposal for negotiated reduction of the nuclear arsenal to as low a level as possible

³⁷ As mentioned earlier in the thesis, the Soviet concept of military doctrine operates at two distinct levels: the political and the military-technical.

³⁸ The Voroshilov Lectures, p. 14.

³⁹ Raymond L. Garthoff, 'New Thinking and Soviet Military Doctrine', *The Washington Quarterly*, 11, No 3, Centre for Strategic and International Studies, Washington DC, Summer 1988, pp. 131- 142.

⁴⁰ *ibid.*

ideally leading to complete elimination of nuclear weapons. In the area of conventional weapons, 'reasonable sufficiency' implied reductions, at times even unilateral, to a level sufficient for effective defence.⁴¹ By 1988-89 this had led to substantial restructuring of the Soviet and Warsaw Pact forces. More important than mere reduction in strategic and conventional forces were the shifting emphasis and redefinition of some of the basic concepts of the military.⁴² The concept of *strategic stability*, wherein military doctrine was redefined to incorporate the aim of not only waging war but also *preventing war*, started to attract greater attention, the term by itself having entered the Soviet military lexicon only in 1986.⁴³ From mid-1988, greater emphasis was laid on qualitative parameters as opposed to the prevalent practice of quantitative superiority in defence programming. This move not only forced doctrinal changes but also became the justification for unilateral reduction of forces. The openness that was the hallmark of 'glasnost' ensured that the military started to get inputs from academics and civilian analysts as an alternative source of ideas.

12.1.1 Effects on Force Structure

Since the strategic nuclear forces were dedicated mainly to a deterrent role and the reductions were meant to retain parity with the United States at all times, actual changes in force structure were gradual and at times non-existent.⁴⁴ The chance of complete elimination of nuclear weapons was an unlikely outcome since the U. S. opposed even a comparable reduction in its own arsenal.⁴⁵ The concept of retention of some nuclear weapons and the INF treaty that reduced intermediate nuclear forces to zero clearly indicated the seriousness with which the Soviet Union now pursued their twenty-five year old aim of reducing the possibility of nuclear war.

⁴¹ Raymond L. Garthoff, 'New Thinking and Soviet Military Doctrine', in Willard C. Frank Jr & Philip S. Gillette (ed) *Soviet Military Doctrine from Lenin to Gorbachev (1915 – 1991)*, Greenwood Press, Westport CT, 1992, pp. 201-202.

⁴² *ibid.*

⁴³ *ibid.*

⁴⁴ *ibid.*, p. 203.

⁴⁵ *ibid.*

It was on the conventional level of forces that the maximum impact of the reductions was felt. The Soviets announced unilateral and asymmetrical reductions in order to come to quantitative parity with the NATO forces and then to even lower levels on a mutually agreeable time frame. The almost complete severing of extended Soviet military support to Eastern European nations starting late-1989 changed the politico-military situation in Europe forever.⁴⁶ It effectively ensured that the Warsaw Pact was not an extension of Soviet military and political power anymore. The further reductions in Soviet conventional forces simultaneously ensured that they were no longer be able to sustain parity with NATO forces.⁴⁷

The Soviet Union made a unilateral reduction of around 12% of its forces by 1989-1990. Even more important was the restructuring of the forces both in Europe and the Soviet Far East in keeping with the change to defensive posturing and a commensurate reduction in its offensive capacity. These moves substantiated the doctrinal changes being effected.⁴⁸ In keeping with this new defensive outlook, it was also decided that all Soviet military forces abroad would be returned to the Soviet Union by the end of 1992. The force structure changes in all three arms of the service reflected this new emphasis on defensive oriented doctrine.⁴⁹

12.1.2 The Concept of War Prevention and Doctrine

It has been well documented that for a period of time before *perestroika* Soviet policy was preoccupied with the prevention of nuclear war mainly by assured deterrence, which found a direct reflection in its military doctrine. Gorbachev moved this concept further forward to addressing prevention of war in general. The basic premise, overshadowed and underlined by economic realities, was that the Soviet Union could not invest in the military sufficiently to be able to respond to the entire spectrum of contingencies from global nuclear to limited local wars. In 1986-1987 the concepts of military doctrine and

⁴⁶ *ibid*, pp 203-204.

⁴⁷ *ibid*, p.204.

⁴⁸ *ibid*.

⁴⁹ *Ibid*, pp. 204-206.

strategy were redirected to include the concept of prevention of war and doctrine was redefined as 'a system of views on the essence and prevention of war'.⁵⁰

At the height of the Cold War, around early 1970s, it was clearly understood and also articulated by the commanding generals of the Soviet forces that military doctrine was primarily meant for the preparation and victorious waging of war in the interest of the larger socialist commonwealth.⁵¹ By 1990 the Soviet Union had brought about a change wherein military doctrine and strategy became decisive at the foreground of the struggle to prevent war.⁵²

At the policy level of doctrine, it was fairly simple to accommodate the objective of prevention of war, but at the military-technical level there were a number of problems that had to be addressed if the forces were to remain relevant while changes in doctrine were introduced.⁵³ First, it was recognised that the emphasis on 'war prevention' could undermine the traditional justification for resource allocation to the military and defence industry. Second, the rank and file of the military had been brought up on the premise of a contingent offensive strategy in Europe and therefore they viewed the changes as a catastrophic move, thereby increasing their resistance to it.⁵⁴ Third, a large number of high ranking officers continued to interpret the new doctrine to mean that one could assume a defensive posture while still retaining all the essentials for an offensive capability.⁵⁵

The highest echelons of Soviet military leadership changed the doctrine by giving meaning to the objective of 'war prevention'. These changes involved changing the image of the Soviet forces from one of a threatening posture to that of a defensive attitude, introduction of political measures in confidence- and security-building as well as

⁵⁰ S. F. Akhromeev, 'Slava I gordost' sovetskogo naroda' (The glory and the pride of the Soviet people), *Sovetskaia Rossiia* (Soviet Russia), Moscow, 21 February 1987, as translated by Raymond L. Garthoff.

⁵¹ *ibid.*

⁵² Raymond L. Garthoff, in Willard C. Frank Jr & Philip S. Gillette (ed) *Soviet Military Doctrine from Lenin to Gorbachev (1915 – 1991)*, p. 205.

⁵³ 'Soviet Military Fought Cuts', *Washington Post*, 9 December 1988.

⁵⁴ *ibid.*

⁵⁵ *ibid.*

arms control and arms reduction efforts.⁵⁶ The doctrine emphasised political solutions to hostilities, even those that had broken out, while the military fought a defensive battle, and adherence to the principle of escalation avoidance as opposed to escalation dominance as was practiced so far.

The changes, although subtle in terms of the nuances of the concepts, had effects on the air forces in that the strength and force structure were slowly reorganised to cater for the larger doctrinal emphasis. Escalation avoidance meant that the air forces had to fight a holding battle and retain the capability to withdraw or stop combat at the earliest. The structure required for such an objective was greatly different from the one required for offensive combat operations.

12.2 THE SOVIET MILITARY – COPING WITH CHANGE

The unilateral cuts in conventional weapons that were announced by Gorbachev in December 1988 not only took the Western observers by surprise, but were also opposed by some factions of the military. The almost simultaneous retirement of the Chief of the General Staff, Marshal Sergie F. Akhromeev, added credence to this observation.⁵⁷ While a few high ranking officers were indeed sceptical about the effects of such cuts, by and large the military supported it in the belief that they would be able to discard obsolete equipment and streamline a monolithic structure.⁵⁸ A total of 10,000 tanks, 50,000 personnel, 8,500 artillery systems and 900 fighter aircraft were earmarked for withdrawal.⁵⁹ The thrust towards a defensive doctrine also saw the increase in percentage of antitank and antiaircraft weapons at the unit level. Along with these cuts added stress was placed on qualitative rather than quantitative factors.

⁵⁶ Raymond L. Garthoff, in Willard C. Frank Jr & Philip S. Gillette (ed) *Soviet Military Doctrine from Lenin to Gorbachev (1915 – 1991)*, p. 206.

⁵⁷ 'Soviet Military Fought Cuts', *Washington Post*, 9 December 1988.

⁵⁸ *ibid.*

⁵⁹ *ibid.*

This was the first concerted move by the Soviet military towards becoming a power with quality rather than one with a large quantity of weapon systems as the summation of efficiency and power. It is also worth noting that published writings within the Soviet forces reflected a greater emphasis on qualitative factors from around 1984.⁶⁰ The changes in the force structure that these drastic reductions in equipment entailed created numerous problems within the military in terms of massive internal changes and force level modifications.⁶¹ The first apparent change was brought about within the higher command where younger officers were brought in to deal with the many internal problems confronting the Soviet military while at the same time freeing older generals like Marshal Akhromeev⁶² to deal with more intense and wider ranging issues related to arms control.⁶³ This situation also brought a clear advantage to the Soviet military.⁶⁴ In a force almost obsessively preoccupied with their ability to contain the West in conventional terms, the reduction in force structure that these changes mandated enabled them to pursue their area of highest priority - the focus on high technology.⁶⁵ This concern with quality helped the military accept the large cuts that were inherent in the conventional reduction proposal.

The reduction in personnel that the cut backs entailed was a more traumatic experience, especially since the High Command was still painfully conscious of the experience of the late 1950s when 1.2 million officers were removed from the military.⁶⁶ Concerted attempts were made to retain officers of higher quality while also facilitating the transfer of personnel to civilian life. The military also seized this chance to upgrade the quality of military education by closing a number of military schools and revamping the system. In

⁶⁰ Dale R. Herspring, 'The Soviet Military and Change', in Willard C. Frank Jr, & Philip S. Gillette (ed), *Soviet Military Doctrine from Lenin to Gorbachev (1915 - 1991)*, Greenwood Press, Westport CT, 1992, p. 213.

⁶¹ *ibid.*

⁶² Marshal Akhromeev was Chief of the General Staff till December 1988 when he was appointed as Advisor to the Chairman of the USSR Supreme Soviet, a position occupied by Gorbachev himself until his election as (Executive) President in March 1990. Akhromeev was elected to the USSR Congress of People's Deputies in 1989 and later became a member of the USSR Supreme Soviet's Committee on Defence and State Security.

⁶³ Dale R. Herspring, pp. 213-214.

⁶⁴ *ibid.*

⁶⁵ *ibid.*, pp. 214-215.

⁶⁶ *ibid.*, pp.215-217.

keeping with the new thrust towards high technology, computer education and computer-aided simulation were streamlined. The most important change in the personnel policy was the effort launched to teach military officers and their educators to think more creatively.⁶⁷ The new personnel initiatives brought in far reaching changes not only to the structure of the force but also the qualitative content within the officer cadre. This was done by increased reliance on meritocracy that became very apparent in contrast to the Western analysis that this move was empty rhetoric.⁶⁸ It was noticeable to any observer that seniority no longer ensured an officer's longevity in service and the average age of the top military commanders dropped from 67.3 to 62.2 years.⁶⁹ There was also a push to promote General Officers with a demonstrated commitment to a combined-arms philosophy as opposed to others who were seen as being too parochial in the advocacy of their own services and individuals.

While the personnel restructuring was a visible if cathartic necessity to be faced, the loss in prestige and privilege of the military was a more esoteric disturbance to handle.⁷⁰ Prior to 1985, the military enjoyed a position immune from criticism, was publicly commented for its extreme patriotic contribution to the security of the nation and provided with immense resources with very little budgetary control.⁷¹ The increased dependence on politico-diplomatic tools in foreign policy implementation rather than military power projection post-*glasnost* changed the situation. Contrary to practice till then, the military was forced to accept and respond to open and often harsh criticism of the way it operated. For the first time, civilian military analysts were given a voice in debating all military issues, from drafting of recruits to doctrine, operational strategy and even tactics.⁷² The attempts by the High Command to stem the tide of negative reports that were appearing regularly in open forum publications were not very effective and the bottom line,

⁶⁷ General V. N. Konchits, Commander, Frunze Military Academy in an interview titled 'Kuznitsa voennykh kadrov' [The forge of military cadres], *Voennyi Vestnik [Military Herald]*, No 12, Moscow, 1988, pp. 6-12. Translated by Dale R. Herspring.

⁶⁸ All but one of the incumbents of the fifteen top military positions changed at least once between March 1985 and August 1990.

⁶⁹ Dale R. Herspring, p. 217.

⁷⁰ *ibid.*

⁷¹ *ibid.*

⁷² *ibid.* pp. 218-219.

acknowledged by senior officers, was that military prestige declined seriously after 1985. It took the Soviet military considerable amount of time to accept these changed circumstances and address the problems that arose from its fall from grace in an attempt to reconcile to its new position.

In early 1989 it was announced that over the next few years the Soviet military budget would be cut by 14.2 per cent and that arms production would be cut by 19.5 per cent.⁷³ A detailed breakdown of further allocation of these cuts and the utilisation of the savings so made were not made available. It was however clear that some Soviet military-industrial enterprises would be converted to civilian purposes in keeping with the proposed reduction in arms production. This conversion was a complex process, made intransigent by the convoluted Soviet economic system and the fact that such conversion plans itself were non-existent.⁷⁴ Faced with the necessity to achieve more efficiency to balance the continuous reduction in resource allocation, the military took steps to eradicate financial inefficiencies. The High Command made it very clear that economic management was the highest priority.⁷⁵

More than the immediate effect of the budget cuts, the High Command was acutely aware of the fact that the country faced an economic and technological crisis.⁷⁶ Senior military officers realised that the Soviet Union was falling behind in the key area of technological sophistication. The reality that there was no viable alternative to reduction in military spending was clearly enunciated by Marshal Akhromeev,

We have become choked by military expenditure. We have immense expenditure on the maintenance of the Armed Forces, and this is now simply an insupportable burden for our economy. Nine per cent of gross

⁷³ *ibid.* p.220.

⁷⁴ *ibid.* p.222.

⁷⁵ D. T. Yazov, 'New economic Management Methods for Construction Projects: USSR Defence Ministry Holds Conference with Leaders of Construction Organisations', (in Russian) *Krasnaia zvezda*, Moscow, 03 March 1989, as translated in *Foreign Broadcast Information Service, Daily Report, The Soviet Union*, Moscow, 08 March 1989.

⁷⁶ *ibid.*

national product is an amount which no developed capitalist country has; it is about the same as what is spent on military purposes by such countries as Qatar, Oman, Saudi Arabia and other heavily militarised states.⁷⁷

Although military officers had traditionally dominated national security analysis in the USSR, with an increasing number of civilians becoming involved in the debate, a different influence was felt in the areas of force structure reorientation and in the formulation of the defensive doctrine. The civilian interface acted to support and strengthen the thrust of the military officers who wanted to adopt a new approach to military affairs and caused irritation and resentment in more traditional quarters. Overall, the military did not welcome the increasing influence of civilian military thinkers, but were forced to accept the situation as best as they could.⁷⁸

The Afghanistan experience and its consequences to the Soviet military can be compared to the aftermath of the Vietnam experience in the United States, wherein a public debate tried to apportion blame and responsibility for the military failures.⁷⁹ The Soviet military had to confront two separate issues. One, the civilian argument that the military atone for its mistakes and lives lost and second, the internal significance of the experience and the need to learn the correct lessons from it to be applied to the future armed forces.⁸⁰

The changes that were imposed on the military initiated the most controversial discussions in the history of the Soviet military regarding its very nature, role and significance. The debate acknowledged that there would be both advantages and disadvantages in bringing about structural changes based almost completely on a reduction of personnel and equipment.⁸¹ The advantages seemed to be that the resources saved would benefit the civilian economy and that the wider international community would regard the Soviet Union as less threatening. It was also perceived within the

⁷⁷ S.F Akhromeev, 'Topical Interview', Moscow television Service, 1700 GMT, 09 October 1989, translated in *Foreign Broadcast Information Service*, Moscow, 13 October 1989.

