

India's Security Perception : The Role of Indian Air Force.

Dissertation submitted to the Jawaharlal Nehru University
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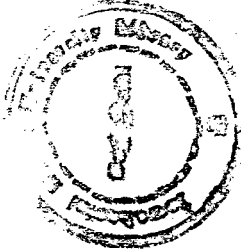


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CERTIFICATE

This is to certify that the dissertation entitled, "India's Security Perception: The Role of Indian Air Force" being submitted by Ms Kamla Bhatt in partial fulfilment of requirements for the award of the Degree of MASTER OF PHILOSOPHY in this University, is a record of the students' own work, carried out by her under my supervision and guidance.

It is hereby certified that this work has not been presented for the award of any other degree or diploma.

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PREFACE

PREFACE

This dissertation proposes a study on "India's Security Perception: The Role of Indian Air Force". The Indian Air Force (IAF) is today the fourth largest Air Force in the world. The Air Force by its flexibility and mobility has become the third dimension in the conduct of warfare. Although the IAF is an independent service, it still functions essentially in co-ordination with the army owing to the specificity of the terrain in the sub-continent.

The first chapter titled "Defence Policy of the British Raj(1858-1947) constitutes an exposition of the factors responsible for the evolution of air power in India. The IAF came into existence during the British Raj. It however continued to coexist as an adjunct of the army till it came to play its vital role in the second World War, during which it was considerably expanded. This pre-existing force was further developed under Independent India.

"Post-Independence Development of Air Power 1947-62" is the title of the second chapter. It attempts to trace the further evolution of the IAF. Taking as points of reference the first two wars fought after independence: The Kashmir operation Of 1947-48 and the India-China war of 1962. In both these wars the IAF played a peripheral role. Though in the Kashmir Operation it had to its credit the timely assistance of having airlifted troops. However its role in the India-China war of 1962 had been limited to mere transportation purposes. The chapter further seeks

to delve into the reasons behind the eschewment of the IAF in the 1962 operation.

In the third chapter "Expansion of the Air Power 1962-71" the focus has been on systematic effort undertaken by the government to build the IAF during the 1962-71 period culminating in the 1971 operation. The Government was forced to take stock of the condition of IAF following the 1962 debacle and the emergence of China as the major threat to the northern frontiers. Meanwhile the unresolved Kashmir Question led the 1965 war with Pakistan, where India was successful in foiling the Pakistani political objective. Nonetheless the role of the Air force had been almost as undecisive as the stalemate of this war. In 1971 however, the IAF not only played a vital role during the war but also accomplished total air superiority over East Pakistan.

After the 1971 war, the IAF paradoxically underwent a phase of stagnation. No new aircraft was inducted into the IAF until 1978. The fourth chapter deals with this initial period of inertia and factors responsible for the lack of revitalisation just after the 1971 war. It then examines the spurt of modernization and expansion of the IAF after 1978. The post-1978 period is characterized by the induction of new highly sophisticated aircraft in both fixed and rotor wing branches of the IAF. The Jaguar deal opened the flood-gates for acquisition of new aircraft (Mirage 2000, MiG-23, MiG-25, Mig-27 and MiG-29) into the IAF, following the period of lull that had preceded it. One could almost go on to say that today the IAF is armed in excess, despite contrary claims

made by the IAF. Moreover, this apparently unrestrained phase of expansion and modernisation has been a period which has not been faced with war.

The last chapter titled, "Self-Reliance, R&D and Foreign Procurement" dwells on the aircraft industry and the possibility of a higher degree of indigenisation in aircraft technology. This is in keeping with the goal that had been set during Prime Minister Nehru's time. The chapter further discusses the progress made in the various indigenisation projects of the Hindustan Aeronautics Limited (HAL), make the IAF look forward to a future of self-dependence. However, the path to self-dependence is fraught with numerous obstacles. For one, there is lack of long term assessment and planning, paucity of funds for R&D and the incapacity to design and develop an indigenous power plant.

It is with this perspective that this dissertation seeks to probe into the evolution the existence and the potential of the IAF taking into consideration its performance in various wars, and the changes that it has undergone in the past five decades.

I would at the outset like to ^eforwarn the reader that the profile I seek to project is far from complete. Owing to the specific nature of my topic, it was inevitable that I should be denied information on certain quarters. Hence my incapacity in dealing with some important variables like pilot training, performance, maintenance and

servicibility of aircraft and equally so on some of the more delicate aspects of the history of the Air Force.

Since there was a paucity of literature on this topic I had to relay extensively on personal interviews with serving and retired IAF personnel, whose names unfortunately cannot figure in my list of acknowledgements, inspite of their valuable help. I would also like to point out that since security clearance was not given, I failed to get any information from the Historical Division of the Ministry of Defence, which could have been made available since my perspective was purely of investigation of history.

My special thanks to Professor Giri Deshingkar and Dr. Shiv Visvanthan of CSDS, Amit Gupta and Gita Manian of UNU. My immense gratitude to my guide Professor T.T. Poullose, under whose able supervision this dissertation was completed. I would also like to thank my parents, my brother and sisters for their encouragement.

I take, needless to say, full responsibility of any errors in this work.

Kamla Bhatt
KAMLA BHATT.

CHAPTER I

DEFENCE POLICY OF THE BRITISH RAJ (1858-1947)

I

The Defence policy of British India was part of the overall Imperial strategy. The main aim of this strategy was to maintain and consolidate the British Empire in the Indian sub-continent. As Vertzberger has stated: 'The British regarded their control of India as vital, a key to the Empire, and the defence of the passage to India became a permanent issue in British geostrategic thinking'.¹

The defence policy of any country cannot be discussed in purely military terms, it has to be seen in relation to the foreign and economic policy of the country. Hence, the foreign policy that the British followed in India was "directed towards securing the alliance, integrity, or neutralisation of the borderlands and minor states covering the land approaches to the Indian state".² And the main overland threat to India was from the the northwest, which has been the traditional land invasion route.

The British rulers of India identified two kinds of threats from the northwest (a) minor threat from the tribes in the northwest and Afghanistan; and (b) the major threat to British interests in India from Tsarist Russia. Yet there was a difference in the attitude adopted between the decision makers in Delhi and that of the Whitehall over the northwest frontier. In Delhi the concern was about the local danger of an Afghan attack in combination with a tribal uprising about the

¹ Yaacov Vertzberger, "India's Strategic Posture and the Border Defeat of 1962: A Case of Miscalculation", Journal of Strategic Studies (London September, 1982), p.371.

² Lorne Kavic, India's Quest for Security: Defence Policies 1947-65 (Berkeley, 1967), p.10.

frontier itself. The Whitehall on the other hand was concerned about the threat that Russia, the European power posed to the British Empire.

Once the British had identified their security threats they were able to draw their strategy, which came to be known as the 'ring fence policy'. The kingdoms of Nepal, Bhutan, Sikkim and the tribal areas in the north and the northwest formed the inner ring. These strategic areas directly impinged on the British interests in India. The outer ring comprised the Persian Gulf, Afghanistan, Tibet and Thailand (then called Siam).

From the last quarter of the 19th century till the British withdrawal from the sub-continent, the major preoccupation of the British planners of the Indian Empire was the security of the outer ring.

Referring to the Northwest Frontier, Dunbar declared: "This border is today the one obvious dangerous frontier of the whole British Empire and Dominions, and on its security the Commonwealth may be said to depend. This makes it the direct concern of the Committee of Imperial Defence".³

The Debate over the Use of Air Power

Mobility is one of the basic principles in the conduct of war. This is why the introduction of the third dimension, i.e. the air power has altered the nature of war. Britain was one of the earliest nations to introduce air power.

3

George Dunbar, Frontiers (London, 1932), p.73.

The Indian Air Force (IAF) was created for a specific purpose, namely to tackle the tribal problem on the north west frontier. But even prior to the creation of the IAF, the Royal Air Force had some of its squadrons stationed in the north west frontier region.

While the "third dimension" was being introduced, there were continuous debates between the Army and the Air Staff over the use of air power. The Air Staff felt that the Air Force should be given a role which went beyond being an adjunct to the Army. It argued that it could control the militant tribals largely on its own; it had been very successful in managing similar tribal problems in Iraq and the Palestine. Additionally, the Air Staff claimed that it had perfected the technique of air control against the Arabs. This same technique could be used against the Pathans of the frontier.

By 1922 the Indian Military Requirement Committee had endorsed the proposal for greater use of air power. But the Commander-in-Chief was against this proposal. Then, in 1925, Lord Reading who headed the committee, once again endorsed the case for greater use of air power. The committee did not pay much attention to the Army's objections that air bombardment was an inhumane way of fighting and therefore should be rejected.

The Army resisted the use of air power for two other reasons. The first was of a strategic nature. The army was of the opinion that the use of air power was incompatible with the policy of peaceful penetration of the tribal region, which was the established British policy. "Tribal management currently understood depended not on surveillance and swift punishment, but on personal rapport and respect,

things which only the Army's presence provided. The Air Staff was calling for a return to the old discredited method of "butcher and bolt"; only now it proposed to do so from the air."⁴ Secondly on tactical grounds, the Army argued that the method of aerial surveillance was not reliable and further held that the use of air power would be ineffective without the support of the ground forces. The Army also pointed out that aircraft could not operate at night or in uncertain weather.⁵

"Opinion is divided over the use of aeroplanes on the north west frontier. It is inexpensive, the radius of action is almost unlimited, the aeroplane is quick to strike, and its objective cannot be foreseen. But its value has been, I think, to some extent lessened by the newly acquired habit of the lashkars to move at night, and they have learned the advantage of infiltration tactics. Added to this, far from aeroplanes being able to hold any position, if they are obliged to make forced landing in hostile country, they are lost. Finally, there is the undoubted bitterness that bombing raids leave behind them. We want peace and mutual trust and liking on the border, and it may be questioned if this is the way to find it when dealing with a man like the Pathan."⁶

On the other hand, the Air Staff continued to argue that air power could contribute in a substantial way towards the management of the tribal problem. Air Marshal Sir Hugh Trenchard remarked "...the scheme I

4 Mark Houston Jacobsen, Modernization of the Indian Army, (Los Angeles, 1979), p.100.
5 Ibid.
6 Dunbar, n.3, p.305.

advocate would substitute air operations, carried out from peace stations, gaining their results mainly by moral effect and rapidity of action, and with the minimum of casualties to either side, of destruction and casualties.⁷ In his "Fuller Employment of Air Power," Sir Hugh remarked that his proposals if put into operation could save between 25 to 30 infantry battalions and some ten batteries of mountain artillery with corresponding savings in Head Quarters and ancillary units.⁸

But Sir Hugh's proposal fell on deaf ears. In fact, later on he criticised that India "is the only country in the world in which air power has not been increased or made use of on the military side."⁹

The Air Force's role in controlling the tribal problem was stepped up only in 1936. During the Chatfield Committee's investigation, the Air Staff unhesitatingly laid the blame squarely on the Army. It held that the Army was solely responsible for the violence in Waziristan.

Role of the Air Force in the North West

Until 1936 it was the RAF that provided the air support and the reconnaissance support to the Army. The first squadrons of the RAF were stationed in the North-west Frontier during the First World War. The first two squadrons were equipped with two seater Bristol fighters. At the time of the Third Anglo-Afghan war, two more squadrons were

7 Jacobsen, n.4, p.98.
 8 Ibid, p.97.
 9 Ibid, p.106.

introduced. The aircraft were used against the Masuds in 1917 and in 1919 air power was effectively used to force the tribes submit to British hegemony. A single plane, bombing Kabul during the Third Anglo-Afghan war, proved to be the decisive factor in that war. It made the Afghans decide to negotiate for peace. In all these engagements, the Air Force was mainly used as an ancillary service to the Army. Aircraft were mainly used for strafing the tribals. Normally the tribals were given 24 hours of notice before the strafing operations commenced.

By 1930 the RAF had eight squadrons consisting of about hundred aircraft. Seven of these squadrons were engaged in dealing with the tribes. Most of the aircraft deployed were "Wapiti" general purpose planes which were well suited for Army support operations i.e. scouting and bombing.

Origin of the Indian Air Force

The IAF came into being shortly before the outbreak of the Second World War. To begin with, it operated with an incomplete squadron which was equipped with the outdated Westland Wapiti. This aircraft's maximum speed was 80-85 miles an hour. It had neither brakes nor radio. The IAF was expanded only during the course of the Second World War and that too, in response to the successful Japanese thrust into Burma.

The Indian Sandhurst Committee, which was set up in 1925 to look into the question of the Indianisation of the Indian Army was partly responsible for the creation of the IAF. In its report, that was

submitted in 1937, the Committee said, "We also recommended that Indians should be made eligible to be employed as King's Commissioned Officers in the Artillery, Engineer, Signal, Tank and Air arms of the Army in India and that for this Indians should be admitted to Woolwich and Cranwell until such time as the occasion arises to create corresponding facilities for training in India."¹⁰ It further added: "The refusal of commission (to Indians) in the Air Force is, in our opinion singularly indefensible because a number of Indians were actually employed in the Royal Flying Corps during the Great War. They rendered efficient service, one was awarded the Distinguished Flying Cross." The report further recommended that two vacancies should be allotted to Indians at the Royal Air Force College, Cranwell, "and those numbers should be increased progressively, in due proportion."¹¹

On the basis of the recommendations of this report, the IAF bill was passed in the Parliament in 1932. Six months later, the first squadron was formed on April 1, 1933 at Karachi. It was an incomplete squadron because it was equipped with only four Westland Wapiti aircraft. The first squadron, however, became operational only in 1936. Prior to the creation of the IAF, the first batch of six Indian cadets was sent to RAF College, Cranwell for training. Simultaneously men were recruited from the railway workshop who underwent training for a year as Apprentice Aircraft Hands. Twenty two of them eventually qualified and came to be known as "Hawai Sepoys". The first squadron of the IAF, thus, was manned by qualified and trained Indian pilots, and

10

Indian Sandhurst Committee Report (Government of India, 1927), p.25.

11

Ibid.

8

ground staff. It was based at Miranshah in Waziristan and was used for patrolling Army columns, tactical reconnaissance and close support to Army picqueting operations with occasional bombing.

Then, in the autumn of 1936, a serious rebellion broke out in north Waziristan. The Wazirs of Tori Khel revolted against the (British) government. This entailed large scale operations by the Army and the Air Force and at one time as many as 50,000 troops were engaged in action. The rebellion was partially contained by the summer campaign of 1937 but throughout 1938 and 1939 Waziristan remained in a disturbed state and periodic operations on land and in the air had to be carried out against bands of rebels.

It was in this area that 'A' Flight of the IAF was inducted and on 1st October 1937, it flew into Miranshah, a fort situated in the Valley of the Tochi River in the interior of North Waziristan."¹²

Perhaps as a result of all this, the Chatfield Committee Report of 1938-39 recommended the reequipment of RAF squadrons in India with a grant of about Sterling 1,700,000. The report wanted that two bomber squadrons should be equipped for the dual purpose of frontier and coastal defence. In addition, it recommended the raising of five flights of aircraft on a voluntary basis in the defence of major Indian ports.

12

Air Marshal M.S. Chaturvedi, History of the Indian Air Force (New Delhi, 1978), p.7.

Use of Air Power during World War II (1939-45)

The Second Burma campaign saw the use of air power on an extensive scale. British, American and Indian Air Forces were pressed into operation against the Japanese armed forces. However, the IAF continued to be equipped with aircraft phased out from the RAF.

In the inter-war period the British were mainly concerned with the threat from the North-west. When World War II broke out, they realised that the North-east border and Burma (then a part of the British Empire) did not possess adequate forces to repel the Japanese attack. As Dunbar warned, "On only one line of frontier throughout the whole British Empire and Dominions is there a danger of invasion. The time may soon come, the Assam Government pointed out to the Simon Commission, when the Northeast frontier of India will become no less, if it is not more, important for the defence of India than the North-west frontier."¹³ Dunbar was proven right. The neglect of the North-East led to the Japanese thrust into Burma. By the time the First Burma Campaign came to a halt in May '42, because of the monsoon, the Japanese had occupied a major portion of Burma.

The Japanese, thus, posed a direct and immediate threat to India. Britain and the Allies responded to this threat by strengthening the air defence of Ceylon (now Sri Lanka) and by reorganising the Air Force. Concretely, five groups were established.

No. 222 based at Colombo;

No. 221 originally based at Rangoon, it was reformed at Calcutta; it was put in charge of bombing a reconnaissance missions;

- No. 224 made responsible for fighter operations in Bengal and Assam;
- No. 225 combined all air operations in the South, West, North-West
 and North-East India;
- No. 226 put in charge of replacements, reinforcements, maintenance
 and repair; and
- No. 227 based at Lahore was in charge of training.

In 1939 the IAF Volunteer Reserve Unit was raised; its volunteers held civil pilot's licences. The Unit was equipped with a range of antiquated Wapiti to Bristol Blenheim and Hudsons aircraft. It carried out surveillance operations and provided escorts to ships carrying troops and war materiel.

The IAF carried out reconnaissance operations mainly related to the reconquest of Burma and they also assisted the RAF in bombing and ground operations. Altogether "the IAF pilots flew over 16,000 sorties, involving over 24,000 operational flying hours over Burma".¹⁴ It was in recognition of this valuable service rendered by the IAF, that the prefix "Royal" was awarded to it on 12th March 1945.

During the course of the Second World War the IAF came to be expanded and modernised. The number of IAF squadrons went upto nine. These were formed on the following dates:

- No.2 Sqd 6th April 1941
- No.3 Sqd 10th October 1941

¹⁴ Air Chief Marshal, My Years With the IAF (New Delhi, 1986), p.45.

No.4 Sqd	1st February 1942
No.6 Sqd	1st March 1943
No.7 Sqd	8th March 1943
No.8 Sqd*	21st June 1943
No.9 Sqd	16th December 1943
No.10 Sqd	20th February 1944

At the end of the War, the Air Force, (now the Royal Indian Air Force) as of 1st July 1945, had:

- 3 fighter reconnaissance squadrons
- 2 ground attack squadrons
- 2 light bomber squadrons
- 2 fighter squadrons

British planning for India's post-War defence forces was delineated in the Chiefs of Staff Committee report that was submitted in March 1944. The report argued that a threat from Afghanistan was unlikely if India maintained adequate forces. It went on to say that India's relations with both the Soviet Union and China is likely to remain friendly. In respect of our air power, the report recommended that the IAF should be structured in the following manner:

- seven squadrons for tribal control in the North-West;
- five squadrons for internal security (in view of Indian popular resistance to British rule); and
- three squadrons for North-west Frontier against Afghanistan.

These 15 squadrons would, the report stated, form the nucleus for expansion in case of a major threat of war against the sub-continent.

The Chiefs-of-Staff plan could not be implemented since the British decided to withdraw from India immediately after the War. The Armed Forces of British India had to be divided between India and Pakistan. As far as the RIAF was concerned, Pakistan got two fighter squadrons and a single transport squadron. India on the other hand, got seven fighter squadrons (made up of Tempest-2s and Spitfires), one transport-communication squadron (of C-47s and Devons.) and artillery observation post aircraft (Auster 5s). It also acquired a motley collection of Tiger Moths, Percival Prentices and Spitfire training aircraft. While India got two-thirds of the Royal Indian Air Force, all the training schools and permanent air force stations were acquired by Pakistan, since they were situated in areas which went to Pakistan.

With the British gone, it now devolved upon the newly independent Government of India to formulate a policy for the defence of India. The entire strategic situation had suddenly changed in an unprecedented manner. The North-West suddenly disappeared from the defence horizon but a new adversary, Pakistan, arose within the sub-continent itself in the process creating two fronts to be defended. All this changed the role of the IAF from that of pacification to that of active engagement against an external enemy.

CHAPTER II

POST-INDEPENDENCE DEVELOPMENT OF AIR POWER 1947-62

II

The British withdrew from the sub-continent and with their withdrawal, India had to start managing her own defence arrangements. The new state of India had to formulate a defence policy based on the altered circumstances with a fresh perspective. Before Independence, the Government of India did not formulate the defence policy; it was at the Whitehall that defence policy was formulated. Before Independence, defence affairs in India were solely the preserve of the British Governor-General. "The expenditure was included in the budget, certified by the Governor-General, and was not to be voted upon, nor discussed, by the (Indian) legislature."¹

How did India's leaders define "national security"? They seem to have accepted the prevalent definition of national security which encompassed political, psychological, economic and social factors. Henry Kissinger once articulated this concept in a sweeping way:

"In its widest sense, it (national security) comprises every action by the society which seeks to assure its survival or to realise its aspirations internationally."²

Sisir Gupta added to this some Indian specificities. He said the Indian leadership was very clear in its thinking in relation to the national interest. He identified three strands:

- to bring about economic and social change coupled with the consolidation of the country.

