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Evolution of Mechanised Infantry : An Assessment & Contemporary Operational Requirements

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Introduction

"*In order to employ effectively small units equipped with BMP, it is necessary to appreciate that such manoeuvrable small units are designated for daring raids into the depths of enemy defences with the goal of circling around their strongpoints and exiting on the defender's flank and rear".*

—Lt Gen A Bondarenko, General of Soviet Tank Troops, 1975

The revolution in technology has continued to change the character of war. When mechanised warfare gathered steam during the World Wars, one of the major problems experienced immediately was for the infantry to keep pace with the speed of the tank. As a result, the issue of tank -infantry coordination, role of infantry, structural changes & doctrine for infantry, the

Key Points

- Mechanised Infantry is one of the most flexible type of units on the battlefield, that combines the multi-purpose ability of infantry with some elements of protection, mobility and firepower of armoured vehicles.
- Dismounted manoeuvre is recognised as Infantry's (mechanised) endearing contribution to the mechanised battle.
- Ability to dismount close to the objective ensures rapidity in assault and enhanced protection allows the dismount point to be closer to the objective.
- Lack of mechanisation prevents armies from exercising combined arms warfare at an effective tempo.
- Conceptual aspects of employment of mechanised infantry of different countries, and lessons from different battles have also been discussed briefly.
- Operations by forces grouped with adequate Mechanised Infantry would achieve success with much lower force ratios due to its inherent advantages in different terrains.
- Considering the envisaged operational environments, strengths and vulnerabilities of mechanised infantry, the paper has recommended new organisational structures and varied roles to optimise its full potential.

type of vehicle & armament needed for operational effectiveness, etc. was addressed on priority during the intervening years. As an outcome of this, the Infantry Combat Vehicle (ICV) came into existence. Progressive developments in the design of the ICVs showcased a desire to increase mobility, firepower and protection for the infantry.

West German development of the Schutzenpanzer 12-3 (Spz12-3) and French AMX-VCI (Vehicle de Combat d' Infantry) in the late 1950s, marked the entry of a radically new type of vehicle for the infantry. However, the ICV era began with the Soviet introduction of the BMP-I in 1968 during the Cold War. These vehicles displayed many of the salient characteristics that could be associated with contemporary ICVs. Common features of early ICVs were the systems like firing ports for mounted infantry, increased armoured protection to allow dismounting as close to the objective, and even rear doors to allow dismounting with least exposure to enemy fire.

The Paper aims to highlight the evolution of mechanised warfare over the years, along with case study of certain battles and the lessons from them. Having discussed the conceptual aspects of employment, the changes in role, organisational structures, integration with other elements and force multipliers to meet the contemporary challenges, are discussed briefly. Finally, the paper gives recommendations based on the envisaged role of Mechanised Infantry (Mech Inf) in the Indian Subcontinent which merit consideration.

Origin and Evolution of the Mechanised Infantry

Development of the ICV

Tanks originally came into existence to support the infantry in assault, by providing the infantry protection and firepower. Although lethal and well protected, the tanks themselves are extremely vulnerable on the battlefield while operating independently. These threats range from the missiles launched from aerial platforms to single infantryman carrying a handheld anti-tank weapon. Therefore, as the infantry was required to hold ground, it was beyond the capability of the tanks to provide them with protection against local threats. Over the years, modern tanks have become more specialised and heavier, mainly focused on destroying other tanks. This led to progressive increase in higher calibers of main guns and a concomitant reduction in amount of onboard ammunition. Hence, the primary requirement of providing firepower and protection to the infantry remained partially unaddressed. An armoured personnel carrier (APC) provides limited protection against small arms and

possesses some degree of firepower - it was also referred to as the “Battle Taxi”. In addition to these lightly protected variants, there are also heavily armed vehicles, commonly called the Infantry Combat Vehicle (ICV). The ICV is genuinely complimentary rather than merely supplementary aid to tanks as it can manoeuvre its firepower into areas that are inaccessible to heavy armoured fighting vehicles (AFVs). Being light and agile, with a robust power to weight ratio, an ICV can handle narrower passages, steeper gradients and negotiate terrains and bridges that are relatively difficult or not negotiable by tanks.

Indian Context

The need to mechanise our Infantry was first felt after the 1965 war. The first tentative steps were taken in 1969, when 1st MADRAS was equipped with APC TOPAZ and by the year 1970, ten of our finest infantry units were equipped with an array of APCs or Chariots, namely the BTR, SKOT and TOPAZ. The 1971 war saw some of these battalions take part in action on both fronts (Eastern and Western) as part of combat groupings with armoured units for the first time. The idea of grouping the existing Battalions together under one banner with a common identity was conceived by General KV Krishna Rao, PVSM in 1973, Chief of the Army Staff (COAS) and subsequently crystallised by Gen K Sundarji, PVSM, AVSM, the then COAS.