⁷⁸ Dale R. Herspring, pp. 224-225.

⁷⁹ *ibid*, p.226.

⁸⁰ *ibid*.

⁸¹ *ibid*.

leadership, both military and civil, that reduction in the size of the armed forces would improve its quality and make it a more flexible instrument for responding to national security imperatives. The disadvantage was that it was possible that the reduction would create a public illusion that a smaller and professional army as opposed to the conscripted one would be able to solve the nation's problems. As a corollary to the official thinking regarding reduction in size vis-avis capability, it was also feared that the public might regard the military forces as incapable of assuring complete safeguard against an external aggression.

12.3 IDEOLOGY, POLITICS, DOCTRINE AND MILITARY SCIENCE

The growing turbulence in military thinking in the early 1990s was a complete reflection of the economic and social uncertainties felt in the larger society. Military science, which was the 'system of knowledge' regarding the characteristics of war itself had begun to be revised to accommodate the reduced status and resource availability within the military establishment.⁸² Military science while being subordinate to military doctrine was also considered a separate entity and an essential tool for the correct interpretation of doctrine.⁸³

In the Soviet Union, military science had always existed in the shadow of the Communist Party's official ideology.⁸⁴ Marxism-Leninism and its teachings on peace, war and the military provided the framework within which military science and to a lesser extent doctrine operated. The Soviets believed that divergent worldview and methodological differences fundamentally differentiated their own military sciences from those of the West. The almost total integration of military science with ideology had profound effects and consequences for the military.⁸⁵

⁸² Kent D. Lee, 'Implementing Defensive Doctrine: The Role of Soviet Military Science', in Willard C. Frank Jr & Philip S. Gillette (ed) *Soviet Military Doctrine from Lenin to Gorbachev (1915 – 1991)*, Greenwood Press, Westport CT, 1992, p. 272.

⁸³ The relationship between Doctrine and Military Science has been explained earlier in the Chapter entitled *Interface of Ideology, History, Doctrine and Technology*

⁸⁴ Refer Chapter 10.

⁸⁵ Kent D. Lee, pp. 272-274.

The main consequence was that military science was the last branch to be opened to the general public and therefore, certain assumptions and interpretations of historical events went unchallenged. During Stalin's reign the ideological base itself was twisted so much that immediately on his death his stifling influence was acknowledged. It was frankly admitted 'in connection with the cult of the individual, no science sinned so much as did military science.'⁸⁶

Even though the ill effects of the Stalinist influence on the development of military science was recognised, its rigidity in thought continued to be far more than any comparable area in the West.⁸⁷ This rigidity brought in a built-in inflexibility that in turn tended to thwart all disagreement and innovation, thus impeding further progress.⁸⁸ The Soviet military suffered the accretions of the Stalinist era and had to go through a somewhat similar time of stagnation of thought during the Brezhnev period. The 'new thinking' introduced by Gorbachev brought an already ill-prepared and inflexible military science under assault once again.

A number of high-ranking officers blamed the 'stagnation period' and its effects on military science for the delay in the military being able to assimilate the new concept of a defensive doctrine. They even went as far as to suggest that a similar failure by military science to devote sufficient attention to defence prior to the Second World War was the reason for the almost disastrous initial set backs.⁸⁹

A preponderant reliance on history to formulate current doctrine was typical of Soviet military forces.⁹⁰ This facet of Soviet doctrine tended to be glossed over in Western analysis and writing. From the outset of the existence of the USSR, lessons of history have been successfully integrated into Soviet doctrine, strategy and force structure. Given

⁸⁶ Editorial, 'On some questions of military science', *Voennaia mysl' [Military Thought]*, Moscow, March 1955, p. 6 as quoted by Raymond L. Garthoff, *Soviet Strategy in the Nuclear Age*, 2d Ed, Praeger, New York, 1962, p. 96.

⁸⁷ *ibid.*

⁸⁸ Raymond L. Garthoff, *Soviet Military Doctrine*, Free Press, Glencoe, Ill, 1953, p. 27.

⁸⁹ Kent D. Lee, p. 274.

⁹⁰ Discussed in detail in Chapter 10.

the political realities within the monolithic state, this integral link between history and science assured a pronounced role for ideology. The massive experiments in engineering society led to the supremacy of ideology and politics over history that in a convoluted way completely influenced the development of military science and doctrine.⁹¹ This manipulation of military history over a period of time led to a massive collective lopsidedness in the Soviet military and its doctrinal development.

Military doctrine and strategy for the most part of the Soviet Union's existence could be described as singularly offensive.⁹² The strategy was offensive in that it advocated pre-emptive strikes if war seemed imminent and the force structure and posture supported such a stance. From a Western analytical point of view, until the advent of *perestroika* there was no serious thought given to any other kind of war. Soviet military theorists however had always paid attention to defensive battle and combat actions although these were always discussed as support actions for the main offensive.

The shift from offensive to defensive doctrinal thinking was not easy and the path to the consolidation of a military forced to undertake a number of radical changes simultaneously was not clearly defined. The strength of the Soviet armed forces had been tested on an on-going basis in the 1970s and early 1980s and its resilience and inner strength had been sorely stretched. There were collective statements from the outside world regarding the collapse of the Soviet military. A closer look at the situation however, gave a somewhat different picture, one of a monolithic and lethargic institution slowly coming to terms with changed circumstances and calling on its inner core strength to address the changes.⁹³ Traditional ideological bases were challenged and contending points of view established. The ideology of Marxist-Leninist methodology had an inherent flexibility that was only tailored and curtailed by the reigning hierarchy and therefore the 'changed', emerging strategy and doctrine of the new Russian forces is as clear and resilient as it was for the forces of the erstwhile Soviet Union.

⁹¹ *ibid.*, p. 275.

⁹² *ibid.*, p. 276.

⁹³ *ibid.*

Chapter 13

TRANSFORMATION OF THE RUSSIAN AIR FORCE

During the entire Cold War era, almost all the combat operations the Soviet military conducted were directed against peoples and regions within the socialist camp. A small number of pilots, air defence units and military advisors took part in wars fought mainly in the developing world, but major deployments of Soviet troops were always dedicated to the maintenance of the Communist Party's rule in countries where they already held power. The interventions in Hungary in 1956, Czechoslovakia in 1968 and the dispatch of forces into Afghanistan in 1979 are all part of this pattern.¹ Historically, the Soviet Army had also been used to put down domestic protests within the Soviet Union and was a critical element that ensured the cohesiveness of the state.

The Soviet intervention in Afghanistan was a watershed turning point in the domestic public perception of the military and its image.² Until then all other military operations had been of fairly short duration and the general population had always been led to believe that they had been brought to successful conclusions. The official handling of the Afghanistan War and the unofficial acknowledgement by 1989 that it was a defeat had major negative effects on public attitude towards the military.³ At the same time Gorbachev was forced to rely on the military more often to contain rising domestic unrest. The use of the military in Tbilisi and in Baku against separatist movements, although controversial, was at least partially successful in achieving its primary objective of repression of opposition to Communist rule. The situation changed with the failed intervention in Lithuania in January 1991 mainly because of the support that the local

¹ William E. Odom, *The Collapse of the Soviet Military*, Yale University Press, New Haven 1998, pp. 165-167.

² *ibid.*

³ *Ibid.*

political leader received from Boris Yeltsin in Moscow, something that had never happened before.⁴

This failure was the last straw in the disintegration of the Soviet empire.⁵ By the withdrawal of the military from the Transcaucasus, Gorbachev effectively denied himself the traditional last resort of keeping the Soviet Union together – use of military forces. The sudden loss of status and the contradiction of policies in its employment had palpable impact on the military and contributed most to the demoralisation of the officer cadre within the entire armed forces. It is a truism that when the armed forces of a regime become incapable of effective recruitment, the regime itself becomes unviable. The Soviet empire crossed this threshold in 1990-91.⁶ Along with the USSR the Soviet Armed Forces also disintegrated with only the Russian core managing to survive in a weakened and decayed state as the armed forces of the Russian Federation.⁷

In 1985 the Soviet Armed Forces had more than 5.3 million men under arms,⁸ which reportedly was reduced to 3.99 million in 1990.⁹ The residual armed forces that belonged to the Russian Federation after the dissolution of the Soviet Union were only 2.72 million strong.¹⁰ The entire reduction took place in a span of merely three years. The Soviet military had been reduced drastically in previous demobilisations in 1945-47 and 1955-58 but were undertaken with the complete support of the military and political hierarchy. Unlike in previous times, the reduction that took place in the 1985-1990 period was conducted with the political and military leadership in dissonance with each other and

⁴ Boris Yeltsin not only visited the region in January 1991, but also appealed to the Soviet soldiers in Lithuania in a radio address not to support the intervention. He told them: "Many of you think you are a Rambo – a hero who defends law and order. No! You are a pawn in a dirty game, a grain of sand in the Kremlin's building of an imperial sand castle. This year you will take off your uniform, demobilize, and tell your girl friend, 'We bashed those Lithuanians.' Those memories will be the only security you can give her – neither freedom, nor good life – for you have blocked that path with your tanks."

The recording of Yeltsin's radio address was made by Radio Liberty and translated by Michael Rywkin in "Analysis of Current Events", year 2, no 2, New York: Association for Study of the Nationalities, City College of New York, February 1991.

⁵ Willaim E. Odom, P. 270.

⁶ *ibid.*

⁷ *ibid.*, p. 272.

⁸ *The Military Balance 1985-1986*, International Institute of Strategic Studies, London, 1985, p. 21.

⁹ *The Military Balance 1989-1990*, International Institute of Strategic Studies, London, 1989, p. 34.

¹⁰ *The Military Balance 1992-1993*, International Institute of Strategic Studies, London, 1992, p. 92.

the demobilisation took on a dynamic of its own.¹¹ The disintegration of the military could be traced to three major developments. The military was forced to accept huge force reductions while the political leadership was either reluctant or incapable of stemming the collapse of the Warsaw Pact with its attendant military fall out. The introduction of glasnost into military affairs precipitated a bitter public debate regarding the necessity for conscription and also led to the questioning of the realities of military life.¹² Lastly, leading from the public debate, there was rapid spread of open resistance to conscription, which effectively denied adequate replacement for the bi-annual discharge of enlisted personnel.¹³

Between March and December 1991 all the Republics that constituted the USSR declared independence (Russia never formally declared independence in some vague belief of it carrying the mantle of the 'Soviet empire'¹⁴), but pretences, mainly in Russia, that the Soviet Armed Forces would survive with only superficial changes in name continued for almost another year.¹⁵ During this period, attempts were made at forming the organisational shell for a combined Commonwealth of Independent States (CIS) Armed Forces, and two summits were held in Minsk on 30-31 December 1991 and 14 February 1992 to facilitate its formation. The summits reached agreement on certain significant issues but the number of states that refused to sign the agreement was a better indication of its limited results.¹⁶ More important, none of the agreements concerned central financing for the armed forces and this continued as a sticking point during all subsequent efforts aimed at maintaining the armed forces as a unified entity. Boris Yeltsin's decision at the Tashkent summit on 15-16 May 1992 to create a Russian Defence Ministry and the inability of the Russian economy to underwrite the expenses of a unified force structure put an end to all efforts in this direction.¹⁷

¹¹ William E. Odom, pp. 320-334.

¹² *ibid.*

¹³ *ibid.*, pp. 340-348.

¹⁴ *Ibid.*, p. 355.

¹⁵ *ibid.*, p. 375.

¹⁶ *ibid.*, pp. 376-385.

¹⁷ *ibid.*

13.1 RUSSIAN AIR FORCE - CHANGING THOUGHTS ON THE NEW AIR WAR

The spectacularly successful air campaign over Iraq by the Western Allied forces in 1991 coincided with the beginning of the break up of the USSR and opened a new era in Soviet military affairs. Even while substantial doctrinal and organisational changes were being instituted within the military, the mainstream view on future war continued to be fixated on emerging technologies that had been triggered by innovations in the late 1970s.¹⁸ Despite the detrimental effects of a crippled economy, the military continued with the development of those technologies perceived to be at the heart of future military capabilities: advanced conventional munitions (ACM), directed-energy weapons, and space-based systems. They also developed a comprehensive and revolutionary vision of future war convinced of the effectiveness and mass deployment of these weapons.¹⁹

13.1.1 Views on Future War

In Soviet/Russian military thought, a war-winning force had to be structured in accordance with the nature of future wars to be fought and therefore doctrine had to be reactive to future military capabilities and the environment. This revolutionary thought process was tempered with the Soviet/Russian penchant to subscribe to Lenin's dictum that it was criminal not to possess all the weapons possessed by one's opponent.²⁰ By late 1990, the military had conceived the 'Air-Land Battle/Future' based on highly effective ground-, air-, and space-based reconnaissance, surveillance, and target acquisition systems, overwhelming fire power capabilities with great precision, range and destructiveness and automated C3 systems that ensured the strike in real-time.²¹

¹⁸ Mary C. Fitzgerald, 'The New "Aero-Space War" in Soviet Military Thought', in Stephen J. Blank, & Jacob W. Kipp, (ed), *The Soviet Military and the Future*, Greenwood Press, Westport, CT, 1992, pp. 56-59.

¹⁹ *ibid.*

²⁰ *ibid.*, p. 59.

²¹ *Ibid.*, pp. 59-61.

According to prominent military scientists in Russia, the embodiment of these capabilities in the strategic offensive forces provided the basis for a gradual long-term shift towards the waging of an “essentially new type of war – the aerospace war.”²² This war would be characterised by the optimal employment of cutting edge technologies: ballistic missiles with manoeuvring warheads, long-range cruise missiles, ACMs, orbital aircraft and wide-scale application of stealth technology, directed energy weapons, space-based strike weapons and third-generation nuclear weapons.²³

The Russian vision of conducting global non-nuclear war was based on space-based reconnaissance, surveillance and target acquisition systems linked in real-time to long-range strike means. Called ‘reconnaissance-strike complexes’, these were viewed as the nucleus of warfare in the twenty-first century.²⁴ Military theorists have asserted that the comprehensive integration of reconnaissance, electronic warfare, weapon control and command and control equipment into successfully unified systems at the large formation-level has brought about fundamental changes in the nature of war and its expected results.²⁵ This integration greatly increased combat capabilities while the range of missions to be accomplished in a compressed time frame was expanded.

Based on these technological innovations, the future war was envisioned as one wherein the politico-military objectives would be achieved not by seizing and occupying territory, but by destroying the opponent’s military capabilities and infrastructure.²⁶ In Russian calculations the destruction of military infrastructure was considered sufficient to bring about the collapse of the political system.²⁷ The three basic criteria for victory therefore were destruction of the opponent’s armed force, followed by the destruction of the

²² General-Major V.I. Slipchenko, *Impending Changes from Reform Plans for Employing the Soviet Armed Forces*, presentation at National Defence University, Washington D.C., 15 and 20 March 1991.

²³ *ibid.*

²⁴ Mary C. Fitzgerald, pp. 59-61.

²⁵ *ibid.*, p. 62.

²⁶ Mary C. Fitzgerald, ‘The Soviet Military and the New Air War in the Persian Gulf’, in *Air Power Journal*, Maxwell AF Base, Alabama, Winter 1991, p. 22.

