A Longue Durée Perspective on Military Science in India

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This article posits that military science has been one of the most neglected subjects in Indian history in practice and in scholarship. Greater, popular scholarly focus tends to be mostly on subjects dealing with grand strategy and with it, abstract armchair theorising. While grand strategy is necessary at the political–military level, it is not sufficient as victory or defeat also depends on the capacity of the armed forces to achieve the desired results during the conduct of war. In this article, military science pertains to matters excluding grand strategy, diplomacy and the sub-discipline of political science, international relations (IR). The article takes a long view or longue durée and attempts to unpack and deliberate on military science. It suggests that like natural, physical or social sciences, military science too needs to be accorded its proper place in the academic, service and policy discourse.

Introduction

'Military science' refers to matters excluding grand strategy, diplomacy and the sub-discipline of political science, international relations (IR), and has been a neglected subject in Indian history, both in practice and in scholarship. Issues of grand strategy, alliance and strategic thought have an important role to play in military success. Though the study and knowledge of these subjects is necessary, it is not sufficient in itself. To ensure success, the nuts and bolts of military craft or science have to be of a high order. In this article I take a long view or longue durée

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and attempt a theoretical history to unpack and deliberate on military science. Longue durée, or long term, is an approach to history writing pioneered by historians of the Annales school, such as Fernand Braudel. It focuses on events that occur over a long period of time as opposed to short-term, event-based history.

I first introduce the standard arguments on reasons for military defeats. Then, in the next section, I provide an overview of recent scholarship on military institutions in South India; on the Mughals by way of revisiting their incorrect and stereotypical characterisation of lacking military science; the baseless notion of a 'Panipat Syndrome'; the Sikhs under Ranjit Singh; a new stream of scholarship on the high standard of military technology in India; the East India Company and battle encounters of the colonial period; and the period ending with the Second World War and Partition of India. There is scope for much effort and devotion to be shown to this unexplored field of inquiry by Indian academia.

Scholarship Dealing with Some Common and Recurring Reasons for Military Defeats

The historian Jagadish Narayan Sarkar argues that:

> one marked military weakness of Hindu power was that early medieval India (11th–13th centuries) was practically stagnant in the use of offensive and defensive weapons, which continued to be used the same as used in the age of Vedas and the epics, early Smritis and the Guptas. In other words no new inventions were made; bows and arrows, spears, maces, battle axes, noose, discs, etc., continued as in the past.[1]

In exploration of invasions in medieval India, A.L. Basham notes that:

> If we examine all these conquests together it becomes clear that many frequently heard explanations of the failures of defenders of India to resist invasion are facile generalizations, based on too few instances. Indian Muslims were hardly more successful to defending themselves against invasion than Hindus.[2]

Basham also does not agree with blaming 'the caste system for the Hindu debacle…[as] Hindu armies never consisted only of kshatriyas, and all classes, including brahmans, could take part in war.'[3] The one common factor which Basham discovers in all invasions was:

> The Indian armies were less mobile and more cumbrous, archaic in their equipment, and outmoded in their strategy, when compared with those of the attackers. The invaders generally had better horses and better-trained cavalry. They were not burdened by enormous bodies of camp-followers and supernumeraries, nor did they make use of the fighting elephant, the courage of which in face of the enemy was unpredictable, but which Indian commanders, whether Hindu or Muslim, seem to have found fatally fascinating. Often, the invader had new weapons which added greatly to their effectiveness. The Aryans had the horse-drawn chariot, the Achaemenians siege engines, Alexander *ballistae*. The Central Asian nomads were equipped with small composite bows, carried by mounted archers, who could hit their mark while they were in full gallop. Babur made effective use of a small park of field guns. In fact one of the main reasons for the repeated ineptitude of Indian armies in defence of national frontiers of India was their outdated and ineffective military technique.[4]

B.M. Udgaonkar agrees with the logic as is given in Romila Thapar's *A History of India*. Thapar's argument is that Indians kept on importing horses from West and Central Asia but never took to the indigenous breeding of horses and training of the veterinarians.[5] But this argument on breeding does not tally with the new research of Jos Gommans, the historian of Leiden University in the Netherlands. Gommans' argument is that ecological conditions for horse breeding were far from ideal, and it was only in the 'Arid Zone, stretching from Sind, the Punjab, and Rajashtan into the dry shadow-zone of the Western Ghats into the Deccan could warhorses be produced.' Absence of suitable and extensive pastures with the right nutrients was also another factor and 'it was considered necessary to import strong foreign stallions to keep up the quality of indigenous breed'.[6]

On the critical role of warhorses, there is another relevant explanation related to south India. Robert P. Brubaker, from the American Institute of Indian Studies, poses a question:

> [S]outh Indian rulers were already very familiar with the military value and political control over access to animals such as horses and elephants long before the devastating raids of the Delhi sultans. By the time the Portuguese under Vasco da Gama arrived on the coast of India in 1498, the horse trade—control of which they subsequently wrested from Arab merchants—was already, at least 1,000 years old. Given, once again, that the issue was thus not simply one of

> equestrian sultanate armies defeating their pedestrian south Indian counterparts, what explanation may be proposed to account for the startling military success of the Delhi sultans *vis-à-vis* the regional kingdoms of the peninsula?[7]

Brubaker finds the 'surprise factor' as one of the main factors for the victory of the invaders. He then tries to match two separate narratives by historians to arrive at other factors. One group attributes success of Delhi sultans against north and south Indian opponents 'to the use of light cavalry armed with bows' and 'possession of the nawak or crossbow, a weapon with superb penetrating capabilities seemingly not in common use among their Indian opponents.' The other narrative by a group of historians in Brubaker's analysis is that it was because 'armoured heavy cavalry well suited for shock combat at close quarters likely formed the core of sultanate armies.' A factor of numerical disadvantage was the 'tributes extracted from defeated south Indian rulers simultaneously strengthened the military capabilities of the sultans while degrading the ability of the defeated rulers to pursue future resistance.'[8]

Looking Inward?