Although the broad concept and role of Mech Inf is clear, still there seem to be a lack of clarity on the employment philosophy. Such a state flows out from the dilemma i.e. whether ‘technology should be driving the employment philosophy’ or ‘employment philosophy should drive technology’. Due to conceptual employment and philosophy, Mech Inf today stands to lose out from two sides. On the one hand, Mech Inf lacks the enormously effective protective armour and dominating firepower of the modern main battle tank and on the other hand, as an exemplar of infantry’s toughness and skill, it pales in comparison to both— the Standard Infantry and Airborne Infantry, at least in popular perception among the rank and file. These cultural perceptions of Mech Inf are more akin to immature comparisons than professional assessments of capability. The stereotypes they embody, create perceptions that have unintended effects.[1]

When viewed through the full spectrum of conflict ranging from peace enforcement to high intensity conventional conflicts between two ’well-equipped’ modern armies, under the nuclear overhang, the Mech Inf provides a mix of capability that is unique and essential. It is one of the most flexible type of units on the battlefield, that combines the multi-purpose

ability of infantry with some elements of protection, mobility and firepower of armoured vehicles. It has the capacity to conduct dismounted fire and manoeuvre in mechanised operations. In fact, the ability to dismount close to the objective ensures rapidity in assault, enhanced protection and allows the dismount point to be closer to the objective. Presently, this ability of Mech Inf has been, somehow, extremely underrated. Specifically, the popular perception underestimates the capability of the Mech Inf to prosecute independent offensive operations. The main dilemma that exists is that, whether Mech Inf equipped with ICVs is a unique type of infantry which specialised in tasks that facilitate the forward movement of tanks or it specialised in infantry intensive tasks, particularly the defence or seizure of prepared defences and fortifications. Largely, this confusion arises from failure to distinguish the requirement of different types of infantry— be it Mechanised, Motorised, Standard or Airborne. It may be prudent to understand that, the difference mainly lies in means of transportation on the battlefield.

Combined arms format is far more effective on the battlefield as it puts the enemy in a dilemma. Forces that are overly specialized or confined to narrowly prescribed functions are not flexible tools for combined arms warfare. This understanding is important in an era where the Indian Army is attempting to make its heavy forces deployable and agile (IBGisation) to act in a quicker time frame. The very flexibility of Mech Inf does not make it fit well with the arms and service-oriented approach to doctrine. Characteristics of Mechanised Infantry that is both its sources of strength regarding battlefield utility and its sources of weakness in regard to institutional political advocacy.[2]

Historical Overview of Tactical Mechanised Operations

At the time of the German invasion of Poland in 1939, the allies especially Britain, were most heavily influenced by the writings of JFC Fuller and Basil Liddell Hart. These strategists propagated what came to be known as the “all-tank” school, whose central theme was the dominance of the tank in land warfare. Infantry’s role was clearly subordinate, required only to consolidate gains made by the action of armour.[3] The German Army represented the opposing view, imitating its armoured development along similar lines, because of extensive experimentation with mechanised forces by General Heinz Guderian— ‘father of the Panzerwaffe’. Their theory relied much more heavily on the action of all arms to achieve success.[4]

In certain theatres and operational environments, the tanks have certainly been the battle winning factor. However, given the nature of conflicts, to consider the tank as a decisive weapon in modern mechanised warfare may be naive and may not be supported by historical records. Most German Panzer Divisions during the Polish campaign consisted of four Panzer, three Motorised Infantry and two Artillery battalions.[5] As the war progressed, the Germans added even more motorised infantry to their Panzer divisions. This was done because numerous combat missions within mechanised operations required to undertake many infantry intensive tasks. The German were not able to achieve breakthroughs, contain enveloped enemy forces or capitalise fully on their capacity to break into the operational depth of the enemy without possessing a large density of Mech Inf formations. This came to fore during the German drive on Moscow (September 1941), wherein the German were able to surround but couldn't contain large masses of Russian forces, when 'Operation Typhoon' was underway.[6]

By 1943, the US had also transformed their mechanised forces into flexible formations comprising a balance of different arms and services. For the US Army, only two armoured division— the 2nd and 3rd remained organised as heavy divisions. These divisions contained six battalions of armour and three of armoured infantry. The remaining 12 armoured divisions possessed three armoured battalions and three armoured infantry battalions.[7] These six battalions fought under three brigade equivalent headquarters known as Combat Commands (CCs), (A, B & R); referred to as CCA, CCB, CCR, etc. General Adna Romanza Chaffee, first head of the US Army Armoured Force, had conceptualised the Combat Command structure as part of an armoured division as early as 1936. The Combat Commands had no fixed organisation and were meant to be headquarters only. They received task organised battalions and supporting elements such as armoured engineer, air defence, artillery etc. as well as other assets tailored to the specific mission.[8]