²⁷ *ibid.*

enemy's military-economic potential and lastly the overthrow of the opponent's political system.²⁸

Warfare in the past was two-dimensional but air-and space-based systems now gave the new war a third dimension. Developments of the technologies necessary to wage a modern aerospace war are already in its advanced stages and in another decade it is expected that the major powers would have the capability to conduct such a war.²⁹ The Russian military contends that till these are operationally deployed, air warfare will resemble that conducted in the Persian Gulf in 1991, with a declining role for piloted aircraft and a growing role for air-, sea- and space-based directed energy weapons.³⁰

13.1.2 Lessons from the Gulf War 1991 – A Russian Perspective

The Russian military viewed the Gulf War as the first demonstration of the 'transition between the old and the new.'³¹ The war vindicated the theorists who had been championing the need to change over to technological operations by incorporating emerging technologies into theory and practice that meant the utilisation of offensive air weapons to achieve surprise and air superiority at the outset.³² The military's assessment of the way the Gulf War was executed made them believe that their own doctrine and strategy was outdated and that the current direction of military development was flawed. It was concluded that a deeper analysis was necessary to correct the flaw and to re-evaluate the quality of the weapons, equipment, training and strategy.³³

There was also the viewpoint within the military scientific community that the impressive performance of high-tech weaponry had been clearly predicted as a qualitative revolution in military affairs by N.V. Ogarkov almost a decade earlier. In an interview in 1984 he had explained that the emergence of the automated search-and-destroy complexes, long-

²⁸ *ibid*, p. 24.

²⁹ General- Major V.I. Slipchenko.

³⁰ *ibid*.

³¹ Marshal V. Kulikov, *Kulikov Defends Soviet Weaponry*, Foreign Broadcast Information Service, Moscow (FBIS-SOV-91- 042),) 04 March 1991, pp. 41-43.

³² *ibid*.

range high-precision terminally guided combat systems, remotely piloted vehicles and qualitatively new electronic control systems will inevitably alter forever the nature of modern warfare.³⁴ Soviet military experts have stressed that the coalition won so easily because of their overwhelming superiority in technology and its employment in contemporary methods of warfare.³⁵ Superior strategy and tactics and the skilled and coordinated combined operations was also credited with contributing to the success of the operation.³⁶ The centrepiece lesson that was learned was the achievement of surprise even though the military build up had taken over three months and that the coalition had 'command of the air' from the very outset of the war.³⁷

Russian military scientists as well as theoreticians have characterised the Gulf War as prototypical of an 'air war'.³⁸ The allied operations have been likened to a contemporary version of Douhet's strategy of command of the air and it was believed that the entire campaign was conceived from the outset as an air war.³⁹ In terms of choice of objectives, it was therefore thought to be more of a classical air offensive than an air-land battle.⁴⁰ The Russian contention was that the same air war theory was used against Japan in the Second World War but it was only in 1991 that the necessary technology was made available to make it a war-winning doctrine.⁴¹

The Gulf War was also examined as the first example of a successful 'technological operation' in which the entire range of innovations including 'artificial intelligence' was used synergistically to achieve massive destruction and the early capitulation of the

³³ *ibid.*, p. 43.

³⁴ N.V. Ogarkov, *Defence of Socialism: The Experience of History and the Present*, Krasnaya zvezda (Red Star), Moscow, 09 May 1984, as translated by Parallel History Project Website www.isn.ethz.ch/php accessed on 27 Feb 03.

³⁵ Major M. Pogorelyi, *From a Military Observer's Viewpoint: What the War Showed*, Krasnaya zvezda (Red Star), Moscow, 08 March 1991, as translated by Parallel History Project Website www.isn.ethz.ch/php accessed on 27 Feb 03.

³⁶ *ibid.*

³⁷ *ibid.*

³⁸ Geberal- Lieutenant A. Malyukov, *Gulf War: Initial Conclusions; Air Power Predetermined Outcome*, Krasnaya zvezda (Red Star), Moscow, 14 March 1991, as translated by Parallel History Project Website www.isn.ethz.ch/php accessed on 27 Feb 03.

³⁹ *ibid.*

⁴⁰ *ibid.*

⁴¹ *ibid.*

opponent. The lesson derived was that the radically changing nature of war now did not warrant the use of large groupings of ground troops and that the war proceeded without borders, flanks and a defined battlefield since the entire country was under attack simultaneously.⁴² By concentrating their enormous strike power at the farthest depth of enemy territory, the air force could now achieve tactical, operational and strategic objectives and blur the distinction between operational art and strategy. In one glowing example, the Gulf War dictated essential changes in the employment of ground forces with warfare shifting from reliance on these forces to reliance on air-attack weapon systems.⁴³

Russian military leaders observed that NATO exploited the Gulf War as an opportunity to test and refine new technologies and weapon systems. They also noted that cruise missiles were effective and accurate and studied the Tomahawk missile in detail for its extreme accuracy.⁴⁴ In addition to Air-launched Cruise Missiles (ACMs) the role of space-based systems in the allied victory was also pointed out. According to General-Major N. Kutsenko, allied forces of battalion size and above used space-based communications and staff used space-based reconnaissance to monitor the development of the campaign.⁴⁵ These systems were seen as the basis of all technical innovations that had created the revolution in the conduct of modern war. On the whole, authoritative Russian analysis concluded that the Gulf War was the first example of the decisive role that space would play in any future war, giving the air war itself a hitherto unknown third dimension. These systems were calculated as having demonstrated a capability to increase combat effectiveness by 150 to 200 per cent. This confirmed the Russian military's own theory that warfare had to be shifted to theatres of military operations in space.⁴⁶

⁴² Mary C. Fitzgerald, 'The Soviet Military and the New Air War in the Persian Gulf', in *Air Power Journal*, pp. 24-26.

⁴³ *ibid*, p. 26.

⁴⁴ *ibid*.

⁴⁵ Quoted in Barbara Starr, *Satellites Paved the Way to Victory*, "Jane's Defence Weekly", Jane's Information Group, Surrey, UK, 09 Mar 1991, p. 330. General Kutsenko was at that time the Deputy Chief of Staff at the General Staff's Centre for Operational-Strategic Studies.

⁴⁶ General-Major A.N. Bazhenov, presentation at the Brookings Institute, Washington D.C., 25 Mar 1991.

The Russian military assimilated a number of important lessons from their study of the war. It was noted that surprise was enhanced by the use of ACMs, which precluded the need to mass large ground forces before any attack and that use of adequate ACMs in the initial phase of the war exerted a decisive influence on the final outcome. An initial period of high-tech warfare was therefore understood to be a decisive factor in achieving victory.⁴⁷ Future wars were predicted to be of short duration with the massive use of technology and earlier predictions of a declining role for ground forces and growing roles for air, air defence and naval forces in conventional warfare were confirmed.

In addition, precision air strike and space-based offensive and defensive systems for controlling them was seen to be critical to the conventional 'aero-space' war and the requirement for automated command and control systems in modern battle-management was re-emphasised.⁴⁸ It was enunciated that the lack or inadequacy of such systems could reduce weapon system capability by almost 50 per cent.⁴⁹ Perhaps the most important lesson to be derived was the complete agreement within all branches of the military that any future campaign would have to begin with a massive use of air power although it was concluded that air power alone was insufficient to accomplish all the final objectives.⁵⁰

The main fall out of the Gulf War in doctrinal terms for the Russian military was that it almost completely invalidated the 1987 shift to a defensive doctrine. The complete shift in both military-technical and socio-political aspects of the doctrine towards defence was redefined and the Russian military doctrine was refocused by the insistence that an inherently defensive doctrine does not mean either a defensive strategy or a rejection of offensive operations.⁵¹ The concept of deterrence was moved away from pure nuclear parity to include parity in high-tech non-nuclear forces also. The impact of advanced technologies was seen as the negation of the traditional measures of military power while revolutionising combined-arms concepts.

⁴⁷ *ibid.*

⁴⁸ Genral-Lieutenant A. Malyukov.

⁴⁹ *ibid.*

⁵⁰ Major M. Pogorelyi.

⁵¹ *ibid.*

13.2 DEVELOPMENT OF A NEW MILITARY DOCTRINE

Fifteen republics were born out of the break-up of the USSR and the resulting 'partitioning' of assets had the maximum effect on the massive military structure. Out of these new countries, the Russian Federation is clearly the most significant and has been accepted as the replacement for the Soviet Union in the international arena.⁵² It is indeed the largest former Soviet republic, consisting of 76 per cent of its territory, 51 percent of its population, and 62 per cent of its industrial output.⁵³ Following the division of the military assets, Russia retained 65 per cent of manoeuvre elements and combat aircraft, over 75 per cent of strategic nuclear weapons and naval forces and also complete control of tactical nuclear assets.⁵⁴ Additionally only Russia had the cohesive infrastructure necessary to maintain and operate large, modern military forces.⁵⁵ In the early 1990s, the Russian Armed Force was still the largest in Europe, but has undergone large-scale changes. Within the constraints of a deteriorating economic situation and fluxes in the socio-political system the Russian military is still attempting to articulate a new doctrine and force structure for the new century.

Work on the new doctrine was commenced in early 1992 and on 02 November 1993, the draft 'Provisions of the Military Doctrine of the Russian Federation' was approved.⁵⁶ This was the first time that an approved military doctrine had been laid down in written form. The impetus to do this was the need to formalise the ideologically motivated 'defensive' doctrine that was announced in the late 1980s and the approved doctrine makes it clear that defensive posturing is an inherent part of the overall Russian security concept.

⁵² General-Major A.N. Bazhenov.

⁵³ *Pictorial Atlas of the World*, CLB Publishing, Surrey, UK, 1993, p. 15.

⁵⁴ *The Military Balance 1992-1993*.

⁵⁵ *ibid.*

⁵⁶ James F. Holcomb, *Russia's New Doctrine: Two Views*, Strategic Studies Institute, U. S. Army War College, PA, 20 Jul 1994, pp. 4-6.

The doctrine acknowledges that although the threat of a world war has receded the possibility still exists. External threats to the Russian Federation develops from potential military dangers posed by the build up of forces on the borders of the nation in sufficient numbers to disrupt the existing balance of forces.⁵⁷ This is consistent with the traditional Soviet mindset of overestimation of potential threat and preparation for the worst-case scenario. Along the same lines, introduction of foreign troops in the territory of a neighbouring state is also considered a direct military threat.⁵⁸ This technically precludes the introduction of non-indigenous NATO troops into any of the new Republics adjoining Russia and this stance points towards the military vulnerability in a number of areas that the Russian Federation is aware of and is trying to redress.⁵⁹

The main focus of the new doctrine is to shed the ideological baggage that accompanied the Soviet era thinking and doctrine development. Military strategists and theorists have been given the freedom to develop the force structure of the military to suit operational requirements by making the size, shape and character of the force clearer and more defined.⁶⁰ The new doctrine is also a repudiation of the 1987 Gorbachev-inspired doctrine that focussed on war prevention.⁶¹ The doctrine now restates older concepts that call not only for the repelling of aggression but also for the decisive defeat of any aggressor.⁶²

The new doctrine departs from the Gorbachev doctrine and emphasises the need to take and retain the offensive initiative as the paramount requirement for victory in any campaign.⁶³ It also advocated optimisation of force structure and capability for all possible wars and combat missions along the entire spectrum of warfare.⁶⁴ Low intensity conflicts designed to support the government's initiatives to contain localised disputes

⁵⁷ *ibid*, p. 7.

⁵⁸ *ibid*.

⁵⁹ *ibid*, pp.8-10.

⁶⁰ *ibid*, p. 12.

⁶¹ *ibid*.

⁶² Mary C. Fitzgerald, 'A Russian View of Russian Interests', *Air Force Magazine*, October 1992, The Air Force Association, Washington D. C, 1992, pp. 42-44.

⁶³ *ibid*.

⁶⁴ Colonel-General I.N. Rodinov, *Approaches to Russian Military Doctrine*, *Voyennaya Mysl*, Moscow, 10 July 1992, pp. 6-14. Translated Foreign Broadcast Information Service (FBIS) and Joint Publications Research Service (JPRS), Central Eurasia Report, 30 September 1992, pp. 2-6.

internally or in its immediate neighbourhood was given greater doctrinal importance.⁶⁵ It was also established that nuclear wars would not be catastrophic for the entire mankind and that it would be possible to successfully wage a limited nuclear war. Russia retained the right to use nuclear weapons to protect its interests if attacked, effectively negating the no-first-use doctrine. Essentially the doctrine of 'sufficiency' was changed to 'conflict prosecution in keeping with the laws of warfare'.⁶⁶

Overall, the doctrine is not revolutionary, but evolutionary and reflects themes that were present throughout Soviet and Russian history. The doctrine sets the stage for a potentially more aggressive military posture as and when economic realities permit the strengthening of the armed forces.⁶⁷ This is also in keeping with the thought process of some of the more nationalistic political and military leaders who continue to harbour ambitions to restore the grandeur of previous Russian empires and aspire to return to world super power status.⁶⁸ Russia's new doctrine is two-pronged; on the one hand it attempts to modernise the basic tenets dealing with mid-to-high intensity warfare and on the other it develops the doctrinal structure in order to improve the military's capability to prosecute low intensity conflicts.⁶⁹

The viability of Russia's economy and defence industry in conjunction with the nature of its politico-military leadership will determine the future developmental direction of the armed forces. It is certain that for the near-term there will be a transition from a large, relatively unwieldy force to a smaller, more mobile, flexible and modern military capable of waging war through the entire spectrum of conflict and progressing towards becoming a technology driven force.

⁶⁵ *ibid.*

⁶⁶ *ibid.*

⁶⁷ Major-General A.I. Vitkovskiy, *Principles of Employing the Russian Armed Forces*, *Voyennaya Mysl*, Moscow, 10 July 1992, pp. 99-102. Translated FBIS/JPRS, Central Eurasia report, 30 September 1992, pp. 54-56.

⁶⁸ *ibid.*

⁶⁹ *ibid.*

13.2.1 Ideas and Trends Shaping the Transition

Every military force must be structured to some degree against its most likely opponent. During the Cold War when the Soviet forces were facing NATO and an unfriendly China,⁷⁰ it was necessary to maintain a large bellicose military structure. The new doctrine has confirmed a 'no-official-enemy' policy with cooperation with NATO as the new stated position.⁷¹ The structure of the armed forces seems to be still evolving and adapting to the new international geo-political environment. There is also a self imposed restraint on the future size of the armed forces and some other confidence building measures that Russia hopes will bring dividends in terms of international status and acceptability. There is also a new emphasis on participation in international peacekeeping operations in a search for enhanced respectability.⁷² In all these moves the only controversial aspect is the Russian claim to be the primary member amongst the former Soviet republics, which according to Russian political thought, form its 'sphere of influence'.⁷³

Armed forces are primarily security instruments of a nation, but the Soviet military was also a source of pride for the general public as the shield for the spread of socialism. Since conscription was universal, the military had always been a major means of state sponsored Communist ideological indoctrination.⁷⁴ The new doctrine does not have such a role and the Russian military have resurrected symbols of Tsarist Army and Naval traditions to fill the gap.⁷⁵ The strengthening impact that ideology played on the morale of the Soviet Armed Forces has been completely taken away much to its detriment.

⁷⁰ At the height of the Cold War China was considered by the USSR as a potential enemy who would side with the Western powers in the event of a conflict. This was reflected in the Military strategy that emphasised the need to 'contain' China during any conflict situation.

⁷¹ Edward F. Bruner, *Russia and Other Former Soviet Armed Forces*, Foreign Affairs and National Defence Division, Congressional Research Service Report No 92014, Washington D.C, 25 November 1995, pp. 5-7.

⁷² *ibid.*

⁷³ *ibid.*, p. 7.

⁷⁴ *ibid.*, pp.8-10.