Another explanation for military science lagging behind other civilisations is that Indians, in general, never ventured out to study other cultures and societies. This led to Indians becoming inward-looking, as noticed even by Al Beruni. Barring proselytising missions by Buddhist monks and scholars, Indians were rather comfortable in the rich ecological and cultural environment of the Indian sub-continent. Yet another reason for this phenomenon may have been the caste restrictions and strictures on sea travel, which are indeed a puzzle. Sanjeev Sanyal wonders: 'I have not been able to find a good explanation for why they imposed on themselves caste rules that prohibited the crossing of the seas.'[9]

One clue for this is provided by B.G. Gokhale:

> The mercantile classes and labouring masses both supported Buddhism and Jainism very enthusiastically and it is significant to note here that *Dharmashastras* which came to be compiled *in their present form* certainly after the reign of Asoka (273–232 BC) forbade sea voyages which implied a curb on overseas trade, one of the means of acquiring wealth…On the other hand there was an increasing tendency for Kshattriya and Brahmana classes to amass wealth (emphasis in original).[10]

Udgaonkar gives the eighth century as the date when foreign travel was banned and Vivekanand in one discussion attributes the ban to a desire to prevent the Hindus from mixing with the surrounding Buddhistic nations. He states: 'The one great cause of the downfall degeneration of India was the building of a wall of custom—whose foundation was hatred for others—round the nation and the real aim of which in ancient times was to prevent the Hindus from coming into contact with surrounding Buddhistic nations.'[11]

The Contrarian View and New Research

Military Institutions in South India

The Brahmanical stricture to avoid sea travel, however, contrasts with the rich maritime tradition of the Cholas of south India and with the nautical matters given in detail in Kautilya's *Arthashastra* (The Controller of Shipping, Book 1, Section 45). Loss of caste and ills of undertaking sea voyage (*kala pani*, or black waters) have a long cultural and literary history and yet remain understudied and poorly analysed. A phenomenon of only the cow belt of the Gangetic plains or Madhyadesh cannot be assumed to be a purely all-Indian phenomenon. But the impact of this phenomenon on military science is quite evident. For example, during the colonial period, there have been cases of mutinies when high-caste troops hailing from north India (mostly of the Bengal Army) had to embark for overseas operations by sea. Such caste taboos undoubtedly impact on military effectiveness.

From the account of historians, it can be said that although in north India military institutes were destroyed by foreign invasion, in the south they survived for quite some time. In S.N. Prasad's account, it is stated:

> due to Kushan invasion of north India (48 AD), the persecution of Brahmins (who were also instructors in academic and military matters) was so thorough that military thinking, theorizing and academics practically disappeared from north India. However, in the south, academies to provide holistic education continued well into the Chola period in institutions called *ghatikas* in the Pallava region and *Salais* in Kerala. But after the Chola period these institutions went missing.[12]

According to J. Sundaram, the Pallavas set up *ghatika* to impart Vedic and military training to officers.[13] Further, based on available inscriptions, it was clear that:

> the *ghatika* might have been the model for the setting up of the *salai* as described in the inscription in Kerala. This *salai* was set up as an institution to house *vedic* scholars, who were also trained in the affairs of the government in three *rajyas* (*trai–rajya–vyavhahara*—apparently of the kingdoms of Chera, Chola and Pandya). This training included military training…The institution of *ghatika* seems to have continued into Chola period also, with the name Tamililized to *Kadigai*.[14]

Interestingly, there is no evidence of training institutions of the soldiers or the 'rank and file'. One reason for the fading away of these institutions may be that military science was not given due attention.

The Mughal Period: Revisiting a Stereotypical Characterisation

Scholars argue that it is not only Hindu but even Muslim rulers who were inward-looking. Udgaonkar gives the examples of Pervez Hoodbhoy's observation: '[F]ollowing the end of the Golden Age of Islam around 13th century, Muslim education simply ceased to change.' Akbar, too, never thought of setting up universities to institutionalise education and worst, showed no interest in printing.[15] In military science, the neglect of maritime matters in that era is a blind spot of the land-centric Mughal mindset; this has become a cliché, which the navy rightly quotes today to make a point (or take a dig at the lack of nautical awareness of those in the land-locked capital of Delhi). Further, as highlighted by Panikkar, 'Infantry under the Moghuls was not trained, or organized, or equipped as a serious arm of warfare. They were not organized in regiments or trained to fight in formation.'[16]

However, we need to revisit what Pannikar and Hoodbhoy have argued, tending to an indifferent over-simplication of the Mughal era. Fresh perspectives on a subject can only emerge if research is done. In actual fact, no such research has come to notice by Indian historians of free India, at least in the twenty-first century. Andrew Garza's recent research on the Mughal period delves into greater details of the military aspects. Garza explains that even Jos Gommans' *Mughal Warfare* (2002) and Dirk H.A. Kolff's *Naukar, Rajput and Sepoy: The Ethnohistory of the Military Labour Market in Hindustan, 1450–1850* (1990) 'focus primarily on the context of warfare—economic, politics, and culture—rather that its actual execution.'[17] Garza's scholarship on early empires from 1500 to 1605 challenges the portrayal of the Mughal Army by a British scholar 'as a pathetic, ragtag collection of "mercenaries ready

to desert or sell itself to the highest bidder…[its] infantry a rabble of half-armed scarecrows of no account…[its] cavalry fearful of sacrificing their horses…[and all] dispersing at once on the death or flight of their leader".'[18] Garza's dissertation talks about:

> the transformation of warfare in South Asia during the foundation and consolidation of the Mughal Empire and the practical specifics of how the Imperial army waged war and prepared for war—technology, tactics, operations, training and logistics. These are topics poorly covered in the existing Mughal historiography, which primarily addresses military affairs through their background and context—cultural, political and economic…events in India during this period in many ways paralleled the early stages of the ongoing 'Military Revolution' in early modern Europe. The Mughals effectively combined the martial implements and practices of Europe, Central Asia and India into a model that was well suited for the unique demands and challenges of their setting.[19]

Garza also explains the reason of their downfall after the consolidation of the empire, 'this security and absence of competition led to a culture of conservatism. New inventions were not embraced eagerly.'[20]

In short, recent military historians such as Andrew Garza and Jos Gommans have added considerably to the debate. They have challenged the argument of 'military revolution', of which the majoritarian view is that it only occurred in Western Europe during the period after 1560. This is a serious and debatable topic by itself and cannot be covered in this article, but suffice to say—and especially when seen in the light of high standards of technology in pre-colonial India—not acknowledging the Indian contribution only goes to show how understudied is Indian indigenous historical knowledge. However, it also must be accepted that the Industrial Revolution and its military science aspects in Europe were ahead of what was in colonial India, especially from the nineteenth century onwards post the Industrial Revolution.