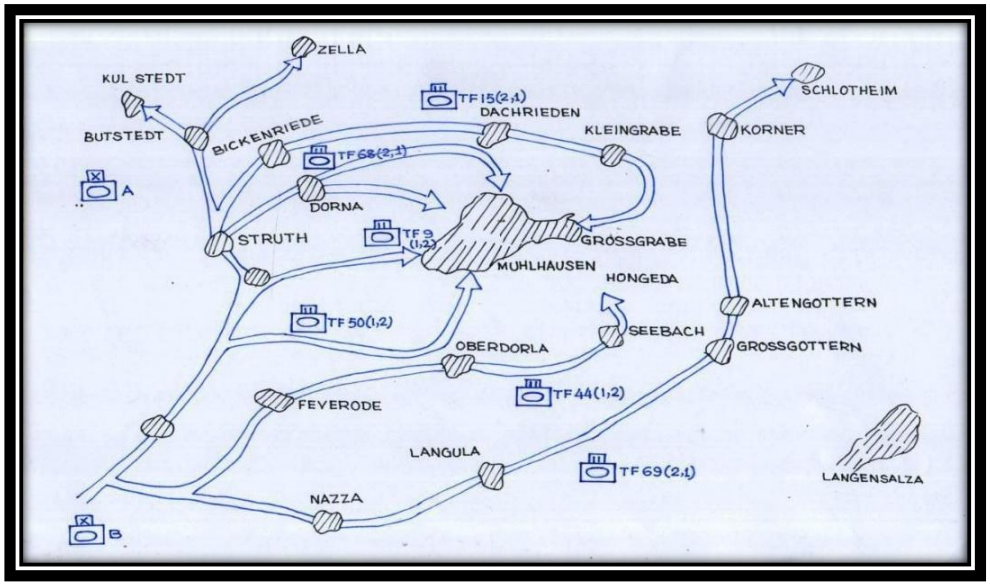
Isolation and Investment

In April 1945, during the drive into central Germany, US 6th Armoured Division was directed to seize the town of Muhlhausen. The Division rapidly attacked and seized the town; CCA and CCB were employed, consisting of three task forces each. The overall composition of the CCA was six tank companies and four armoured infantry companies. In the case of CCB, a mix of five tank and five armoured infantry companies resulted from its various cross attachments. In the execution of the attack on Muhlhausen, the bulk of the division manoeuvred as if to bypass the town but then turned to seal it off and block escape routes.

Once this was achieved, two of the armoured infantry' heavy task forces attacked to clear the town. These actions of an armoured division attacking built-up areas were significant.[9]

The Americans had expected to encounter much more coordinated defences. The captured German officers revealed that the rapidity of the encirclement and attack had disrupted their defence built-up. The blocking task forces seemed to have surprised the German soldiers who were withdrawing under the pressure of the attack of two armoured infantry heavy task forces. As a result, many of them surrendered. Each of the two task forces, assaulting the town, had one field artillery battalion assigned. As a result, four armoured infantry and two tank companies along with tank destroyers and engineers assaulted the town, closely supported by artillery. While a town clearing operation is obviously an infantry intensive task, the tanks of the assault force provided mobile protected firepower effectively to aid the armoured infantry action. Likewise, the various blocking positions were also mixes of tank and armoured infantry. Assuming that the Germans could have employed anti-tank guns against the tanks, their employment would have been vulnerable to tank fire, armoured infantry machine guns, mortars and close assault. The German dilemma was clearly aggravated only because of the combined employment of armour and armoured infantry both in the assault and blocking mission.[10]

Figure 1: Isolation & Investment of Muhlhausen on Night of 03 and 04 April 1945

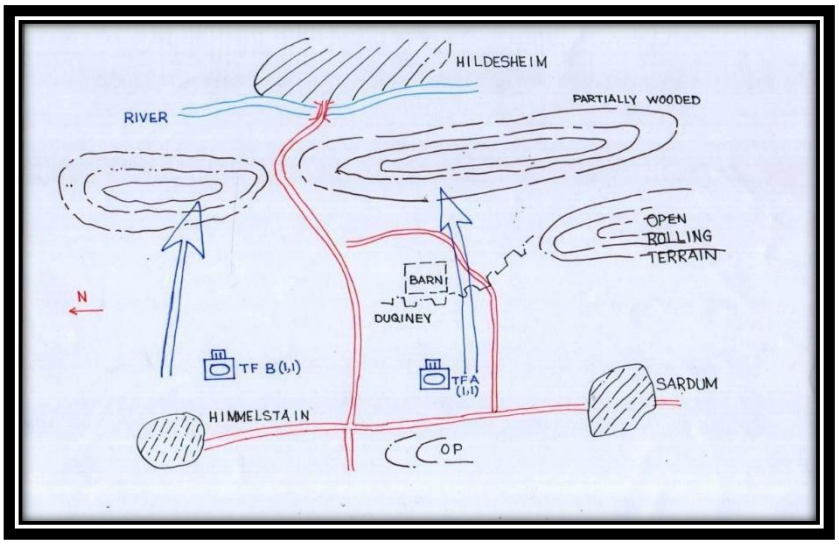


Source: Adapted from General Board, United States, Forces European Theater, Study No 48, November 1945, and annotated by Author

Line of March Attack

On 7 April 1945, CCR of 2nd Armoured Division attacked south of Hildesheim with two task forces. One task force attacked with tanks in the lead and armoured infantry on foot following about 200 yards behind. The second task force deployed rapidly to seize a ridgeline, which rendered the enemy position untenable while the first task force was assaulting. The armoured infantry of the second task force rode on tanks rather than walking on foot or riding forward on their half-tracks; the tanks halted short of the crest of the ridge while the infantry advanced up onto it.