¹ Khera, S.S., India's Defence Problems (Bombay, 1968), p.290.
² H.A. Kissinger (ed.), Problems of National Security: A Book of Readings (New York, 1965), p.2.

- "to secure the security and integrity of India and eventually to erect a structure of stable peace in the region."
- to strive for world peace.³ "We wish for peace. We do not want to fight any nation if we can help it."⁴ This was one of the basic tenets of the Non-Aligned policy that Nehru adopted. India did not believe in joining either of the power blocs. Sisir Gupta refers to this as the "reformist effort."⁵

Based on these broad outlines then, India's leaders adopted certain policies that shaped their attitude towards the armed forces and the role that they were assigned. An important factor that influenced Indian policies was the impact of the partition of the sub-continent into the two states of India and Pakistan.

India had emerged as a significant political actor in the international scene in the post World War II world. It had very clearly declared that it would refrain from joining either of the power blocs and, instead, sought "to exercise this independence to the maximum". Non-Alignment, thus, formed the basis of India's foreign policy; the thinking among the Indian leaders was that nobody would be interested in waging a war with India, and if they did the Superpowers would intervene. Such thinking can be traced back to a speech that Nehru made as long ago as in 1931 where he said:

³ Quoted from M.S. Rajan & Shivaji Ganguly. Sisir Gupta: India and the International System (New Delhi, 1981), p.340.

⁴ Nehru. Quoted from: India's Foreign Policy: Selected Speeches, September 1946-April 1961. (The Publications Division, Ministry of Information & Broadcasting, Government of India, 1961) p.11.

⁵ Ibid, p.343.

"It may be that some will covet her (India), but the master desire will be to prevent any other nation from possessing India. No country will tolerate the idea of another acquiring the commanding position which England occupied for so long. If any power was covetous enough to make the attempt, all the others would combine to trounce the intruder. This mutual rivalry would in itself be the surest guarantee against an attack on India."⁶

From this flowed the further observation that external threats to India would be minimal. To elaborate,

- The threat from Russia was, according to Nehru, "largely imaginary".
- Afghanistan would not pose any major problems except for occasional raids. (It is important to remember that the threat from Afghanistan and its tribes was taken into account but the threat was considered to be of a limited nature.)
- China was still fighting her civil war and, anyway, the Himalayas
"offered an effective barrier, and not even air fleets could come
that way".⁷

These thoughts were formulated by Mr. Nehru even before coming to power. After he became Prime Minister, the only threat he perceived and

⁶ Quoted in Kavic, Lorne, L.J. India's Quest for Security (Berkeley, 1967), p.23.

⁷ These inferences are Kavic's. Ibid.

that too of a limited nature, was from the new state of Pakistan. The Indian defence posture till 1962, thus remained almost wholly Pakistan oriented. Accordingly, in the event of a war between India and Pakistan

"....contingency planning proceeded on the basis of possible operations in Kashmir, Punjab, and Rajasthan with precautionary measures on the borders of East Pakistan. The plan was based on the hypothesis that Pakistan would have the initiative in launching the attack against Kashmir with possible divisionary attacks in other sectors. In the event of such actions, Indian troops in Kashmir would seek to contain the opposing forces while the main Indian field Army made a determined and rapid advance towards Lahore, Sialkot, with a possible diversionary action towards Rawalpindi or Karachi to prevent the concentration of Pakistani troops in the major operational theater in the West Punjab. The primary aim of this strategy was to inflict a decisive defeat on Pakistan's field Army at the earliest possible time and, along with the possible occupation of Lahore, to compel the Pakistani Government to seek peace. The role of the Army would be decisive, with the other two services providing support".⁸

To this Kavic added an interesting observation of his own:

"Neither side would be likely to strike at major population centers for fear of reciprocal action not commensurate with any short term gain."⁹

8

Ibid.

9

Ibid, p.37.

The role of the air arm during the early years after Independence was that of giving support to the Army. This essentially meant that it was the transport squadrons that would play the major role in supporting the Army. There was little thinking on the role of the air power as a whole. This was to result in the non-use of the Air Force in a combat role during the 1962 war with China. In fact, there was in general, no clear thinking on the role of the armed forces throughout the 1950s. Mr. S.S. Khera, who was then Secretary in the Ministry of Defence and therefore in a position to know the facts, says that until 1962 neither the political leaders nor the high officers of the armed forces had clearly thought through the nature of the Indian armed forces or what their strength should be. P.M.S. Blackett, who acted as a defence advisor to the Government of India, came to the conclusion that India would primarily have to fight a land battle in the future, something on the lines of the Kashmir war of 1948. He thought that a threat to India's shipping lanes by "aircraft, submarines and surface aircraft" could not be met; but in any case it was unlikely. "...No effective defence against these two threats is possible with India's present resources, and also such attacks are not likely to be of decisive importance." Therefore, the last two threats "are held not to be of primary importance for planning purposes".¹⁰

Since the accent of the Indian leadership was on peaceful co-existence and world peace, coupled with the fact that the threats

¹⁰ Blackett', Prof.P.M.S., Scientific Problem of Defence in Relation to the Indian Armed Forces: A Report to the Hon'ble the Defence Minister (New Delhi, 10 September, 1948), pp.7-8.

perceived from external quarters were considered marginal, it followed that the Indian armed forces did not need further expansion. The Indian leaders, in fact, sought to reduce the size of the Army. For them, improving and stabilising the economy was the main concern. This was the decade that witnessed the "defence vs. development" debate. Neville Maxwell, perhaps reflecting the professional military point of view, has labelled the 1950s as the decade of neglect of the armed forces.¹¹ But the dominant way of thinking was for development at the cost of defence and this was, naturally reflected in the meagre budgetary allocations made to the armed forces. And even within the limited budgets, according to the prevailing priorities, a major portion was allocated to the Army, followed by the Air Force and then the Navy.

One other decision that had an impact on defence policy was to undertake indigenous production of defence equipment. This decision also stemmed from the policy of Non-Alignment, since India would not depend on foreign supplies to build up her military capability. Instead it would learn to be self-reliant and self-sufficient. The need to be self-sufficient in defence production was already enunciated by the Indian National Congress in its Karachi Resolution of 1936. This was further developed in the Party's Bombay plan of 1944. After Independence, it became Government policy by the Industrial Policy Resolutions of 1948 and 1956. To translate the policy into practice, the British scientist P.M.S. Blackett was invited to India to advise policy-makers "on the

¹¹ Neville Maxwell, India's China War (Bombay, 1970), p.179.

organisation of defence sciences in relation to the needs of the Indian armed forces."¹²

In the paper that Blackett submitted to the Ministry of Defence in September 1948 he quoted from the Wansbrough Report which was drawn up by Britain for India but before India's Independence. Wansbrough had commented that even after Independence, it was assumed that India would remain within the Commonwealth and that its defence needs would be closely tied to those of Britain. But the Indian leaders did not agree to such a strong link with Britain. They very clearly declared that India would refrain from getting any aid from any foreign country and would, instead, aim at the development of her fighting forces unaided. Against this background, Blackett's advice to the Indian Government was that it should "aim at a rapid achievement of technological independence". "Self-sufficiency in defence, thus, remained a fundamental tenet of planning" in India and whatever may have been the actual practice.¹³

Kavic summed up this in a succinct manner when he stated that "...the Government's moralistic postures, military attitudes, Non-Aligned stance and stress on economic development" was seen by all as "the ultimate source of national strength".¹⁴

Decision-Making Process

The decision-making process relating to armed forces was revamped after Independence. In fact, the decision-making process was of a

¹² Blackett, n.10, p.2.

¹³ Chris Smith, "Alternative Defence for Third World Countries: A Case Study of India" (unpublished paper for the UN University), p.76.

¹⁴ Kavic, op.cit., p.26.

different nature when compared to the one that the British had followed.

Two important changes were introduced:

1. The three services were made independent.
2. Civilian control was established over the defence decision-making process. This was reflected in the hierarchical structure where political leaders, especially cabinet ministers came first. They were followed by the members of the bureaucracy, particularly in the finance & defence ministries. Finally came members of the military services, especially the Chiefs of Staff. But technical advice for the procurement of weapons was the prerogative solely of the respective service of the armed forces.

After Independence the Union Government was made primarily responsible for ensuring the defence and security of India. In the Constitution this was spelt out:

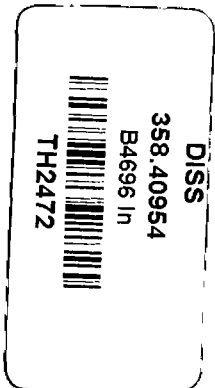
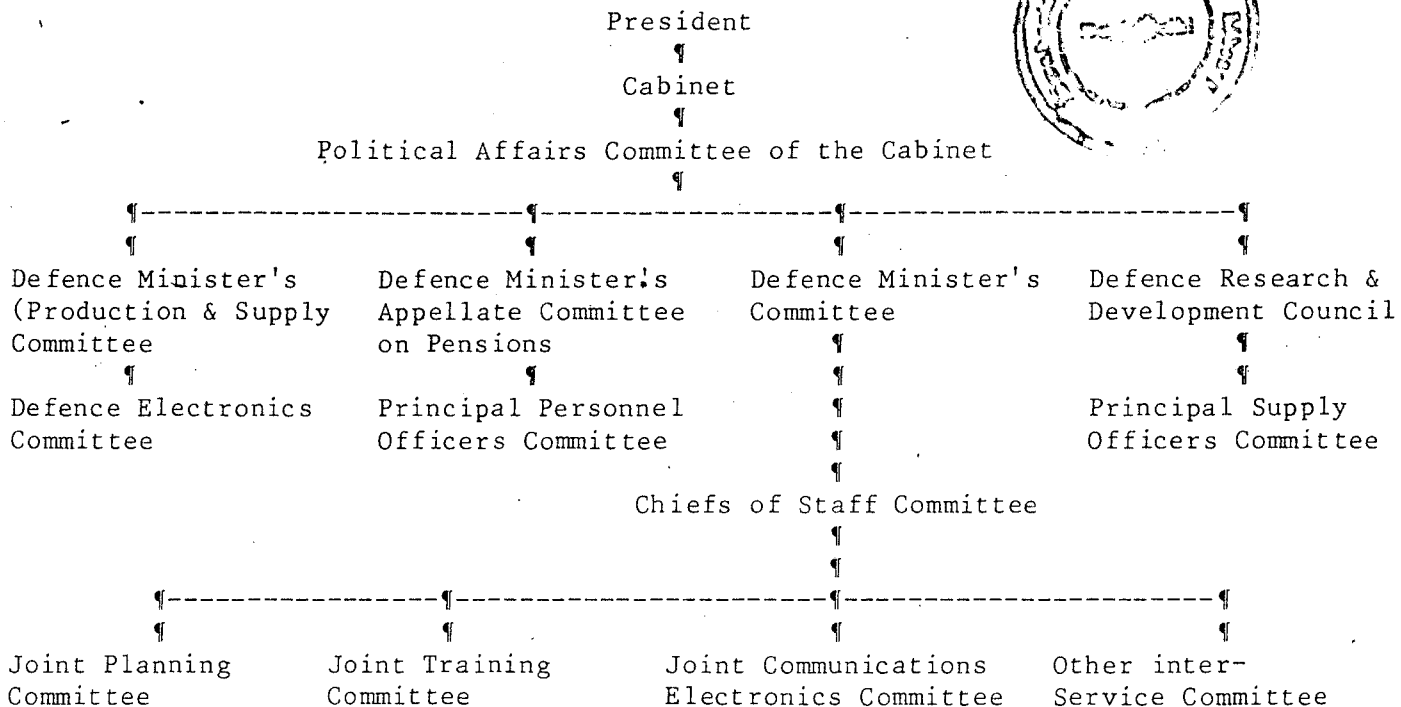
Art.53(1) "The executive power of the Union shall be vested in the President and shall be exercised by him either directly or through officers subordinate to him in accordance with the Constitution."

Art.53(2) "Without prejudice to the generality of the foregoing provision, the supreme command of the Defence Forces of the Union shall be vested in the President and the exercise thereof shall be regulated by law."¹⁵

¹⁵ P.R. Chari, "The Policy Process" in Roherty (ed.) Defense Policy formation: Towards Comparative Analyses (University of South Carolina, 1980), p.132.

Decision-Making Process

TH-2472



Quoted from P.R. Chari, "The Policy Process" in James Roherty (ed.), Defence Policy Formation Towards Comparative Analyses (University of California, 1980), p.134.

The decision-making process was pyramidal in structure. At the apex was the Political Affairs Committee of the Cabinet. The Prime Minister was the Chairman and the ministers of Home, External Affairs, Finance and Defence were its members. "Collectively this committee constitutes the highest policy formulating authority in India for all matters relating to national security."¹⁶

At the second level was the Ministry of Defence (MoD), headed by the Defence Minister, who was in charge of routine defence matters. Within the MoD there were a string of committees that were put in charge of specific functions.

1. The Defence Minister's Committee was in charge of defence planning and dealt with important issues pertaining to the three services and inter-service relationship...

2. The Production and Supplies Committee monitored production of military materials and co-ordination with civilian industry.

Members who constituted these two committees were the Defence Minister, the three Chiefs of Staff, the Defence Secretary and the Financial Adviser for the Defence Services.

3. The Defence Research and Co-ordination Committee was in charge of scientific research related to defence matters.

4. The Appellate Committee on Pension looked after pensions of service personnel.

5. The Defence Electronics Committee.

6. The Principal Personnel Officers Committee.¹⁷

¹⁶ Ibid., p.135.
¹⁷ Ibid., p.133.

At the inter-services level was the Chiefs of Staff Committee; it was the highest professional military panel advising the Government on defence issues. They projected their requirements to the Government. This committee also had a set of sub-committees e.g., the Joint Planning Committee, the Joint Training Committee and so on.

* * *

The period 1947-1962 can be divided into two broad phases - 1947-54 and 1955-62 - to trace the evolution and growth of the Indian Air Force.

1947-54

In the first phase the Indian Air Force (IAF) had a clear edge over the Pakistan Air Force (PAF) in terms of equipment and manpower. But at the end of the first phase, Pakistan joined South East Asian Treaty Organisation (SEATO) and Central Treaty Organisation (CENTO) which became the major source of expansion of its Air Force. Although the Pakistan Air Force was numerically inferior vis-a-vis the IAF, it had qualitatively better aircraft like the Sabre and the F-104 Starfighter. Until 1954 the PAF had only six squadrons -- four fighter squadrons (one with jet aircrafts) and two transport squadrons. The IAF on the other hand expanded its strength to 10 squadrons, with the jet aircraft, Vampire, being inducted into service in 1948. By 1953, the IAF, had acquired three more squadrons equipped with the French Ouragons. Since indigenisation remained the guiding principle, an aircraft industry was established to produce indigenous aircraft like

the HT-2 primary trainer, the HT-10 advanced trainer and the HT-11 basic trainer.

The following two events of the first phase need to be examined at some length to bring out the role of air power:

- (a) The Kashmir operation of 1947-48.

Political motive/objective -- incorporation of Kashmir into the Indian Union.

The role of the IAF in this operation.

- (b) Consolidation/organisation and expansion of the IAF.

The Kashmir Operation 1947-48)

The first Indo-Pakistan "undeclared war" was fought over the question of the status of Kashmir.¹⁸ As S.M. Bruke put it, "The problem of Kashmir, however, has spawned endless tensions, caused two wars, and remains unresolved to this day."¹⁹ Actually, it has continued as a security problem even during the late 1980s.

Since it was an undeclared war waged by Pakistan, the Indian political leadership was caught off guard. Pakistan had now got involved in India's internal affairs. The question of accession of Junagadh and Hyderabad states to Pakistan had cropped-up simultaneously. Since the warning time was 'zero', the Indian defence forces were unprepared for waging a war with Pakistan immediately after partition.

¹⁸ Ashok Kapur States that in 1947, Kashmir acquired a security focus with international implications for India. Kashmir, thus, became a nexus in India's security policy. India's Nuclear Options: Atomic Diplomacy & Decision-Making (New York, 1976), p.48.

¹⁹ S.M. Burke, Mainsprings of Indian & Pakistani Foreign Policies (Minneapolis, 1974), p.118.

The situation was further compounded by the fact that the process

delete: pro

of division of the armed forces between India and Pakistan was not yet completed. The Indian armed forces were scattered all over in their peace stations. Moreover, the Indian Government had made no prior contingency plans to counter such an attack. In addition to all this, - 9 Kashmir was technically still a princely state waiting to make up its mind about whether to join India or Pakistan.

War according to Clausewitz is a "rational instrument of national policy";²⁰ it is "apolitical act". "State policy is the womb in which War is developed, in which its outlines lie hidden in a rudimentary state, like the qualities of living creatures in their germs."²¹ This is why before going onto discuss it would be necessary to look into the nature of relationship between India and Pakistan.

Relations Between India and Pakistan

The relationship between the newly sovereign states of Pakistan and India were strained right from the beginning. The hostility between the Indian National Congress and the Muslim League got extended and translated into hostility between the two new states.

Von Clausewitz, in his book "Vom Kreige" (On War), identifies two motives that lead to war. They are "instinctive hostility" and "hostile intention".²² In the case of India and Pakistan, "instinctive hostility" has been the predominant motive behind the wars that India

20 Anatol Rapoport (ed. with an introduction) On War (Middlesex, 1985), p. 13.

21 Ibid, p. 203.

22 Ibid, p. 102.

and Pakistan have fought so far. Pakistan from the very day of its creation has been instinctively hostile to India.

As Sisir Gupta has rightly pointed out, "Pakistan appeared to believe that India was determined to attack Pakistan right from day one".²³ The Pakistani leaders had repeatedly confirmed this fear during the early years after getting their Independence that India had never been favourably inclined to the creation of a Muslim state, and that its intention was to undo the existence of Pakistan.

Clausewitz goes on to say:

"If war is an act of force, it belongs necessarily also to the feelings. If it does not originate in the feelings, it reacts, more or less upon them, and the extent of this reaction depends not on the degree of the civilization, but upon the importance and duration of the interests involved."²⁴

Applying Clausewitz's theory explains why to the Indo-Pakistan relationship, turned out to be one of marked bitterness. Sisir Gupta expands on this theme:

"The bitterness, the jealousy, the rivalry, and the sense of animosity which marked the relationship between the Muslim League and the Congress began to be a predominant feature in India-Pakistan relationship. The intense status-conflict between the two parties was transformed into a status conflict between India and Pakistan."²⁵

23 Sisir Gupta, Kashmir: A Study in India-Pakistan Relations (Bombay, 1979) p.320.

24 Rapoport, n.20, p.103.

25 Gupta, n.23, p.124.

He elaborates that the cause of the conflict was wider; it was not merely restricted to the Kashmir issue. If not Kashmir, something else would have triggered off the conflict because,

"the fundamental problems of India-Pakistan relations arise out of a set of conflicts -- a conflict over status, a conflict of images and finally a conflict generated by the problem of new states as two new nations."²⁶

The War

In terms of the time span the first India-Pakistan war was the longest among the three wars that India and Pakistan have fought so far. The fighting was fierce in the initial months of this war, after which a stalemate was reached. It was in the initial stage that the IAF gave very valuable transport and logistic support to the Indian Army's operations in Kashmir.

The political motive behind Pakistan's armed action was that it wanted to "liberate" the valley of Kashmir, which was predominantly a Muslim-populated area. The "liberators", it was said, went to Kashmir "on hearing the woes of fellow Muslims".²⁷ But Sisir Gupta believes "it is probable... that Mr. Jinnah, by supporting the invasion of Kashmir, hoped to kill two birds with one stone -- to annexe Kashmir and to direct the aggressive energies (of India) away from Peshawar and the (West) Punjab".²⁸ Besides the obvious strategic importance of the

26 M.S. Rajan and Shivaji Ganguly, n.3, p.226.

27 Gupta, n.23, p.150.

28 Ibid., quoting The Economist (London), 13th December 1947. p.118.

valley, to Pakistan, Kashmir was also important for Pakistan to uphold its "two nation theory" on the basis of which that new state had been created. For India, Kashmir was important because it showed that India was truly a democratic and secular state and that a predominantly Muslim area could be accommodated and assimilated into the mainstream of India.

The military action against Kashmir began on 22nd October 1947 when "fully armed tribesmen from the northwest of Pakistan and other Pakistani nationals entered Kashmir from two directions in motor vehicles in a full scale invasion to march towards the capital of the state, occupy it and decide the fate of Kashmir once again in its history with the swords".²⁹

The forces of the princely state of Jammu and Kashmir were grossly underprepared and were not successful in repelling the tribesmen. As a result, a lot of ground was lost to the Pakistan Forces. India technically could not send help, since Jammu and Kashmir was an independent princely state. It was only when the Maharaja signed the Instrument of Accession to the Union of India that preparations got underway to send in Indian troops by air to the valley of Kashmir.