Revisiting Indian Defeat and 'Panipat' Syndromes

S.N. Prasad, in a section titled, 'The Indian Defeat Syndrome'[21] lists material and non-material reasons for the poor state of military science, which reads like an encyclopedia of ills, negligence and casual approach to military science:

1. *Material:* superior weapons and employment by the invader, dislike of drill by Indian warriors, overburdened logistical tail.

2. Non-material: no national feeling, lack of intellectual involvement in military matters, no contribution by scientists, no military academies, individualistic attitude, a culture of antithesis to war, and invaders fought to win, Hindus fought to gain glory.

Many of Prasad's non-material postulates (except the lack of contribution by a scientific approach to military science and lack of training) are general and may be 'defeatist opinions' of exasperation by the official historian of the Indian armed forces for his entire life. But these are only opinions, on which there can be many view and debates. However, he seems to be in agreement with most other historians on the material factors.

The Self-defeating 'Panipat Syndrome'

Nevertheless, by stereotyping and inventing catch phrases, such as the 'Panipat Syndrome', an incorrect picture may emerge which is devoid of the fundamentals of the craft of military science.[22] The term 'Panipat Syndrome' may be inappropriate and insufficient to capture this lack of military science in ancient and medieval history. It is an oversimplification of history on a wrong premise. It conveys being defensive and is mostly a devise used for self-flagellation. It is clearly a device for re-presenting the problem of a 'wake-up call' but then fizzles out as this is not proved by empirical research. The empirical fact of history is that Panipat was the location of three battles that occurred at different times, under different circumstances in the approaches and flat plains of the Indo- Gangetic plain. The first author to have referred to this phenomenon was K.M. Panikkar. Scholars who like to use this phrase do not attribute it to Panikkar, probably due to ignorance. Panikkar wrote in the context of colonial conception of defence of India by the British: 'Any threat to India's borders from anywhere, Britain planned to meet halfway, unlike rulers of Delhi who fought their major battles at Panipat far in the interior of India.'[23] Thus, caricatures and stereotypes such as the 'Panipat Syndrome' are a great disservice to scholarship. The most difficult and challenging part is to study the execution rather than just the contexts. The only way to do away with such caricatures is to work based on facts and not opinions. As we know, opinions are for free, but facts are sacred.[24]

A Critique of Panikkar and Prasad

Accepting that one is lacking in military science and a military revolution to be studied and adopted is no crime; or, in other words, if one is lacking

in military science, then it is important to accept that a military revolution must be studied and adopted.

> The armies that Haidar Ali built up with the assistance of the French, the Nizam under command of Raymond, Mahadaji Scindia under de Boigne and Perron and, above all, Ranjit Singh under Avitabile, show how widely the consequences of this revolution was recognized and was sough and adopted.[25]

It is time now to critically review Prasad and Panikkar's research as many nuances were not included, or ignored or did not crop as research questions. There is new research on this aspect now. But it is Western and not Indian historians who have contributed to this new knowledge. In the case of Marathas, the defeat in the Third Battle of Panipat was not the end. The East India Company (EIC) launched a massive all-Indian campaign to subdue the Maratha Confederacy. The Deccan and the Hindustani campaigns undertaken by all the three presidency armies of Madras, Bombay and Bengal, composed of European and native troops, faced a tough opponent. The work of Randolf G.S. Cooper, from the University of Cambridge, on the 1803 Anglo-Maratha campaigns is enough evidence to shatter this 'ethnocentric assumption about British superiority in discipline, drill and technology…victory in 1803 hinged as much on finance, politics and intelligence as it did on battlefield manoeuvre and war itself. '[26] There is a bias and this has been also reflected by Garza who cites Cooper to show that 'Randolf Cooper, in his groundbreaking history of these Anglo-Maratha conflicts, notes: "Western historians are uncomfortable with the idea of South Asian leadership in military science, but that is what Maratha doctrine represented."'[27]

But surely Western tactics, procedures and drills, or 'military science', had their impact on the Sikhs, as we notice in the story of the Lahore durbar of Ranjit Singh.

Sikhs

The Sikhs are a good example of at least acknowledging their military limitations in order to improve. Fauja Singh Bajwa equates the realist principles of diplomacy which Ranjit Singh followed in consolidation of his empire to be 'on the Kautilyan tradition tempered with conciliation and liberality…He was machiavellian in outlook, a true representative in the Indian military thought.'[28] It must be appreciated that the Sikhs under Ranjit Singh, in the early half of the nineteenth century,

had realised the need for improved European methods in waging war. Ranjit Singh realised that the armies of India were far removed from modern military science which was known and practised in Europe. He was highly impressed with the European methods and the need to have infantry drilled for command and control in order to discharge effective fire. To achieve this, he not only hired the services of deserters from the EIC Army as drill sergeants, but even had some Punjabis enrolled in the EIC Army to get trained there. He also hired French military officers for moulding an effective military, which deterred any further advance of the EIC beyond the Cis-Sutlej region.[29] Initially, the Sikhs, who were used to horses in cavalry mode, were reluctant to take on the rigours of drill training for an effective infantry. They called it *ruqs-i-luluan* (the fool's ballet).[30] Ranjit Singh 'ignored their witticisms and raised infantry battalions of Punjabi Mussalmans, Hindustani deserters, and Gurkhas.'[31] After his demise, Punjab was conquered by EIC in the two Sikh wars which ended in 1849.

From the military science point of view, one factor attributed by author Gurbir Mansingh that led to defeat was intellectual reason, that is, the lack of military science as compared to the Europeans.[32] Yet another reason may have been the absence of an institution of succession in the leadership, and more so in the military. This problem of succession has been explained by Khushwant Singh where he compares Ranjit Singh to a massive banyan tree under whose shelter only weeds could thrive; thus, Ranjit Singh did not nurture any talent.[33] It shows that leaders have to build institutions, more so in military science-related areas. Unfortunately, no Sikh archival records are available today for further research. According to Amarinder Singh, the third volume of the chronicle *Umdat-ut-Tawarikh*, written by Sohan Lal Suri, the vakil of the camp of Lahore of that period, cannot to be found.[34]