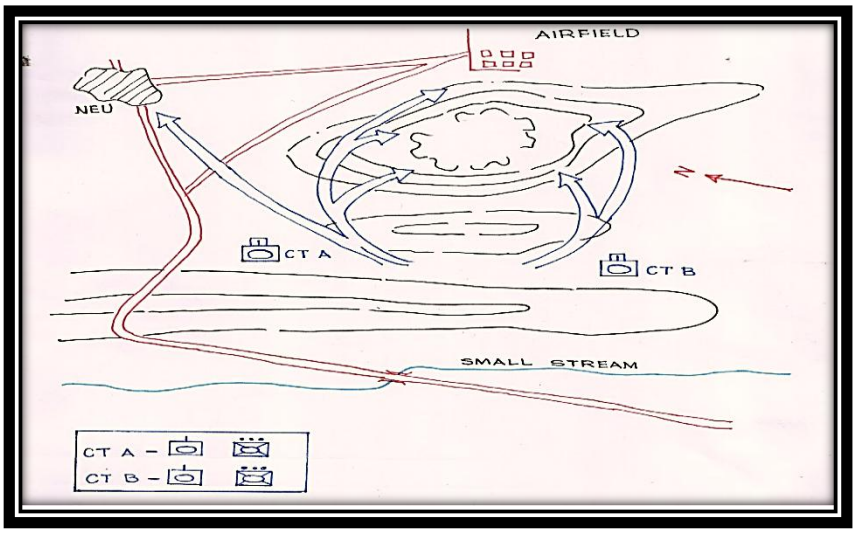
Figure 2: Loma on Hildesheim (07 April 1945)



Source: Adapted from General Board, United States, Forces European Theater, Study No 48, November 1945, and annotated by Author

Similarly, a task force of the 6th Armoured Division attacked a German position defended by thirty-three concrete emplaced 88 mm guns. A field artillery smoke, high explosive preparatory fire and subsequent fighter bomber attack suppressed the enemy positions while the task force approached. One medium tank company with a platoon of armoured infantry riding on it encircled the enemy on the left while a force of similar composition did the same on the right.[11] The use of this technique indicates the primacy of close tank-infantry cooperation required for prosecuting successful mechanised operations.

Figure 3: LOMA on Emplaced Guns

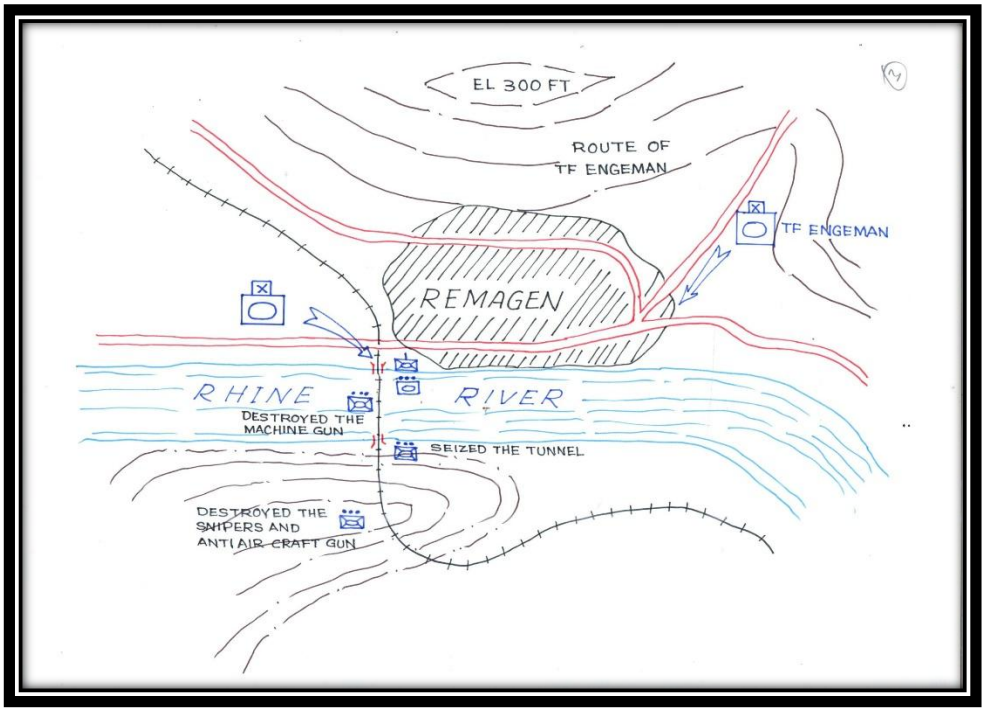


Source: Adapted from General Board, United States, Forces European Theater, Study No 48, November 1945, and annotated by Author

Encounter Crossing:Taking a Bridge Intact

As part of Tank Force, Engeman— a dismounted armoured infantry company and medium tank platoon working in close concert effected seizure of the Ludendorff bridge at Ramagen. The tank platoon provided covering fire from the home bank of the Rhine. The infantry assaulted across the bridge clearing out defending machineguns and continued the assault to the far bank, destroying snipers and anti- aircraft guns. Given the nature of this mission, it is difficult to see how a pure tank or pure armoured infantry force could have secured the bridge.[12]

Figure 4: Encounter Xg on 7 Mar 1945 by "Task Force Engeman"



Source: Adapted from General Board, United States, Forces European Theater, Study No 48, November 1945, and annotated by Author

Yom Kippur War (1973): Israeli Attack on Egyptian Bridgehead

During the Yom Kippur War, the Israeli operations on 6-8 October 1973 against the Egyptian bridgehead, epitomised the problems inherent in the Israeli armour centric employment of forces. Initially, the quick reaction armoured division present in Sinai, counter attacked the Egyptian bridgehead on 6 October. An almost completely tank pure formation, advanced headlong against an Egyptian defensive system that destroyed the Israeli armour through a combination of long and short range infantry anti-tank fires. On 7 October, a fresh armoured division, also lacking much of its organic infantry, attacked to cut off the Egyptian Army from its lines of communication and suffered the same fate as its predecessor. In all, by 8 October Israeli forces had failed to dislodge their opponents and had suffered losses of over 400 tanks in the process.[13]