According to a noted military observer, India's stated military aim was the recovery of the the territory in Jammu and Kashmir, a purely defensive aim. The fifteen month war according to this observer was not a stalemate as portrayed by Indians but an outright defeat. He goes on to say that India had clear air superiority over Pakistan, but did not make use of it.

²⁹ Ibid, p.110.

The Role of the IAF

The IAF at its inception had only one transport squadron of 16 Dakotas at its disposal, with half a squadron of reconnaissance aircraft. So the role of the IAF in this operation of 1948 was merely confined to the air-lifting of troops and supplies. It was not used in any combat role. Although in this operation its role was marginal, the IAF did a good job of airlifting the troops despite poor maintenance of the machines and lack of communication, refuelling or landing facilities. The supporting structure that was essential for any such operation was simply non-existent in the area of activity. Air strips were built while the war was on and pilots had to fly along unchartered routes.

In response to the threat posed by Pakistan infiltrators, a new committee was immediately formed that came to be known as the Army Airlift Committee. Air Marshal Elmhirst was at the helm of this committee and Air Commodore Mehar Singh was appointed head of the Operational Group. The first task that was undertaken was to airlift the first batch of Indian troops to Srinagar in order to repel the infiltrators. The Air Force transport squadron along with civilian aircraft lifted an entire brigade (about 3000 men) within five days. The only airfield in Kashmir was the one at Srinagar. The airstrip at Srinagar was meant for only light aircraft, not heavy transport planes. Hence the pilots had to land without any navigational aids. There were no refuelling facilities either. At the time of airlifting the first consignment of soldiers, the Indian Government did not even know whether Srinagar had been captured by the Pakistan tribals or not. Such was the

state of communications in the zone of war.

The initial stage of the operation was of crucial importance because otherwise the entire valley would have fallen to the invaders. During this stage. The speed and mobility provided by the most IAF became the important factors that helped the Indian Army in breaking through the tribal stranglehold on Srinagar, which was on the verge of being captured. It was saved by the timely arrival of the Indian Army. The brief chronology of events below shows how precarious the situation was:

October 26th	The Maharaja of Jammu and Kashmir accedes to the Union of India
October 27th	The first unit of the Indian Army is airlifted to Srinagar
November 3rd	A counter-attack is launched and Indian troops break through the tribal defences at Baramulla.
November 7th	Baramulla is captured by Indian troops.
November 12th	Mahaura falls to Indian troops.
November 1-4th	Uri is captured.
November 23rd	Poonch is taken and evacuated immediately

In 1948 there were two other important instances when the IAF was employed to support to the Army. The first was were the operation at Poonch and the second one at Ladakh. In both these cases airstrips had to be built before the IAF could start the logistic operation. It did

so and proceeded to help the Army to carry out its operations effectively.

"Punching Operation" was how the IAF termed the recapture of Poonch which lies to the southwest of the Pir Panjal pass. The Indian Army had captured Poonch from Pakistan in 1947, but had to evacuate it due to poor logistics support. Poonch at this time did not have any air strip. Further, the Defence Committee of the Cabinet, headed by Sir Robert Lockhart, was of the opinion that recapturing of Poonch was not a tenable proposition. Prime Minister Nehru on the other hand indicated that Poonch should be held at all costs. So the Indian Army concentrated its efforts on recapturing Poonch. An airfield was built at Poonch for the landing of the Dakotas; it took the Army and the Air Force a whole year to complete the Punching operation. This was one of the few instances where the IAF also gave ground support to the Army and undertook strafing operations against the tribals.

The IAF also provided ground support in the battles of Kotli, Jhangar, Naushera, Tithwal, Rajouri, and Kargil. In all these operations, the personal contribution of Air Commodore Mehar Baba must be counted as enormous. He flew the first Dakota to the newly built airfield both at Poonch and Leh. Eventually, the war came to an end when both the parties warring agreed to a UN proposal for a cease fire which was to be effective from January 1, 1949.³⁰

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Lorne Kavic remarks: "It appears to have been just such a conclusion, arrived at independently by both the governments with the strong encouragement of high ranking British officers serving with both armies, that led to the cease fire effected on 1st January 1949 under the United Nations' auspices and both sides' subsequent acceptance of a ceasefire line defined by U.N. Observers". P.34

About the IAF's role in Kashmir operations, Lord Mountbatten was reported to have said that in all his war experience he had not come across an air lift of this magnitude being put into operation at such a short notice. No data are available on the number of tanks or aircraft destroyed in the combat operations undertaken by the IAF. But India managed to retain the main valley of Kashmir although it was unable to recapture the 5000 sq.miles of territory which has now become "Azad Kashmir" affiliated to Pakistan.

* * *

Consolidation and Reorganisation of the Air Force

Immediately after Independence, an Air Headquarters was created under the Defence Ministry. It was divided into three branches:

1. The Air Branch was in charge of operations, training, policy, reserves and intelligence.
2. The Administration.
3. The Maintenance.

Command Structure of the Air Force

The Command structure at present is organised on regional basis; it consists of five Operational Commands. But in 1947, there were only two Operational Commands. One was the Operational Group based at Palam (Delhi), which controlled all the flying units and was responsible for the air defence of India. The other was the Training Group based at Bangalore whose function was to train all the Air Force recruits.

But over the years as the IAF expanded, the command structure was also expanded and reorganised. The Command Structure at present is:

1. The Southern Air Command (Trivandrum), with responsibility for south-central region, Bay of Bengal and Laccadives.
2. The Central Air Command (Allahabad) is in charge of operations in Central and South India. In addition, it controls all the long range strike and transport units in the IAF.
3. The Eastern Air Command (Shillong) covers the whole of the North-East including Calcutta, Assam, Meghalaya, Arunachal Pradesh and Nagaland.
4. The Western Air Command (New Delhi) responsible for the North-West area New Delhi, Punjab and Kashmir).
5. The Southwestern Air Command (Jodhpur) covers Gujarat and Rajasthan.
6. Training Command continues to be located at Bangalore.
7. The Maintenance Command is at Nagpur.

The basic unit is the squadron with 12-18 aircraft.

In the initial phase, the lack of trained personnel (technical and non-technical) and of training schools to produce them proved to be a major drawback. It was only in the late 1950's that a proper foundation in personnel became available. A Paratrooper School was opened in Agra in 1950; this was to replace the previous school located at Chaklala in Pakistan. The World War II experience had underlined the important role of bombers. In 1951, an Armament Training Wing was set up in Jamnagar. Later, because of security considerations, all the training schools were moved to the south of the country. For instance the No. 1

Air Force Academy and Conversion Training School were moved from Ambala to Begumpet (Andhra Pradesh) and the Flying Instructors School was shifted from Ambala to Tambaram (Tamilnadu).

1955-57 saw further changes being introduced. The Air Force Academy, came to be known as Air Force Colleges after 1955. It was felt that pilots should be given proper training for flying jet aircraft which has come into service in all the leading air forces of the world. By 1957, then, according to the re-structured course

- jet training was imparted at the basic and intermediate stage both for pilots and navigators at the Air Force Flying College, Jodhpur;
- advanced training was given at Air Force Station, Hyderabad;
- advanced and applied jet training was imparted at Jet Training Wing, Hakimpet; and
- advanced stage training for pilots and navigators of transport aircraft was given the at Transport Training Wing, Begumpet.

In 1962, just before the Indo-Chinese war, a Logistics Support Training School was set up in Allahabad, where advanced training for helicopter operations was given.

Procurement

Until 1954 the IAF mainly had World War II surplus equipment, most of which was of British origin. A total of one hundred Spitfires and Tempests were transferred from the Royal Air Force base at Karachi to India in 1948. Of these, 33 were India's share in the division as a

result of partition and the rest were purchased from Britain's war time surplus stock in the subcontinent.

Since finance was a major constraint, several American built B-24J Liberator heavy bombers were salvaged from the yards at Kanpur and the Hindustan Aeronautics Limited was given the task of reconstituting them into operational machines. These were then used to raise heavy bomber and reconnaissance units for the IAF.

In 1948, India had procured the Vampire turbo jets from Britain. In 1953, a decision was taken to buy additional aircraft from France; about a hundred Ouragons renamed as Toofani, were procured. Fairchild C-119 G Packets were acquired from the United States to strengthen the transport arm. The Kashmir operation had clearly demonstrated that the transport arm needed to be strengthened for effective Army operations. Thus, by 1954, India had diversified its sources of acquisition.

AIRCRAFT IN SERVICE FROM 1947-1953

<u>Type of Aircraft</u>	<u>Year of Acquisition</u>	<u>Nos.</u>	<u>Country of Origin</u>
1) Airtspeed Oxford*	47-49	5	UK
2) Percival Prentice T Mk-3*	48-59	65	"
3) Consolidated B-24 Liberator (Bomber)*	48-68	42	USA
4) De Havilland Vampire FB Mk 52	48-72	300	UK
5) De Havilland Devon C Mk 1	50-	20	UK
6) Supermarine Spitfire Mk xviii	51-57		UK
7) Supermarine Spitfire Mk xix	51-59		UK
8) HAL HT-2 (Primary Trainer)	53	140	India (HAL)
9) De Havilland Vampire NF Mk 54	53-66	29	
10) De Havilland Vampire T Mk 55	53-75	82	
11) Dassault Ouragon (Toofani)	53-67	104	France
12) Fairchild C-119 G Packet (Transport)	53-	78	US

* World War II surplus.

Source: Green, Swanborough and Pushpinder Singh, The Indian Air Force and Its Aircraft (London, 1982), p.75.

1955-62

This second phase saw the expansion of the IAF and a change in India's procurement policy. A whole range of new aircraft from different countries were inducted into the IAF. By 1954 an Indian came to be appointed as Air Marshal of the IAF.³¹ 1955-1962 was also the period that witnessed a war between India and China. But the IAF was not used to give tactical support to the Army. On the eve of the India-China War in 1962, the IAF had a bewildering variety of French, American, Canadian, British and Soviet aircraft. Such a mixture must have led to a lot of difficulty in the maintenance and servicing of the aircraft. Perhaps this difficulty was one of the reasons why the IAF was not used in the war. In contrast China had only Russian aircraft. But China also did not use air power in that war.

There seems to have been a lot of discussion on the question of the strength of the IAF to be maintained during the period. The Armed Forces Reorganisation Committee had recommended that India needed to maintain a 15-squadron force. This need was accepted in principle in 1952; it was finally approved by the government in December 1953. Almost parallely, in 1949, Sardar Baldev Singh, the then Defence Minister, had announced that it was the government's intention to create a balanced force of 20 squadrons by 1960. Actually, a decade later in August 1961, the government accepted the revised proposal that the IAF strength should be built-up to 33

³¹ In 1957 the last of IAF's piston engined fighter epoch, the Spitfire Mk XVIII's at Halwara were reequipped with the Hunters.

squadrons. Then, after the 1962 war, it was decided that the IAF would have a strength of 45 squadrons.

These changes indicate that the Indian Government had come to realise over time the Air Force needed to be expanded for combat operations. Of course, it was also possible that the IAF may have become effective in lobbying its case with the Government. Whatever the truth, the ad hoc nature of decision-making in the Government becomes quite apparent.

Perhaps there were other reasons for the changes that occurred in the 1955-62 period. Subroto Mukherjee as the new Air Chief probably argued the case for the IAF technologically keeping pace with other Air Forces. Perhaps, the role of U.S. Air Force (especially jet fighters) during the Korean conflict made an impact on government in this. Or it could have been Krishna Menon's tenure as the Defence Minister; he was known to be favourably inclined towards the IAF. All these factors could have combined to persuade the Government that the policy formulated in 1949 was very inadequate for the needs of the 1960s.

These were internal factors influencing the changes. But there were also external factors at work. The most important among them was that Pakistan had become a member of the Central Treaty Organisation (CENTO) and South East Asian Treaty Organisation (SEATO) in the mid-1950s.³² This military alliance got for Pakistan the sophisticated Sabre jet fighters and the supersonic F-104 Starfighter aircraft. It is eminently possible that the Indian Government was reacting to Pakistan's expansion of its Air Force by acquiring more and technologically advanced machines for the IAF.

32

President Eisenhower announced on 25th February 1954 that the U.S. would extend military assistance to Pakistan.

As a part of modernization of the IAF India was interested in acquiring the Canberra bomber to replace the Liberator which was a World War II surplus American aircraft. According to Kavic, the Soviet Union had made a counter offer of supplying Ilyushin IL-28 bombers at nearly half the market price of the Canberra. But the Indian Government on principle opted for the Canberras.

In mid-1955 the IAF was evaluating two types of aircraft -- the French Mystere and the British Gnat. In the end, the Government decided to purchase both the aircraft. It procured about eighty Dassault Mystere-IV interceptors and also signed the agreement with Folland of Britain to licence produce the Gnat in India.

To strengthen the transport and communication unit the following aircraft were inducted into the IAF during the 1950's: 26 Canadian de Havilland DHC-Otter utility transport; four American Bell 47G-2 helicopters; and two British Vickers Viscount 730 commercial transport. Khrushchev, during his official visit to India, also presented two Ilyushin IL-14 commercial transport aircraft for the Indian Prime Minister's use.

In spite of Blackett's reservations that India should refrain from licence producing any transport aircraft, the Indian government in 1959 signed an agreement with Britain, to licence-produce the Avro-748. However, the production line at Hindustan Aeronautics Limited had to be closed after producing the first batch of Avro. The reason was that Indian Airlines, which was one of the potential customers, refused to buy them because it was not satisfied with its performance. As a result, the cost per unit of Avro shot up. The IAF, too, was reluctant to accept the Avro but was forced to do so. The failure of this project was a clear indication of how

the Indian Government at times decided to take quantum leaps without proper industrial or technical backup facilities within India.

In 1960, the Government decided to go in for Soviet equipment and in October 1960 it negotiated for the purchase of ten Mi-4 Hound Helicopters, twenty four Il-4 transports and eight An-12 heavy air freighters. The IAF initially resisted the procurement of Soviet aircraft pointing out that they were not suitable for the high Himalayan altitude where tension with China was building up. In spite of these objections, however, the IAF prior to the 1962 war, made to accept an additional consignment of 8 An-12s and 16 Mi-4s.

As for domestic production, there were four projects on the anvil: the HT-2 primary trainer; the HT-10 advanced trainer; the HT-11 basic trainer and the ambitious project to produce a supersonic aircraft HF-24 Marut designed by the German designer Kurt Tank and his team.

The 1962 War

The 1962 war broke out over the boundary question between India and China. When political negotiations failed, both sides resorted to a show of force. The boundary between India and China had not been clearly demarcated under the British rule.³³ After Independence in India, and after the Communists took over the leadership in China, this question was not raised by either side. The relationship between India and China in the period of 1949-54 was one of friendship; the famous Panchasheel agreement was signed in 1954. But it was also in 1954 that the border question

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See Neville Maxwell's book India's China War for a detailed study on the border question.

surfaced between the two. China maintained that the border had never been demarcated, while India maintained that the boundary between the two countries had been established under the British. This basic difference in attitude led to the outbreak of war in October 1962. The Indian Army was thoroughly demoralised in the aftermath of the Indian defeat in that war. The war was lost not because the Indian Army was underequipped or undertrained. It was lost because of wrong political assessment of the situation and mal-deployment of forces by the Army itself.

Warning Time

Unlike in the Kashmir operation where the warning time was zero in this war there was ample time for India to prepare her armed forces to fight a war against China on the border.

Brig. J.P. Dalvi of the 7th Infantry had observed that the Chinese had begun to prepare for an attack on India in May 1962, thus giving India five months of warning time to chalk out a war plan to fight against the Chinese.

But as P.V.R.Rao put it, the Government's attitude was "...deliberate playing down of the threat posed by China, a policy of drift with regard to defence and a complete lack of recognition of the magnitude or urgency of the danger."³⁴ The reconnaissance of the India-China border was undertaken only in 1958 and even these efforts lacked proper planning. Rao ridicules the answer given by Nehru in Parliament about the failure to use the Air Force to reconnoitre and to photograph the area. Nehru replied that : "the

mere act of taking pictures would have endangered the plane that took it, but endangered it not only from the physical features point of view but endangered it from the point of view of action by the other party shooting it down what ever the risks."³⁵

From the late 1950's the Indian armed forces had been warning that the entire border area needed to be militarily strengthened. The Army and Air HQs had submitted to the Ministry of Defence three reports in the 1950's, in which they had clearly voiced their apprehensions regarding a possible threat emanating from China. They had also suggested measures that should be taken in view of the threat.³⁶ In response to such warnings, half-hearted measures were taken to strengthen border defences. For example, the transport and communication unit and the establishment of the Border Road Organisation was established to expand the network of roads to the front in the Himalayan region. Airstrips were also built in Ladakh region; one airstrip was built at Chusul together with six helipads in forward areas. If only the Government had improved the surface transport network before 1962, the Army would have put up a better performance in the NEFA sector.³⁷ As later events were to prove, logistic support compromised the Indian Army's ability to counter Chinese thrusts.

All these points clearly reflect the thinking of the Indian leadership on the deteriorating relationship between India and China. The

35

Ibid, p.12.

36

Air Chief Marshal P.C. Lal, My Years with the IAF (New Delhi, 1986), p.90.

37

After the Khampa rebellion at Tibet in 1959 and when the Chinese moved closer to the border, the Indian government decided to build airfields in Ladakh. The airfield at Leh was strengthened and in 1961 other airfields were constructed at Chushul, Thoise and Fukche. Alongside seven helipads were also built in this region.

political decision-makers simply refused to take into calculation that a war with China could ever take place, this in spite of many warning signals. The political assessment of the issue hinged on the fact that Nehru and Menon firmly believed that China would never want to settle the boundary question by use of force.

D.R. Mankekar's has rightly said that "the smug, naive "bhai-bhai" mentality that stood in the way of India utilising an eleven year long warning to prepare herself to meet the Chinese menace".³⁸ He was referring to the time gap between China's occupation of Tibet in 1950-1951 and the border war in 1962.

IAF on the Eve of the 1962 War

The IAF "was the largest and most effective national air force in the Indian Ocean region".³⁹ Until 1960 there existed only one operational command at Palam, but in the same year, a second command at Calcutta, known as the Eastern Command was formed. The purpose of setting up this command was "to meet the growing commitments of the IAF for air defence and support operations in the area bordering China, Burma and East Pakistan.

The strength of the IAF according to Kavic's assessment on the eve of the war was as follows:

100.	Mysteres
60-75	Gnats
100	Vampires
104	Ouragons
100	Canberras

38 D.R. Mankekar, The Guilty Men of 1962 (Bombay, The Tulsi Shah Enterprise, 1968), p.15.

39 Kavic, n.6, p.108.

53	C-19 Gs
30	C-47s
26	Otters
12	Devons
16	An-12s
62	Prentices
30	Texans
26	Il-4s
15-26	Austers
60	assorted helicopters and several Viscounts.

AIRCRAFT IN SERVICE FROM 1954-62⁴⁰

	<u>Type of Aircraft</u>	<u>Period of Acquisition</u>	<u>Nos.</u>	<u>Country of Origin</u>	
1)	Sikorsky S-55		54-56	8	
2)	Il-14		55-74	26	USSR
3)	Vickers Viscount		55-67	2	UK
4)	De Havilland Canada DHC-3 Otter		1956	34	Canada
5)	Bell Model 47G		57-72	12	U.S.A.
6)	Dassault Mystere IVA		57-73	110	France
7)	English Electric Canberra B(1) MK58, BMK 66, BMK 12, DR MK 57, PR MK 67, T MK 54		57-	115	UK
8)	Hawker Hunter FMK 56, FMK 56A, TMK 66, TMK 66D		57-	230	UK
9)	HAL/Folland Gnat Mk I		58	235	UK-India
10)	Sikorsky S-62 B		60-64	2	U.S.A.
11)	Mil Mi 4		60-81	121	USSR
12)	An 12		61	40	USSR
13)	Lockheed Super Constellation		61	9	USA
14)	Aerospatiale Alouette III (Chetak)		62	180	France

The War

The Chinese "Border Guards" attacked Indian forces on 20th October at Thag La Bridge, the area of operation of Operation Leghorn mounted by India. The object of Operation Leghorn was to eject the Chinese from the Eastern sector. Lt. Gen. B.M. Kaul was put in charge of executing this plan. The Chinese responded to this plan by crossing into the disputed

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The table of aircraft in service in India appears in Green, Swanborough and Pushpinder Singh (ed.), The Indian Air Force on Its Aircraft (London, 1982), p.75.

area south of the Thag La pass. For our purposes, it needs to be noted that the IAF was not called upon to give any combat support to the Army; only transport and communications support was asked for and given. It appears that this was the result of a political decision not to use the IAF at the tactical level. This decision contravened the well-known military principle that "tactical use of air power is used in a particular battle area or theatre of operation, designed to influence the outcome of the battle"⁴¹, and that the transport and helicopter units of an air force are "the least combative of the aeronautical breed."⁴² But even in the restrictive role, the conditions under which the IAF had to operate to provide the logistics support to the Army imposed severe restraints. At some places, there were no aircraft-to-ground communication facilities. Flying, according to Air Chief Marshal Lal, was totally visual, without any landing aids. The C-3, i.e command, control and communications network at the disposal of the IAF at this juncture does not appear to have been upto date.