New Scholarship on Superior Military Technology in India

Regarding superior Indian military technology, Zaheer Baber gives finer details of the world-class quality of Indian steel ('Wootz') and metallurgy, from which Damascus swords were made and canons manufactured in the fifteenth century (as noted by the historian Irfan Habib), as well as rockets as early as 1398 by the Marathas, and later by armies of Haidar Ali and Tipu Sultan. Much of the technology of the British 'Congreve rockets' was based on Tipu's rockets captured by the British.[35] Udgaonkar also gives the example of rockets by referring to the

work of Roddam Narasimha, 'Rockets in Mysore and Britain, 1750–1850', NAL Report DU-8503, May 1985: '[T]he Mysore rockets of this period (1799) were much more advanced than what the British had seen or known.'[36] The British carried out vigorous research and development in a base already established in their home country, which enabled them to study, absorb and improve upon the original. They then successfully carried out experiments to improve the design of the rocket and its tactical employment.[37] Cooper's account of the 1803 Anglo-Maratha wars, in which the superiority of Maratha artillery was acknowledged by the British, should put to rest the myth of superior British artillery.[38] Further, unlike the idea of a non-campaigning season during the south-west monsoons given in Indian traditions, the Marathas had contingencies to fight in the rainy season as well. In the *Handbook of Maratha Statecraft* of 1715–16, also known as the *Ajnapatra*, issued under Chhatrapati Shahu, in relation to artillery, 'the battle-ready weatherproofing of guns and maintenance of gunpowder stores during rains' has been mentioned.[39]

The most important breakthrough through scholarship has been to show that in the history of the past 300 years. As argued by Jayanta Kumar Ray and Shantanu Chakrabarti:

> Recent researchers have also pointed out that non-western civilizations made great contributions to science and technology, which we often borrowed by the West. Thus, the question of western superiority in science and technology is no longer regarded as historically valid. Rather, as Edward Said had pointed out in his seminal work *Orientalism* (1978), the notion of western superiority and the difference between the Orient and Occident, was rather a cultural construct, subjective in nature.[40]

Although Ray and Chakrabarti may have proved a point, this type of thinking exists in many domains like IR. For science in general, as echoed in the writing of Abdur Rahman, the Director of the Council of Scientific and Industrial Research (CSIR) in the 1980s, there is need, in the intellectual domain, to be aware and conscious of the myth of science being a purely European phenomenon, which was propagated by the West to inculcate a sense of inferiority in the colonies in their endeavour to create client economies.[41]

EIC and the Colonial Period: Reason Beyond Just Political Intrigue

Blaming just the Western hegemony and a conspiracy theory is not correct. Indians love to quote the four ancient Indian *upaya*s or strategies

of *sama*, *dana*, *bheda* and *danda* as the reason for any foreign military victory or Indian defeat. This recourse to 'divide and rule' is a lazy shortcut as it deflects the focus from hard-core issues of military science. In an analysis of the period from the Battle of Plassey in 1757 to 1857, R.C. Butalia notes that historians have:

> …failed to comprehend that the British wrested control purely by military means. Politics and intrigue may have played their role as always happens, but the final issues as to who was to rule was always decided in the field of battle by a clash of arms. In fact, the history of India has largely been influenced by the military factor. Even the recent events since our independence in 1947 (our military action in Jammu and Kashmir, Junagadh, Hyderabad, Goa, NEFA, and wars of 1965 and 1971) would confirm this.[42]

What Butalia is arguing is that it can be dangerous to just place the blame on the application of the four *upaya*s, which are also key elements of grand strategy, and sit content with this analysis ignoring issues of military means. With this type of thinking, the real military issues get ignored, distorted or even lost. As noted earlier, studying the execution is almost ignored and the context gets academic priority.

We need to give the devil its due. The initial foothold and military victories were mostly accomplished by European units made possible by sea power, and later by training and employing native troops.[43] The military labour market was always in full supply and, for job security, the same natives could be found on both the warring sides. Although calling the military labour market mercenaries may be politically incorrect today, job (*naukari*)[44] was one of the main reasons. As Saul David explains:

> Kolff's thesis—in his book *Naukar, Rajput and Sepoy: The Ethnohistory of the Military Labour Market in Hindustan, 1450–1850* (1990)—was that the Company sepoys were simply the latest in a long line of professional soldiers from eastern Hindustan (hence *Purbiyas* or 'easterners') available to the highest bidder.[45]

Gilles Chuyen locates the narrow social base for recruitment in the army of EIC to say, 'After the 1760s, groups of soldiers who had served in Muslim armies since the fifteenth century, mainly Rajputs and Brahims from Bihar and Awadh (the area to the north of Benares in what is now eastern Uttar Pradesh), were enrolled in the Bengal Army.'[46] Jos Gommans' study of the Mughal period on groups such as Turanis, Iranis, Afghans, Rajputs and Marathas indicates the intermixed troop composition with a

great deal of political coalitions of the moment: 'Rajputs serving Afghans and Muslims serving Hindus…etc'.[47] Gommans shows how each group had some associated reputation:

> Turanis were generally seen, but by the Iranis in particular, as somewhat uncultured, rustic men of the sword and experts in military tasks such as making charges, raids, night attacks and arrests…the emperor (Aurangzeb) preferred Turani discipline to Rajput bravery. In contrast to the disciplined Turanis, Iranis were considered as more civilized men of the pen, to be used as excellent administrators and accountants, also being far more 'cunning' and 'ease-loving' than the Turanis…the Afghans…had a somewhat ambivalent market reputation. On the one hand, they were known as rather uncivilised but ferocious fighters, on the other hand, they were notorious for their unfaithfulness and their proclivity to defect.[48]

The EIC, and later the British crown, did manage to rule India for nearly 200 years and expand the empire using native troops. Till 1857, the Bengal Army was composed of *purbaiyas* and after the rebellion, their services were no more required. However, those who were loyal to the EIC were enrolled in bulk as the 'martial races' to ensure (according to the British) loyalty to the crown for internal security, and also in the external dimension within two decades, to defend Indian north-west frontiers from the threat of a Russian invasion in the geopolitical 'Great Game' being played out between Britain and Tsarist Russia. Even south Indian troops from the Madras Army were drastically pruned, besides others. The martial race theory, as 'social Darwinism', however could not pass the test of the two world wars. More troops other than the martial races were enrolled, but till the Partition in 1947, the ratio continued to be skewed towards the regions from where they were enrolled.[49]

An unintended consequence of military power was the subjects themselves being members of the military in large numbers: at first, as soldiers, non-commissioned officers (NCOs) and junior commissioned officers (JCOs; the then viceroy commissioned officers); and later, as officers with Indianisation of the officer corps. As mentioned earlier, the test came in the twentieth century when the army, trained mostly for internal security or frontier irregular warfare in order to defend against a Russian push from the North-West, was exposed to the two world wars. It has been recognised that the contribution of the Indian Army in both the wars was fundamental to defeat of the enemies.