⁷⁵ *ibid.* The Tsarist forces had well developed customs and traditions that are the hallmark of professional military forces around the world. These were supplanted by Communist ideology and other 'socialist' paraphernalia to make the individuality of military forces and units stand-out. In the absence of such accoutrements it was necessary to fall back on things that were historically connected to Russia in the old days, even if it meant acknowledging the Tsarist regime.

The Soviet armed forces were large in size and mass and subscribed to the philosophy of eventually overwhelming smaller but technically and doctrinally more agile forces with the capability to accept immense attrition in personnel and resources. The Russian military while still trying to maintain a favourable force-ratio advantage however has adopted a methodology that combines qualitative and quantitative measures for static force-on-force assessment. In the wake of the 1991 Gulf War the military doctrine accepted the necessity for deep strike standoff weapon systems and information warfare.⁷⁶ The quality versus quantity debate is still valid in certain aspects of the Russian military strategy like the use of massed firepower, but the general trend in the doctrinal aspect has been a tilt towards more sophisticated and qualitatively superior application of force.

The USSR relied almost completely on conscripts to maintain the level of manning that was considered adequate. More important was the fact that by cycling millions of men through the military every two years, the Soviet armed forces built up an enormous reserve of trained man power.⁷⁷ The Soviet military planners could consider reconstituting nearly two hundred army divisions early in a major war along with additional air and naval forces. The Russian military however, is more oriented towards becoming an all-volunteer force like the U. S. and British models, especially in view of the increased technological sophistication of the weapon systems and the skill and training levels required to operate them effectively. Economic realities still force the planners to accept a mix, but there is general agreement in the military leadership that contract/conscript soldiers do not perform to the necessary professional requirement.⁷⁸

The Gorbachev doctrine of 'defensive sufficiency' had not completely taken root in the military before the collapse of the Soviet Union. There was, therefore, a residual

⁷⁶ Mary C. Fitzgerald, 'The Soviet Military and the New Air War in the Persian Gulf', in *Air Power Journal*, pp. 26-29.

⁷⁷ *ibid.*

⁷⁸ Edward F. Bruner, p. 11.

offensive-oriented thinking and mindset that the Russian military inherited.⁷⁹ The Russian doctrine, as mentioned earlier, forswears large-scale surprise attacks, but its concept of ‘reliable defence’ includes provisions to generate massive retaliatory counter-offensive operations into enemy territory and stresses the acquisition of modern precision weapons and other deep strike capabilities to support it. In the reconstituted Russian military offensive doctrine at the tactical and operational levels is considered necessary for success and contribution to overall victory.

13.3 THE MILITARY AVIATION INDUSTRY: LIFELINE OF THE RUSSIAN AIR FORCE

The Russian military aviation industry is world-class and in some areas possesses unique capabilities that have been demonstrated in the military aircraft that they have produced over the years. At the 1996 Farmborough Air Show, the Sukhoi Su-37⁸⁰ stole show headlines with flight demonstrations described in the aviation press as “spectacular”.⁸¹ The Russian Air Force is one of the few air forces in the world totally reliant on indigenous industry for all their needs and therefore the health of the indigenous military aviation industry is critical for its operational efficacy. The political turmoil and economic problems faced by Russia in the 1990s have impacted on the industry with such seriousness that a government committee in 1995 concluded that the industry would collapse in another ten years if the downward trend was not energetically arrested.⁸²

⁷⁹ *ibid.*

⁸⁰ Su-37 is the thrust-vectoring variant of the Sukhoi Su-27 ‘Flanker’.

⁸¹ David M. North, ‘Thrust Vectoring Su-37 Demonstrates Agility’, *Aviation Week & Space Technology*, 09 September 1996, The McGraw–Hill Companies, New York, 1996, p. 24.

⁸² Major David R. Johnson, ‘Russia’s Military Aviation Industry: Strategy for Survival’, *Aerospace Power Journal*, Summer 1997, U.S. Air Force War College, Maxwell AF Base, Alabama, 1997, p. 34. In the past ten years the military aviation industry in Russia has undergone a great deal of innovative and radical organisational changes aimed at making it more competitive in the global market. The number of design bureaus allowed to be independent have been drastically reduced and some have been subsumed within larger organisations. Overall commercial efficiency has indeed increased and the dooms-day prophesy of the industry collapsing has not really come to pass. There is also a government supported push to aggressively market military aviation products under one umbrella-organisation.

As in any other industry, the main source of income in the Russian military aviation industry is also sufficient orders to maintain the necessary cash flow. During the decade of transition in the Russian economy the industry faced a situation wherein the orders from the Russian Air Force had all been cancelled and the production lines had to be closed down.⁸³ There was also a related problem that may still have implications in the long-term, which is the steady decline in the number of engineers and scientists who are willing to join the military-industrial complex. This trend indicates a possible future shortage of trained specialists in the technology-intensive aviation industry.⁸⁴

The government has put in place a new policy for the reorientation of the military-industrial complex and because of its high-tech orientation and acknowledged importance to national security aviation has been given priority consideration. The overall policy has been formulated with the twin aims of clearly identifying the elements of the military-industrial complex that have a direct bearing on national security issues⁸⁵ and delineating those that support high-tech dual-use industries. These in turn could attract investment in the near term and provide a sound technological base for a modernised military in the long term. There are two key elements to the policy that is pertinent to the military aviation industry in particular.

First, the Russian Air Force decision not to acquire any aircraft or weapons for the near-term in order to ensure that adequate funding can be made available for aircraft and weapon development projects so that advanced-technology capabilities could be kept updated. Second, the government decision to promote aggressive marketing of advanced aircraft and aviation-production capabilities abroad without any ideological baggage and to use the profits thereon to sustain research and development of advanced aviation technology.⁸⁶

⁸³ Major David R. Johnson, pp.35-37.

⁸⁴ *ibid.*

⁸⁵ *ibid.*

⁸⁶ Pak Zinovi, 'Russian Defence Industry Proceeds with Restructuring', *Aerospace Journal*, September-October 1996, U. S. Air Force War College, Maxwell AF Base, Alabama, 1996, pp. 7-8.

The result of this decision has been increased competition in the international military aviation market as well as the proliferation of advanced fourth- and the so-called fourth-and-one-half generation aircraft globally.⁸⁷ There has also been an unintended beginning of a subtle arms race in the developing world, especially in the South East Asian region because of the ready availability of sophisticated aircraft without any political or ideological strings attached. The ready transfer of aviation related technology has also buttressed the scientific industrial development capabilities of some of the countries.

13.3.1 Problems Facing the Industry

The aviation industry's externally driven problems are exacerbated by a lack of purposeful reform from within the organisation. The industry was a disjointed behemoth in Soviet times but has been able to shake off the state of lethargy to a large extent since then. Russia inherited 85 per cent of the Soviet Union's aviation industry that comprises half the country's military-industrial complex of 1,700 industrial enterprises and research institutes.⁸⁸ Even though aircraft orders declined drastically, slowing the industry output by 33 per cent in 1996 as compared to 1995, all the design bureaus continue to function at least nominally. The aviation industry at this stage went in to recession with no plant worker being employed for more than six months in a year.

The financial problems were further compounded by the non-payment of arrears by the Russian Air Force for orders that were supplied as early as 1994. By mid-1995 the debt rose to more than 800 billion roubles.⁸⁹ Rather than continue to supply the Air Force some of the plants refused to fill further orders forcing the lay off of large numbers of workers and the adoption of three-day working weeks. Along with the skilled worker force, the scientific-technological base of the aviation industry was also suffering. Funding cuts affected even the training of test pilots and as a result of the decline in production the volume of work at scientific and test facilities reduced to critically low

⁸⁷ *ibid.*

⁸⁸ *ibid.*

⁸⁹ Exchange rate at that time was 5,550 roubles to the U.S. dollar.

levels. By 1997, the activity in the five main test and research facilities has reduced to one-twelfth of pre-1991 activity.⁹⁰

In addition to the main test and research facilities there are hundreds of institutes that engage in fundamental, advanced, and applied research directly involved with the development of sophisticated aviation related technology that have gone into bankruptcy. The Russian scientific community has found itself in a situation where meaningful work is only to be found in the developing business sector. On a larger scale the younger people do not find a career in science lucrative enough to join the research and development community. The trend indicates that the aviation industry and the scientist-and-engineer-dependent bureaus will find it difficult to attract the brighter younger graduates.⁹¹ The long-term effects of this drain is still to be felt in the aviation industry, but the government is taking steps to reverse the trend by making a career in the military aviation industry as attractive as possible.

Faced with the three major problems outlined above that have more than a one-time impact on the survivability of the military aviation industry, the government, military and industry have moved into over-drive to contain the situation. The new policy articulated in late 1996 recognised the less than optimum performance of the defence-conversion programme in the military industrial sector and accepted the long-term importance of the 'science-intensive' advanced-technology sectors of the military industrial complex to national security.⁹² The policy recognised the primary status of the military aviation industry in this security equation and the importance of nursing it through the economic crisis while considering the marketability of high-tech military capabilities as a near-term solution.

The air force's military council has reached a conclusion that the most critical period in the survival of the military aviation industry and its scientific-technological base would

⁹⁰ Major David R. Johnson, p.37.

⁹¹ Pak Zinovi, p. 77.

⁹² *ibid.*

be the decade starting 1997 to 2007.⁹³ This calculation was based on the anticipated service life of the Russian Air Force's fourth-generation fighters.⁹⁴ The council has therefore decided to forgo substantial purchases in the near term in favour of supporting the design and development of new aircraft and stemming the decline in the scientific-technology base.

The newly created Ministry of Defence Industry, initially seen as window dressing, went about preserving the military aviation industrial capabilities by a number of reforms that were introduced. It put together a coordinated weapons development plan and accepted the timeframe and priorities as suggested by the Air Force committee. The ministry now has started the consolidation of the military industrial complexes into a limited number of large state-owned enterprises supported by a cadre of military-industrial commercial firms. In the military aviation field the *Voенно-Промышленныи Комплекс* MAPO (the MiG aircraft producing conglomerate) and the Sukhoi OKB (design bureau) were singled out for consolidation of design and production facilities, a process that is already well underway at the time of writing.⁹⁵

The government also accepted the reality that the only real source of money in the military-industrial sector would come from the export of weapons and technology.⁹⁶ More than half the military export in 1992 were in aviation equipment and the trend has continued. The government therefore formalised the export policy and Russian fighter aircraft are now in direct competition with those of the West in the world market.⁹⁷ Some of the more significant sales have been accompanied by licence production rights and transfer of advanced technology to the purchasing nations.⁹⁸

⁹³ *ibid.*, p. 78.

⁹⁴ *ibid.*

⁹⁵ Aleksandr Kotelkin, 'Russia Was, Is and Will Be Competitor Number One for the U.S. in Arms Sales', *Military Parade*, November-December 1996, p. 11.

⁹⁶ *ibid.*

⁹⁷ *ibid.*

⁹⁸ Raghuvanshi, '40 Russian Su-30s Lend Youth to Aging IAF Fleet', *Janes Defence Weekly*, 20 November 1996, Jane's Information Group, Surrey, UK, 1996, p. 14.

Russia has aggressively pursued military-technical cooperation with Asian and other developing nations as well as with industrialised countries. The working group on Military-Technical Cooperation (MTC) is responsible for the export and licence production of all arms to other countries. In order to be competitive in the export market the Soviet embargo on the export of the state-of-the-art technology has been replaced with an enthusiasm to deliver the latest models to other countries even prior to their operational induction into the Russian Armed Forces. These measures have now started to bear results and it has been reported that arms production increased by around eight per cent in real terms in 1999.⁹⁹

The weakness in global marketing that most of the Russian enterprises suffer from is being countered by cooperation with Western industries under the MTC. The MiG-AT advanced jet trainer is being jointly manufactured with a number of French companies and the MiG-29 is being upgraded in collaboration with Germany's Daimler-Benz Aerospace.¹⁰⁰ The export drive was further strengthened by President Vladimir Putin by merging the major export companies that had operated separately for almost eight years. In the year 2000 Russia's export earnings from arms sales was reported to be \$ 4.5 billion.¹⁰¹

13.3.2 Impact on the Russian Air Force

Political and economic imperatives were the driving forces in many of the hard decisions that were taken by the Air Force leadership after the break up of the Soviet Union. Unlike in the Soviet Air Force, ideology was kept in the background and real world problems were addressed comprehensively to ensure the survival of one of the most developed sectors within the erstwhile Soviet industrial complex.

⁹⁹ SIPRI Yearbook 2000: "Armaments, Disarmament and International Security" p. 321.

¹⁰⁰ Igor Khripunov, 'The Politics and Economics of Russia's Conventional Arms Transfers', in Gary K. Bertsch, & William C. Potter, (eds), *Dangerous Weapons, Desperate States*, Routledge, 1999, New York, pp. 142-144.

¹⁰¹ Yuri Golotyuk, *Arms export Placed Under Putin's Personal Control*, Information Department, Embassy of the Russian Federation in India, New Delhi, 05 December 2000.

The 10-year plan of the Russian Air Force will delay the induction of any new aircraft into its force till end-2005, but will preserve the capacity of the military aviation sector to produce the fifth-generation aircraft even if it is in small quantities initially. The mainstay of the industry in terms of financial capital during this time of austerity in the Russian Air Force would be the boosted export of fighter aircraft and other aviation related technology, weapon systems and equipment.¹⁰² The industry has responded with the development of a number of classic variants to already operational aircraft to fill niche performance requirements of the air force. This pattern is clearly seen in the family of variants of the Su-27 from the Sukhoi OKB and the MiG-29M from the MiG MAPO.¹⁰³ The Russian Air Force has put together a road map for the future shape, size and capability of the force for the next 10 years in conjunction with the 10-year plan. The acquisition requirements in this plan include a new next-generation fighter, a new-frontal aviation bomber, a new theatre bomber and substantial transport aircraft for both strategic and tactical airlift.

The Russian Air Force is currently in the throes of a large-scale reorganisation in all aspects ranging from personnel redeployments, equipment obsolescence leading to reduction in numbers, capability requirements and availability review and doctrinal reorientation. The military doctrine that was proclaimed in 1993 is constantly being revised and currently the Russian Air Force views itself as the primary component of the Russian military. Complete transformation of the air force is still far from achieved, but the basic problems that it faces have been recognised and addressed even though the results of the forward planning that has been implemented will take some more time to become apparent. The most important change has been the delineation of ideology from influencing the formulation of core doctrine while national security initiatives and imperatives are being considered at the highest level of doctrine development.

¹⁰² Novichkov, Nikolay, *“Desperate for Sales, Moscow Courts Seoul”*, ‘Aviation Week & Space Technology’, 18 November 1996, New York: The McGraw-Hill Companies, 1996, p. 31.

¹⁰³ *ibid.*

Chapter 14

BLUE PRINT FOR THE 21ST CENTURY

In the aftermath of the collapse of the Soviet Union, the Eurasian security environment is also as fragmented as the geography of the area. Russia's perspective is that the newly independent states have given rise to new borderlands as well as multiple military and security environment magnified by the weaknesses that have clearly surfaced within the Russian Armed Forces.¹ The primary source of the problem lies in the diversity of the new states, their proximity to vastly different ethnic and religious regions of Europe and Asia, their own success or failure in state-building, economic reform and their ability to create viable military machines.² In the past, geopolitical space controlled by Moscow directly bordered territories controlled or protected by China or the United States, leading to fairly stable and predictable reactions to any military juxtaposition along these frontiers. In complete contrast, to the west and the south Russia now has the former Soviet Republics within which there is a high degree of politico-economic and socio-religious instability. Many of these new nations are open to outside influences like radical Islamic fundamentalism while some exist in a state of internal tension and open, armed conflict with various secessionist factions.³

The reality facing the Russian nation is the undeniable fact that the Soviet empire has disintegrated and that Russia has lost almost all its traditional allies. Even the Russian nucleus is facing grave threats to its existence as a viable and integrated nation state as evidenced in the renewed vigour of the centuries old separatist movement in Chechnya. Russia occupies 76 per cent of the territory of the old Soviet Union, but national values, ideology and security perceptions have been deeply affected by the debilitating disputes between opposing political groups. At the same time the Russian Federation is also passing through a deep and protracted economic and social crisis making the country

¹ Sherman W. Garnett, 'The Integrationist Temptation', *The Washington Quarterly*, No 18, Spring 1995, Centre for Strategic and International Studies, Washington D.C, 1995, pp. 35-38.