Analysis and Lessons

The historical accounts show infantry fighting on foot within intimate proximity of tanks. The effect of tank firepower and shock action is complimented by the capacity of dismounted armoured infantry to engage areas the tanks are unable to engage. On analysis of the above discussed historical examples, the following lessons emerge:

- ***Dismounted Manoeuvre.*** Dismounted manoeuvre was recognised in World War II as Infantry's (mechanised) endearing contribution to the mechanised battle. Importance of dismounted manoeuvre does not diminish the value or the significance of lethality of the weapon systems and platforms the Mech Inf possesses. It is especially so with operations that sought to encircle enemy forces. The Mech Inf brings dismounted manoeuvre to the offensive and provides the decisive element that tanks alone could not completely execute when it comes to the destruction of enemy forces. Likewise, offensive dismounted manoeuvre achieved their full effectiveness in most terrains only when accompanied by tanks.
- ***Complimentary Employment.***The Mech Inf provides a complimentary effect to make tank shock action far more effective to make seizure of terrain more definitive. These effects could only be secured by Mech Inf employed in close coordination with tanks. Armour's ability to penetrate a defence rapidly and violently is only possible due to Mech Inf' capability of seizing and clearing terrain as well as closing with and ensuring destruction of the enemy.
- ***Grouping.*** Emphasis on an ideal force composition with a preference for more Mech Inf components vis-a-vis tanks emerged clearly. Wehrmacht General Hasso von Manteuffel desired two infantry regiments and one tank regiment to form the subordinate combat command of the armoured division.[14] Combat experience also showed that there was no weapon system that was singularly decisive around which the efforts of all other arms should be arranged.
- ***Fallacy of Weapon Centric Approach.*** The Israeli Army was clearly weapons oriented and basing its doctrine on the supremacy of the tank, it lacked in combined arms doctrine, training, and organisation.[15] In the Yom Kippur War, it ignored the benefits derived from the simultaneous application of complementary effects. Instead, a 'firepower based formula of sequential operations' forced it to suffer unnecessary losses at the hands of an army that was less trained. The Israeli Army rejected the concept of the combined arms team and termed it as "European tactic"

which was irrelevant to the open spaces of Sinai. Infantry was an adjunct to the tank and required only for mopping-up operation in the wake of the armoured advance.[16]

- ***Mechanisation.*** Armies that were incapable of fully mechanising all their arms recognised it as a glaring deficiency. This deficiency prevented them from exercising combined arms warfare at an effective tempo.
- ***Combined Arms.*** Complimentary combined arms seek to integrate wholly different systems or capabilities to complicate and multiply the types of threat that would arise while facing an opponent.[17] Thus, as an enemy counters one threat, he is simultaneously faced with another, presenting him with a dilemma. This dilemma forms the heart of the 'concept of mutual support'. Employed together, the various arms compensate for each other's weakness while simultaneously allowing all arms to maximise their own survival and effectiveness. Inherent to mutual support is an enabling concept— 'concept of simultaneity'. The dilemma is only present when the effects of complimentary systems are employed simultaneously in time and space. If arms or weapons are employed separately, or sequentially, the opposite of simultaneity occurs, thereby giving the enemy an opportunity to defeat them in detail.

These very aspects were the raison d'etre for the Mechanised Infantry coming into existence in the Indian Army with an aim to synergise the armoured and infantry against the enemy in a near simultaneous time frame.

Concept of Employment

Combat experience over the years confirmed Mechanised Infantry needed increased mobility to allow it to keep up with tanks until required to dismount and overhead protection from artillery for its vehicle troop compartments.[18] The concept of 'employment of Mechanised Infantry' is at variance with the "Battle Taxi" concept (the ICV carries the mechanised troops into battle and supports them through it as opposed to carrying them merely to a selected dismounting area). Mechansied Infantry fights mounted/dismounted as per the situation. The ICV acts as a holistic weapon platform to close in with the enemy by fire and manoeuvre in conjunction with armour or independently.

As long as the Mech Inf remains mounted, there is little controversy regarding its role. Essentially, it fires and manoeuvres alongside tanks until required to dismount. Post dismounting, it fires and manoeuvres alongside the ICV. The three Schools of thought which crystalised are as under :-

- ***Independent (Bundeswehr: German).*** Employing the ICV as an independent armoured vehicle weapon platform once the infantry has dismounted.
- ***Support (Soviet).*** In conjunction with tanks, the ICV provides close and direct fire support to its dismounted infantry.
- ***Conservation: (Pre-Bradley Fighting Vehicle [BFV] US Army).*** Once dismounted, the infantry fights supported by tanks. The APC/ICV is removed from action to assure its availability to re-embark the dismounts.

Each technique roughly corresponds to the degree of priority attached to dismounted infantry's role in the combined arms battle by the respective armies.

German Concept of Employment (Bundeswehr)

The Budeswehr identified the provision of greater infantry vehicular firepower to reinforce the tank during fluid, mounted combat.[19] The essential role of Panzergrenadiers was "characterised by the rapid alternation between mounted and dismounted combat". For the German Army what primarily distinguished Mech Inf from other type of units and organisations is the rapidity with which it can transition from mounted to dismounted combat and back again.[20] Capability of a quick change from mounted to dismounted action and vice versa is the most unique capability of the Mech Inf.