Contribution of Historians and Historiography

We have seen that Western scholars such as Randolf G.S. Cooper and Andrew de la Garza have carried out innovative and rigorous research on Indian military history as it relates to issues of military science. Dirk H.A. Kolff, Andre Wink and Jos Gommans are some others who have done, and continue to do, some good work on India in recent times. Gommans and Kolff notice that '[a]lthough there is an abundance of information on military events, there is hardly any insight into the most relevant details concerning, for example, weaponry, tactics, or logistics.' They further argue: 'After the guts and glory preoccupation of the British imperial school, the military history of South Asia has only rarely attracted the serious attention of scholars, both in South Asia and the West.'[50] Importantly, they call this new work as a 'Copernican Turn' where they challenge the Islam–Hindu dichotomy, which was the main hobby horse of most imperial British historians.[51]

Reverting the focus to India, some blame must be accepted by Indian historians of free India for a total neglect of military history and military science.[52] The prolific historian Kaushik Roy has repeatedly brought to notice the glaring absence of military history in the Indian academic discourse by those 'who are mostly swayed by the current of post-modernism'.[53] Roy writes, 'Despite the presence of numerous scattered studies, military history as a sub-discipline of academic history writing is yet to emerge in India.'[54]

Historian Chandar Sundaram from the University of Victoria, Canada, makes this point well in his forthcoming book:

> The bulk of modern Indic history writing, focusing on socio/economic/cultural factors, has largely tended to disdainfully ignore the military factor in colonial India, and the important position of the military in Anglo-Indian ideology. This is demonstrated by the fact that the multi-volume *New Cambridge History of India* series, while presenting much that is commendable and insightful, does not contain a volume on war and society. Indeed, there is bias on the part of Indianist social historians who continue to think, rather ignorantly, that anything to do with wars and armies is devoted exclusively to drums, trumpets and medals, and is inherently fascistic.[55]

Saul David's work is another new scholarship of the twenty-first century. He explains the military factors for the outbreak of mutiny in the Bengal Army in 1857, an exercise which had not been done satisfactorily

by military historians till then. David's work is impressive as he has not left out any previous work by historians from his scrutiny, which, as he laboriously points out, had ignored major issues of military science.[56] His book highlights issues of military science, such as, recruitment, professional grievances, problems in the European officer cadre and caste and religion.[57] David also goes on to show that 'since the turn of the twentieth century, and particularly since India gained its Independence in 1947, most Indian and British historians of the mutiny have tended to downgrade the importance of military factors.'[58] I would rate William Dalrymple's *The Last Mughal* (2006) as a refreshing way in narrating a story or the craft of history writing, including ignored military aspects by many historians.[59] Dalrymple also highlights the fact that most of the archival material lying mostly at the National Archives of India had not been accessed. Rather, on the academic fashion, he writes:

> For a time when ten thousand dissertations and whole shelf of *Subaltern Studies* have carefully and ingeniously theorised about orientalism and colonialism and the imagining of the Other (all invariably given titles with a present participle and a fashionable noun of obscure meaning—*Gendering the Colonial Paradigm*, *Constructing the Imagined Other*, *Othering the Imagined Construction*, and so on) not one PhD has ever been written from the Mutiny Papers, no major study has ever systematically explored its contents.[60]

Situation by the End of World War II and the Partition

The Indian Army came of age in the First World War, known as the Great War in theatres such as Europe, West Asia and Africa. The colonial martial race theory, as noted earlier, had to be abandoned and the army expanded to 1.4 million men drawn from all over India. Then came the World War II, just two decades after the previous war. At the end of World War II, the argument of Sir Penderel Moon on the Indian military is apt in describing the situation:

> A century later the concept of racial superiority, though employed by Hitler, had become outmoded, and in addition the undoubtable advantage that the British had enjoyed over Indians in scientific knowledge, technical skill and political organisation had greatly diminished as Indians from the Mutiny onwards steadily acquired the know-how that they previously lacked. One noteworthy, but not often mentioned, example of change was the ending of the

> superiority of British to Indian troops, which had been a factor in the Company's original conquest of India. By 1943 Indian Divisions, in the opinion of Field-Marshall Sir William Slim, were among the best in the world and divisional commanders on the Burma front called for Indian rather than British battalions.[61]

Daniel Marston, from the Australian National University, concludes in his book: 'Ultimately with only itself to rely upon, the Indian Army in the last days of the Raj was indeed a rock in an angry sea.'[62] Marston also notices that the research is yet to be done for a comparative analysis of the performance of the Indian divisions in North Africa and Italian campaigns during World War II.[63] Although there is a 25-volume *Official History of the Indian Armed Forces in the Second World War 1939–45*, published by the History Division, Ministry of Defence, Government of India, much more research needs to be done. Unfortunately, 'the National Archives don't even have a clear record of the war period. They don't even have a catalogue for the military department during the war.'[64] Surely, such comparative work of Indian military could have also been undertaken by Indian historians as, unlike World War I, the history of the Indian Army in World War II is well documented and all aspects are recorded. This phenomenon of the exploits of the Indian military being studied abroad, rather than in Indian, is a recurring weakness in our outlook towards defence science and its history as many lessons of military science remain under-researched and are not under indigenous academic scrutiny.

And what of the divided India in 1947? In another work on the same subject of the undivided Indian Army, Daniel Marston argues that:

> The defeat of Imperial Japanese Army, Nazi Germany and Fascist Italy, and the role played therein by the Indian soldiers and officers, instilled in the army and its men a new found sense of self-confidence that political leaders could not ignore and soon recognized as an advantage for the independent India and Pakistan to come.[65]

As an aside, India became a democracy, while for Pakistan, in the words of Tan Tai Yong:

> the alliance among three most powerful groups in Pakistan—the military, bureaucracy and landlords was an arrangement that had been worked out and perfected in the past, in colonial pre-Partition Punjab. The militarization of the state and society therefore constituted the dominant theme that linked the pre-independence history of Punjab to the post-independence history of Pakistan.[66]

In India, unlike in many other countries, in the absence of military science-related military history in curriculum, the civilian academics are at a disadvantage when we compare with other civilian scholarship on modern warfare, such as that of Williamson Murray, John Keegan, Theo Farrell, Azar Gat, Michael Howard, Lawrence Freedman, Hew Strachan and others. To fill this partial vacuum, in India the intellectual space including bookshelves in libraries has been occupied by works of mostly former military officers, of which only a few have high international academic standards.[67] The absence of civilian academics, such as in the United States, the United Kingdom, Europe or Australia, is sadly missed. This is not a heathy state for sustainability.