² *ibid.*

³ *ibid.*

heavily dependent on the International Monetary Fund and the World Bank for survival.⁴ Paradoxically Russia continues to remain a great power because of its immense natural and human resources, large and established industrial base, its great military assets and the historic legacy of great power status attained during the Soviet era.⁵

14.1 RUSSIA'S NATIONAL SECURITY CONCEPTS

There have been fundamental changes in Russia's security environment with the bi-polar world of the Cold War that assured international strategic stability and security collapsing along with the Soviet Union. It can be argued that this collapse replaced the bipolarity not with American hegemony as had been expected, but by a genuinely multipolar world, thereby completely changing the character of the world at large. Russia is facing a plethora of new and unforeseen challenges since its emergence as a democratic state in 1991. There are a number of major issues that Russia is grappling with - the serious undermining of its international power, status and influence; loss of diplomatic and economic leverages; increasing disparity in power with the United States and even China; rise of secessionist movements in areas like Chechnya, terrorism and the growth of fundamentalism; serious economic crisis and the rapid decline of both military power and military industrial strength.⁶ Under these bleak conditions, Russian leaders have struggled to articulate a viable security concept and doctrine that would deal with the emerging threats and challenges. The Military Doctrine of 1993 and National Security Concept released in 1993, 1997 and 1999 were all attempts at coming to grips with the manifold challenges in both the domestic and international arena.

⁴ Alexie G. Arbatov, 'The Russian Military in the 21st Century', proceedings of the *Eighth Annual Strategy Conference* held at the U.S. Army War College, Carlisle, PA, April 1997, accessed from the website //carlisle-www.army.mil/usawc on 26 January 2003.

⁵ *ibid.*

⁶ *ibid.*

14.1.1 Evolution of the Current Security Concepts

In April 1993, President Boris Yeltsin formalised the shift that had been taking place in Russia's national security priorities since 1987. The 1993 Concept gave priority to economic progress and democratic stabilisation over national security and foreign policy for the first time in Soviet history. This was unavoidable because the civilian economic imperatives overtook the rest of the priorities in a natural almost spontaneous manner. Although initiated by Gorbachev, there was added impetus placed on the thrust to engage the wealthier nations in the West in order to gain economic assistance and to integrate Russia into the global economy.⁷ Even while looking to the West to improve domestic economy, the Balkans War of 1995-96 crystallised anti-Western feeling among the Russians, particularly against the United States who was seen as aspiring for global hegemony.⁸ The 1993 concept gave way to the new security doctrine of 1997 that identified major threats, not external in nature but emanating from internal socio-economic instability, and stressed economic stability as the primary factor in national security.⁹ Yevgeny Primakov, then the new Foreign Minister, formulated the combined foreign policy and security concept wherein Russia played the role of an independent centre of power and influence in a multi-polar world.¹⁰ The doctrine was a 'middle course' approach meant to placate the domestic Russian anti-Western feeling and also remained well short of a completely pro-Western attitude, intended to provide a forceful and confident foreign policy meant to ensure that Russian interests, prestige and status were enhanced.¹¹

The current 'National Security Concept' of the Russian Federation was initiated in December 1999 and signed as a Presidential Decree on 10 January 2000.¹² This concept

⁷ Leon Aron, 'The Foreign Policy Doctrine of Postcommunist Russia and its Domestic Context', in Michael Mandelbaum, (ed), *The New Russian Foreign Policy*, Council on Foreign Relations Book, New York, 1998, pp. 25-27.

⁸ *ibid.*

⁹ *ibid.*, pp. 27-28.

¹⁰ *ibid.*, pp. 28-29.

¹¹ *ibid.*, p. 30.

¹² Baidya Bikash Basu, 'Russian National Security Thinking', in *Strategic Analysis*, Vol XXIV, No 7, Institute for Defence and Strategic Analysis, New Delhi, pp. 1287-1289.

reflects five factors that have particularly deep impact on the Russian security thinking.¹³ They are NATO expansion, the on-going differences with the United States on the ABM Treaty and the development and deployment of Ballistic Missile Defences, separatist movement and the rise of fundamentalist Islam in Chechnya and other areas in the Russian periphery, growth of terrorism as a serious security threat and disagreement with the United States and European nations regarding the conflicts in Yugoslavia and Kosovo where NATO pursued a unilateral course bypassing the UN Security Council.¹⁴

A number of factors influence the international system and make it more complex, but few major trends dominate its nature. The 'War on Terror' has changed the equation of global security in a hitherto unseen direction that is still evolving and not clearly defined. Second, the cooperation this has elicited between a large number of states from both the developed and developing nations have to a certain extent bridged the gap that existed between them so far. This integration process facilitated by a number of alliances has greatly strengthened the international system. Third, the domination of world affairs by the Western world led by the United States and the unilateral use of force has shown the fissures even between the developed nations in what is a coerced world unity against global terrorism. The last major factor is the rise of religious fundamentalism and intolerance around the world and the demonstrated animosity especially in the developing world towards American hegemony in international affairs. These dominant factors have been gradually factored into Russian security concepts.¹⁵

Russia understands the reasons for the development of the multipolar world and strongly supports its growth. It sees the strengthening of a multipolar world as the only solution to the current divisions in the world that threaten to become even more bitter.¹⁶ The use of

¹³ *ibid.*

¹⁴ The lead up to the on-going conflict in Iraq (at the time of writing) clearly demonstrated Russia's unease at unilateral military action. The opposition to the war was based as much on the propriety of engagement without complete UN sanction as on economic considerations. Russian security perception is mainly concerned with the unilateralist approach to conflict resolution by the United States and its allies, which does not provide Russia with any viable alternatives and detracts from its international role.

¹⁵ Baidya Bikash Basu, p. 1290.

¹⁶ *National Security Concept of the Russian Federation*, Rossiiskaya Gazeta, 18 January 2000, Translated and released by Information Department, Embassy of Russian Federation, New Delhi, India.

force and the significance of the military remain as valid as ever before, but the continuing proliferation of nuclear and other weapons of mass destruction has brought on a different construct to world peace and order. Russia fears that the tendency amongst the developed nations to dictate terms and exert influence directly over the weaker nations marginalises the importance of the United Nations and destabilises international security. It also points out that the increasing economic disparity between rich and poor countries, exacerbated by inter-ethnic, religious and separatist contradictions have undermined global stability.¹⁷

Even after the changes in the international security events brought on by the events of September 11 have been taken into account, the Russian security concept formalised in 2000 is still valid with very little changes.¹⁸ Russian concerns, other than the 'War on Terrorism' and its international fallouts, are expressed in a succinct fashion in this document.¹⁹ Russia is greatly concerned with the appearance and escalation of conflicts and the possible emergence of foreign military bases and major military presences in the immediate proximity of its borders.²⁰ It views the desire of some states and international associations to diminish the role of existing mechanisms for ensuring international security, especially the United Nations as non-productive. Another great concern was the weakening of the integration process within the Commonwealth of Independent States (CIS) and the danger posed to international stability by the weakening of Russia's political, economic and military influence in the world.

14.2 NEW MILITARY DOCTRINE

Flowing from the 2000 security concept, the new Russian military doctrine was released on 21 April 2000. By this time the Russian Duma, under pressure from its newly elected

¹⁷ *ibid.*

¹⁸ The National Security Concept initiated in December 1999 was formally signed as Presidential decree in January 2000 and is therefore referred to as the 2000 security concept.

¹⁹ 'The National Security Concept of the Russian Federation' is the fundamental publication that has been released by Russia through all its major Embassies world-wide and details the nation's perception of its security issues.

²⁰ Russia still considers the new Republics as their 'sphere of influence'.

President Vladimir Putin, had ratified START II and the Comprehensive Test Ban Treaty.²¹ The primary objective of this new doctrine was to ensure the core interests of Russian security.²² Russian military apprehensions were heightened by the augmentation of global power of the United States and the expansion of NATO in Europe, the success of the Gulf War 1991 and the continued Anglo-American bombing of Iraq to enforce the no-fly zones, the sweeping revolution in military affairs and the predominance of information warfare and operations.²³ Russia perceived the NATO operations in Kosovo as the culmination of the coming together of the military and political elements of the main threat to the nation.²⁴ The importance of the operations in Kosovo to the development of the doctrine can not be underestimated since it was seen as the template for a future NATO operations against Russia itself or its vital interests in the 'near abroad'. At this time Russia was also convinced that it was under threatened or actual information attack, drawing from the Western reactions to its anti-terrorist operation in Chechnya.²⁵

14.2.1 The Basic Content of the Doctrine

The Russian Security Council is primarily responsible for the formulation of the military doctrine, coordinating the operations of the agencies and ensuring the implementation of decisions.²⁶ The 2000 doctrine's nuclear provisions state that although the danger of a nuclear war has receded in the past decade, the military must exercise deterrence to prevent nuclear aggression. It highlighted that nuclear weapons could be used if there had been an act of aggression against Russia and when conventional means were exhausted.²⁷

²¹ Jyotsna Bakshi, 'Russia's National Security Concepts and Military Doctrines: Continuity and Change', in *Strategic Analysis*, Vol XXIV, No 7, Institute for Defence and Strategic Analysis, New Delhi, pp. 1267-1284.

²² *ibid.*

²³ *ibid.*

²⁴ Celeste A. Wallander, *Russian Views on Kosovo: Synopsis of Panel Discussion*, Policy Memo No 62, Program on New Approaches to Russian Security, Davis Centre for Russian Studies, Harvard University, Cambridge, MA, April 1999, pp. 3-4.

²⁵ Charles J. Dick, *Russia's 1999 Draft Military Doctrine*, Occasional Brief No 72, Conflict Studies Research Centre, Royal Military Academy, Sandhurst, Camberly, Surrey, UK, 16 November 1999, p. 4.

²⁶ 'Russia adopts New Security Concept: appear to lower nuclear threshold', *Arms Control Today*, January/February 2000, p. 3.

²⁷ *ibid.*, pp. 3-4.

There is a clear change in the concept of first use of nuclear weapons from the previous stance that it will be used “in case of a threat to the Russian Federation” to “Russia will not use nuclear weapons if there is no aggression.”²⁸

The doctrine examines twelve new external threats and six internal ones that have appeared recently.²⁹ The Chechnya experience is reflected in the realistic approach to the use of the military in domestic contexts and defines their use in terms of elimination of armed conflicts on the basis of the Constitution of the Russian Federation.³⁰ Politically the 2000 doctrine states that all the member states of the United Nations are seen as partners in the development of mutually advantageous military-technical cooperation. For the first time in Russian history the doctrine speaks of the country’s unified military organisation with the armed forces, the defence enterprises and the agencies that command and control the system forming inseparable and integral components.³¹

In another dramatic departure from the past this doctrine does not articulate spreading of the nation’s sphere of influence in the world, but is aimed at defending the security of the Russian homeland. In the Soviet era, expansion of national interest meant the spread of Communism on a global scale, an ideological compulsion that has now been fully exorcised from the new military doctrine.³² There is however an inflated threat perception that underlines the doctrine that is simultaneously echoed in the national 2000 security concept. There is a very tangible feeling within the leadership in Russia that although international economic, political, technological, ecological and informational trends favour the development of a multipolar world that would guarantee Russia an important position, the policies of the United States and its close allies are oriented to circumvent international law and threaten Russian sovereignty.³³ Military forces and the resort to

²⁸ *ibid.*

²⁹ Stephen Blank, ‘Russia Rises to Perceived Threats’, *Jane’s Intelligence Review*, February 2000, Jane’s Publishing, Surrey UK, 2000, pp. 24-27.

³⁰ *ibid.*

³¹ *ibid.*

³² *ibid.*

³³ Stephen Blank, *Threats to Russian Security: The View from Moscow*, Strategic Studies Institute, U. S. Army War College, Carlisle, PA, July 2000, p. 26.

their use remain substantial aspects of international relations.³⁴ The doctrine encourages the nation to take an unambiguous view of the negative trends that foster existing and perceived threats.³⁵

The clear manner in which the threats have been enunciated permits a pragmatic fusion of the internal and external threats. This was probably the reason for the unequivocal use of the armed forces to quell the separatist movement in Chechnya, since other internal security organisations were unable to control it. Such domestic deployments pose a threat by itself to the integrity of the regular armed forces, but the government apparently was left with no alternative. For example, the use of regular armed forces in Chechnya to counter the separatist movement is fraught with the real risk of state failure.³⁶ This trend in the convenient fusion of internal and external threats is a throwback to the Leninist military-political conceptual legacy of linking together the threats of external aggression and internal subversion.³⁷

The new doctrine was experimented and validated in the field during the summer and autumn of 1999 in a series of exercises, the most important being Exercise 'Zapad-99' (West-99).³⁸ Russia's inherent concern over NATO expansion was evident in the exercises, all of which simulated an attack by NATO as the initiation of the conflict. The scenario depicted conventional troops being able to resist the attack only for a limited period. After that the Russian military resorted to nuclear weapons, specifically aiming at two targets in Europe and two in the United States. According to the scenario, the damage in conjunction with the demonstrated Russian willingness to escalate the conflict made it possible to terminate the limited war.³⁹

³⁴ *ibid.*

³⁵ *ibid.*, pp. 26-28.

³⁶ Stephen Blank, 'State and Armed Forces in Russia: Towards an African Scenario', in Anthony James Joes, (ed), *Saving Democracies: U.S. Intervention in Threatened Democratic States*, Praeger Publishers, Westport, CT, 1999, p. 176.

³⁷ Denny Roy, 'China's Threat Environment', *Security Dialogue*, Vol XXVII, No 4, 1996, p. 442.

³⁸ Dr Nikolai Sokov, *Overview: An Assessment of the Draft Russian Military Doctrine*, Centre for Non-proliferation Studies, Monterey Institute of International Studies, CA, USA, October 1999, p.5.

³⁹ *ibid.*

The underlying fears that Russia will cease to be counted a great European and global player in areas that have been historically influenced and dominated by them pervades the entire doctrine, not in an ideological sense but as the trappings of a 'great international power'. The determination to play the global role that Russia 'is entitled' to at the head of world affairs can be noticed in even the most routine diplomatic and political statements.⁴⁰ This great power mystique has played a role in Russian political development from the time of the Tsars and leads to the contemporary idea that the state and the empire are inextricable concepts.⁴¹ The entire military-political elite consistently supports the perspective that Russia must expand territorially and politically to be an effective pole in a multipolar world if it is to survive as an entity at home.⁴²

If the new Russia is to fulfil its aspirations to influence international events, it has to stem further disintegration of the country, effect economic recovery and develop mutually beneficial relationships with other states of the CIS.⁴³ It can move on to being an effective player in the global arena only after this has been achieved.