Surprisingly, the IAF aircraft were used only in one instance for reconnaissance purpose, and that too in the secondary theatre of action in the, the Aksai Chin area. Moreover, the bulk of the logistic support to the Army were mainly in the Aksai Chin area. The Fairchild Packets, Il-4s and Dakotas which were used for the airlift were all were piston engined; their flying ceiling capability ranged from 12000 to 15000 ft. So poor were the preparations that the airfield at Leh was reported to have disintegrated under the weight of the heavy transport planes.

41 Asher Lee, Air Power (New Delhi, Sagar Publications, 1975), p.101.
 42 Ibid., p.101.

The planes themselves were overworked, since the same aircraft had to fly to Kashmir in the morning and to Tezpur at Assam in the afternoon. This must have created enormous maintenance and servicing problems for the ground crew. These lapses can only be attributed to bad planning.

In the NEFA region the lack of communication lines (i.e. roads, airfields, or even dropping zones), made the task of delivering supplies difficult. The 4 Division that was deployed to defend this area could receive supplies only by air. The dropping zones that were marked were small and located on the mountain slopes. So, the aircraft often could not drop the supplies. When they did much of the supplies and equipment was wasted because the loads fell into areas from where they could not be retrieved. This shortcoming, once again underscores the lack of planning in supplying the troops in the Himalayan forward areas.

The 1962 war saw the use of helicopter units for the first time. These were used to provide logistics support during the war and after the war they were engaged for tracking and airlifting the struggling and stranded soldiers withdrawing to the plains, particularly in the eastern sector.

One anomaly appears: Although a political decision had been made not to use the IAF, on 20th November Prime Minister Nehru himself made an urgent appeal to the United States to intervene in the war against China with American combat aircrafts. "His idea was that American aircraft would undertake strikes against Chinese troops on Indian territory if they (the Chinese) continued to advance, and would also provide cover for Indian cities in case the Chinese Air Force tried to raid them. The appeal was detailed, even specifying the number of

squadrons required fifteen."⁴³ Earlier, Nehru had asked only for transport aircraft "and that part of his appeal was immediately granted with the despatch to India of a squadron of C-130s, big turbo jets."⁴⁴

Nehru's new appeal to USA to intervene with its Air Force, was of a different nature. The idea, it seems, was to drive home the message that further Chinese advance into Indian territory would result in air retaliation by a super power. This, Nehru felt ^{might} deter the Chinese from moving the troops into the plains of Assam. Implicit, in this threat was also the fact that the Indian Government continued to think that the Chinese Air Force may retaliate against Indian cities. This clearly shows that the Indian Government did not possess adequate intelligence about the strength and capability of the Chinese Air Force and whether China could launch an air attack from Tibet. This is, to say the least, very surprising. But before the American intervention could materialise the Chinese declared a unilateral ceasefire on 21st November.

Neville Maxwell says in his book that the Chinese plan, as it was explained to him after the war, was only to advance south of the McMahon Line. The objective was to stop India from implementing its plan to alter the status quo on the border by the use of force. This was a reference to India's Forward Policy. Maxwell adds that there was "nothing incomprehensible about these measures". "The Chinese measures came as a surprise only because the Indian version of what was happening was so widely accepted."⁴⁵

43 Neville Maxwell, n.32 p.410.

44 Ibid, p.410.

45 Cited from Maxwell, p.410.

The decision not to use the IAF, was puzzling, given the fact that the IAF had been consolidated and had inducted a whole wide range of new aircraft. It had an adverse impact on the performance of the Indian Army. It And yet, suddenly, the same political leadership appealed to the US for air support against China. This leads one to believe that there was not only confused thinking, the Indian leaders were seized by panic.

On the question why air power was not used by India different people have expressed different views. Among them Lal and Chaturvedi had served in the IAF, Lt-Gen B.M. Kaul was in charge of executing the Government's Forward Policy in the Eastern sector, S.S. Khera was a member of the bureaucracy and Neville Maxwell was the correspondent of the The Times (London) during the war. Lorne Kavic and Ravi Rikhye are "outsiders", since they were in no way connected with the war.

What can be culled from different views? Can one discern kind of a pattern in their arguments? Is there any common thread running through them?

Air Marshal Lal says that the IAF played a "non-combatant role" but does not say why such a role was chosen.⁴⁶ Air Marshal Chaturvedi, on the other hand says that it was a political decision that the IAF should not be used for combat.⁴⁷ The political leadership it appears, was worried more about the political backlash at the international level.

Chaturvedi's line of argument is echoed by Mr. Khera. In his assessment:

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Air Marshal P.C. Lal.

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Air Marshal M.S. Chaturvedi, History of the Indian Air Force (New Delhi, Vikas Publishing House Private Limited, 1978), p.121.

"the Indians themselves had till then refrained from air action, undoubtedly so as to avoid the evident risk of provoking into action the far bigger and modern airforce of China. The Chinese were in a position to penetrate, with their bombers and fighters deep into the industrial areas, and to major cities such as Calcutta, Delhi, Agra, and many others while their own bases were safe in China proper beyond Tibet".⁴⁸

Maxwell remarks that, General Kaul, prior to the commencement of operation Leghorn, recommended the use of air power. Kaul "proposed therefore that the Air Force should be alerted, so that offensive air support could be deployed to retrieve the situation"⁴⁹ The purpose of Operation Leghorn was to eject the Chinese from the Thag La Bridge area. The troops were dispatched to Dhola with the order that no weakness should be shown while fighting against the Chinese.

Kaul, began to spot the flaws in the Operation Leghorn plan even before it was executed:

"Twice he (Kaul) had warned New Delhi that, while he would vouch for the initial success of the Operation, he had no reserves with which to hold off counter-attacks, and he had asked for military and air resources to be marshalled to restore the situation."⁵⁰

Maxwell then adds on ironically:

48 S.S. Khera, n.l, p.186.
 49 Neville Maxwell, n.33, p.333.
 50 Ibid, p.335.

"None knew better than he as a C.G.S., that there was no military resources to be marshalled... or at least none near enough to make any difference to the odds on the Namka Chu. He could see for himself that tactical air support could make little difference in this sort of terrain."⁵¹

Kaul, explains the non-use of air power differently. He says that "our new offensive never got into swing for lack of punch and logistic suport."⁵²

Mankekar is of the opinion that the IAF was not used because *de'etc in* at that time the Indians had overestimated the Chinese capability in the air. India feared a massive retaliation by the Chinese. "Later intelligence, in colloboraton with US reports, proved that the Chinese at the time, had poor air-retaliation capability."⁵³ In support of this opinion, Rikhye blames excessive dependence on foreign intelligence reports. He holds that the acceptance of foreigners' judgement without any Indian evaluation was primarily responsible for the political decision not to use the IAF in a combat role. He says flatly,

"...the US Central Intelligence Agency advised the Indian Government against the use of the Indian Air Force. The CIA said that this would only provoke Chinese air retaliation."⁵⁴

Among all these attempted explanations, Kavic's seems to be the most plausible one. He holds that the IAF was being trained primarily

51 Ibid.
 52 Lt. Gen. B.M. Kaul, Confrontation with Pakistan (New Delhi, 1971), p.52.
 53 D.R. Mankekar, n.38 p.8.
 54 Ravi Rikhye, unpublished paper for Centre for the Study of Developing Societies, Delhi.

to give tactical support to the Army on the western front i.e., against Pakistan. There were, thus, no plans to use the IAF against China. Moreover, the IAF was not in a position to deploy or maintain squadrons at the operational level because of dearth of proper training. The expansion of the IAF from 1954-62 had been mainly reactive in nature. Indian decision-makers were reacting to the purchase of the Sabres and F-104 aircraft by Pakistan from the United States. Kavic makes another pertinent point about why the IAF could not have been effective even if it had been used against China. He points out that there was a lack of spare parts which is reflected in the fact that all Harvard trainers and most of the Vampires were grounded at the time of war because the aircraft base repair depot at Kanpur could not perform its basic functions, since it was also hit by lack of spare parts.⁵⁵

The non-use of the IAF in 1962 continues to puzzle many. If the decision was a professional one, what was the basis on which the IAF commanders arrived at the conclusion? Was it the CIA briefings or was it Tucker's opinion coupled with those in the paper that Blackett submitted to the Government in 1948?

Then there is another question that pops up. Did the IAF have an assessment of the capabilities of the Chinese Air Force? It is more likely that it did not, since the intelligence gathering and assessment for this was appallingly shoddy.

Sorting through the jungle of opinions, the conclusion that if the IAF was not used, the most plausible answer would be that it was due to

poor planning. Decisions for the entire campaign were of an ad hoc nature. The Indian leaders, both political and military were improvising and reacting to the moves made by the adversary. Since China was not using its air arm, India must have also refrained from using its. Since it would mean adding another dimension to the war; this may prove to be damaging for India. Such was the logic.

The 1962 war was a watershed in the history of independent India. The Indian Army's dismal performance in the battlefield led to major psychological trauma on the Indian political leadership, the armed forces and the society. The Indian leadership's moral standing in the world suffered a set-back. After the war, India's leaders made realistic assessment of the regional strategic environment. Their conclusion was that external threats to India stemmed from two fronts, i.e., Pakistan and China. Since there was a change in the political assessment of the security threat, the defence posture of the military forces was no longer solely Pakistan oriented. The expansion of the armed forces that had been frowned upon in the first decade and half, was now undertaken in a systematic manner. Defence planning, which was introduced after the war of 1962, resulted in the creation of 45 squadrons for the IAF.

CHAPTER III

EXPANSION OF THE AIR POWER: 1962-1971

III

The period from 1963-1971 witnessed a series of important developments both political and military, which were the direct outcome of the 1962 war with China. A fresh stock-taking of the altered threat environment was undertaken. A committee was appointed to assess why the Indian Army had failed to fight effectively. Its report, the Henderson-Brookes report as it came to be known, was never made public. But the very fact that a committee was appointed showed that a conscious re-evaluation of the strategic environment and defence preparedness was considered important. Such a shift in attitude towards a more realistic assessment also meant that the armed forces would be expanded. Defence planning was introduced and the budget allocation for the armed forces increased. Immediately after the war the budget for the armed forces shot up to 4.5% of the GNP and thereafter stabilised at 3.6% per annum.

In relation to the Air Force, it was decided to expand the IAF to 45 squadrons. The dependence on the West for equipment was to be scaled down. The policy of diversification of supplies was abandoned and instead it was decided that India would go in for Soviet aircraft. Thus by 1971, most of the frontline aircraft and transport planes in the IAF were of Soviet origin. The contributory factors influencing the decision to go in for Soviet aircraft may have been the rupee payment arrangement, and the rugged and simple designs of the Soviet aircraft. Furthermore, the Soviet aircraft were easier to maintain.¹

¹ "The simplicity of Soviet weapon systems is the result of clever conceptual design to meet productivity, reliability and maintainability requirements... Soviet weapons "are designed for operation by personnel with limited skill and require minimal organizational level

Attention was also paid to the indigenous aeronautical industry. Two committees, the Tata Committee and the Subramaniam Committee, were set up to look into the matter. A decision was taken to licence-produce the Soviet MiG-21 aircraft series and to complete the indigenous HF-24 Marut project.

This period also witnessed two wars, fought within a span of six years between India and Pakistan. The 1965 war was fought over the question of Kashmir, in which Pakistan's political objective did not materialise. The 1971 War on the other hand, was of a different nature. It was fought over the question of East Pakistan. The civil war in East Pakistan that broke out in 1971 climaxed into a full-scale war between India and Pakistan. The Pakistan armed forces were thoroughly defeated in East Pakistan, and the sovereign state of Bangladesh was born.

This decade then, witnessed the emergence of India as a regional power in the subcontinent, an achievement barely after a decade of the Chinese debacle in the war with China.

* * *

The 1963-1971 period can be broadly divided into two phases: 1963-1965 and 1965-1971.

1963-1965

One immediate Western response to the 1962 War was to send the Averill Harriman Mission from America and the Duncan Sandy Mission from

(Continued)

maintenance."

Quoted from an unpublished paper by Capt. J.W. Kehoe and K.S. Bower, US-Soviet Weapon System Design Practices (October, 1981), pp.36 .ff.

the United Kingdom. "The Harriman mission, which was paired with one from Britain led by Duncan Sandys, laid the groundwork for substantial military assistance for India over the next three years, under an agreement reached soon after this between Kennedy and Harold Macmillan, the British Prime Minister at Nassau."²

What was expected from India in return? It was the settlement of the Kashmir dispute and measures for joint defence with Pakistan against China.³

Nehru's vacillation over these two conditions resulted in the disappearance of diplomatic delicacy and "Harriman and Sandys launched an all-out effort to use the promise of arms aid to lever India into settlement with Pakistan".⁴

The American arms aid continued despite Pakistan's protests. After the 1965 War the U.S. imposed an arms embargo on both India and Pakistan. India then, turned to the Soviet Union for military assistance, while Pakistan turned to the People's Republic of China.

In 1963 a joint Anglo-American air exercise known as "Shiksha" (very appropriately named, since Shiksha means education) was held in India. The exercise was training Indians to operate long-range fighter aircraft from IAF bases. The former Air Chief Marshal P.C. Lal records that the IAF received some old radar units which constituted the Air Defence Ground Environment System (ADGES). But such help was suspended after the installation of the first unit due to the 1965 War.⁵

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Neville Maxwell, India's China War (New Delhi, 1971), p.435.

3

Ibid, p.46

4

Ibid.

5

Air Chief Marshal, P.C. Lal, My Years with the IAF (New Delhi, 1986), p.115.

Alongside Anglo-American aid, India also decided to go in for the licence-production of the Soviet MiG-21. It however decided to abandon the earlier decision to licence manufacture the Soviet Mi-4 helicopters. Instead the French helicopter Alouette was opted for. In February 1963, HAL was given the project to licence-produce the Alouette from Sud Aviation and manufacture Artouste engine for these helicopters under licence from Turbo-Mecca.

The Indians had appealed to the U.S. for the supply of F-104 F Starfighters and for technical collaboration and assistance for the HF-24 Marut project. But both these proposals fell through.

The MiG-21

MiG-21 F (NATO code name Fishbed-C) was introduced in 1959 in the Soviet Air Force. The MiG deal with India was signed in August 1962, before the war with China actually took place. Initially, the aircraft were to be assembled and later on, manufactured in the country itself.

In a paper produced for the RAND Corporation, Ian C.C. Graham has dealt at length about the nature of the Indo-Soviet MiG deal.⁶ He remarks that, it was on the report of certain IAF officers, that the deal was clinched. These officers, while on a visit to the Soviet Union happened to see the MiG-21 perform.⁷ The main reason why India did go in for the Soviet aircraft were two-fold. The first being, that the payment could be made in rupees. India at that time was facing severe

⁶ Ian C.C. Graham, The Indo-Soviet MiG Deal And its International Repercussions (Rand Corporation, January 1964).
⁷ Ibid, p.6

foreign exchange problems. The second was that eventually the aircraft would be produced in India. India received the first batch of MiG-21 in February 1965.

The other major development was the setting up of the J.R.D. Tata Committee which submitted its report in 1964. This special aeronautical committee's purpose was to look into the needs of the IAF and the possibilities of indigenous manufacture of military aircraft.⁸

The Committee recommended that by 1970, the IAF should have 45 squadrons. It also pointed out, that the subsonic aircraft then in service, like the Hunters, Mysteres, Ourangons and Canberras should be phased out. The IAF at this point did not have any supersonic aircraft in service. The committee recommended that the main firepower of the IAF should be built around two types of supersonic fighters which should be backed by the Gnat interceptor.⁹ The committee was probably referring to the MiG-21 and Marut as the two supersonic fighters. The assessment of the committee on the aeronautical industry was "centralisation and rationalisation in the aircraft industry to promote the orderly and co-ordinated development and production of aircraft, propulsion, armament including missiles, electronics, testing and evaluation".¹⁰ What the committee meant was that a holistic approach should be taken towards the improvement of the aircraft industry.

The Ministry of Defence (MoD) agreed to the Committee's assessment of the aeronautical industry in principle. But, it rejected its

⁸ Raju C.G. Thomas, The Defence of India: A Budgetary Perspective of Strategy and Politics (Delhi, 1978), p.191.

⁹ Ibid.

¹⁰ Chris Smith, Alternative Defence for Third World Countries; A Case Study of India (unpublished paper for the UN University, 1986), p.93.

recommendations as not being viable. The objection of the MoD seemed to have been that aeronautics R&D could not be vested in an authority outside the regular R&D organisation.¹¹

In 1969 the Marut project, which was now already a decade old, was still dogged with problems. A suitable power pack was never procured. And eventually, when it was commissioned into the IAF, it failed to achieve the stated supersonic speed.

The third strand in the changed perception in the policy towards the armed forces was the introduction of defence plans. The first five year plan for the Armed Forces was from April 1964 to March, 1969. Its main thrust was the strengthening and expansion of all three branches of the armed forces. The outlay for the first plan was approximately Rs.500 crores. The plan had six main objectives, four of which were related to the IAF. They were modernisation of the IAF and stabilisation at 45 squadrons; increase in the defence production base; infrastructural improvements in the border areas and expansion of R&D.¹²

The Second Indo-Pakistan War : 1965

Pakistan's political objective seemed to have been to force a settlement on the Kashmir issue. The thinking in Pakistan's political and military circles was, that this was the right time to attack India. They were not sure if they would be able to take on India, once India's armed forces had been expanded. It appears that a Kashmir Publicity Committee had been set-up prior to 1965 to discuss Pakistan's strategy

11

Ibid.

12

Smith, n.10, pp.6-7.

towards Kashmir.¹³ And in "1964 the Foreign Office and the Inter-Services Intelligence Directorate produced a paper which was to become the basis of Operation Gibraltar." Ayub Khan shot it down at that time but there is no doubt that the Kashmir Operation was under active consideration by the end of 1964."¹⁴

The Pakistanis seemed to have underestimated Lal Bahadur Shastri's political acumen. The underestimation, in turn, proved to be a major factor that influenced Pakistan's leaders' decision to invade Kashmir, who were strongly convinced that Shastri would never issue an order to the Indian armed forces to cross the Cease Fire Line (CFL). They also decided to ignore both Nehru's and Shastri's statements on Kashmir. Both had taken a strong position stating that an attack on Kashmir would be treated as an attack on India.

This thinking is corroborated by Altaf Gauhar in the Foreword to Ashgar Khan's book. To quote him:

"The whole operation was constructed on three assumptions: (i) widespread support would be available within Occupied Kashmir; (ii) India would restrict its offensive to the Azad Kashmir territory; and (iii) there was no possibility of India crossing the international border. All three assumptions proved wrong."¹⁵

The overall strategy of Pakistan in this War was similar to the one it had followed in the 1947-49 operation.

¹³ Altaf Gauhar's observations in the foreword of M. Asghar Khan's, The First Round: India War 1965 (New Delhi, 1979).

¹⁴ Ibid.

¹⁵ Ibid, pp.xi, xii.

Warning Time

There was at least a warning time of at least eight months for India before the war broke-out in September 1965. In January 1965, Pakistan launched a limited probe in the Rann of Kutch area. It slowly escalated and in April, Pakistan sent its regular troops. The episode came to an end when the British Prime Minister Wilson acted as the mediator. The motive behind Pakistani probe into the Rann of Kutch was to conduct a rehearsal for the conquest of Kashmir. Before launching a full-scale attack there, Ayub Khan thought it necessary to try his new American weapons (the Patton tanks), steadfastness of his friends and, India's capacity to resist.¹⁶

The War

The September war actually began in August, when Pakistan's guerillas infiltrated into Kashmir. However, the major Pakistani attack by its regular Army began on 1st September 1965, in the Chhamb Sector. The Pakistan Army's thrust in the Chhamb Sector continued till 6th September. On the 5th, Pakistan had captured the village of Jaurian and its forces were close to Akhnur. The Chhamb sector is a vulnerable point for India. Akhnur is only about 20 miles from Jammu city.