Suggestions

The fighting spirit and professional skills are the building blocks of military science; or we can say, the tactical level manifest in a regimental spirit. Military science is less of theory and more practical or outdoors. In the execution of military tasks, India has not lagged behind, as the last empirical evidence in world military history, displayed at Kargil by the Indian military in 1999, shows. But yet, as a subject of enquiry under military science, this aspect is the most neglected, under-analysed and understudied. It is bereft of public/academic audit in military science studies, except the limited and restricted regimental histories.

On tactical soundness, which is the bedrock of military science, we need to recall what Frederick the Great had discovered: 'operational brilliance is no substitute for tactical soundness.'[68] And as seen in the war against Hezbollah in Lebanon in 2006, one truth which indicates the need for a solid military science culture is:

> At the tactical level, in the past (like 1973 War of Yom Kippur), a high level of professionalism and motivation especially by the armoured corps had turned defeat into victory in spite of failures at political, strategic and operational levels. This time the IDF (Israeli Defence Forces) soldiers lacked high standards of training and for this reason could not save Israel from the mistakes at higher level.[69]

The underlying need for core competency, and thus military science, can be gathered from what a serving Indian naval officer has written on an aspect of military science: '[S]trategic punditry is no substitute for tactical aggressiveness and, hence the importance of professional skill sets.'[70]

To make military science relevant for contemporary times, the first thing is to create the intellectual climate and institutions. Both material and non-material subjects have a role to play. The tools and disciplines that need to be given priority are the study of military history with the help of archival material, study of weapons and equipment, and the study of emerging technologies. Human psychology, military labour, regimental system, cohesion in combat, training, motivation and education, and why soldiers fight are a few examples of non-material subjects.

Summing Up

I have shown above, using select episodes from history in a longue durée perspective, that the military aspects under the rubric 'military science' need to be the focus in analysing both defeat and victory, and then drawing the right lessons. This is not an easy task and requires painstaking building up of institutions and scholarship by both state sponsorship (for finance and access to archives) and academic urge in the citizenry with a 'scientific temper' to unearth and revisit indigenous historical knowledge—a project which needs to be followed vigorously with high standards of academic competence, freedom and rigour. Military science, like natural science, physical science or social science, needs to be accorded its proper place in the academic, service and policy discourse.

Notes

1. Jagadish Narayan Sarkar, *The Art of War in Medieval India*, New Delhi: Munshiram Manoharlal Publishers, 1984, p. 111.
2. A.L. Basham, 'Medieval Hindu India', in A.L. Basham (ed.), *A Cultural History of India*, New Delhi: Oxford University Press, 1975, p. 55.
3. Ibid.
4. Ibid., pp. 55–56. Basham lists other factors, such as, failure of her rulers to recognize the very existence of threat from the North-West and division between Hindu kings at the time of Turkish invasion. He argues that 'The three great empires of the Mauryas, the Guptas, and the Mughals were able to maintain their frontiers because they were united' (Ibid., p. 56). These factors are not being discussed here as the focus is on military science.
5. B.M. Udgaonkar, 'Why did Early India Science not Fulfill its Promise?', in Lalit K. Kothari and Ramesh K. Kothari (eds.), *Vision and Values: Science, Defence, Education, Ethics: Essays in Honour of Dr D.S. Kothari on His Birth Centenary*, New Delhi: Paragon International Publishers, 2006, pp. 83–84.

6. Jos Gommans, *Mughal Warfare*, London and New York: Routledge, 2002, pp. 111, 113.
7. Robert P. Brubaker, *Vijayanagara: Warfare and Archaeology of Defence*, New Delhi: Manohar/American Institute of India Studies, 2015, p. 5.
8. Ibid.
9. Sanjeev Sanyal, *Land of the Seven Rivers: A Brief History of India's Geography*, New Delhi: Penguin Books, 2013, p. 254.
10. B.G. Gokhale, *Indian Thought through the Ages: A Study of Some Dominant Concepts*, Bombay: Asia Publishing House, 1961, p. 56.
11. Udgaonkar, 'Why did Early India Science not Fulfill its Promise?', n. 5, p. 81. The work quoted by Udgaonkar is Swami Vivekananda, Collected Works, Vol IV (9th Edition, 1966), p. 365.
12. As quoted in P.K. Gautam, 'The Cholas: Some Enduring Issues of Statecraft, Military Matters and International Relations', *Journal of Defence Studies*, Vol. 7, No. 4, October–December 2013, p. 53. See S.N. Prasad, 'Introduction', in S.N. Prasad (ed.), *Historical Perspectives of Warfare in India: Some Morale and Material Determinants*, in P. Chattopadhyaya (general editor), *History of Science, Philosophy and Culture in Indian Civilization*, Vol. X, Part 3, New Delhi: Centre for Studies in Civilizations, 2002, pp. 1–42.
13. J. Sundaram, 'Chola and Other Armies: Organization', in S.N. Prasad (ed.), *Historical Perspectives of Warfare in India: Some Morale and Material Determinants*, in Chattopadhyaya (general editor), *History of Science, Philosophy and Culture in Indian Civilization*, n. 12, Section II, South India, Chapter 5, p. 196.
14. Ibid., pp. 196–97.
15. Udgaonkar, 'Why did Early India Science not Fulfill its Promise?', n. 5, pp. 85–86.
16. K.M. Pannikar, *Problems of Indian Defence*, Bombay: Asia Publishing House, 1960, p. 13.
17. Andrew de la Garza, 'The Mughal Battlefield: Personnel, Technology, and Tactics in the Early Empire, 1500–1605', *The Journal of Military History*, Vol. 78, No. 3, July 2014, note 2.
18. Ibid., p. 927. The scholar quoted is H.S. Jarret, 'Review of *The Army of the Indian Moghuls* by W. Irvine', *Journal of the Asiatic Society of Great Britain and Ireland*, Vol. 36, 1904, p. 344.
19. Andrew de la Garza, 'Mughals at War: Babur, Akbar and Indian Military Revolution, 1500–1605', Doctoral dissertation, The Ohio State University, 2010, abstract. I thank Dr Chandar Sundaram in sharing this dissertation with me in August 2016. The thesis has been since published as a book. The blurb says: 'The Mughal Empire was one of the great powers of the early

modern era, ruling almost all of South Asia, a conquest state, dominated by its military elite. Many historians have viewed the Mughal Empire as relatively backward, the Emperor the head of a traditional warband from Central Asia, with tribalism and the traditions of the Islamic world to the fore, and the Empire not remotely comparable to the forward looking Western European states of the period, with their strong innovative armies implementing the "military revolution". This book argues that, on the contrary, the military establishment built by the Emperor Babur and his successors was highly sophisticated, an effective combination of personnel, expertise, technology and tactics, drawing on precedents from Europe, the Middle East, Central Asia and India, and that the resulting combined arms system transformed the conduct of warfare in South Asia. The book traces the development of the Mughal Empire chronologically, examines weapons and technology, tactics and operations, organization, recruitment and training, and logistics and non-combat operations, and concludes by assessing the overall achievements of the Mughal Empire, comparing it to its Western counterparts, and analyzing the reasons for its decline.'