The Bundeswehr developed itself into a highly mechanised force.[21] It was the first NATO Army to develop an ICV (Marder), allowing true mounted combat for its Panzergrenadiers. Appreciated shallow operational depth and massed Soviet armour shifted German combined arms theory towards one of firepower over manoeuvre.

Soviet Concept of Employment

The advent of nuclear weapons provided both a conceptual framework and an institutional motivation to drive the design of the new vehicle for the Soviet Mech Inf. The Soviets wanted their Mech Inf to be able to fight and at the same time stay protected within a radiation resistant enclosure to place dismounts in the rear of an enemy's operational depth.[22] They readily envisioned using BMP equipped infantry to seize "centres of resistance" and

"strongpoints" in the depth of the enemy's defences.[23] The idea that Mech Inf should be confined largely to assist the forward momentum of tanks was not compatible with Soviet notions of Deep Battle, instead it was an inherent element of deep penetrating attack. The Soviet desire to outmanoeuvre NATO forces in an encounter battle also placed high priority on speed and drove them to mechanise all their infantry formations, making them capable of both creating and exploiting breakthrough in enemy defences.[24]

Seizure of ground within the operational depth of enemy is essentially a turning move. Although, being part of an offensive operation requires the creation of positional defences, the Soviet approach, however, was to accept risk in the design of protection as compared to speed. But they were faced with limited dismounted strength, compelled by space limitations of BMP-II. Hence, they increased the number of both infantry divisions in their force and Mech Inf battalions in both tank and motorised rifle divisions.[25]

American Concept of Employment

Tanks, for Americans, were the decisive element on the battlefield, and the armoured infantry's function was to assist the forward momentum of tanks and perhaps occasionally attack enemy positions that the tanks had addressed. The American concept relied on the centrality of weapon systems for doctrinal development. One of the most persistent criticism of the American concept is that it was 'typical' American firepower and attrition based rather than on manoeuvre based.[26] The defeat in Vietnam and the unexpected lethality of the modern battlefield evidenced in the 1973 Arab- Israeli War led to the re-emergence of the need for combined arms tank-infantry co-operation. While the Soviet added more Mech Inf to their formations as a consequence, the American added more weapons.

Sub Optimal Employment due to Dichotomy in Philosophy: Indian Context

The employment of Mech Inf in offensive operations comes down to the organisation and capability of the section (dismounts) as a major factor. The composition of Indian Army's Mechanised Infantry section was not requirement based but based on the design of BMP I&II. The 'seven-man section' is an outcome of not what is optimally required but what was possible based on the carrying capacity of the BMP I/ II. Largely, the Indian Army continued with the American concept wherein the tank was the prima dona and every other element was to support the tanks. But equipped itself with an ICV (BMP I/II) which was designed and built to undertake 'Deep Battle' as required in the Soviet concept of employment in a radiologically contaminated area. This is where the dichotomy lies. This thought process has

evolved over the years into a more combined arms approach to war fighting. But to truly achieve seamless combined arms based operations, the Indian Army will require to restructure mechanised formation with a much higher quantum of Mechansed Infantry and carry out the overall mechanisation of its forces.

The sub optimal employment of the Mech Inf in the Indian Army largely flows out of the rationale for organisation and equipping, as also the inadequate mechanisation of infantry along the Western Front. Such a situation has led to an extreme shortage of Mech Inf and hence infantry is still required for offensive operations adequately supported by tanks. Often, the inadequacy of Mech Inf forces commanders to conserve it for the projection area battle and not employ in the initial phase of break in operations. Along the Western front, the Indian Army plans deep thrusts led by armour (akin to Blitzkrieg) supported by Mech Inf and adequate infantry grouped to capture positional defences along the Axis of Advance. The employment of Mech Inf largely as a fixing force around which the armour manoeuvres, lead to an inadequate exploitation of Mech Inf sticks (dismounts) during the projection area battle.

Recommendations and Way Forward

The Indian Army's Mech Inf is capable of being employed in a variety of tasks in varied terrain including in high altitude areas (HAA). The Mech Inf needs to be optimally employed by adequately exploiting its unique capabilities in operations. The important aspect to be considered is the requirement to ensure optimum utilisation and allow it to also operate independently. Indian geomass encapsulates vast tracts of varied terrains, faced with challenges of terrain friction and maritime challenges. Various options recommended for optimal utilisation of Mech Inf are as follows:

Force Structuring

- ***Motorisation of Infantry.*** With better mobility being made available to the infantry, it gains the capability to keep pace with tanks. Exploiting the enhanced mobility of the infantry allows rapidity of operations. Based on the theatre of operations, Motorised Infantry would be truly complimentary to combined arms employment of armour and Mech Inf in the requisite time frame. Hence, motorisation of infantry nominated for offensive mechanised operations is a pre- requisite.