In order to ensure that these key requirements are addressed, Russia needs to harness all its efforts to contain domestic terrorist threats and separatist movements that seem to be gaining momentum.⁴⁴ Secondly, the Russian leadership will have to assert their right to implement security and military decisions so that they are able to influence political, economic and security decisions in the international arena and remain a power to reckon with. The events of September 11 and the changes it brought to international society have not significantly altered the Russian military doctrine. If at all, the concept of their employment in domestic conflicts has been given a new legitimacy.⁴⁵ Russia has been quick to point out to the international community that the Chechnya problem is also a

⁴⁰ Theodore Tarnaovski, 'Institutions, Political Culture and Foreign Policy in Late Imperial Russia', in Catherine Evtuhov, Boris Gasparov, Alexander Ospovat, & Mark Von Hagen, (eds) *Kazan, Moscow, St. Petersburg: Multiple Faces of the Russian Empire*, O.G.I, Moscow, 1997, pp. 55-67.

⁴¹ *ibid.*

⁴² *ibid.*

⁴³ Baidya Bikash Basu, p. 1298.

⁴⁴ *ibid.*

⁴⁵ *ibid.*, p.1299.

terrorist situation not unlike any other in the world that is now being confronted. With their sight set at the year 2010, the Russian military is concentrating on reaching their old powerful status in a cohesive manner. The air force forms the vanguard in this determined move.

14.3 THE CURRENT STATE OF THE RUSSIAN AIR FORCE PHOENIX RISING

With a Sovereign Russia once more emergent, there is a case for looking at a number of Imperial (not imperialist) precedents, not least in military thought which was in many instances innovative and in military institutions which were by no means either inefficient or ineffectual.

*John Erickson*⁴⁶

Despite several partial breakthroughs in the military reform and reorganisation process, the Russian armed forces are still not out of the woods.⁴⁷ The fissures of the deep crisis that they have endured for the past decade are still only too visible. The resource crunch has affected the air force and the navy more than the army since they are the more capital intensive services and also expend more resources in the routine maintenance and operational training of the force.⁴⁸ Since the conventional forces are still in the process of recuperating there is still a greater reliance on strategic forces and nuclear deterrence within the national leadership and consequently a reduced threshold for the use of nuclear weapons.⁴⁹

The reform process and the changes in doctrinal appreciation within the Soviet/Russian air forces, started simultaneously with Operation Desert Shield in 1990-91. The Iraqi Air

⁴⁶ John Erickson, 'Quo Vadis? The Changing faces of Soviet/Russian Forces and Now Russia', in Stephen J. Blank, & Jacob W. Kipp, (eds), *"The Soviet Military and the Future"*, Greenwood Press, Westport, CT, 1992, p. 53.

⁴⁷ *ibid.*

⁴⁸ *ibid.*

⁴⁹ Walter Parchomenko, 'The State of Russia's Armed Forces and Military Reform', *Parameters*, Winter 1999-2000, U. S. Army War College, Carlisle, PA, 2000, p. 98.

Force was almost completely equipped with Russian weapon systems and the opinions expressed by a number of Russian air force officers are indicative of their perception, even at that stage, of the effectiveness of air power.⁵⁰ At the commencement of the Gulf operations, the Russian Air Force increased their surveillance capabilities in the area and collected systematic and extensive data regarding Western air power capabilities as well as their own equipment performance.⁵¹

The first military comment on the operations emphasised the role of efficient reconnaissance and the accuracy of allied air operations as the key factors in the initial success of operations.⁵² It was also acknowledged that the allies displayed great professionalism in the conduct of operations. As the air operations started to target Iraq's strategic infrastructure, Russia maintained that it was too early to draw any conclusions regarding the outcome and also claimed that Iraq could not be paralysed by air attacks.⁵³ After two weeks of operations however the Russian hierarchy accepted that Iraq had indeed been paralysed by air attacks. They continued to maintain that the conservation of equipment for support of the eventual ground operations was the reason for the relatively weak and ineffective air defence operations by the Iraqi forces. Some sections of Soviet/Russian analysts also criticised the allied air campaign as a misinterpretation of Giulio Douhet's theory of strategic bombing.⁵⁴ Throughout the air campaign there was the continued thinking within the Russian Air Force that the air war had not had a crucial impact and that only the ground campaign would demonstrate the resilience of the Iraqi forces. This obviously was a conditioned response in an air force that had played a secondary support role to the land forces throughout its existence.

The effectiveness of the change in the Russian military was clearly seen when at the end of the Gulf War it was officially accepted by the General Staff that their appreciation of the events of the campaign had been wrong, something that would have been unthinkable

⁵⁰ Benjamin S. Lambeth, *Desert Storm and Its Meaning: The View from Moscow*, RAND Publications, Santa Monica, CA, 1992, pp.11-15.

⁵¹ *ibid.*

⁵² *ibid.*

⁵³ *ibid.*, pp. 17-19.

⁵⁴ *ibid.*

in the old Soviet Union. A symposium sponsored by the Chief of the General Staff, General Mikhail Moiseyev in July 1991 brought out the expanded role of air power in achieving final victory in war as pertinent to the development of the Russian Air Force.⁵⁵ It also accepted the importance of realistic, regular and adequate training in maintaining the required proficiency in operating modern weaponry optimally and emphasised the capability of high-tech weapons to act as force multipliers in the attack role.

Even with indisputable evidence gathered by their own sources, after having existed as a subservient force for their entire history, the Russian Air Force officers had great difficulty in assimilating the fact that the air forces were the most critical elements in winning the Gulf War.⁵⁶ This went completely against proclaimed Soviet/Russian doctrine and the weight and influence of embedded tradition and indoctrination was still too great to be discarded lightly.⁵⁷ The lower echelon in the air force was far more realistic. Since the Iraqi Air Force equipment was completely of Russian origin, the leadership had repeatedly underlined the fact that the Iraqi's were not proficient in their utilisation.⁵⁸ But the younger officers openly questioned the training pattern of the Iraqi pilots since they were similar to the Russian pilot training.

The Gulf War was traumatic for the Russian military command already under great domestic strain. The more progressive generals cautiously acknowledged the dominant role of air power and the need to align military doctrine and force structure accordingly. For the first time in its history the Russian Air Force had the *raison d'être* to develop as an independent and war winning force. This was also sufficient to break the tight control the army had so far exercised on all aspects of the air force development. The Commander-in-Chief of the Russian Air Force, Colonel General Pyotor Deinekin pointed out that for 70 years the air force had been undervalued and not been given the opportunity to develop unfettered and stated that the Air Force would now eliminate

⁵⁵ Ibid, p. 24.

⁵⁶ Benjamin S. Lambeth, *Soviet Air Power in the New Russian Mirror*, RAND Publications, Santa Monica, CA, 1994, pp. 12-16.

⁵⁷ *ibid.*

⁵⁸ Use of Soviet/Russian equipment and the training needs that it entails have been explained in Chapter

party political control from influencing doctrinal and force structure development.⁵⁹ In early 1990 the Russian Air Force fulfilled super power standards quantitatively, but the overall primacy accorded to the ground forces had gnawed at the air force's doctrinal development, the command and control structure and the basic qualitative foundations for so long that it was unable to maintain international credibility as a potent force when air power was emerging globally as the primary warfighting force.⁶⁰

14.3.1 Security-Military Transition

By the beginning of 1992 the Soviet Air Force had completely transformed into a significantly smaller and less capable Russian Air Force that inherited all the international commitments of the Soviet Union. The economic situation of the country brought up a number of complex problems with no easy answers to the air force command echelons.⁶¹ Five different factors guided the development of the structure and doctrine of the Russian Air Force during this all-important transitional phase.

First, the break up of USSR brought on changes in the regional sovereignty environment. Russia lost access to its forward bases and air surveillance systems in East Europe and the Baltic States. While it got several new neighbours, the airbase network was reduced to 50 per cent of the Soviet Air Force network.⁶² The air force potential dropped from more than 20,000 pilots and 13,000 aircraft to about 13,000 pilots and 5,000 aircraft. The Russian Air Force was reduced in strength to 63 percent of MiG-29s, 76 per cent of Su-27s, 48 per cent Il-78 air-to-air refuelling aircraft, 50 per cent of heavy lift Il-76 transport aircraft, all the Tu-95s and all but two Tu-160 strategic bombers.⁶³

⁵⁹ Benjamin S. Lambeth, *Soviet Air Power in the New Russian Mirror*, pp. 20-22.

⁶⁰ *ibid.*

⁶¹ 'The Future of the Russian Air Force', Special Report No 4, *Jane's Intelligence Review*, Jane's Information Group, Surrey, UK, 1994.

⁶² *The Military Balance 1992-93*, The International Institute of Strategic Studies, London, Autumn 1992, p. 90.

⁶³ *ibid.*, pp. 91-93.

Second, one of the most important contractual obligations that was inherited by the Russian Air Force was the Conventional Forces in Europe (CFE) Treaty. Although the reduction in forces came into effect from July 1992, in order to maintain as many aircraft as possible on the inventory, the Tashkent Treaty was formulated which divided the CFE reduction quotas between the former Soviet States. According to this agreement between the CIS nations, Russian Air Force aircraft strength was to be reduced to 3,450 by the year 1995, amounting to a reduction of about 35% of total strength.⁶⁴ The complementary side of this division was that the Russian Air Force got a boost in comparative status as the reduction in the Russian Army was fifty per cent.⁶⁵ Since the air force still retained two thirds of its combat assets and had tactical mobility, it became the predominant force. This aspect had a profound influence on the formulation of the first independent Air Force doctrine, which moved away from the support role oriented outlook.

Third, the security doctrine of 1993 had not catered for the intricacies of the division of military assets and had considered a combined CIS military force a distinctly possible solution. The rapidity of the break up of the USSR and the fierceness of the opposition to a combined armed force from the peripheral Republics were not anticipated and therefore a viable alternative doctrine had not even been considered.⁶⁶ This brought the Russian Air Force to a crisis point of being without a valid doctrine for the second time in five years.

Fourth, the reorganisation of the economy in the wake of *glasnost* and the forcefulness of the shift in the government's priority to the civilian sector was once again not anticipated by the military hierarchy. This brought the military-industrial conglomerate to the verge of complete collapse and even then they were unable to satisfactorily address the situation. In 1992 the threat of the Russian military becoming completely irrelevant because of lack of capability became very real.⁶⁷ The lack of foresight coupled with a built-in lethargy to seek practical and draconian solutions within the military-industrial

⁶⁴ 'The Future of the Russian Air Force', Special Report No 4, *Jane's Intelligence Review*, Jane's Information Group, Surrey, UK, 1994.

⁶⁵ *ibid.*

⁶⁶ *ibid.*

⁶⁷ *ibid.*

complexes once again affected air force the most because it is the most technology dependent and driven of all the services.

Fifth, the Russian Air Force was slow to appreciate the paradigm shift in the doctrine and strategy of the employment of air power and its emergence as a primary force facilitated by the optimal use of high-end technology. The application of force multipliers, once again capitalised in their use as air power elements, was also not fully appreciated immediately. These lessons formed the base from which the Russian Air Force would start to build a viable and politically ideology free doctrine for its strategic and tactical employment in the future.

Over the years the Soviet Union had built up the largest military-industrial base in the world. By 1995, this complex state-run institution collapsed along with the ideology that had fostered it for so long with production dropping to one tenth of its peak. Despite the economic downturn the military industry has retained its social importance and political relevance and continues to receive more state support than other industries. The Russian recession has stabilised and the decline in the economy has started to slow down. Measures that were instituted in the military industry sector to revitalise it have over the years proven their merit and the industry is coming round to becoming profitable.

14.3.2 Air Power Doctrine

The Russian Air Force was given four complete sets of scenarios to plan for future employment prospects. The scenarios were geographically specific and indicate that doctrinally the Russians still gave priority to geo-political appreciation of emerging situations.

1. **The Western and North Western Sector.** The scenario envisages NATO using force to settle an internal Russian conflict, denying Russian needs for access to transportation corridors or taking over Russian territory for strategic purposes. The threat is analysed as likely to penetrate Russian territory through Belarus and

Ukraine. The Air Force is required in this case to intercept enemy strikes and support the ground operations by offensive and defensive operations.

2. **The South Western Strategic Sector.** The threat includes Turkey and Iran eroding Russian position in the trans-Caucasian area and offering separatist support to the Islamic population of the region. The collapse of Georgia, Armenia or Azerbaijan might lead to a total intervention by NATO forces and calls for rapid counter-measures from the North Caucasian air force units.
3. **The Far Eastern Sector.** The perception is that Japan would see the weakening of Russian presence in the South Kuril Islands as an encouragement to settle the 'northern region' problem. Since it is anticipated that the Japanese would have naval support from the United States, capacity against carrier-based air power is deemed necessary.
4. **East Siberian Sector.** The threat in this region is deemed to emanate from Chinese territorial claims on Kazakhstan, Kyrgyzstan, Tajikistan and Russia itself. Since the area involved is very large and the ground troop resources scarce, the immediate use of air power against Chinese command and control facilities and strategic targets is emphasised.

Three disparate factors that underlie all Russian Air Force doctrinal and strategic planning come out of an analysis of this set pattern basis to the development of strategy. Firstly Russia is still paranoid regarding the intentions of NATO in Eastern Europe and its expansion to bring the newly independent Republics within its sphere of influence. This move is seen as being a direct challenge to the power base of a Russian hegemony. Secondly military planning is still based on historical claims of territory and conflicts that have been fought over disputed areas. The geographical break up of the Soviet Union is still a raw wound in the psyche of the entire Russian people and the recent events have not been a salve to it. Thirdly, the Russian Air Force has to be built to fight at least two campaigns and one small-scale operation simultaneously, which needs a certain amount of duplication of equipment acquisition and resource allocation.

The third factor needs to be analysed further to understand the future imperatives that face the Russian Air Force and the development of its doctrine and force structure. The operations envisaged cover the entire air power competency spectrum and in addition each of the sectors differ in climate, logistical availability, overall size and air base network. The implications for the Russian Air Force are that it would need to increase its aircraft and weapon system in both quality and quantity, rework the groupings, basing facilities and logistical network and put in place modern command, control and intelligence systems that are flexible and responsive. The doctrine also needs to be more emphatic on the offensive as opposed to the purely defensive national posture that has been assumed in the past decade. As a first step all air power assets other than the strategic missile force have been consolidated under the Russian Air Force. The Air Force has been given the highest priority in the on-going reform of the military and the military-industrial sector. This has been facilitated to a great extent by the aviation industry being able to make significant inroads into the international military aviation market becoming almost self supporting in the design and development area.

The emerging air power doctrine is divested of all trappings and completely independent of the ground forces influence and more importantly not coerced by ideological imperatives. It has taken into account the realities of the geo-political constraints under which it would have to operate and carry the bulk of the load if Russia is ever forced into war. The force structure of the Russian Air Force is oriented towards allowing free flowing operations in two separate theatres and has for the first time articulated the inescapable need for air superiority for the success of any operation.

14.3.3 Organisation and Order of Battle

The Russian Air Force is divided into four divisions, Long-Range Aviation, Frontal Aviation, Transport aviation and Air Defence Force. Different sources give different figures of the types and current numbers of aircraft in the various divisions. The common facts in the reporting are that some of the older aircraft are already in storage and that the

operational readiness percentage of some of the types is so low as to make them operationally unviable to be deployed.

The drawbacks of subjecting the air force to the military district commanders have been recognised and the need to form a united air force with its own command and control structure accepted. The new Russian Air Force organisation carries forward the Long-Range Aviation and Transport Aviation structure of the Soviet era and form entirely new organisational structures for the united Frontal Aviation and the Reserve and Training Air Force. This represents a conceptual change in the thinking at higher echelons of command and the willingness to give the Air Force a completely independent role in future conflicts. It also indicates alterations in the strategy for the employment of air power in conventional wars as well as follow-on actions in the case of nuclear exchanges in order to restrict the escalation of local conflicts.