20. Ibid., pp. 294–95.
21. S.N. Prasad, 'V–The Indian Defeat Syndrome', in 'Introduction', n. 12, pp. 36–42.
22. 'The word "Panipat" has entered the Indian strategic lexicon as a failure to do anything until the enemy reached your doorstep'; see inner cover in Harjeet Singh, *Cannons versus Elephants: The Battles of Panipat*, New Delhi: Pentagon Press, 2011.
23. See Pannikar, *Problems of Indian Defence*, n. 16, p. 23.
24. 'Facts are sacred, opinion is free' is attributed to C.P. Scott, as quoted by C. Rangarajan, *Perspective on Indian Economy: A Collection of Essays*, New Delhi: UBS Publishers, 2000, p. 311.
25. Pannikar, *Problems of Indian Defence*, n. 16, p. 19.
26. Randolf G.S. Cooper, *The Anglo-Maratha Campaigns and the Contest for India: The Struggle for Control of the South Asian Military Economy*, New Delhi: Cambridge University Press, 2005, back cover and abstract before title page.
27. Garza, 'The Mughal Battlefield: Personnel, Technology, and Tactics in the Early Empire, 1500–1605', n. 17, p. 960.
28. Fauja Singh Bajwa, *Military System of the Sikhs during the Period 1799–1849*, Delhi: Motilal Banarsidass, 1964, pp. 298–99.
29. See Lieutenant General (Lt Gen) Gurbir Mansingh (Retd.), *French Military Influence in India,* New Delhi: USI of India, Knowledge World, 2006 and Khushwant Singh, *History of the Sikhs, Vol. 1: 1469–1839*, New Delhi: Oxford University Press, 1991, pp. 207–08.

30. Singh, *History of the Sikhs, Vol. 1: 1469–1839,* n. 29.
31. Ibid. In Nepali folklore and language, those Gurkhas (Gorhkas) who got enrolled at Lahore were called *Lahure* as those enrolled by EIC from Indo-Gangetic plains (mostly upper-caste Kshatriyas and Brahmins or '*purbaiyas*' of what is now east Uttar Pradesh and Bihar) at the town of Buxar in Bihar were called *Baksariya*.
32. Mansingh, *French Military Influence in India*, n. 29, pp. 93–94.
33. Khushwant Singh, *History of the Sikhs, Vol. II*: *1839–1988*, New Delhi: Oxford University Press, 1991, p. 3.
34. Amarinder Singh, *The Last Sunset: The Rise and Fall of the Lahore Durbar*, New Delhi: Roli Books, 2014, p. xvi.
35. Zaheer Baber, *The Science of Empire: Scientific Knowledge, Civilization, and Colonial Rule in India*, New Delhi: Oxford University Press, 1998, pp. 64, 66, 68.
36. Udgaonkar, 'Why did Early India Science not Fulfill its Promise?', n. 5, pp. 85–86.
37. Ibid.
38. Cooper, *The Anglo-Maratha Campaigns and the Contest for India*, n. 26, pp. 291–99.
39. Ibid., chapter 1, note 48, p. 353. None of the libraries in Delhi region which are a part of the DELNET for inter-library loan of books had the *Ajnapatra*. Andre Wink also refers to 'The Maratha political treatise', *Ajnapatra*, edited by N. Banhatti, Poona, 1974. See Andre Wink, 'Sovereignty and Universal Dominion in South Asia', in Jos L. Gommans and Dirk H.A. Kolff (eds), *Warfare and Weaponry in South Asia: 1000–1800*, New Delhi: Oxford University Press, 2001, p. 121.
40. Jayanta Kumar Ray and Shantanu Chakrabarti, 'Science and Technology in India', in D.P. Chattopadhyaya (general editor), *History of Science, Philosophy and Culture in Indian Civilization*, Vol. X, Part 6, Jayanta Kumar Ray (ed.), *Aspects of India's International Relations 1700 to 2000: South Asia and the World*, New Delhi: Centre for Studies in Civilizations/Pearson Longman, 2007, p. 314.
41. Abdur Rahman, *Intellectual Colonisation: Science and Technology in West–East Relations*, New Delhi: Vikas Publishing House, 1983.
42. R.C. Butalia, *The Evolution of Artillery (From the Battle of Plassey 1757 to the Revolt 1857)*, New Delhi: Allied Publishers, 1998, p. 329.
43. Channa Wickremesekera, *'Best Black Troops in the World': British Perceptions and the Making of the Sepoy 1746–1805*, New Delhi: Manohar Publishers, 2002. See appendix on mostly European composition of storming parties for the period 1764–1803.