- ***Accretion of Mechanised Infantry.*** The envisaged dual task of fighting the Projection area battle while simultaneously clearing the inter objectives to open the axis of advance at the earliest merits greater availability of Mech Inf. Armies, the world over, have increased the quantum of Mech Inf in the Armoured Divisions as brought out earlier. Further, there is an enhanced requirement of Mech Inf along the Northern Borders. All these factors only reinforces the requirement of a larger quantum of Mech Inf.
- ***Induction of BMP-III.*** To enhance the operational capability of Mech Inf in the modern battlefield, BMP-II should be replaced with more superior BMP-III. BMP-III can, at a stretch, be grouped under the nomenclature of a light tank. With its 100 mm gun, ATGM and a co-axial 30 mm cannon, it packs considerably more firepower than a BMP-II and marginally less than a tank. It has better armour and NBC protection than the BMP-II whiles being only marginally heavier (18.7 tons against 14.4 tons). The presence of seven infantry soldiers moving in proximity, provides the requisite close protection and 100mm gun and 30 mm cannon are sufficient to destroy most targets. The BMP-III or its variants with near similar capabilities may be considered for induction in the Indian Army to bridge the gap between the ICV and the heavy tanks, thus filling a long-felt absence of an interim vehicle/ light tank.
- ***Amphibious Mechanised Brigade.*** Given the geo-strategic importance of the Indian Ocean, the Indo- Pacific region and China's aim to expand its activities into the Indian Ocean Region (IOR), the future battlespace would perhaps be in the maritime domain. In modern warfare, an amphibious landing is the most complex of all military manoeuvres. Mech Inf is best suited for this role as it is the 'only arm' which is equipped with an amphibious platform and conducts annual amphibious training. Hence, the amphibious force which is presently an infantry brigade needs to be built around the Mech Inf at its core. The brigade should be converted into an Amphibious Mechanised Brigade. Similarly, the Andaman and Nicobar Command should also be allotted sufficient amphibious capability in the form of an Independent Mechanised Infantry Company to begin with. Subsequently, it could be built to include a larger component.
- ***Airborne Mechanised Company.*** The airborne force of the Indian Army should be allotted with an Independent Mechanised Infantry Company to

provide it with adequate staying power in case of an out of area contingency or conventional airborne operation, wherein the airborne capability of the BMP-II can be exploited.

Operational

- ***Out of Area Contingency***
    - The Indian Army Doctrine states India's desire to cater for "Out of Area Contingencies". This capability requires a force to possess adequate strategic mobility. There is a need to have the air/naval assets to move an adequately strong force in the envisaged time frame capable of achieving its aim till such time the remainder force is built up. The sheer weight of the tank precludes it being available to such a force in the desired numbers. Therefore, the best option is Mech Inf with ICVs which brings with it a much higher quantum of mobility, protection and firepower compared to the infantry. However, it would require further enhancing the strategic lift capability.
    - Mech Inf is the most suitable platform for any Rapid Action Force that India plans to raise for conducting Out of Area Operations, most likely to be conducted in urban terrain. The Israel-Lebanon Conflict of 2006 reinforced the vulnerability of tanks in Low Intensity Conflicts. The high profile Merkava was targeted repeatedly by the Hamas insurgents leading to material damage and loss of morale. In these circumstances, it is imperative that tanks operate in conjunction with infantry. The inherent disadvantage of a tank operating in a built-up area is its lack of visibility and arc of fire— both vertically and horizontally— which can be overcome by infusing Mech Inf equipped with ICVs for effective domination of Built-Up Area. This is possible due to high angle firing capability of the ICV and the ability of the sticks to flight mounted as well as provide close support and local protection when dismounted.

- ***Counter Terrorist Operations.*** Mechanised Infantry is best suited for Fighting in Built Up Area (FIBUA) and hence employment in Urban Counter Insurgency and Counter Terrorist operations. It would give the troops the capability to close in with complete protection and adequate firepower to suppress the terrorists while on the move. Mechanised Infantry (Rashtriya Rifles) Battalion with its complement of ICVs (specially designed to be light in its weapon systems and on wheels for better mobility in urban terrain) should be raised and employed as a Corps reserve force. It should also be our endeavour to provide additional protection to our troops, achieve better effectiveness and minimise casualties to own troops while fighting against terrorists.The employment of this force should be done with due deliberation and in circumstances when terrorists pose a threat to own security forces and civilians.

- ***Exploit Reduced Force Ratios.*** Force ratio is a cumulative effect of four factors vis. adversary force, terrain, firepower, and technology. Increase/decrease in any of the four factors would entail a corresponding higher/lower force ratio to achieve success. Employment of mechanised forces automatically increases the firepower and technological quotient of an attacking force thereby reducing the required force ratios. Hence, operations by forces grouped with adequate Mech Inf would achieve success with much lower force ratios.