The organisation of the strategic and tactical forces of the Russian Air Force is based on five air armies⁶⁸, each with three air force divisions. Each division comprises three regiments, each with a minimum complement of three squadrons. The number of squadrons per regiment and the squadron aircraft strength are dependent on the operational task and the type of aircraft that it operates. The strength of a division is therefore fluid and could vary from as little as 90 aircraft to as many as 150 aircraft. The regiments form the basic formation and are named in line with their role as attack, fighter, reconnaissance and training. While the division might have mixed regiments, the squadrons within a regiment always have the same role and generally the same force structure. Transport Aviation has three divisions, each with three regiments that have a minimum of 30 aircraft. In addition there are a number of separate regiments and squadrons that are independent of the three divisions. The total number of regiments has been variously estimated as 15 to 25.⁶⁹

⁶⁸ The use of the word armies in the context of air force is still reminiscent of the old Soviet organisational and command and control structure. It is somewhat incongruous in that the new thinking on air power has made an attempt to remove all connotations that point towards the dilution of the independent status of the air force.

The integration of the Russian Air Defence forces into the Air Force was a complex and time-consuming process. The difficulty was because of the differences in the command and control structure and also the changes in the borders that needed to be protected increasing the role of the fighter interceptors. The unifications however eliminated a number of overlapping systems and streamlined the air defence command and control structure thereby optimising efficiency. Effectively the independent status of the Air Defence Forces was nullified and the resources and assets brought under a more effective and optimised command and control structure. This move was also a result of a close scrutiny of the operations in the Gulf War where different national air force elements were combined to form a seamless air defence network. The formal merger of the two into the Russian Air Force took place on 01 January 1999.

By Presidential decree, from 01 January 2003 the Russian armed forces also started to adhere to the universal norm of having only three branches of service; the Air Force, the Ground Forces and the Navy. In effect this brings the Strategic Missile Forces also under the command and control of the Air Force, making the Russian Air Force once again the most powerful outside that of the United States. The Soviet Air Force has been buried almost completely in terms of doctrine, equipment and status to give way to the new Russian Air Force that has risen phoenix-like to assume a new and potentially more central role in the international politico-military equation.

Another noteworthy change is the move to decentralise tactical appreciation and the guidance and control that the erstwhile Soviet Air Force exercised on even the minutest detail of a mission. The strict subordination of tactical initiative to the combat command decision has been replaced by encouragement to be innovative in the lower echelons of command at the squadron level. Free-form air combat that was never practiced in the Soviet Air Force has now been given greater importance than ever before and there is a

⁶⁹ Even currently it is difficult to arrive at an exact number in terms of even the regiments that the Russian Air Force operates because of the geographical extent of their deployment and the frequent movement of units from the basic divisional control to independent status and back to the command and control of a division.

distinct change in attitude towards the employment of fighter aircraft to obtain and maintain air superiority. The negative consequences of the rigidity of control in the Soviet Air Force have been recognised and special efforts are being made to inculcate tactical imagination and aggressive initiative at the fighting unit level.⁷⁰ The results will not be apparent in the short-term but these reforms are the corner stones on which the future Russian Air Force will be built into a formidable force.

14.3.4 Summary

The Russian Air Force has undergone a transition from a quantitatively massive super power organisation to a much smaller but 'meaner' force with international competency. There is a dichotomy in the doctrinal development in that the Russian Air Force still aims at maintaining the support infrastructure required for global power projection while quantitative restrictions restrain the force from tangible power projection capabilities. Even though nuclear deterrence has been steadfastly maintained, the Russian Air Force doctrine, at least for now, is clearly oriented towards the management and containment of regional conflicts in the nations 'near-abroad'.

Embarking on this road to modernisation in doctrine and reform in organisation has not been an easy task for the Russian Air Force. Ideological interference and doctrinal lacuna have impeded the progress and resource scarcity has at times brought the process to a complete halt. The fact that progress has still been made is indicative of the resolve of the leadership to ensure that a modern force emerges from the ruins of the Soviet Air Force, which was a self-willed giant of an organisation. The radical changes that are being instituted have been slow in being embraced by rank and file a lot of whom are sceptical about the need to reform and also fear the loss of pride and status because it moves them away from what used to be a large combat force.

⁷⁰ The training schedule and syllabus for fighter leaders have been amended to increase the aggressiveness. The basic formation lead, wherein all tactical action is initiated, is now carefully handled and only proven pilots are given the responsibility.

The Russian Air Force has advanced in the last decade to the primary position in the defence forces and in the doctrine of the armed forces for the conduct of conventional and nuclear warfare. The necessity to have air supremacy has been enshrined in the doctrine and gives the Air Force a completely independent status for the first time in Soviet/Russian military history. There is also government policy support for the move to make air power the preferred military force projection capability with the political leadership being in agreement with the air power theorists. The Russian Air Force has truly been able to disregard the ideological constraints that made the Soviet Air Force nothing more than glorified flying artillery objects and move on to realising the full potential of air power. By intent rather than accident Russian Air Force is firmly on the path to becoming a global power.

Chapter 15

CONCLUSION

In the history of warfare politics has always determined the combatants and they in turn determine the doctrine, strategy and tactics that will be used in the employment of military forces in the pursuit of political aims. The policy that controls the employment of military forces in a nation-state is a calculated function of a number of factors that are debated and decided at the highest levels of government.¹ Nations place a great deal of emphasis in the pursuit of their security goals because the stability and well being of the nation is implicitly linked to it. War or the employment of force is therefore considered an extension of the logic of political action.² A comprehensive study of war in its many facets must be based on a broad foundation in order to ensure the veracity of the analysis. It must also take into account the influences that shape human characteristics that play a very large role in the conduct of warfare.

The pursuit of national security goals is normally dominated by an overarching ideology that is laid down at the highest level of government and is cognisant of the larger ethos of the people. Since war is considered an extension of the logic of politics, national ideology impacts on its conduct almost directly. This further complicates an already complex activity with an infinite number of variables that cannot always be predicted. In addition, conventional modern warfighting capabilities are dependent on the nation's industrial base and economic resources. Since ideology also plays an equally important part in enhancing the industrial and economic potential of a nation, this becomes the cornerstone of warfighting abilities.

Leninist theory, that dominated the post-Bolshevik Revolution Soviet Union, regarded war as an irrational act since neither was its outbreak always deliberate nor was its outcome always predictable. The dissolution of the three empires at the end of the First World War was cited as an example of the unforeseen consequences of war.³

¹ John Warry, *Warfare in the Classical World*, Salamander Books, London 1998, pp. 7-27.

² Carl von Clausewitz, *On War*, Michael Howard & Peter Paret (ed & tr), Princeton University Press, Princeton, NJ, 1986, p. 606.

³ Anatol Rapoport (ed), *Clausewitz on War*, PenguinBooks, London, 1968, p. 34.

This concept was more acceptable to the Soviet people because of the extremely high casualties that they suffered not only during the Second World War, but also in the purges that accompanied the Revolution itself.

Even though war was seen as an aberration to be avoided, the Soviet Union resurrected the traditional military model and military-nationalist traditions and also used the military to reinforce Soviet support for Communist regimes. However, the declared foreign policy of the Soviet Union was one of ensuring World peace.⁴

The Bolshevik Revolution had disastrous effects on the combat capabilities of the Imperial Russian Air Force as well as on the aircraft industry. After the success of the revolution a special committee was set up to organise the nucleus of an air arm. However, the larger and more urgent reorganisation of the entire military that was undertaken made the implementation of changes in the air force a very slow, gradual and tedious process. This resulted in the air force not being able to function effectively for a number of years while the force adapted to the changed circumstances.⁵ However, even though the air force was not very effective during the Civil war, the Soviet regime understood the potential of air power in combat.

During the inter-war years the organisation of the Red Air Force was heavily biased towards the German model, mainly because the Soviets could not find assistance to improve their aviation industry, and indirectly their air power capabilities, from any other source.⁶ The employment of all available aircraft mainly in the ground-attack role in all the small skirmishes that took place throughout this time, oriented Soviet strategic doctrinal thinking concentrate more towards this role as the main stay of the Air Force. Further, Communist ideology permeated strategic thinking within the air force elements and the basic organisation of the Red Air Force was determined more by political imperatives rather than on sound air power doctrine. This combination

⁴ Quoted in Vasilii D. Sokolovsky, (ed), *Military Strategy. Soviet Doctrine and Concepts*, Fredrick A. Praeger, New York, 1963, pp.17-18

⁵ Colonel A. Aleksandrove & Colonel A. Stepanov, 'National Fighter Aviation', *Vestnik Vozdushnogo Flota*, No 2, February 1954, pp. 70-73.

⁶ Robin Higham, 'Introduction', in Robin Higham & Jacob W. Kipp (eds), *Soviet Aviation and Air Power: A Historical View*, Brassey's Publishers Ltd, London, pp 2-3.

relegated the Red Air Force to a secondary support role in the grand strategic context and concepts of warfare.

In the aftermath of the revolution, the Soviet leadership laid a great deal of emphasis on the development of a strong and independent military force. This provided a certain amount of impetus for the improvement of the Red Air Force, but a perennial shortage of equipment that could not be ameliorated because of inadequate production capabilities, combined with extremely poor quality of training led to the force being inefficient at the operational level.⁷

The setbacks that the Red Air Force suffered in operations in Spain and Finland, between 1937 and 1941, affected the overall strategic planning at the highest level. The lack of understanding regarding strategic air power and its nuances was compounded by the almost complete destruction of the high command by Stalin's purges. The effect of these purges on the development of the force cannot be overemphasised since it percolated to all levels of the force. From discouraging junior pilots to be innovative in their tactical appreciation of battlefield situations, the fear syndrome stopped even the most senior leaders from being anything other than slavish followers of orders from superiors. This led to an inevitable and complete stagnation of the doctrine development process. The silencing of innovative thinking had an equally disastrous effect on the design and production capability, especially in the aviation industry.⁸

The performance of the Red Air Force during the German invasion of the Soviet Union in 1941 was abysmal. However, the built-in flexibility and core resilience of the Soviet people combined to produce some of the best combat aircraft to come out of the Second World War. The lacuna lay in the clear belief of the Soviet military leadership that air power was only a necessary adjunct to land forces, a belief that stemmed from a number of factors, but was nevertheless extremely detrimental to the balanced long-term development of air power capabilities. This doctrinal flaw plagued the Soviet Air Forces for the next four decades.

⁷ Robert A. Kilmarx, *A History of Soviet Air Power*, Faber and Faber Ltd, London, 1962, pp. 118-119.

⁸ Alexander Boyd, *The Soviet Air Force Since 1918*, Macdonald and Jane's (Publishers) Ltd, London, 1977, p.88.

Soon after the Second World War, the Soviet Union went through a great deal of changes, manifest to the outside world mainly in the altered thinking process of the political leadership. The military doctrine that had not been clearly enunciated until then became a central point for the political containment of a powerful armed force. In the early days of the Soviet Union, the national policy making structure was divided over the offence-defence debate that led to the co-existence of a defensive political doctrine supported by an inherently offensive military doctrine. Even when the overarching national strategy became avowedly defensive in nature, with no vestige of the offensive in it, the military continued to cultivate an offensive doctrine, as an essential necessity to win wars.

The years following the end of the Second World War also saw the hardening of attitudes in the West as well as within the Soviet Union that led to the now defunct Cold War *détente*. The natural follow-on of this almost blind adherence to two vastly differing ideologies was that technological, doctrinal and tactical developments of the military also followed disparate paths. The doctrine and theory that controlled the employment of air power changed radically and rapidly during and after the Second World War. They are still dynamic concepts.

Along with the dichotomy of the national strategy and military doctrine being diametrically opposed to each other, the air forces were still bereft of a valid doctrine that optimised their capabilities. Simultaneously, the Soviet Air Force also had to content with a lack of understanding and in-depth knowledge of advanced and emerging technologies in the early days after the Second World War. However, a concerted effort by the government paid of dividends in a span of about ten years and by the early 1950s, the aviation industry was able to design and produce extremely capable aircraft. The poor performance of these aircraft in limited conflicts in the Middle East and South East Asia in later years can be ascribed to the doctrinal and conceptual shortcomings of the user nations rather than to any inferiority in the performance spectrum of the equipment.

The conceptual developments that took place during the three decades following the Second World War also saw the Soviets enabling an extremely robust and

sophisticated ground-based air defence system that proved to be very effective even in high intensity conflicts. The critics of Soviet air power who perceived drawbacks in the doctrine and strategic concept had to take notice of the new layered battlefield air defence system that had been conceptualised and successfully employed. Once again the Soviets were able to surprise their detractors with the resilience, efficacy and ease of operation of the system.

It is a generic lesson from military history that geo-strategic, climatic and geographic factors affect the organisation, development and functioning of the armed forces of a nation. The Soviet Union was no exception. The geography of the land and its climatic conditions influenced the Soviet military development in a far greater manner than in the case of smaller nations. The vastness of the land and the limited infrastructure available in large parts of the nation for the effective pursuit of military aviation resulted in the design of Soviet military aircraft being extraordinarily tough and sturdy.⁹ While this effectiveness was tangibly evident at the tactical level, it also influenced the formulation of doctrine and strategy directly.

Through a study of Soviet involvement, both overtly and covertly, in conflicts across the globe as well as the utilisation of Soviet equipment in a number of limited wars a fairly clear and continuous thread in the nation's military doctrinal development can be gleaned. It is apparent that the Soviet leadership at all times realised the potential of air power as a war winning element as well as a military capability that provided the wherewithal for force projection and deterrence. However, the development of air power doctrine was somehow stilted to suit the ideological requirements in the service of making the greater Soviet ideal praiseworthy. This external force had detrimental effects on the employment of the air force and reduced the effectiveness of air power in the broader sense. This situation contributed to the Soviet Air Forces being constantly placed in a support role.

The Communist Party of the Soviet Union (CPSU) played a decisive role in the formulation of military doctrine at the highest level. Traditionally, all major doctrinal changes in the Soviet military were announced in conjunction with the Party

Congresses and although the composition of the ruling elite was at times not favourable to the military, there was always a clear understanding of the need to maintain a strong, military position and posture. The military inputs to the evolution of military doctrine were almost always army-centric and therefore, a clear air power doctrine was never articulated in the Soviet Union. There has never been any doubt regarding the primacy of the Party over the military in all aspects. Indifferent doctrine and direct Party influence in its operational functioning did not provide a sufficiently robust growth prospect to air power capabilities.

From mid-1980s, the Soviet leadership was acutely aware of the economic chaos that was slowly debilitating the entire nation. In an effort to maintain the integrity of the nation, far-reaching economic changes were instituted. Resource allocation to the military was drastically curtailed necessitating radical cut backs in both nuclear (strategic) as well as conventional forces. These reductions, which were mainly quantitative but also had a secondary qualitative effect, had a cascading effect within the military. It brought on an almost complete volte face in the doctrinal and strategic appreciation and for the first time in its existence, the Soviet military was forced to accept a defensive doctrine, almost completely devoid of any offensive strategy. On the positive side however, the inherent flexible core strength of the Soviet military was able to absorb this cataclysmic change, albeit at a very slow pace.