The Pakistanis would have scored a tactical victory, had they captured Akhnur. They would have succeeded in cutting off the Lines Of Communication (LOC) between Jammu and Kashmir and the rest of India. A

¹⁶ Sisir Gupta, Kashmir: A Study of India-Pakistan Relations (New Delhi, 1966), p.174.

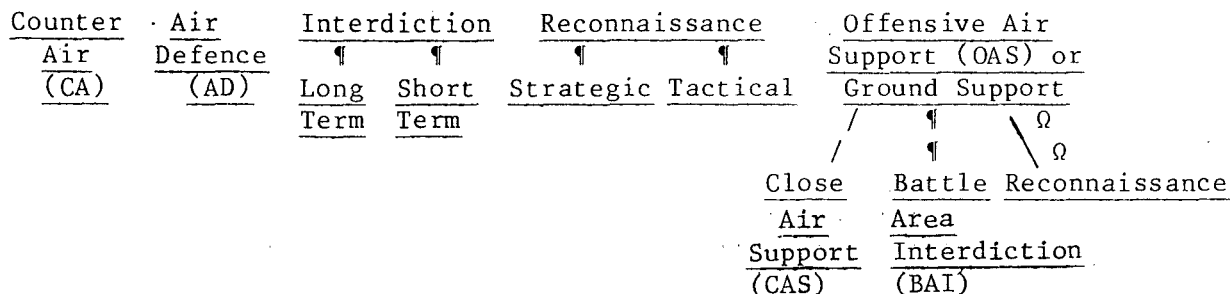
decision, it seems, was taken on the night of the 5th, by the Indian government to cross the entire border from Kashmir to Rajasthan.¹⁷ On the 6th the Indians launched a two pronged attack against Lahore Sector and the Sialkot Sector. In the Lahore Sector, Lahore and Amritsar are the two main cities. For India, to surround Lahore would have been a tactical victory.¹⁸ With the capture of Lahore, Pakistan's LoC which runs north-south and links Karachi with Kashmir would have been severed. In the Sialkot sector, Sialkot was an important road and rail head for the Pakistanis.

The Pakistanis, to relieve the pressure on the Lahore Sector, launched a counter-attack at Khem-Karan led by the Pakistani First Armed Division. Khem-Karan witnessed some of the fiercest fighting on land.

On 23rd September, 22 days after the war started, a ceasefire was declared. The Soviet Union acted as the mediator during the post-war settlement at Tashkent.

Air Operations

Given below is a brief description of the different tasks that an Air Force is expected to undertake.



17 Personal interview.

18 The Indian armed forces have never planned to capture a city. Capturing a city needs a lot of force and a different kind of Army (Personal interview of a retired Army officer by the author).

"Counter-air operations are conducted to gain and maintain air superiority. Air Defence operations really are only a sub-division of counter air-operations..."¹⁹

"Offensive air support [OAS] missions encompass all missions undertaken against hostile military power in direct support of land forces."²⁰

Interdiction means "restraint or prohibition applied to the enemy's capability to wage a war."²¹ Interdiction can be divided into three sub-components: force or mobility interdiction; supply or logistics interdiction; and source, including industrial interdiction.²²

Given below is a break-down of the IAF prior to the war.²³

<u>Combat Aircraft</u>	<u>Squadron number</u>
Vampires	24,25.
Toofanis	34,47,29
Mystere IV	1,3,8,31,32,
Gnats	2,9,18,23.
Canberras	5,16,35
Hunters	7,14,17,20,27,37.
Marut	10

¹⁹ Air Commodore Jasjit Singh, Air Power In Modern Warfare (New Delhi, 1984), p. 141.

²⁰ Ibid.

²¹ Ibid.

²² Ibid, p. 146.

²³ Data gathered from personal communication with Air Force personnel.

Non-Combat Aircraft

Photo Reconnaissance Vampires	101,108.
Maritime Reconnaissance-	
(Super constellations and Canberras	6
Strategic Reconnaissance (anberras)	106
Transport	11,12,25,33,44.
Light Transport-Otters	41

Out of these approximately twenty were combat squadrons. Toofani, Vampire and Marut squadrons had to be withdrawn to the rear bases due to their marginal performance. It was the Hunter, Mystere, Gnat and Canberra squadrons that were used extensively.

A comparison of the IAF and the PAF shows that at that time the IAF had 270 frontline aircraft. The PAF had 170 frontline aircraft.²⁴ The PAF had supersonic aircraft and sidewinder - an advanced air-to-air missile the Sidewinder.

Role of the IAF

This was the first war, in which the IAF was used in a combat role. From the 1st to 5th September the IAF gave Offensive Air Support (OAS). Counter Air (CA) Operations were launched only on the 6th when the PAF attacked IAF bases.

When the Pakistan Army crossed the CFL on 1st September, the IAF was requested to provide ground support to the army in the Chhamb

Sector. "On the afternoon of 1st September, the Army Chief, J.N. Chaudhari, asked the Defence Minister to request the Indian Air Force for ground support. The DM's request came at 4 p.m. By 5.19 p.m. the Vampires at Pathankot were airborne."²⁵

The Vampire and Mystere squadrons flew 28 missions and managed to inflict damages on Pakistani tanks, guns, vehicles and troops.²⁶ The IAF lost three aircraft. On 2nd September, it appears that no aircraft were used. On the 3rd and 4th the IAF claimed three Sabres altogether. The IAF confined itself to Offensive Air Support and did not launch any attack on PAF's air bases.

Counter-Air-Operations

The PAF launched the Counter Air Offensive on 6th September. The PAF airfield strike plan was as follows²⁷:

<u>Take-off Base</u>	<u>Commitment</u>	<u>Target</u>
Sargodha	8 F-86 Fs	Adampur
Sargodha	8 F-86 Fs	Halwara
Sargodha	4 T-33s	Ferozepur Radar
Sargodha	6 F-86 Fs	Amritsar
	IRB-57 <i>ELINT</i>	tsa
Peshawar	8 F-86 Fs	Pathankot
Mauripur	8 F-86 Fs	Jamnagar

25 P.C. Lal, n.5, p.127.

26 Ibid, p.128.

27 John Fricker. Battle for Pakistan. The Air War of 1965 (London, 1979) p.91.

Mauripur	4 T-33s	Porbunder Radar
Mauripur	12 B-57s	Jamnagar

Air Marshal Asghar Khan states that the aim of the PAF was to inflict maximum damage with minimum warning. He says: "This simultaneous approach would give the Indians the least warning of our approach and all their airfields would receive the minimum possible warning of the raid."²⁸ The aim of the PAF's CA offensive was to hit at India's air assets like the aircraft and the infrastructure. The plan could not be executed with clockwork precision, as it had been envisaged earlier. The only airbase where the PAF could inflict a certain amount of damage was at Pathankot. The IAF lost two MiGs, two Gnats, five Mysteres and one Packet on the ground.²⁹ Pathankot was hounded two or three times at night by PAF B-57s.

The Pakistani Sabres headed for Adampur were intercepted by IAF Hunters. The mission was aborted. The Halwara mission was also intercepted by Hunters. But Asghar Khan claims that the Sabres headed for Halwara shot down three Hunters. This despite the fact that the Halwara mission which was led by Sqd. Ldr. Rafique was hit by "bad visibility, failing light and enemy opposition prevented Rafique's formation from Halwara and they decided to fight their way back to Sargodha".³⁰ Rafique was shot down.

²⁸ Asghar Khan, n.13, p.21.

²⁹ Data gathered from personal interviews. The IAF had expected the raid on Pathankot but had miscalculated the timing and were therefore caught unaware.

³⁰ Ashgar Khan, n.13, p.25.

The two missions sent to damage the radar at Amritsar were also aborted. The first mission was flown in the evening and the second in the night. According to Fricker the "first strike aborted since the special electronic equipment in the RB-57B became unservicable". The second strike was also frustrated because of the intense flak with which the Indians had ringed their radar site.³¹

The Pakistanis, besides launching CA offensive, also air dropped paratroops at the airbases in Punjab. The plan was to airdrop them at the bases which were targeted for attack by the PAF. They were assigned the task of destroying the IAF aircraft on ground, personnel -- particularly the air crew and to blow up all fuel supplies.³² On paper this was a very bold plan and had the PAF succeeded in achieving these goals, the IAF's Air Defence capability would have been blunted.

The three pronged paratrooper attacks on Adampur, Halwara and Pathankot failed in their mission. At Pathankot, the paratroopers landed in the middle of a canal network. At Halwara, they landed at a village near the base. And at Adampur, as Fricker remarked, there was "a small error in the drop".³³ The small error was that they landed in the domestic area instead of aircraft dispersal area. In hindsight, Fricker, the official chronicler for the PAF of the 1965 war, states that the plan was faulty and that the chances of the mission ever succeeding were rather low.

The IAF retaliated with its CA operations on 7th morning. Its main target was the Sargodha air base. Sargodha is the nerve center of

31 Cited from Fricker, n.27, p.105.
 32 Ibid, p.108.
 33 Ibid, p.112.

the PAF. It has four air bases, namely, Sargodha main, Chota Sargodha, Wegowal and Bhagatanwala. The IAF flew four missions to Sargodha.

The first mission comprised six Mysteres from Adampur. They hit one Starfighter on the ground. This, the PAF claimed was a dummy Starfighter. "One Starfighter was lost in air... This was the first and only Mach 2 Starfighter to be lost through enemy action in the '65 war." The IAF lost two Mysteres.³⁴

The second mission was undertaken by Hunters but the mission was, according to Pakistan sources, unsuccessful. "According to PAF estimates, the IAF lost 100% of the second force."³⁵ It was during this attack that PAF Sqd. Ldr. Alam is credited to have shot down five Hunters. Three of these were claimed by him within thirty seconds. But according to IAF pilots, it is impossible to hit at three aircraft within 30 seconds.³⁶ Secondly, they say, any aircraft that has been shot, is almost always regarded as destroyed. The attacking pilot has no way of assessing whether the enemy aircraft has been destroyed or not.³⁷ Fricker himself admits that "admittedly, confirmation of Alam's claim has been difficult to obtain, despite close-range observation of this encounter by several PAF pilots and some gun camera evidence. Explaining the failure, Air Chief Marshal P.C. Lal remarked: "It was not a wise plan for the base commander to send the second mission so soon because it could reasonably be expected that the PAF would already have been alerted by the earlier raid".³⁸

34 Fricker, n.27, p.112.
 35 Ibid.
 36 Ibid, p.11.
 37 Personal interview.
 38 P.C. Lal, n.5, p.137.

The third attack on Sargodha was the only one that succeeded in inflicting a certain amount of damage, according to Fricker. This attack comprised of Mystere formations. The last attack was at 15.14 hours. The IAF lost one Mystere to the air-to-air Sidewinder missiles.

Counter air operations on 6th and 7th by both IAF and PAF, were thus, only marginally successful. The reason being that, after this, both the IAF and the PAF could not operate any further missions by day. Both cut back on their daylight CA operations and instead resorted to night CA operations. The IAF flew Canberras and the PAF flew B-57s for these night operations. It appears that not much substantial damage could be inflicted as the Canberras were not suited for this mission. They were primarily heavy bombers and vulnerable to ground attack. Moreover their bombing was inaccurate. To quote P.C. Lal, "The bombers, however, could only be used at night because they were vulnerable in flight by day. Even at night the Canberras approached their target at low altitude in order to drop their bombs they had to pop up to something like 6,000 ft. or so before they dropped their height explosive bombs... The accuracy of such bombing could not be very great..."³⁹

On the 7th of September, the PAF launched CA operations in the Eastern Sector also. The Indian political decision taken, was that no attack should be launched in the East. This, it was thought, might escalate and expand the war. This was an instance of poor planning.⁴⁰ The air bases in West Bengal of Barrackpore, Kalaikunda and Bagdogra

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Ibid, pp.174-75.

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Personal Interview.

were attacked twice by the PAF. Since, the IAF had no plans for Air Defence, it incurred certain losses. During the second strike at Kalaikunda the IAF retaliated and the PAF "lost two Sabres to our Hunters".⁴¹

Fricker in his book states that it was the IAF that initiated an attack in East Pakistan during the night of 6/7th September and "dropped bombs at random without much effect in the way of damage or casualties."⁴² And the PAF, according to him, retaliated to the IAF's CA offensive. The IAF retaliated by attacking the airfields of Karimtola. This was one of the two air-fields at Dhaka.

Offensive Air Support or Ground Support

On the question of Ground Support to the army there was much of confusion, because of the faulty communication network between the Army and the IAF.⁴³ The IAF came into a lot of criticism for providing inadequate ground support.⁴⁴ An additional drawback was that squadrons had not been earmarked for support of a particular corp. or area. This fault could be attributed in part to the Army's resistance to cooperate with the IAF. This resistance can be traced back to the 1920's also. The army considered the IAF to be an adjunct and therefore thought that the IAF should undertake missions at its behest. The point, that the air force was independent branch with considerable mobility and flexibility seems to have been missed by the Army. The PAF on the other

41 P.C. Lal, n.5, p.133.
42 Fricker, n.27, p.116.
43 Personal Interview.
44 Personal Interview.

hand functioned independently of the army. It however, failed to give adequate ground support to the army.⁴⁵ At the battle of Asal Atur, near Khem Karan, the IAF gave offensive Air Support to the Army. Mysteres and Gnats were used for Battle Area Interdiction. The IAF shot "trains carrying tanks and other equipment essential for the fighting".⁴⁶ They also provided ground support in the Sialkot sector. "On 19th September, Squadron Leader Denzil Keeler and Flt. Lt. Vinay Kapila of No. 9 Squadron shot down a Sabre each in the Phillaira-Chawinda sector."⁴⁷

Towards the end of the war the PAF flew fewer sorties. This could have been due to the shortage of spare parts and supplies coupled with the lack of co-ordination on the Pakistani side.

One of the indicators of the effectiveness of the Air Force during a war is the number of aircraft destroyed or damaged. In the case of this particular war there have been conflicting figures from both the sides. According to P.C. Lal the PAF claimed that it had destroyed 110 aircraft and 19 damaged. Lal has dismissed this claim and states that the IAF lost about 35 aircraft. The IAF claimed 73 PAF aircraft as destroyed. While the PAF admits that it lost only 20 aircraft which were either destroyed or damaged.⁴⁸

But, according to Fricker's account the PAF claimed 110 IAF aircraft damaged and 19 destroyed.⁴⁹ The break-down as given by him is:

45 Retd. Air Marshal Nur Khan of PAF said that, "each arm (of the defence services) wanted more or less on its own". The Times of India (Delhi) 10 May 1988.

46 P.C. Lal, n.5, p.132.

47 Ibid.

48 P.C. Lal, n.5, p.140.

49 Fricker, n.27, p.184.

- 35 shot down in air combat
- 43 written off during airfield attacks
- 32 shot down by ground fire.

Assessment

The Indian war strategy was defensive in nature. "Though India has been faced with this situation (with Pakistan) for nearly 20 years, it has evolved no policy to meet it. Everytime there is a flare up, there is initial hesitation followed by improvised action." ⁵⁰ The Pakistanis in contrast believed in launching an offensive strategy. As P.C.Lal has remarked, Indian defense posture was a defensive one. While the Pakistanis were prepared for a quick, though limited offensive action. ⁵¹ The IAF failed to seize the initiative in the air. Between the 1st and the 6th September, it provided only ground support to the army. It only responded after the PAF launched its C.A. operations.

The war clearly demonstrated that even though the IAF had more equipment and better infrastructure, it did not mean that it was twice as good. The PAF had only three types of aircraft, which meant a fair degree of standardization of weapons and easy maintenance. The IAF on the other hand suffered from a multiplicity of aircraft. Some of them like the Toofani and the Vampires were marginal in their performance.

The PAF had an edge over the location of air fields and bases. The IAF bases were either located too near or too far from the border. But

50 P.V.R. Rao, Defence Without Drift (New Delhi, 1971), p.322.
 51 P.C. Lal, n.5, p.123.

since the PAF bases were dispersed, co-ordination in planning bombing raids were not successful. The lack of the supersonic aircraft was felt by the IAF. The PAF used their Starfighter sparingly.

The air war was not a decisive one. The major part of the war confined to the Punjab sector. The war was mainly fought on the land. The Rajasthan sector did not possess any adequate air facilities. Both the sides used their air power economically. In the entire war, only two days of counter air operations were launched. And even in these C.A. operations the outcome was not clear-cut.

Air superiority was not achieved by either of the Air Forces. But, the IAF managed to gain a favourable air situation.

Lessons of 1965 War

The lack of supersonic aircraft was felt. The IAF could not penetrate deep into Pakistani territory. The communication network between the Army and IAF was improved. "The 1965 war demonstrated, in practical terms, the deficiencies in the Army-Air Force link up at virtually every level of command and control."⁵² The IAF did not possess any bases in the Rajasthan sector. Now air bases at Barmer and Jaisalmer were built. The IAF did not have any hard pens for parking the aircraft. As a result, quite a few aircraft were lost on ground. This deficiency was rectified and hard shelters were built after 1965.

C. Subramaniam Committee

After the war, in 1967, the ministry of defence set up a Aeronautical Committee under C. Subramaniam. The committee was:

- a) to assess the requirements and allied equipment;
- b) to survey the existing and potential sources of supply and to recommend how besst indigenou sources can be tapped; and
- c) development of the aeronautical industry, specially the R&D, with a view to attaining self-sufficiency at the earliest.⁵³

The findings of the committee was published as a report. The report was never made public, but only portions of it were published. The main recommendations of the report were that "present arrangements for long term assessment of threats and formulation of the long term requirement needs strenthening."⁵⁴ Instead of increasing the force level of the IAF, the committée pointed out that the emphasis should be laid on radar cover and maintanence. This should be coupled with the maintenance of the aircraft too. In relation to defence planning, it recommended the rolling plan concept for the assessment of future aircraft requirement. It cited Sweden as an example. "In its final recommendations the committee castigated the Air Force for imposing upon HAL Operational Requirements in 1966 for a ground attack fighter which were unrealistic in relation to the industrial capacity and affordable costs. In relation to the role of the Services in defing the threat and requirements, the committee recommended the creation of expertise in

53 Venkatsubbiah Siddharta, "The Aeronautics Committee Report: A Critique",
 54 Economic and Political Weekly (Bombay), August 8, 1969, p.1.
 Ibid.

research institutions outside the defence establishment to assist with assessing the relative costs and claims of defence requirements, a form of defence science policy research institute.

The committee also dwelt upon HAL. It pointed out that due to licence production, the design teams at Bangalore had not developed in step with production facilities. It also expressed reservation about the wisdom of production under licence as a means of technological self-sufficiency.⁵⁵

The committee made recommendations in relation to management and organisation of HAL. In addition, it expressed concern over the ad hoc nature of decision making. About the nature of interaction between the IAF and HAL, it had this to say, "The principle aircraft requirements relate to the Air Force. Hence, the relationship between the Air Force and the indenter and the industry is important; in fact, the success to meet the Air Force requirements of manufacture with the country depends upon complete understanding and good working relationship between them."⁵⁶

1971 War

The third war between India and Pakistan was fought not over Kashmir, but because of the internal crisis in East Pakistan. What began as a domestic problem of Pakistan spilled into India. With the military crackdown on East Pakistan starting from 25th March 1971, East Pakistanis

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Smith, n.10, p.92.

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Subramaniam Committee Report as quoted in Chris Smith, n.10, p.93.

began to move into the Indian territory as refugees. The number of refugees eventually swelled upto a staggering figure of ten million. This exodus created some very major problems for the Indian government. Firstly, the refugees were coming into the sensitive northeastern part of India. This "was bound to disturb the delicate nature of social relations in these states. Additionally, towards the end of the sixties, India had experienced Marxist guerilla violence particualrlyin West Bengal. Indian administrators were particularly fearful that the guerillas would try to recruit supporters amongst the Bangladeshi refugees and cause further political problems."⁵⁷ Not only would there then be political problem but also a social problem. Secondly, maintaining the refugees would mean a heavy economic burden for India. The problem was further compounded by the fact tha flow of the refugees could not be stemmed. This was due to the porous nature of the border. The Indian leadership sought to solve the problem through diplomatic channel. It involved the United Nations in an effort to find a solution to this problem. It was only when the diplomatic efforts failed to yield result that the military option was thought of.

The first indication that the diplomatic option was not proving to be a viable one , was the signing of a Friendship Treaty with the Soviet Union. On August 9th 1971, a twenty year treaty of Peace, Friendship and co-operation was signed between India and the Soviet Union. the most important clause of the treaty was article IX, which read⁵⁸

57 Sumit Ganguly, The Origins of War in South Asia: Indo-Pakistani Conflicts Since 1947 (Colorado, 1986), p.118.
 58 Cited in A. Appadorai & M.S. Rajan (ed.), India's Foreign Policy and Relations (New Delhi, 1985), p.281.