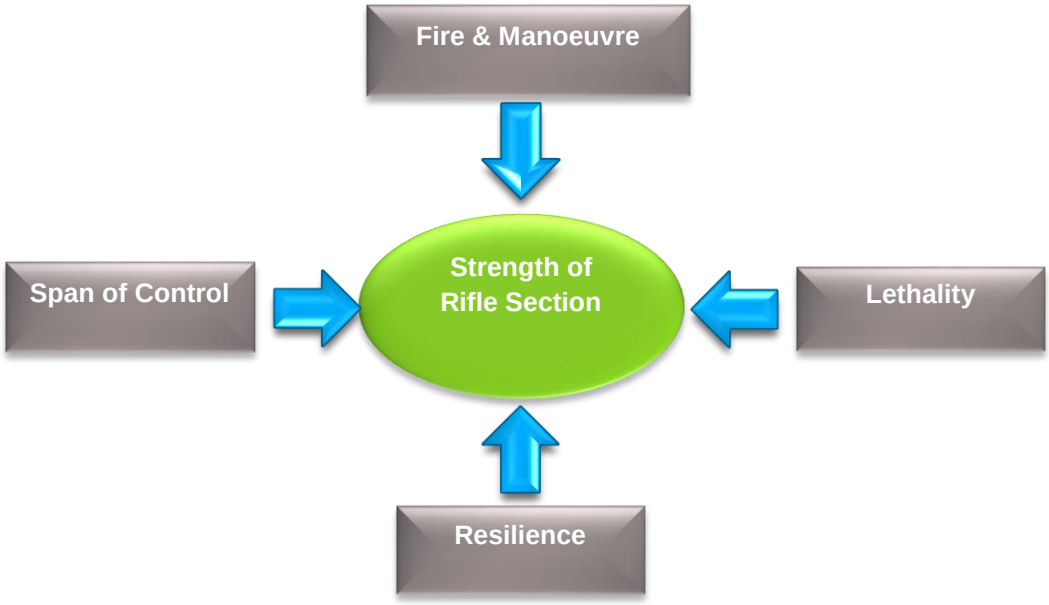
Chart 1: Force Ratio

Source: Annotated by Author

Organsational

- ***Changes in Mechanised Infantry Battalion***
  - ***Enhanced Capability of The Infantry Stick.*** Presently, there are seven infantry men who dismount from the BMP-II during dismounted attack. Sticks break-up in a 4:3 concept i.e. four individuals in assault and three in support to include a Rocket Launcher Detachment of two and one Light Machine Gun (LMG). Strength of a rifle section depends on four intertwined factors: -

Chart 2: Factors Effecting Strength of Rifle Section



  - ***Span of Control.*** This factor refers to the number of troops and extent the section commander is required to directly control in the performance of an assigned mission. With availability of radio communication down to the section level by way of the Digital Control Harness, a Section Commander is now capable of direct communication with the ICV. Hence, while dismounted, the Section Commander intimately controls the ICV which forms part of the support group.

- ***Fire and Manoeuvre.*** Infusion of technology (software based radio sets to provide real time information) to include better communication and situational awareness, allows seamless fire and manoeuvre of the dismounts and ICV.
- ***Resilience.*** It is the sections capacity to effectively conduct fire and manoeuvre even when the section suffers attrition. As the infantry section is relatively small to begin with, the maximum loss it can sustain while still being able to fire and manoeuvre is also comparatively small. Nevertheless, a mechanised infantry section can continue to conduct fire and manoeuvre with the ICV as one of the elements thereby having much higher resilience.
- ***Lethality.*** The lethality of a mechanised infantry section is very high as compared to an infantry section. It has the capability to effectively engage every type of target likely to present itself in the battlefield, be it a tank, attack helicopter, concrete bunker, open trench etc.

- All these factors together indicates the enhanced capability of a mechanised infantry section. With the ICV being employed as the fire support base for the section, the assault group should be increased to five persons with the LMG in the assault group and the ICV and RL detatchment forming a consolidated support group. This would lead to an assault group of five persons and support group of two and the ICV. Thereby, a Mech Inf section would achieve an assault group of five individuals akin to infantry although with much higher lethality, resilience, and control.

- ***Four Company Battalion.*** Currently, a Mechanised Infantry Battalion has three mechanised infantry companies. Every company is equipped with 14 ICV's, two CMT's and other support elements. A fourth company can be raised from within the battalion's resources. In such an arrangement, all companies would have 11 ICVs each. This can be achieved by equipping each platoon with three ICVs instead of four and

reassigning one ICV platoon and two WWR ICV into the fourth company. This would reduce the strength of the platoon from 36 to a proposed 30 (including officers and JCOs) and release 06 individuals per platoon. Further, pooling in of the first reinforcement would make up the strength for the fourth company. This option merits consideration.

Conclusion

Overall, the ICVs firepower is to provide suppressive fire to support infantry manoeuvre. Once the infantry dismounts, the firepower of the vehicle is critical to ensure progress of the assault. Dismounted infantry constitutes a potent threat to hostile forces because of its capacity to manoeuvre into places from which the enemy is not prepared to defend. The tank must not become bogged down to the pace of foot infantry, although, tanks separated from infantry have frequently met with tragedy. Mechanised Infantry seeks to resolve these issues by equipping itself with a combat vehicle that can keep pace with the tank. Although, the mechansied infantry invariably has a reduced section strength, the firepower and protection of the ICV assists in overcoming the reduced strength of the section.

What dismounted manoeuvre contributes to the mechanised battle as also additional firepower and protection of the ICV should be the focus of the Mechanised Infantry's capability. The notion that Mech Inf is a fixing force or a force that provides a pivot around which tank-heavy forces can manoeuvre, is a regression to over specialised roles. It is important to point out that, in stressing dismounted manoeuvre, firepower remains important, but diversity of weapon is more important. Mechanised Infantry's unique utility comes from its ability to conduct dismounted and mounted manoeuvre. This ability allows it to employ highly lethal missiles, rockets, demolitions, machine guns, and an assortment of weapons, as well as calling for fire as part of the combined arms team placing the enemy in a dilemma. Close assault with rifle, grenade and bayonet remains important functions of the Mech Inf.

Institutional construct and modes of expression that treat Mechanised Infantry as something less than "real" infantry must be replaced by better ways of articulating its role. Borrowing the German notion that the primary characteristic of Mechanised Infantry is the agility with which it transitions between mounted and dismounted action would be apt. The concept of 'agility' is a superior means of articulating the role of Mechanised Infantry.

End Notes

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