At the same time that the Soviet Union was facing the prospect of an economic collapse and political break up, the military had to contend with the spectacular success of the Western Coalition forces in the 1991 Gulf War. This made the Soviet Air Forces realise the importance of emerging technologies as a war winning factor. The Soviet military radically changed its views on future wars to encompass a phase of high-technology warfare at the beginning of any conflict of importance. There was also general consensus, at all levels of the military hierarchy, that air and space-based systems conclusively provided a third dimension to war. The 1991 war was thus seen within the military strategic thinking as the 'transition between the old and the new.'¹⁰ In the wake of the 1991 Gulf War, the Soviet military doctrine accepted the necessity

⁹ Sanu Kainikara, *Russian Combat Aircraft: Design for Toughness*, Paper No 18, BDM Services Ltd., Fairfax, VA, 1997. P.10.

for deep strike, stand-off weapons and information warfare. This also led to the Gorbachev doctrine of 'defensive sufficiency' being gradually replaced with one of 'reliable defence' that included provisions for offensive action as a prime requirement to defend the nation.

At the time of the gradual break up of the Soviet Union as a viable entity, the Soviet Air Force was in the process of emerging as a clearly independent force. The break up and the following partition of air assets between the republics forced the air force to take stock of the situation and institute remedial measures to continue its move towards becoming a truly independent and effective force. There was also the opportunity at this juncture to revamp doctrinal thought, which unfortunately was only partially utilised. However, there is indication that the doctrinal revision process is still underway and may yet yield the necessary impetus for greater change.

The underlying fact is that for more than fifty years, ideology was at the driving seat and guided the development of doctrine, strategy and even tactics of the Soviet Air Force. The fall-out from this was the somewhat tangential direction in which research and development took the air force as well as the design bureaus that were tasked with the production of aircraft and assets. That ideology played such an important role in the development of military capabilities is by itself not a surprising fact. This has indeed been the norm throughout history. It is in the impact of ideology on the design and development and the concept of employment of air power that the Soviet Union stands out as a case in point.

Currently the Russian Air Force is undergoing a transition in this sphere and is doctrinally becoming more aligned to the general air power views around the world as never before. This transition is being achieved after careful consideration of the inputs that make up the development of doctrine and concepts of operations as opposed to the purely ideological inputs that were available as late as a decade ago. While this exemplifies the core competency of flexibility of air power, the resilience and cohesiveness of the Russian Air Force also needs to be appreciated. It can be reflected

¹⁰ Marshal V. Kulikov, *Kulikov Defends Soviet Weaponry*, Foreign Broadcast Information Service, Moscow, (FBIS-SOV-91-042), 04 March 1991, p. 42.

with a great deal of accuracy that the Russian Air Force, in its fifth iteration as an entity, is well on its way to becoming a force to be reckoned with at all levels.

APPENDIX A

CHRONOLOGICAL MILESTONES¹

“The Wright Brothers created the single greatest cultural force since the invention of writing. The airplane became the first World Wide Web, bringing people, languages, ideas and values together.”

Bill Gates, CEO, Microsoft Corporation.²

1794 The world’s first Air Force, the Aerostatic Corps of the Artillery Service is formed in France.³

1799 Sir George Cayley, England, conceives a craft with stationary wings to provide ‘lift’, flappers to provide ‘thrust’, and a movable tail to provide ‘control’. He is the first to separate the different forces that keep an aircraft in the air. An engraving he made of the craft is the first recorded drawing of a fixed-wing aircraft.

1809 Sir George Cayley begins to publish ‘*On Aerial Navigation*’, a three part article which for the first time defined the three fundamental elements required by an aircraft – lift, propulsion and control.

1843 William Samuel Henson, England, proposes the ‘Aerial Steam Carriage’,⁴ the first known design for a propeller-driven fixed-wing aircraft.

¹ The Chronology has been sourced mainly from the Website of “*Wright Brothers, Aeroplane Company & Museum of Pioneer Aviation*”, Page ‘History of the Aeroplane: The Century Before’. Only prominent events have been listed with explanatory notes wherever necessary.

² Quoted in above World Wide Web, Home Page.

³ Baker, David. “*Flight and Flying: A Chronology*”, p. 6

⁴ Henson patented this concept of a huge monoplane of practical design with a 150-foot wingspan and two six-bladed, 20-foot propellers powered by a 30-horsepower steam engine.

- 1849** Sir George Cayley builds a small glider designed to lift about 80 pounds off the ground. It lifts a 10-year old boy off the ground for a few yards on test runs. It is the first recorded manned fixed-wing aircraft.⁵
- 1853** Sir George Cayley builds an improved version of his glider and his coachman makes a wavering uncontrolled glide of a few hundred feet – the world’s first true manned flight in a fixed-wing aircraft.
- 1857** Felix Du Temple and his brother Louis, France, fly a model monoplane whose propellers are driven by a small steam engine. It takes off under its own power, flies a short distance and glides to a safe landing. It is the first successful flight of a powered aircraft of any sort.
- 1866** The Aeronautical Society is founded in England.
- 1868** The Aeronautical Society sponsors the first exhibition of flying machines in England.
- 1870** Alphonse Penaud, France, uses twisted rubber bands to power a miniature helicopter.⁶
- 1871** Alphonse Penaud builds a ‘planophore’, a 20-inch long monoplane with a push propeller powered by a rubber band. It flies 131 feet in 11 seconds – the first flight of an inherently stable aircraft.⁷

⁵ The glider was launched into the air on the end of a rope pulled by people running downhill. The rope was released when the glider flew over the heads of the people.

⁶ Penaud studied Cayley’s experiments and applied many concepts from the early writings to working models.

⁷ The model has a wingspan of 18 in, wing area of 76 sq. in and a propeller of 8 in diameter.

Francis Herbert Wenham and John Browning, England, invent the wind tunnel and use it to prove the efficacy of cambered wings over other shapes in producing lift.

- 1880** Otto Lilienthal, Germany, begins to test cambered wing surfaces and measures their lifting capability.
- 1881** Louis Moulliard, France, publishes 'The Empire of the Air' in which he advocates aviators practicing in gliders to gain the skill needed to pilot an aircraft in the air.⁸
- 1883** John J. Montgomery, California, USA, builds a monoplane glider and makes the first gliding flight in America.
- 1884** Alexander F. Mozhaiski, Russia, builds a steam-powered monoplane and tests it at Krasnoye Selo, near St. Petersburg. It takes off on a jump ramp and flies for approximately 100 feet before crashing.⁹
- 1884** Horatio F. Phillips, England, studies cambered wings in wind tunnels and lays down the scientific foundation for modern aerofoil design.¹⁰
- 1889** Lawrence Hargrave, Australia, builds the first rotary airplane engine. It runs on compressed air and is used to power a model aircraft.

⁸ This split the aviation enthusiasts into two groups each with a different approach to making a practical aircraft. One group focused on engineering assuming that flying the machine would not require any more skills than a chauffeur and the other group focused on practicing gliding to gain skill before attempting powered flight.

⁹ The layout of the aircraft was completely conventional, with monoplane wings and tail, and fuselage and engine fitted in the manner of a modern aircraft.

¹⁰ He is the first to discover that when the wind blows across a curved surface, it creates a low pressure area on the top of the surface and a high pressure beneath it. This is the basis for the generation of the aerodynamic force called 'lift'.

- 1890** Clement Ader, France, builds a steam-powered, propeller driven bat-wing airplane. It rises about 8 inches off the ground and flies 165 feet being the first manned aircraft to take off from level ground.¹¹
- 1891** Otto Lilienthal begins to test winged gliders made from cloth stretched over willow frameworks.
- Samuel Langley, Virginia, USA, begins to experiment with a steam-powered model aircraft he calls 'Aerodrome'.¹²
- 1893** Lawrence Hargrave invents the box kite.¹³
- 1894** Otto Lilienthal is regularly making glides of over 1000 feet.¹⁴
- 1896** The Wright Brothers set up their own bicycle manufacturing shop.
- 1896** Samuel Langley tests two steam-powered 'Aerodromes'. The second one flies for almost a mile.
- 1898** Samuel Langley secures \$50,000 funding from the US War department to build a man-carrying version of his 'Aerodrome' within one year.

¹¹ The aircraft was a bat-winged monoplane with a span of 49 feet and a total weight of 653 lbs including the pilot.

¹² The first four were complete failures in terms of flight trials.

¹³ This design was remarkably stable and generates large amounts of lift. The box kite was to have a profound influence upon early French airplane design.

¹⁴ Making over 2,000 flights from hillsides, Lilienthal brought his gliders to a very high state of perfection. He also advocated learning to fly before attempting powered flight. "In free flight in the air, a large number of phenomena appear which the experimenter encounters nowhere else; in particular, those relating to the wind must be taken into consideration in the construction and use of flying machines". Lilienthal's writing, quoted in Canby, Courtlandt. *A History of Flight*, p. 36. Lilienthal died in 1896 (in a glider accident), but by that time he had been flying biplanes with great success and was in the process of powering one of them.

At the outbreak of the Spanish-American War, an army balloon was shipped to Santiago, Cuba and used to spy on Spanish naval preparations¹⁵

1899 The Wright Brothers experiment with twisting wings that is incorporated in its final form as the twisting wings of the biplane.

They build a biplane kite with a 5-foot wingspan and successfully fly it.

Kitty hawk is chosen by the Wright Brothers as having favourable wind strength to undertake flying trials.

1900 The Wright Brothers build and fly a glider. By October they are making manned glides up to 400 feet.¹⁶

1901 The Wright Brothers start to build their second glider.¹⁷

1902 The Wright Brothers build their third glider with a fixed tail. After initial trials and a disastrous crash, the fixed tail is converted to a movable rudder. The modified glider works perfectly with no tendency to spin.¹⁸

1903 April The Wright Brothers complete their first set of propellers.

September The Wright Flyer starts to be assembled.

¹⁵ Baker, David. *Flight and Flying: A Chronology*, p.19.

¹⁶ The glider was a biplane, which the brothers initially flew like a kite. It had a movable elevator in the front for control and they were confident enough of its performance to send up a ten-year old boy even as they flew it like a kite. However, the glider did not produce the calculated amount of lift.

¹⁷ This glider was the proving ground for a number of their theories. Initially the wing curvature had to be changed and the camber reduced. Subsequently, whenever a turn was attempted, the inner wing of the glider stalled taking it into a spin and subsequent crash. They are unable to rectify this even after repeated attempts. By mid-August the Wright Brothers stopped further practical trials.

¹⁸ These trials were undertaken a full year after the previous ones. The trials were concluded in October and Charley Taylor began building an aircraft engine for the Wrights. It is also noteworthy that although the Wright Brothers welcomed visitors and even accepted advice from people like Octave Chanute, Augustus Herring and Edward Huffaker, they repeatedly refused to share information with Samuel Langley and even declined to give him permission to visit them at Kitty Hawk.

October Samuel Langley tests his man-carrying 'Aerodrome' without success.

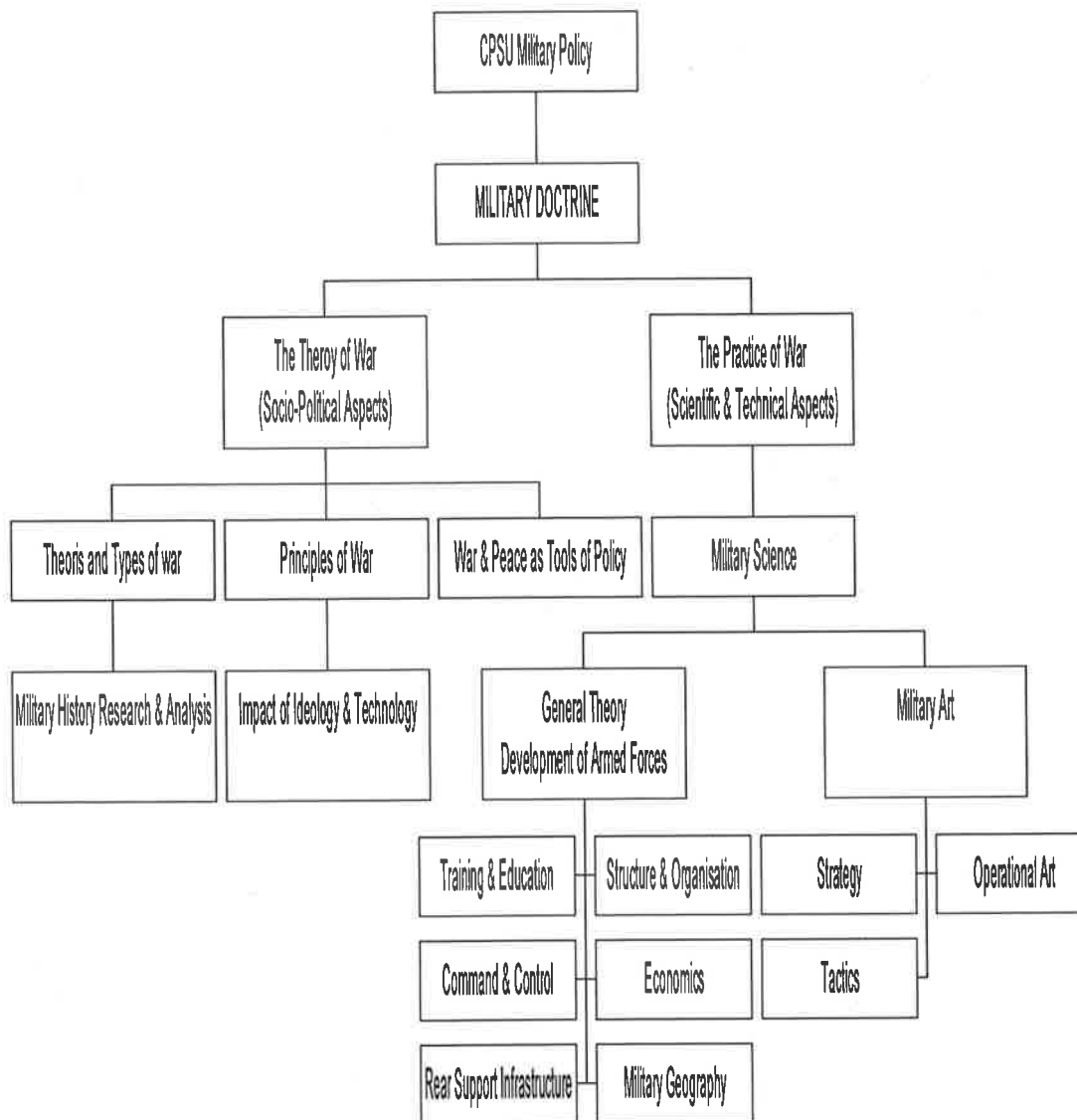
December 8 Samuel Langley tests his 'Aerodrome' again without success.¹⁹

December 17 At 10:35 AM Orville Wright makes the first powered flight in a fully controllable aircraft capable of sustaining itself in the air.²⁰ The age of the flying machine had finally arrived.

¹⁹ Samuel Langley was the secretary of the Smithsonian Institution and a brilliant man of many talents: architect, astronomer, physicist and mathematician. The engine that was used in the 'Aerodrome', built by his assistant and pilot Charles Manly, was a five-cylinder 52-horse power petrol engine unit fitted to the tandem wing monoplane to drive its twin propellers. The plane itself had a 48-foot wingspan and a tubular-steel-framed fuselage. The failure of the 'Aerodrome' on December 8 put an end to Samuel Langley's attempts at manned powered flight.

²⁰ The flight lasts just 12 seconds and stretches only 120 feet. In the next few hours, Wilbur and Orville Wright made four flights, the longest 852 feet. All flights were made as close to the ground as possible. The 'Flyer' was damaged by wind soon after the fourth flight and never flew again.

APPENDIX B



Theoretical Framework for the Study of War in the Soviet Union¹

¹ Christopher Donnelly, *Red Banner, The Soviet Military System in Peace and War*, Jane's Information Group, Surrey, UK, 1988, p. 103.

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