"In the event of either part being subjected to an attack or a threat thereof, the high contracting parties shall immediately enter into mutual consultations in order to remove such threat and to take appropriate effective measures too ensure peace and security of their countries."

It became fairly evident by the middle of the year that a military action was being considered. But , before using the Indian Armed Forces there were certain essential considerations that had to be taken into account. They were, the time needed to make operational plans, stockpiling of material and redeployment of troops. Above all it was essential to chose a suitable time of the year. A war, would have been impossible under monsoon conditions. The right time of the year would have been at the end of the monsoon period, which roughly corresponded to the end of November.

Simultaneously, the Indian political leadership was still exploring the possibility of resolving the crisis through diplomatic efforts. Emissaries were sent to different countries to apprise them of the situation.. This was followed by Mrs Gandhi's visit in October and November to the USA, USSR and some European countries.

By November the writing was very clear on the wall. The opinion in India was that the response of the international community had been rather slow. And even when it responded it assumed only one fourth of the estimated costs for maintaining the refugees.

War that seemed remote in March, became a possibility in august. For, in mid-August General S.F.H.J. Manekshaw, Commander-in-Chief of the Indian Army had received orders to prepare for military action in East

Pakistan. Deployment of troops was started and by November beginning all the troops and aircraft were in operational readiness.

Warning Time

This, was the only instance where the Indian leadership took anticipatory steps. The warning time was effectively utilised. When the diplomatic option failed, a political decision had been taken to prepare the the Indian forces to fight a war against Pakistan.

The War

The war broke out on 3rd December 1971, with the PAF Counter Air (CA) operations against the IAF bases. But prior to this, on November 22nd the PAF launched an air attack at Boyra in the Eastern Sector. The IAF was successful in repelling the attack. It shot down three Sabres.

Western Sector

The forward air bases of the 1965 war became the rear bases in 1971. the reason being that newer bases had been built, particularly in the Rajasthan sector. By moving the IAF bases closer to the border, the IAF aircraft could penetrate further into Pakistani territory.

India, it appears did not have any significant objectives in the Western Sector. Its strategic posture was one of deterrence.⁵⁹

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Mohammed Ayoob & K. Subrahmanyam, The Liberation War (New Delhi, 1972), p.219.

Along with CA offensive in the East, a CA in the west was also launched by the PAF. It " began abruptly on the afternoon of December 3rd, when the Pakistani air force struck simultaneously at the Indian airfields at Amritsar, Srinagar, Avantipur and Pathankot, an at the landing ground at Faridkot and the radar station at Amritsar."⁶⁰ Not much damage was done by any of these strikes. IAF retaliated by launching its CA offensive on PAF air bases at Murid, Mianwali, Sargodha, Chander, Risawals, Shorkot and Masrur. Three strikes were carried out by Canberra squadrons.

Unlike in the East, the IAF in the West could establish only a favourable air situation. The reason being, that the Indian Armed Forces fighting in the West, was more cautious. Secondly, the bulk of the PAF is stationed in the West.

There were fewer instances of CA operations by either the IAF or PAF. The IAF instead gave a lot of OAS. Tactical Air Commands had been established and were attached to every corps of the army. The system was to improve and coordination the fighting between the army and the IAF.

Chhamb Sector

Just like in the 1965 war, in 1971 also, there was heavy fighting in this section. Change in the Indian defence posture in the last minute effected the performance of the Indian army. Prior to the war, the Indian Army had assumed an offensive posture, only to be changed to

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Robert Jackson, South Asian Crisis: India-Pakistan-Banladesh (London, 1975), p.116.

a defensive posture, three days before the war commenced. This shift in posture meant redeployment of troops, artillery and ammunition. "It caused a good deal of confusion which had not been sorted out when the Pakistanis struck on the night of the 3rd December."⁶¹

On the first three days not many sorties were flown for OAS operation. Once, the situation on the ground stabilised, the number of sorties increased. Canberras were used for interdiction mission. The nature of interdiction was supply interdiction. The logistics network, organisation and means for the Chhamb sector of Pakistan were successfully bombed. Once the Lines Of Communication (LOC) were successfully disrupted, the Pakistani pressure on India lessened.

Most of the OAS in the Chhamb sector were from the squadrons stationed in Adampur and Halwara. From Pathankot, supply and source interdiction missions were staged. On 6th December, the oil refinery at Attock was bombed. On the 8th December, the oil refinery was bombed for the second time along with the airfield at Chaklala. Mangala and its hydro-electric power house was also bombed by the squadrons based at Pathankot. From Halwara, interdiction attacks on Pakistan's railway line were carried out. And from Adampur, an interdiction mission on Pakistani army concentration and fuel dump was carried out. Squadrons from Adampur gave OAS to the Shakargarh sector. Along with interdiction mission, tactical photo reconnaissance was undertaken in the Shakargarh sector. This was done by Sukhoi-7s from Amritsar. One criticism levelled is that not much OAS was given to the army in the Shakargarh

⁶¹ P.C. Lal, n.5, p.260.

sector. This, according to the IAF was due to the cautious policy of the commander of the Indian troops in this sectors.

At Poonch, Vampires and the oldest IAF aircraft, Hawards were used. Other types of aircraft were not suitable for OAS operations. An-12s here modified and used as bombers. These bombings caused landslides which blocked the only road saving this area. The exact number of troops/guns destroyed by these bombings could not be assessed.

In the Rajasthan sector, the IAF's role in the battle of Longewala was a significant one. The Pakistani army advanced from the west against the major Indian supply point at Ramgarh, which was situated to the north of Jaisalmer. At the same time, the Indian army were positioned north of Jaisalmer, for an attack into Pakistan. Their target being, Rahmiyar Khan, which was an important point on the railway line that connects Karachi with Punjab. The main supply depot of this Indian division, was Ramgarh.⁶²

The Pakistanis in order to reach Ramgarh had to cross a small army outpost at Longewala. It was here, that the IAF gave pure interdiction support and prevented the Pakistani column from coming into contact with its target. Had the Pakistani thrust not been stopped at Ramgarh, they would have advanced to Ramgarh and from there to Jaisalmer, which was just 60 kms ahead.

Tactical reconnaissance sorties were flown. The IAF with one flight of Hunters destroyed or damaged a good number of Pakistani tanks. On the 6th too, IAF gave OAS to the Army.

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P.C. Lal, n.5, p.263.

After the battle at Longewala, the IAF flew many interdiction sorties. From the 7th till the end of the war, the IAF concentrated on interdiction of Pakistani LoC. No.20 squadron alone busted 27 Pakistani trains carrying war materials. This squadron came to be known as "train busters".⁶³

The Sui Gas Plant at Sind was also bombed. The interdiction bombing was so successful that the Pakistanis faced a shortage of POL during the course of war.

Eastern Sector

The PAF attacked in the East on 3rd evening. IAF retaliated with its CA operations on 3rd/4th December. It was only on the 6th that the IAF was able to achieve total air superiority in the East.

The task of the IAF in the Eastern sector were:⁶⁴

1. To ensure Air Defence to the area of responsibility of the Eastern Air Command.
2. To prevent Pakistani Air Force from seriously interfering with our land and air operations.
3. To give close and transport air support to our land force.

The first two objectives were realised by the 6th and thereafter became redundant. India's CA mission began on 3rd/4th night when Canberras were assigned the task of bombing Tezgaon and Karimtola, the

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Personal Interview.

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Air Marshal M.C. Chaturvedi, History of the IAF (New Delhi, 1976), p.220.

two airfields at Dhaka. The bombings by the Canberras was not effective, since the airfields were made operational within two days. The second time, MiGs were loaded with bombs and sent to attack the runaways. This mission was successful in effectively damaging the runaway.

By the 6th, the IAF had established air superiority in the East. Siddiq Salik, a Pakistani, observes that the "PAF had no regrets". It had survived for sixty hours against its anticipated lease of twenty four hours. It had survived so long by its sheer grit, determination and professional competence.⁶⁵

After the 6th, IAF squadrons were redeployed to the West and used for OAS operations in the East. The reason that made Indian air superiority possible, was, that the PAF had a smaller force stationed in the East. Other contributory factors, were the resignation of the Bengali ground crew. This posed maintenance and operational problems for the PAF. This was coupled with Yahya Khan's cautious policy. Yahya felt, that the PAF should be used sparingly. The PAF, he felt, could not afford high attrition rates. Another explanation for the lack of air effort was "the Pakistanis were deliberately saving up thier air effort in order to launch one major offensive in the Chhamb sector."⁶⁶

The IAF gave OAS to the ground forces, averaging about 120 sorties a day. It was very successful in its interdiction missions.

Air bridging for the IV crops was provided over water obstacles by MI-4 helicopters. "The airlift of a batallion of troops, by the

⁶⁵ Siddiq Salik, Witness to Surrender (Karachi, 1978), p.132.
⁶⁶ Mohammed Ayoub and K. Subrahmanyam, n.56, p.216.

helicopter force from Kailashahar, to a point north of Surma river virtually in full view of Sylhet to the South of the river began late afternoon on 7th December. This helilift continued during 8 & 9 December."⁶⁷

On 11th December, Hunters and MiGs gave ground support to the army near Comilla. Once again, helilift was provided for the army to cross the Meghna river. The Pakistanis had blown the bridge off the Meghna river.⁶⁸

The dropping of a batallion of paratroopers at Tangail, prevented a withdrawing Pakistani bridge from linking up with the Dhaka garrison. The purpose of paradropping was twofold. "One being to stop reinforcements reaching Dhaka for its defence, and the other being to "neutralise" these forces, overpower them and perhaps take them as prisoners".⁶⁹ Logistic support was provided for the rapidly advancing Indian army units. This was done either by supply dropping from tranport aircraft or by air delivery by helicopter. The IAF also provided Maritime Reconnaissance in the Bay of Bengal area.

Surrender

The Indian Army units were closing in on Dhaka. Gen Naizi, the Commander of the East Pakistani forces, indicated through the US Embassy that he wanted to surrender. "On his own authority, General Niazi asked

67 P.C. Lal, n.5, p.210.
68 Ibid, pp.212-213.
69 Ibid, p.218.

Mr Spivak (the American Consul) to transmit to the Indians a proposal for a conditional cease-fire.⁷⁰

On 16th afternoon Gen. Niazi signed the Instrument of Surrender.

Conclusion

While the Indian Army advanced into Dhaka rapidly, the fighting in the West had lulled. For the first time, there was good coordination between the IAF and the army.

With the fourteen days war, East Pakistan, became the sovereign state of Bangladesh. The 'two-nation' theory on the basis on which Pakistan was created. That Religion alone cannot be the cementing factor, was clearly demonstrated.

The whole regional environment in the sub-continent was altered. India, by inflicting a decisive defeat on Pakistan, emerged as the regional power.

CHAPTER IV

PERIOD OF STAGNATION 1971-1978:

LATEST ROUND OF MODERNISATION 1979-1987

IV

After 1971, India emerged supreme both militarily and politically in the sub-continent. There occurred a shift in the nature of threat perceived to the nation. The threat in the 1970'S arose from within the nation. Domestic crises culminated in the declaration of Emergency in June 1975, by Mrs.Gandhi.

In this chapter, the post 1971 developments in relation to the re-equipment and modernization of the IAF will be studied. The current phase of modernization, along with the renewed interest in indigenous programme at Hindustan Aeronautics Limited (HAL), is one of the biggest ever re-equipment programmes of the IAF.

The period starting from 1972 to 1987 has been broadly divided into two phases. They are from 1972-1978, a period of stagnation and 1979 to the induction of the MIG-29 into the IAF in 1987.

Period of stagnation 1972-78:-

After the liberation of Bangladesh, it became amply clear that new aircraft types for both combat and transport purposes were required. Military aircraft like the Canberras, Hunters, Mysteres and the indigenously produced Marut had become outdated. It was apparent that these aircraft would be extremely vulnerable in a future war. Coupled with the obsolescence of these aircraft, had been the extremely poor performance of the SUKHOI-7(Su-7) in the 1971 war. The Su-7 had been inducted into the IAF towards the close of the 1960's. And by the 1970's the Su-7 squadrons were reequipped. The reason being that the

IAF considered the Su-7 as a diminishing asset. In other words, it meant that it was not a very effective aircraft. The Su-7 had proved to be particularly vulnerable to ground fire in the 1971 war.¹ All these points underscored the fact that the combat arm of the IAF required to be re-equipped.

The transport arm also needed an infusion of new aircraft. At that time, it comprised the ageing Dakotas, C-119 Packets and An-12's.

A defense analyst in 1975 pointed out that even three years after the 1971 war "the IAF had acquired the semblance of an aged force, with the bulk of its strike force and tactical support aircraft increasingly obsolescent and the rundown in aircraft, now requiring urgent attention."² In spite of this, he remarked, the "replacement of older types has been slow or entirely absent."³

While it was clear that there was a need for new aircraft from the West, the necessary foreign exchange was not available. Secondly, the Soviets were not willing to sell the type of aircraft the IAF wanted.

The foreign exchange problem is clearly reflected in the time taken to finalise the Jaguar project. Among other factors, the financial aspect of the deal, lead to the inordinate delay in the signing of the deal. The Jaguar acquisition was the most expensive deal that the Indian Government had ever signed till then.

1 Pushpinder Singh, "Quantity or Quality? The Indian Dilemma", Air International (London), October 1975, p.175.
 2 Ibid., p.170
 3 Ibid.

The Jaguar, an Anglo-French project, was first offered to the IAF in 1969, while it was still in the prototype stage.⁴ But, it was only in 1979 that the Jaguars were inducted into the IAF.

The second contributory factor had been the Soviet unwillingness to sell the type of aircraft the IAF wanted. The IAF had given top priority to the acquisition of a suitable Deep Penetration Strike Aircraft(DPSA). The Air Staff Requirement(ASR) for a DPSA had been formulated even before the 1971 war. ASR specifications for a DPSA "needed to possess a committed warload-range performance, be capable of supersonic, terrain-advanced nav-system. A critical factor was the need for twin engines...."⁵ After the war, systematic evaluation for a DPSA had begun. Five types of aircraft had been shortlisted. They were; the Anglo-French Jaguar, the French Mirage F1, the Swedish Viggen and the Soviet Su-20 and MIG-23 B. The Swedish Viggen could not be sold to India. The reason being that the USA declined to give permission for the sale of the aircraft. The Viggen was powered by the American Pratt and Whitney Power plant.

The Soviets had repeatedly offered Su-20's and MIG-23 B's.⁶ The IAF rejected these offers. The Su-20, the IAF pointed out, was entirely unsuited. While, the MIG-23 B was complex and expensive. Additionally, it did not possess the required range. The Soviets complained of a "communication gap "between their own thinking and the Indian thinking on this subject. The Soviets were of the opinion that instead of the

4 Personal Interview

5 Green, Gordon and Pushpinder Singh, The Indian Air Force and its Aircraft (London, 1982), p.6

6 Pushpinder Singh, n.1, p.175

DPSA, a medium range missile could be used. The use of tactical missiles they felt was more practical.⁷

Herbert Wulf has observed that "in contrast to the previous wars, the 1971 Indo-Pakistan war, which led to the creation of Bangladesh, did not result in any major emphasis on expanding arms production or creating major new projects. Despite the permanent call for self-sufficiency in the supply of arms, no major design breakthrough was experienced in the 1970's. This period is characterised by a continued growth of existing projects for indigenous and licensed production."⁸

The aircraft that were inducted into the IAF in this phase, were either indigenous or licence-produced. No new aircraft of any new type were acquired by the IAF during this period.

Aircraft inducted in this phase:⁹

Aerospatiale/HAL Cheetah	1973
MIG-21MF/M/HAL	1973
TS-1SKARA	1975
HAL Ajeet	1977
MiG-21 bis	1977

The delay in the production of the Kiran MkIIs, necessitated the purchase of TS-II Iskara jet trainers from Poland.¹⁰

7 Ibid.
8 H.Wulf, "India: The Unfulfilled Quest for Self-Sufficiency", in Brozoska and Ohlson.ed., Arms Production in the Third World (London, 1986), p.127.
9 Green.et al.,n.5, p.75.
10 International Airforce and Military Aircraft Directory (Essex, 1988), p.140

Fighters: Production of the HF-24 Marut continued at HAL. A total of 125 units along with 15 trainer aircraft were manufactured by HAL. By 1977 the production line was shut down.¹¹ Work on an improved version of the Gnat known as Ajeet was undertaken.

But the most successful production line was the MiG-21 series. In 1973, the first batch of MiG 21 MFs were imported to reequip the No.7 Hunter and No.108 Su-7 squadrons. Meanwhile the production of MiG-21 FL continued. The MiG-21 M was to supersede the MiG-21 FL. HAL completed the first production of MiG-21 in 1973.¹² Then, in August 1976, the latest in the MiG-21 series, the MiG-21 bis was selected to follow on the "M" sub-type.¹³ The MiG-21 bis was a multi-role air superiority/ground attack version with better avionics and generation radar. The MiG-21 bis replaced the Gnat squadrons.¹⁴

The rotor-wing was re-equipped with French and Soviet helicopters. The Soviet MIL MI-8 Hip and the French Aerospatiale's SA 315 B Lama known as cheetak were produced at HAL.

A policy decision was undertaken to produce an indigenous helicopter. This was in keeping with the Subramaniam Committee's report. The recommendation had been that, India should achieve self-sufficiency in design and development of a rotor winged aircraft. The Attack Light Helicopter (ALH) was to be produced in collaboration with

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Statesman, 7 December 1981

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"Quarter Century of MiG's in India", Vayu Aerospace Review, (New Delhi), January 1988, p.17.

13

Ibid.

14

Ibid.

the French firm SINAS.¹⁵ The design and development of the aircraft was to be completed within ten years. The helicopter was to be single-engined.¹⁶ But in 1977 the design was frozen. Simultaneously the ASR changed to a twin-engined aircraft. The explanation for the change in the ASR was explained as "(the) change was based on its experience in 1971 in Bangladesh, the Arab-Israeli war in 1973, and the American war in the Vietnam."¹⁷ The revised ASR was issued by the Air-headquarters in February of 1978.

At the end of the first phase then, the IAF was still operating with the aircraft procured in the 1950's and 1960's. Most of them were subsonic, except for the Soviet Aircraft.

Latest Round of Modernization : 1979-1987:

Towards the end of the 1970's the Indian Government realised that the IAF was badly in need of re-equipment. With the signing of the Jaguar deal, the floodgates were opened. Within, a span of ten years, the IAF has acquired the Jaguar, Mirage-2000, MIG-25, MIG-27 and MIG-29 under the combat category and Mi-25 helicopters An-32, Il-76 and Dornier in the transport arm.

The contributory factors responsible for the latest phase of modernization were at three levels. At the political level the 1979 US economic and military aid to Pakistan held serious implications for India. In the 1950's the PAF started acquiring sophisticated combat

15 Indian Express, 14 May 1982
16 Statesman, 7 February 1981.
17 Indian Express, 14 May 1982.

aircraft. This time it was the General Dynamics supersonic F-16 aircraft. Additionally the Pakistanis also expressed their desire to acquire an air-Borne Warning and Control System (AWACS) to the USA.

At the military level most of the aircraft in the IAF's inventory were outdated. Pakistan had acquired the French Mirage-IIIs by this time. The IAF did not possess a counter to the versatile F-16.

At the third level, that of technology, the indigenous effort being made in the aeronautical industry continued to be riddled with problems. A fresh impetus needed to be given to HAL.

Under the Janata government an attempt had been made to diversify the sources of arms supplies. The aim of this move was to reduce the Indian dependence on the Soviet Union for arms supplies. This diversification trend was similar to the trend in the 1950's in the weapons procurement policy. But this was with an aim to reduce the dependence on the Soviet Union. But this time the diversification policy did not work. On the contrary from 1980, India has once again turned to the Soviet Union for acquiring the latest aircraft.

The first aircraft to be bought during this period was the Jaguar. According to the Ministry of Defence's Annual Report of 1978-79¹⁸ "the need to replace the ageing and obsolescent fleet of Hunter and Canberra aircraft was accepted some years ago... the Jaguar programme is merely a replacement programme to replenish the IAF of ageing Hunter and Canberras with suitable modern aircraft."

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Annual Report 1978-79, New Delhi, Ministry of Defence, Government of India. p.21.

The Rs.1,300 crore Jaguar deal was signed in October 1978. The British Prime Minister, Mr.Callaghan, visited Delhi to persuade the Indian Government to reduce its \$360 blalance of payment surplus with Britain.¹⁹ Evaluation of the Jaguar had begun in early 1970's. In fact, the Indian pilots were the first foreigners to test the aircraft. The IAF had been pressing for Jaguars since 1974, and had originally planned on equipping 4 squadrons.²⁰

The Jaguar deal had four phases:²¹

- Phase I .. the RAF loaned a squadron to provide the IAF with interim capability. These were to be returned as soon as new aircraft became operational.
- Phase II .. outright purchase of 40 Jaguars to equip two squadrons.
- Phase III .. assembling of 45 Jaguars from knock-down conditions.
- Phase IV .. total indegenious manufacture. This was to be an optional clause.