44. We need to remind ourselves that '*Naukar* was originally a Mongolian word meaning retainer, comrade, a soldier in service of a Mongolian clan he did not belong to by birth, a free warrior…In India too there was pride in this calling.' See Dirk H.A. Kolff, *Naukar, Rajput and Sepoy: The Ethnohistory of the Military Labour Market in Hindustan, 1450–1850*, Cambridge: Cambridge University Press, 1990, p. 196.
45. Saul David, *The Bengal Army and the Outbreak of the Indian Mutiny*, New Delhi : Manohar, 2009, pp. 25–26.
46. Gilles Chuyen, *Who is a Brahmin?: The Politics of Identity in India*, New Delhi: French Research Institute in India/Manohar, 2004, p. 77.
47. Gommans, *Mughal Warfare*, n. 6, p. 69.
48. Ibid., pp. 70–71.
49. For the current status, see P.K. Gautam, *Composition and Regimental System of the Indian Army: Continuity and Change*, New Delhi: Institute for Defence Studies and Analysis (IDSA)/Shipra, 2008.
50. Jos L. Gommans and Dirk H.A. Kolff, 'Introduction', in Gommans and Kolff (eds), *Warfare and Weaponry in South Asia: 1000–1800*, n. 39, pp. 2–3.
51. Ibid., p. 10.
52. See P.K. Gautam, 'The Need for Renaissance of Military History and Modern War Studies in India', IDSA Occasional Paper No. 21, November 2011.
53. Kaushik Roy, *From Hydaspes to Kargil: A History of Warfare in India from 326 BC to AD 1999*, New Delhi: Manohar, 2004, p. 24.
54. Kaushik Roy, 'Introduction', in Kaushik Roy (ed.), *War and Society in Colonial India: 1807–1945*, New Delhi: Oxford University Press, 2006, p. 3.
55. Chandar S. Sundaram, *The Forgotten Debate: The Origins of the Indianization of the Indian Army's Officer Corps 1817–1917*, Permanent Black, forthcoming, and personal correspondence with the author. Sundaram's reading list is important as he suggests: 'For a good introduction to Indian military history in the colonial and modern periods, see: D.P. Marston and C.S. Sundaram, eds., *A Military History of India and South Asia.* A thorough historiographical survey is K. Roy, "Historiographical Survey of the Writings on Indian Military History", in S. Bhattacharya, ed., *Approaches to History.* Recent works include: Saul David, *The Bengal Army and the Outbreak of the Indian Mutiny*; and G.J. Bryant, *The Emergence of British Power in India, 1600–1784*. Accurate information about war and society aspects has also largely eluded undergraduate survey textbooks of Indian history, such as: Ishita Banerjee-Dubé, *A History of Modern India*. Indeed the only

undergraduate survey text to accord military factors their proper due is: Sekhar Bandyopadhyay, *From Plassey to Partition*.' For a 'war, armed forces, and society' approach of colonial India, see Roy (ed.), *War and Society in Colonial India: 1807–1945*, n. 54.

56. David, *The Bengal Army and the Outbreak of the Indian Mutiny*, n. 45. The author systematically gives the broad arguments and findings of previous work, such as pre-mutiny history of the Indian Army: Amiya Barat, *The Bengal Native Infantry: Its Organisation and Discipline, 1796–1852* (1962); Dirk Kolff, *Naukar, Rajput and Sepoy: The Ethnohistory of the Military Labour Market in Hindustan, 1450–1850* (1990); and Seema Alavi, *The Sepoys and the Company: Tradition and Transition in Northern India 1770–1830* (1995).
57. David, *The Bengal Army and the Outbreak of the Indian Mutiny*, n. 45.
58. Ibid, p.17. The sample of such work given by the author includes: V.D. Savarkar, *The Indian War of Independence of 1857* (1909); S.N. Sen, *Eighteen Fifty-Seven* (10 May 1957); R.C. Majumdar, *The Sepoy Mutiny and the Revolt of 1857* (1957); S.B. Chaudhuri, *Civil Rebellion in the Indian Mutinies 1857–1859* (1957); Thomas Metcalf, *The Aftermath of Revolt* (1964); Rudrangshu Mukherjee, *Awadh in Revolt 1857–1858* (1984); Eric Stokes (ed.), *The Peasant and the Raj* (1978) and *The Peasant Armed* (1986); and Tapti Roy, *The Politics of a Popular Uprising: Budelkhand in 1857* (1994).
59. William Dalrymple, *The Last Mughal: The Fall of a Dynasty, Delhi, 1857*, New Delhi: Viking/Penguin, 2006. Some interesting examples being Mirza Ghalib, the poet, the division within the rebel soldiers, the troop composition of those from the Punjab who suppressed the rebels being Punjabi Mussalmans, Sikhs and Pathans, and the almost forgotten term 'Tilangas' implying troops from Telangana who were recruited by the British during the Carnatic Wars of the eighteenth century—the name 'seems to have stuck as an appellation for British-trained troops, although the British had long since replaced Telingana with Avadh as their principal recruitment field…' (ibid., p. 17).
60. Ibid., pp. 13–14.
61. Sir Penderel Moon, *The British Conquest and Dominion of India, Part Two 1858–1947*, New Delhi: India Research Press, 1999 (originally published in 1989 in London by Gerald Duckworth & Co. Ltd), p. 1187.
62. Daniel Martson, *The Indian Army and the End of the Raj*, Delhi: Cambridge University Press, 2014, p. 351.
63. Ibid., pp. 46, 53, 59. The author mentions that Alan Jeffries is attempting to fill this gap.
64. Suhasini Haidar, 'Interview: Srinath Raghavan', *The Hindu*, 10 April 2016.

See Srinath Raghavan, *India's War: The Making of Modern South Asia 1939–1945*, Gurgaon: Allen Lane/Penguin, 2016.

65. Daniel Martson, 'The Indian Army: 1700s–1947', in Harsh V. Pant (ed.), *Handbook of Indian Defence Policy*, New Delhi: Routledge, 2016, p. 38.
66. Tan Tai Yong, *The Garrison State: The Military, Government and Society in Colonial Punjab, 1849–1947*, Lahore: Vangurad Books, 2005, p. 309.
67. On topics such as military history by former military officers (excluding biographies), I grade the work of D.K. Palit, V.R. Raghavan, S.L.S. Menzies, Srikanth Raghavan, R.T.S. Chhina, Ian Cordozo, S.P. Sinha, Brahma Prakash, R.D. Palsokar, Gautam Sharma, Sarbans Singh, Ashok Nath, Suresh K. Pillai and Aminder Singh to be of a good standard.
68. Richard Simpkin, *Race to the Swift: Thoughts on Twenty-first Century Warfare*, Delhi: Lancers Publishers in association with Brassey's Defence Publishers, 1985, p. 300.
69. Uri Bar-Joseph, 'The Hubris of Initial Victory: The IDF and the Second Lebanon War', in Clive Jones and Sergio Catignani (eds), *Israel and Hizbollah: An Asymmetric Conflict in Historical and Comparative Perspective*, London and New York: Routledge, 2010, p. 157; as quoted in P.K. Gautam, *Operational Lessons of the Wars of 21st Century*, IDSA Monograph Series No. 12, January 2013, p. 49.
70. Raghavendra Mishra, 'Revisiting the 1971 "USS Enterprise Incident"', *Journal of Defence Studies*, Vol. 9, No. 2, April–June 2015, p. 70.