After a delay of couple of years, the fourth phase was also agreed upon by the Indian government. The delay was because the project was very costly. Also, the Indian government had been evaluating the Soviet aircraft.

The Jaguar deal set off a lot political debate. G.C. Katoch, an ex-bureaucrat was of the opinion that the Jaguar deal was not really

19 Chris Smith Alternative Defence for Third World Countries; A Case Study of India (unpublished paper for the U.N. University, 1986),p.64
 20 Singh,n,1,p.175.
 21 "India-Asian Power Broker of the 1980", International Defence Review, (Geneva),April 1981,p.380.

essential as it was not really required for winning any war. The main objection to the deal seemed to be the massive investment which according to him was not commensurate with the effectiveness of the aircraft.²²

Recently, the Public Accounts Committee of the Parliament for 1988, criticised the Jaguar deal. It has stated that the inordinate delay in the purchasing of the aircraft led to the acquisition of an obsolete aircraft. The technology for building of the aircraft was of the 1960s. The report further stated that the government at that time had been fully aware of the technological obsolescence of the aircraft. The Committee added that the selection of Mirage F-5 would have been a better choice.²³ The Committee also noted that there has hardly been any indigenisation. The only indigenous component according to the report was the labour. It disapproved with the Defence Ministry's claim that 42% indigenisation has been achieved.²⁴

This deal illustrates the point that the weapons procured are influenced by political decision. This is contrary to what the IAF has to say. According to them, the aircraft are selected entirely based on their technological assessment.²⁵

With Mrs Gandhi's return to power, there was a spate of arms purchases. In 1980 both the French and Soviet aircraft were being considered. A year later in May 1981 a full scale review was underway. This change was in direct response to the US Congressional

22 G.C.Katoch, "Beyond the Jaguar", Indian Express, 30 October 1980.
 23 The Statesman, 17 May 1988.
 24 Indian Post, 23 April 1988.
 25 Personal Interview.

approval for the restoration of security assistance, a proposed six year, \$320 million of economic assistance and arms sales credit to Pakistan.²⁶ The leap then, like in the 1950's was reactive in nature on the part of Indian Government.

The evaluation of the Dassault's Mirage-2000 was carried out in Nov/Dec 1980. The Primary role of the aircraft was air-combat and the secondary role was air-to-ground operations.²⁷ The Memorandum of Understanding(MOU) was signed in 1982. The deal was worth Rs.520 crores.²⁸ Outright purchase of 40 aircraft with an option to manufacture were the central points of the agreement.²⁹ The Mirage deal was the most expensive deal. And just like the Jaguar deal, this deal also sparked off a lot of debate. According to a defence analyst, a significant fact that had not been publicised much was that till then only five prototypes of the aircraft had been built. And the French Air Force was not happy with the aircraft. He further added that the IAF had no Air Staff Requirement (ASR) for the Mirage. The Mirage, according to him, used the M-35 engine, representing a technology dating back to the first German jets of World War II. This engine, according to him was incapable of further growth and was also a petrol guzzler.³⁰

In terms of cost the Jaguar was Rs.10 crores per unit, while the Mirage was priced at Rs.30 crores per unit.³¹ The high cost of these

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Smith, n.20, p.66.

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Ravindra Tomar, "Mirage in the sky", Statesman, 7 November 1981.

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See n.10, p.137

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Times of India, 14 April 1983.

30

Ravi Rikhye, "Who's afraid of Mirage-2000?", Indian Express, 26 October 1981.

31

H. Wulf, n.8, p.136.

aircraft made the Indian Government to review the Soviet offer to sell the latest aircraft from the Mikoyan Bureau.³² There was a delay once again with regard to the production of Mirage-2000 at HAL. The political decision on this issue was kept pending till 1984. Then the plan was revised and the decision was taken not to produce the Mirage at HAL. The delay in decision was due to Soviet pressure on India.

Two major deals were signed with Soviets in 1980 and 1983. Through these two deals India received some of the latest state-of-the-art weapons. By the 1980 deal, 95 MiG-23 BN 'Flogger H's and 15 MiG-23 UM "Flogger C" two seat trainers were to be procured. Also 8 high performance MiG-25 Foxbat reconnaissance aircraft were acquired. The MiG-23 BN was selected to meet the IAF's Tactical Air Support Aircraft (TASA) requirement. The MiG-23 BN was to replace the Su-7, HF-24 and Hunters. This ground attack fighter entered IAF service in 1981.³³

In 1982, another variant of MiG-23 was also inducted. The Mig-23 MF air superiority fighter was to complement the Mig-21 bis in the air defence role.³⁴

The next major deal was signed in 1983, when the Defence Minister R. Venkatraman visited Moscow. During the visit the MiG-27 and Mig-29 were offered which have since then been inducted into service. MiG-29 is an all-weather multi-purpose interceptor. The contract to supply two squadrons of MiG-29 was finalised in 1986. The MiG-29 was received in Completely Knocked Down Kits (CKD) and were assembled at the Nasik Division of HAL in 1987.

32

Flight International, (23 June 1984), p.1601.

33

International Airforce and Military Aircraft Directory n.10, p.137

34

Ibid.

In the 1970s it seemed that the IAF may lose its superiority to the PAF. In the 1980s with the induction of different aircraft the IAF's strength has been consolidated. Most of the frontline aircraft are of Soviet origin, thus reducing the problem of maintenance. But the complexity and sophistication of the combat aircraft has caused problems of maintenance in a different direction.

Transport Arm

The Annual Report of the Ministry of Defence for 1978-79 said that "the ageing transport fleet of Dakotas, Packets and Caribou aircraft also need to be replaced in the near future. Efforts to select a suitable Medium Tactical Transport Aircraft are being made and a decision in this regard is expected to be taken soon."³⁵

The aircraft that were being evaluated were the DHC Buffalo, the Aeritalia G-22 and an advanced version of HS-748. But, the Soviet An-32 was finally selected. 95 An-32s were ordered and delivery of the aircraft commenced from 1984.³⁶ This sizeable purchase was to replace the Dakotas and Packets.

For Heavy Transport, the Il-76 was selected. The IAF it appears preferred Lockheed's C-130 H Hercules. The basic requirement was for 40 aircraft. Some of these aircraft could be used as tankers, for mid-air fuelling. The first batch of 5 Il-76 was delivered in February of 1985. For light transport aircraft, the German Dornier Do-228 was selected. This aircraft was selected in 1983, after evaluating the DHC-6 Twin

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Annual Report 1978-79, n.19.p.139.

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International Airforce and Military Aircraft Directory n.10, p.139.

Otter and CASA Aviocar. The DO-228 was to be license produced at HAL. The first batch was delivered in October 1987.³⁷

In the rotor wing section Mil Mi-25 'Hind' gunships were procured in 1986. The Mi-25 is the export variant of Mi-24.

A decision to procure an aircraft for advanced jet training has yet to be made. This is to replace the piston engined HT-2's and HPT-32's. The IAF has also shortlisted two aircraft; the British Aerospace's Hawk-60 and Dassault/Dornier's Alpha Jet. In 1987, the American Northrop Company made an offer to sell the entire production line and technology of F-5 aircraft.³⁸ The Northrop offer as underlined in their paper, entails free use of tools, manufacturing plan, excess to an extensive supplying base and to become an upgrade center for F-5 enhancements. The first aircraft according to the offer could come off the production within 38 months from go-ahead.³⁹ This rather attractive offer, it appears is not being considered seriously. The Defence Minister K.C. Pant answered in the affirmative in the Lok Sabha. He stated that Northrop offered to set up an assembly line which could supply 100 transfer plans and also produce an arms export base. But, he said details of the offer could not be revealed, as it would not be in the public interest.⁴⁰

The latest round of arms procurement in the subcontinent centres around the acquisition of an AWACS. Pakistan is yet to get one.

37

Ibid.

38

The offer is supposedly to have been made in mid-1987. Subsequently the Northrop Corporation circulated a paper outlining the main points of the offer. Personal Interview.

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Tactical Fighters: Instruments of Foreign Policy (Unpublished paper by the Northrop Corporation, November 1987).

40

Times of India, 12 May 1988.

Whereas India has started an indigenous effort to produce AWACS. This project was sanctioned in 1985 and is being headed by Air Marshal C.V. Gole. The Indian Airborne Surveillance, Warning and Control System (AWACS) is divided between HAL and BEL. HAL will develop the air-frame while BEL will put together the electronic package, with the assistance of some foreign companies.⁴¹ Two HS-748 have been chosen for the project, initially. IAF's requirement is that by 1990 it should possess some form of Airborne Early Warning (AEW) capability. The IAF rejected the Soviet offer of an AWACS. After the rejection of the Soviet offer, the British offered to sell the avionics from the rejected Nimrod programme.⁴²

There are two projects at the indigenous level. The LCA & ALH, both of which are meant to be deployed by the 1990's. The first prototype of both these aircraft will be flown in early 1990's.

Within a span of a decade the IAF has been thoroughly overhauled. It has, now in operation some of the best aircraft. Given below is the strength of the IAF.⁴³

Personnel: 115,000

701 Combat aircraft, 60 armed helicopters.

Bombers: 53 aircraft: in 3 squadrons

35 Canberra B(1)58/B

18 Jaguar

Fighters & Ground Attack: some 396 aircraft; 11 squadrons

41 The Hindu, 7 May 1987.

42 International Airforce and Military Aircraft Directory n.10, p.138.

43 The Military Balance 1987-88 (IISS, London), pp.157-158.

2 with 40 Mirage-2000 H

3 with 61 Jaguar

5 with 60 MiG-21

2 with 44 Mig-29

4 with 72 Ajeet

5 with 95 MiG-23 BN

2 with 24 Mig-27

Air Defence: 168 aircraft: 8 squadrons

2 with 45 MiG-23 MF

6 with 120 MiG 21 FL/MFMA/MF bis

Reconnaissance: 19 aircraft: 3 squadrons

1 with 8 Canberra Photo-Reconnaissance

1 with 6 MiG-25 R, 1 Mig-25 U

1 with 4 HS-748

Transport: 11 squadrons

5 with 93 An-32 'Sotlej'

2 with 30 An-12-B

1 with 20 DHC Otter

1 with 16 DHC-4 Caribou

2 with 16 HS-748, 2 Boeing 734 -248

(leased).

8 Il-76

Helicopters: 6 squadrons

72 - Mi-8/17

2 - Mi-26

12 - Mi-25

CHAPTER V

SELF-RELIANCE, R & D AND FOREIGN PROCUREMENT

Licence-production of aircraft and transfer of technology has been central to the Indian weapons procurement policy. This is reflected in the number of aircraft licence-manufactured by Hindustan Aeronautics Limited (HAL). Coupled with this, there was a plan to indigenously manufacture combat aircraft. The quest for self-sufficiency in arms production has still remained unfulfilled.

In this chapter an attempt to trace the developments of India's quest for self-sufficiency will be made. Among the Third World countries, India has one of the largest domestic arms industry. The aircraft industry is one of the biggest only after Israel.

Even before independence, the Indian political leaders had clearly enunciated that self-reliance would be the corner stone of our economic policy. After independence, Nehru sought the advise of Prof. P.M.S. Blackett P.M.S. Blackett's assessment of India's economic, industrial and technological capability was done in a geopolitical framework. In the report that he submitted in 1948, he attempted to study how India could "best cut her defence coat according to her scientific, financial and industrial cloth."¹ Blackett's report should be seen in conjunction with another British scientist, Dr. O.H. Wandsborough's report of 1946. Jones.

Jones was then the scientific Advisor to the Army Council (UK) on Scientific Organisation for the defence services.² Both, Blackett and

¹ Blackett, Prof. P.M.S., Scientific Problems of Defence in Relations to the Indian Armed Forces: A Report to the Hon'ble Defence Minister (New Delhi, 10 September, 1948), p.1

² Chris Smith, "Alternative Defence for Third World Countries: A Case Study of India" (unpublished paper for the UN University, 1986), pp.25-26.

Jones had stressed the need for self-sufficiency in relation to the available resources.

In relation to the future of the nascent aircraft industry, the Indian Government sought the advice of Prof. Willy Messerschmitt. Messerschmitt, like Jones and Blackett had outlined his proposal within the context of the available resources and industrial infrastructure. He stated that the industrial base was an essential prerequisite for a sound aerospace.³ To manufacture any modern weapon system hundreds of different kinds of industrial metals and materials are needed. Iron and steel, electronics, foundry, metallurgy, transportation equipment and machine tools are some of the most obvious requirements.⁴ "Prof Messerschmitt's suggestions were not acted upon and the lack of an adequate infrastructure was, as foreseen by Messerschmitt, to dog the Indian aircraft industry and its development."⁵

Motivations and different stages of arms production:

Generally, the motives for domestic arms production operate at two levels. The first set of variables are the political-economic ones while the second set of variables are of an economic nature. The variables in the first category are the need to increase independence from donor countries, threat perceptions and national pride. Self-

3 Pushpinder Singh, "Spinal Cord of the Indian Air Defence", Air International (January 1975), p.11.

4 Herbert Wulf, Arms Production in Third World Countries: Effects of on Industrialisation (unpublished paper, Paris, 1982), p.8.

5 Singh, n.3, p.11

sufficiency is seen as a prerequisite for regional dominance. In the second set of variables are "economic in nature: it is hoped to reduce the cost of arms procurement, to contribute indirectly to the development of the economy by improving the skills of the manpower engaged in arms production and to keep abreast of modern technology in general by making use of technological spin-offs of sophisticated arms production technology".⁶

In the case of India both the set of variables operate. It has been observed that self-sufficiency in arms production is achieved by following a step-by-step approach.

The first step is usually the repair maintenance and overhaul of the imported weapons. Here, the donor country trains the personnel of the recipient country.

The next step is the assembly of the imported systems domestically. While in the third stage some of the components of the weapon systems are produced domestically.

After this, the complete system is produced. "This often involves the entire arms production facility, a turn key plant from an industrialized state." This stage is also known as licence-manufacturing of the weapons.

The fifth stage entails reverse engineering or modify and redesign foreign weapon systems by using technological skills acquired in earlier stages. Weapons previously produced under licence may be substantially modified.

⁶ Wulf, n.4, p.1.

The final stage is indigenous design and production of weapon system. This involves two steps. The first being indigenous R&D and production with high reliance on foreign sources for vital components. The second stage is domestic R & D, with production of the components domestically manufactured.⁷

In the case of India, the first three stages have been achieved with a fair degree of success. An example being the MiG-21 production line which was a very successful project. The results of reverse engineering have not been entirely successful. The success has been in modification, like for instance, that is in fitting of western avionics on the French Matra R-55 missiles to the MiGs. Valluri, the former Director of National Aeronautics Limited Stated that "even to do reverse engineering and copy an imported equipment requirement requires considerable scientific knowledge in aeronautics. It is wishful to expect that naive sanctioning of projects, that many of them will lead to miracles and overnight stories."⁸

The indigenous success has also been limited. The Indian indigenous effort has not managed to proceed beyond the first stage. The most ambitious project, the supersonic HF-24 Marut, was designed by a German, the powerpack was British and most of the testing was carried out in Europe. The current Light Combat Aircraft (LCA) and Attack Light

⁷ Data gathered from Andrew L. Ross, Arms Production in Developing Countries: The Continuing Proliferation of Conventional Weapons (RAND Corporation, October 1981) and SIPRI Yearbook 1985 (London, 1985), p.310.

⁸ S.R. Valluri, "Indian Aeronautical Science: Light Combat Aircraft", Mainstream, (March 8, 1988), p.10.

Helicopter (ALH) projects too are being undertaken with substantial foreign collaboration.

The LCA will use the US General Electric F-104 engine for the prototype. Both the projects have foreign consultants. It appears that the indigenous content of both these programmes will not be high.

Organizational set-up :

India, at the time of the partition inherited 16 ordinance factories and an aircraft industry.

The present organizational set up with regard to the aircraft industry can be split into two categories: HAL and the Defence Research and Development Organization (DRDO).

Hindustan Aeronautics Limited (HAL):

The Hindustan Aircraft Limited was established in 1940 by Shri Walchand Hirachand at Bangalore. During World War II it gained enormous experience in overhauling, repairing and assembling American and British aircraft. By the end of the war, the Government of India had become the major shareholder of the company.⁹

After Independence, the industry was expanded and diversified. HAL at present has 11 divisions.¹⁰ They are:-

- 5 Bangalore - Karnataka

⁹ Singh, n.3, p.10.
¹⁰ Jane's All the World's Aircraft, 1986-87 (London, 1987), p.95.

1	Nasik	-	Maharashtra
1	Koraput	-	Orissa
1	Kanpur	-	Uttarpradesh
1	Hyderabad	-	Andhra Pradesh
1	Lucknow	-	Uttarpradesh
1	Korwa	-	Uttarpradesh

In addition there also exists a Design and Development Bureau.

The Bangalore complex is still the nerve centre of the aircraft industry. It has five divisions, namely the Aircraft Division, Engine Division, Overhaul Division, Foundry and Forge Division.¹¹

DRDO:- The DRDO was formed in 1958 by merging the Defence Science Organisation and the Technical Development Establishment. The DRDO has over 35 laboratories. Of these, the ones that are engaged in Aeronautics are the Gas Research Turbine Research Establishment (GTRE) at Bangalore. Aeronautics Development Establishment (ADE) at Bangalore. Aerial Delivery R & D Establishment (ADRDE) at Agra.¹²

GTRE was established in 1959. The aim of setting up this R & D laboratory was to develop the capability to research, design and manufacture the gas turbine engines to power the aircraft produced. The design and development of the power plant for an aircraft is undertaken by very few countries. This, is the most difficult component of the aircraft to be developed and manufactured.¹³

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Ibid.

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Sundaram and Howaith, "India's Defence Posture", International Defence Review (Geneva, April 1986), p.436.

13

Green, Swanborough & Pushpinder Singh (ed.), The Indian Air Force And Its Aircraft (London, 1982), p.34.

ADE:- The ADE's primary task was to provide primary back-up in research and development for military aviation. The establishment comprises of eight divisions. They are Flight Dynamics, Structures and Materials, Simulation, Avionics, Flight Control, Flight Test Instrumentation, Type Testing and Planning Co-ordination. The ADE is mainly concerned with the development of target/drones and rocket propelled vehicles, flight simulation, air armaments and flight research.¹⁴

ARDRE:- This establishment is engaged in designing systems and appliances for aerial delivery of men and parachute.

National Aeronautics Laboratory:- Has all the facilities required to analyse and study materials required in aircraft construction. It provides R&D expertise for the aerospace organisations. NAL was set up in 1960 and is controlled by Central Scientific and Industrial organisation.

Production:- The aircraft produced at HAL can be divided into two categories. Tjhe first category relates to indigenous design and production of aircraft. While the second category comprises of licence production of aircraft.

Indigenous effort:- India's efforts to design and develop an indigenous aircraft has not met with great success. The biggest drawback has been the failure to design and develop a power plant. This, is compounded by the differences that exist between the design bureau and the IAF and the lack of adequate funds for R&D.

In India, the drawback has been inadequate support in the initial stages. Quick results are expected, once a project is outlined by the Government. Result will be forthcoming only if the required impetus is given. Most of the indigenous projects undertaken by HAL were not conceived within the proper framework. The step by step approach has been ignored and instead quantum leaps have been taken. It is, but natural that such a policy would fail to yield any concrete or feasible results.

In the first decade HAL was awarded three projects. They were the HT-2 primary trainer, HT-10 advanced trainer and the HT-11 basic trainer. Of these only the HT-2 primary trainer was successful. The other two projects had to be abandoned for lack of finances.

HT-2 Primary Trainer:- The Hindustan Trainer Design No.2 was the first indigenously manufactured aircraft by the HAL. The first prototype of this piston-engined aircraft was tested on 5th August 1951. A total of 168 units were built before the production line was stopped in 1958.

In the second phase, which corresponds to the 1950's a more ambitious project was undertaken. A supersonic fighter aircraft was to be indigenously manufactured by HAL. The HF-24 Marut, according to an IAF Officer was a national project and current technology was to be used in designing and production of aircraft. The aircraft was to be a interceptor.¹⁵

15 . Personal interview.

The project was assigned to the former technical director of the famous Focke-Wulf Organization, Dr. Kurt Tank. In the beginning of 1955 the Indian Government had started looking for a German aircraft designer, to help develop this project. Tank, who was in Argentina had heard about this project. While on a visit to Bonn, Tank was invited to a reception by the Indian Defence Minister, Mahavir Tyagi. Tyagi, invited him to continue his work in India. Unstable political conditions in Argentina, prompted Tank to accept this project.¹⁶

Tank arrived at Bangalore in 1956 with 14 engineers. The task given to him by the IAF was to build a Light Combat Aircraft (LCA) which at the same time could be used for ground attack. The engine to be used was under development by Bristol. As a stop gap arrangement the Orpheus 703 by Folland was to be used.¹⁷

Tank's team for the project comprised besides the German engineers, "3 senior Indian design engineers and 22 other Indian engineers with design experience."¹⁸

According to Kavic, the initial plans was to use a 2 Orpheus 12 turbojet for the transonic MK2.¹⁹ The Orpheus 12 was under development by Bristol for NATO. The completion of the engine was subject to NATO's acceptance.

Glider trials were begun to test the full-scale wings and fuselage of the HF-24, 22 months after work had commenced. The first prototype

16 Wolfgang Wagner, Kurt Tank -- Konstrukteur und Testpilot bei Focke-Wulf (Munich, 1980), p.257.
 17 Ibid.
 18 Ibid.
 19 Lorne Kavic, India's Quest for Security (Berkeley, 1968), p.132.

was completed in 1961. The maiden flight was on 24th June 1961. The prototype was powered by a Orpheus 703 turbojets.²⁰

Orpheus 12:- Further development on the engine was stopped because of the withdrawal of the NATO support. Hence, Bristol pointed out that the engine would not be delivered. But, Bristol agreed to further development of the engine for \$4.7 million. This seemed too expensive to the Indian Government. And India was not interested in funding an abandoned project. After this a long search for a suitable engine started. The search was not successful. Lack of a suitable powerpack led to the failure of Marut achieving the supersonic speed.

With the Bristol option closed, the French firm Snecma offered the Atar 9 turbojet which powers the Mirage III and IV. But India declined the French offer. Instead, it turned to the USSR. Krishna Menon was relieved when he heard that Tank had no objections to using a Soviet engine.²¹ Soviet engines were tested by Tank and he was satisfied with their performance. But the Soviets in an oblique manner refused to supply the engines. Tank felt that the reason for Soviet reluctance to supply the engine was that in case these engines were used in HF-24, they would most probably be superior to the MiG-21 in performance.²²

After the Soviet option, an Egyptian option was considered. Ferdinand Bradner, the German designer, had designed the E-300 for the Egyptians. The E-300 was meant for an interceptor HA-300, which was

20

Wagner, n.16, p.259.

21

Ibid.

22

Ibid.

being produced by Messerschmitt. The E-300 was fitted into HF-24 and was successfully tested. But when the E-300 was ready for serial production the Egyptians told the Indians that the engines could not be supplied.²³

The Marut never flew at supersonic speed. Only 145 were produced instead of 214.

The main factors responsible for the HF-24 Marut Project were the failure to get a suitable powerpack, design strategy, the overall approach to the project and Tank's leadership capabilities.²⁴

The lack of a suitable powerpack was the primary failure. This contributed to the second failure. An aircraft is built around a proven engine and not vice versa. This is a fundamental principle of aeronautics. This fact was conveniently overlooked by the Indian political decision-makers. The decision to produce Marut was a political one and decision makers were divorced from the technical problems. And Tank was an aircraft designer and not an engineer. In addition the defective fuselage design resulted in an unacceptable level of tail drag.

The third contributory reason for the failure of the project was the overall approach adopted. "The politicians defined the possibilities, the military defined the problem and the industry was left to define the answer".²⁵ The IAF did little to assist in correcting the design fault.

23

Ibid.

24

Smith, n.2, pp.84-87.

25

Ibid, p.86.

Tank's failure to gain the commitment and confidence of his team was a drawback. The IAF was never happy with the aircraft. They invariably dubbed the aircraft as having been a bad product. They pointed out that Tank had had no experience in designing a supersonic aircraft. Another drawback seemed to have been the radar used in the Marut.

HJT-Kiran-16

The next indigenous project undertaken by HAL was the design and development of a two seat basic trainer. The project was headed by HAL's Chief Designer, V.M. Ghatge. The project commenced in 1960 and the first prototype flew in 1964.²⁶ The first batch of aircraft was handed to the IAF in 1968.²⁷

The Kiran-16 aircraft was to be powered by an indigenously developed power plant. Work on this HJE-2500, turbojet began at the same time as the aircraft. The engine could never be developed and was closed in 1975, after an expenditure of Rs.82 lakhs. As a consequence, engines to power the Kiran had to be imported at the cost of Rs.11 crores.²⁸ The Rolls Royce Viper ASV-II power plant proved to be a financial headache, since its unit price was more than doubled.²⁹

26 Public Accounts Committee Report: Import of a Trainer Aircraft (Ministry of Defence, New Delhi, 1984), p.7.
27 Pushpinder Singh, "Spinal Cord of Indian Air Defence", Air International (February, 1975), p.71.
28 Ravinder Tomar, "India's Own Aircraft-I", The Statesman, 7 December 1981
29 Singh, n.2, p.71.

Delay in the production of the aircraft led to the importing of Polish Iskara jet trainers. The aircraft was not much of a success. The average serviceability of the aircraft between 1970-76 was about 42%. This was due to modifications, lack of interchangeability of parts, and delays in supply of spares and ground test equipment.³⁰

The other drawbacks were that the IAF did not place bulk order in the beginning of the production programme. And secondly, while placing the order the IAF did not take into account the lead time required for the production of the aircraft.

An imported version of the basic trainer was undertaken in the mid-1970s. The Kiran Mk-II is built around a derated version of the HAL build Orpheus-701. The modification is in the incorporation of four hardpoints on its wings. The aircraft was meant for armament and anti-insurgency training. The first prototype was flown in 1976. But it was only in 1980 that HAL received authorisation to start production of the initial batch.³¹

HPT-32

Work on this project commenced in early 1970s and the first prototype flew in January 1977. The HPT-32, a piston-engined aircraft was to replace the HT-2. The IAF delayed its order for the aircraft, due to excessive weight in the wing constructions. It was only in July 1980, that the IAF placed its first order.³²

30 Tomar, n.3.
 31 Ibid.
 32 Ibid.

Light Combat Aircraft (LCA)

The Government sanctioned the project in July 1983. By that time the LCA design team had put in three years of study.³³

The HAL design bureau was awarded a new project after a lapse of about twenty years. The project has already run into many problems. Initially the British engine RB-199 was to be used and the West German company MBB were to act as consultants. But, the plans were suddenly changed and instead the American General Electric's 404 engines are to be used. Ten of them have been purchased, six will be used in the prototype and four engines would be kept as reserve. This is supposed to be a stop-gap arrangement. For eventually, the LCA is to be powered by the indigenously developed and manufactured GT-X engine.³⁴

The Aeronautical Development Agency (ADA) was set up to oversee the project. The Director of HAL and Chief Designer in ADA and the Director-General of ADA have already resigned due to bureaucratic infighting and the change in design plan.

The LCA is meant to go into production in 1990s.

Attack Light Helicopter (ALH)

This would be the first indigenously designed and developed helicopter by the HAL's helicopter division. It is now closer to two decades since the project was commissioned and yet no major breakthrough seems to have been achieved.

33

Valluri, n.8, p.12.

34

The Hindustan Times, 24 January 1987

Initially Aerospatiale of France were to act as consultants and the first prototype was scheduled to fly in 1982. But in 1981, the agreement was terminated and direct project cost of Rs.7 crores went to waste.³⁵

The IAF ASR changed from single to twin-engined ALH. In 1984, the German company Messersahmitt-Bolkow-Blohm were chosen as the collaborators.³⁶ The ALH, like the LCA may not be a totally indigenous product. It is difficult at this juncture to assess what percentage of the project would be indigenous. It appears, that by the time the ALH goes into service, it may have become technologically obsolete.

Licence Production

HAL has been more successful in licence-production of aircraft. The first successful project was the production of Bristol Siddeley's Gnat interceptor. A total of over 200 units were produced by HAL. HAL eventually achieved an indigenisation of 85% of air-frame and 60% of the engine.³⁷

The next project that was undertaken was something of a failure. The Avro-748's performance was so bad that there occurred a decrease in demand and an increase of price. The production line had to be closed down due to the short fall in demand. The project resulted in a loss of Rs.34 crores.

HAL has been very successful in the production of the Soviet aircraft. India, is the only country outside the Soviet Union to have

35 India Today, September 1986, p.141.
 36 Ibid.
 37 Smith, n.2, p.83.

produced the maximum number of aircraft from the MiG-21 series. The aircraft produced at HAL from the MiG-21 series are the MiG 2 FL and its R-II-F2 engine, the MiG-21M and the MiG-21 bis and the R-25 turbojet that powers it.

The MiG complex was established with the help of the Soviet help. The airframes were to be produced at Nasik, the engines at Koraput and the ancillary factory at Hyderabad.³⁸ The MiG-23 BN was not licence produced at HAL - but its variant the MiG-27 was to be licence produced. The decision to licence produce the MiG-29 is yet to be taken.

Besides the Soviet Aircraft, the Anglo-French Jaguar is also being licence produced. But, there seems to be some controversy over the percentage of indigenisation achieved by HAL.

Along with the production of aircraft, engines have also been produced at the Engine Division of HAL. British, French and Soviet engines have been produced so far.

The lack of progress at the indigenous level has led to procurement of aircraft from diverse countries. While in the 1970s the emphasis seemed to have been on indigenous projects, the 198-0s has witnessed the induction of a whole new range of aircraft. The right to licence produce these aircraft can contribute very little towards achieving self-sufficiency in the aeronautical industry. In the case of India, it has been very difficult to get an accurate picture on the level of assimilation of foreign technology and the level of indigenisation achieved in different projects.

38. Green et.al., no.13, p.42.

The lack of long term planning, bureaucratic interference, over-ambitious projects, lack of R&D have been some of the contributory factors responsible for HAL's slow progress towards achieving self-sufficiency. It appears that the Government has come to the conclusion that sinking large amounts of money does not yield commensurate results. The Government does not seem to understand that initial costs in R&D would be very high and the gestation period is a long one.

Further, the R&D agencies work independent of HAL. This creates a lot of communication problems. Measures should be taken to ensure better coordination between HAL and the IAF.

Since India's weapons procurement policy is largely governed by political factors, this has to some extent hurt HAL's interests. If HAL is to produce good results, the Government should make a fresh effort to look into the problems of the industry.

CONCLUSION

CONCLUSION

In the five preceding chapters an effort was made to assess the role of the Indian Air Force vis-a-vis National Security. Besides it was also intended that a history of the IAF of sorts could be constructed following the wars in which it fought.

Following the 1962 India debacle, the Government was compelled to take stock of the vulnerable position it had come to occupy. Where previously, only Pakistan was regarded as a security threat, China had now emerged as an even deadlier adversary. It was then a series of steps were initiated to reinforce, among other things, the IAF. In Chapters III and IV a brief account of these measures is made to consolidate the essentially historical perspective that has been adopted. Chapter IV deals with the phase of transition or a "phase of inertia" as it has been termed, which precedes the recent spurt of modernisation and expansion. In the last chapter, the emphasis is on the Hindustan Aeronautics Limited and the projects of indigenous manufacture of aircraft dating back to 1947. This chapter also attempts to envisage the potential of the IAF which could be largely self-dependent.

Thus, thematically speaking, this dissertation would fall into three sub-components - first: history and evolution (comprising the first three chapters), second: a period of lull and a period of acquisition, and the third: an effort at indigenisation and self-reliance.

In the second and third chapters, the role of the IAF vis-a-vis the external wars that India fought after independence have been dealt with at length. It would however be imperative to take into consideration its role in the Liberation of Goa and in containing the insurgent movements in the North-East, where it showed proof of its indispensibility. Keeping in mind, these domestic necessities the formal role of the IAF is envisaged as follows.¹

1. Air Defence; to defend the country against air attack and to secure its skies against violation.
2. To maintain a deep penetration strike and interdiction capability against enemy forces and installations.
3. To provide close air support for the Army and short-based tactical support for the Navy.
4. To provide tactical and strategic transport support for the Army.
5. To carry out strategic and tactical reconnaissance.

Since India has not yet witnessed war conditions after 1971, it is evident that the IAF acquires important functions in what concerns domestic affairs. Another factor that must not be ignored is the political aspect of history. In the wars that have been a subject of discussion in II and III chapters the outcomes of these respective wars have not been devoid of political considerations that the Government has

¹

Green, Swanborough and Pushpinder Singh, The Indian Air Force and its Aircraft (London, 1982), p.5.

yet to furnish an explanation for the non-use of the IAF in the 1962 war reinforces the point clearly.

Since it is then a political decision that decides the outcome of a war and what happens after it, it becomes imperative that this decision integrates a coherent defence policy. So far such a policy that takes into consideration the threat assessment - past, present and future - remains yet to be outlined. National Security still remains a subject eschewed in Parliament, a subject that continues to be the prerogative of a select few, as it were, a "sacred cow".

This lack of reflection on the part of policy makers is manifested in the fact that there seem to be no concrete justifications for a policy of extensive procurement from other countries. That Pakistan is steadily building its arsenal is not reason enough for a defence policy that has consistently favoured such arms deals in the past, albeit in reaction to a potential threat from Pakistan.

It would then be natural following such an analysis, to seek a harmony between the measures introduced and the factors that initiated it. In other words, it would be not only more desirable but also more suitable to think of achieving higher degree of indigenisation in the aeronautical industry. But still as has been discussed in the last [chapter VI] there seem innumerable obstacles to be surmounted, whether it be in the form of a communication gap between Government & HAL, or be it co-ordination problems between IAF & HAL. Thus to envisage of a potential self-reliant IAF, the fusing together of R&D laboratories and HAL would seem essential. Moreso, since any future war for India would entail a far greater role for the IAF.

Over the past two decades, although superficially (owing to an absence of war), the threat environment as perceived by India does not seem to have undergone change, it remains evident that absolute security was and is always out of question. Even though today, a two-pronged attack from China and Pakistan seems remote, the possibility of an attack from either of the two cannot be ruled out. And it is also apparent that a war with either of the two adversaries would prove to be much more expensive in all respects since both China and Pakistan maintain larger and better equipped air forces today. Apart from that, the use of nuclear warheads is imminent in any future war.

The IAF then becomes an indispensable organ of Indian Defence - much more than it had been in the preceding wars. And any defence policy today would give top priority to the gaps which have been mentioned before, so as to build an Air Force which is not only self-reliant but competent and effective.


LIST OF TABLES

Table I

Types of Aircrafts Manufactures in India
Under Collaboration

<u>Model</u>	<u>Year of Manufacture</u>	<u>Collaborator</u>
Prentice	1950-53	Perceival, UK
Vampire Fighter	1951-60	de Havilland, UK
Vampire Trainer	1957-60	de Havilland, UK
Gnat	1959-74	Folland, UK
MiG-FL	1966-74	USSR
MiG-21M	1975-82	USSR
MiG-21 bis	1978 on	USSR
HS-748	1959 on	Hawker-Siddley, UK
Chetak	1965 on	Hawker-Siddley, UK
Cheetah	1972 on	Aerospatiale, France
Jaguar	1982 on	Aerospatiale, France

Source: HAL Report, 1982-83

Table II

Indian Imports of Major Weapons by Main Suppliers
in 1973-1977. Million Current Dollars
and Percent

<u>Supplier Country</u>	<u>Arms Imports 1973-78</u>	<u>Per cent</u>
Soviet Union	1100	85.1
United Kingdom	40	3.1
Poland	40	3.1
France	30	2.3
United States •	22	1.7
Federal Republic of Germany	10	0.8
Czechoslovakia	10	0.8
Others	40	3.1
Total	1292	100.00

Source: World Military Expenditure and Arms Transfers, 1968-1977,
US Arms Control and Disarmament Agency, Washington, D.C.,
1979, p.156.

Table III

Costs of Locally Produced and Imported
Aircraft in India

Type of Aircraft	A Total Produc- tion Cost	Cost of importing Equivalent Air- craft in Million \$	A/B %
1. HJT-16 Kiran (Basic jet trainer)	340	240	170
2. MiG-21 (Supersonic Fighter)	1520	830	180
3. HF-24 Mk-I (Supersonic Fighter)	940	600	160
4. Alouette (Helicopter)	270	170	160
5. HS-748 (Transport)	1490	1000	150
6. Gnat (Fighter)	380	200	190

Source: Arms Trade With the Third World, Uppsala, 1971, p.738.

Table IV

HAL's Performance in Manufacturing Project
Compared with Targets Given for the Period

Project	Period	Production Performance				
		Planned Production	Actual Production	Shortfall in Production	Short- fall as %age of task	Remark
Alouette (helicopter)	1964-67	100	12	88	88	
SA-135 Chetak	1972-76	82	42	40	49	
HS-748	1960-67	100	8	92	92	*
MiG-21 FL	1966-71	183	120	13	10	
MiG-21 M	1972-76	82	42	40	49	**
<u>Indigenously Developed Project</u>						
Marut HF-24	1960-63	62	Nil	62	100	
Marut trainer	1973-76	18	13	5	28	
Kiran HJT-16	1965-71	102	63	39	38	

* = As against planned production of 24 aircraft from 1965-68, actual production did not exceed 9 in any year.

**= Programme called for deliver of 71 aircraft by March 1976 against which only 42 aircrafts were supplied -- a slippage of 40%.

Source: Report of Committee (Rajadhayksha) to Enquire into the Working of HAL, November 1976.

BIBLIOGRAPHY

BIBLIOGRAPHYPrimary SourcesParliamentary Publications

Annual Report 1978-79, New Delhi, Ministry of Defence, Government of India

Committee on Public Undertakings, 8th Report, HAL, 4th Lok Sabha

PAC Report, 168 Report 1983-84, 7th Lok Sabha

PAC Report, 215 Report 1983-84, 7th Lok Sabha

Indian Sandhurst Committee Report, Government of India, 1927

Government Documents

Blackett, Prof. P.M.S., Scientific Problem of Defence in Relation to the Indian Armed Forces: A Report to the Hon'ble the Defence Minister, 10 September, 1948

Letters, Patel, P.M., P.M.S. Blackett, D.O. No.62/5/49, Ministry of Defence, New Delhi, 10 February, 1949

A Note Prepared by the Scientific Advisor on the Visit of Prof. P.M.S. Blackett, 27th December, 1954 to 15th January 1955

Official Speeches and Statements

Nehru, Jawaharlal, India's Foreign Policy: Selected Speeches September 1946-April 1961 (New Delhi, The Publications Division, Ministry of Information and Broadcasting, Government of India, 1961)

Secondary SourcesBooks

Ayoob, Mohammed, and Subrahmanyam, K., The Liberation War (New Delhi, S.Chand & Co. Private Limited, 1972).

Brines, Russel, The Indo-Pakistan Conflict (London, Pall Mall Press, 1968).

Brozoska & Ohlson, Arms Production in Third World Countries (London, Taylor & Franks, 1986).

- Burke, S.M., Mainsprings of Indian and Pakistani Foreign Policies (Minneapolis, University of Minnesota Press).
- Chaturvedi, M.S., Air Marshal, History of the Indian Air Force (New Delhi, Vikas Publishing House Private Limited, 1978)
- Dalvi, J.P., Brigadier, The Himalayan Blunder (Bombay, Thacker and Co, 1969).
- Dunbar, George, Frontiers, (London, Ivor Nicholson and Watson Limited, 1931).
- Fricker, John, Battle for Pakistan: The Air War of 1965 (Shepperton, Ian Allan Limited, 1979).
- Ganguly, Sumit, The Origins of War in South Asia: Indo-Pakistani Conflicts Since 1947 (Boulder, Westview Press Inc., 1986).
- Gupta, Sisir, Kashmir: A Study in Indo-Pakistani Relations (Bombay, Asia Publishing House, 1969).
- Graham, Ian, C.C., The Indo-Soviet MiG Deal And Its International Repercussions (Santa Monica, Calif. RAND Corp., January 1964).
- Green, Swanborough, and Pushpinder Singh, The Indian Air Force and Its Aircraft (London, Ducimas Books Limited, 1982).
- International Air Force Military Directory 1984 and 1988 (Essex).
- Jacobsen, Mark-Houston, Modernization of the Indian Army, (Microfilm, Los Angeles, University of California, 1979).
- Jackson, Robert, South Asian Crisis: India-Pakistan-Bangladesh (London, Chatto and Windus, 1975).
- Jane's All the World's Aircraft 1985-86 (London, 1986).
- Kapur, Ashok, India's Nuclear Options: Atomic Diplomacy and Decision-Making (New York, Praeger Publishers, 1976).
- Kaul, B.M., Lt.Gen., Confrontation with Pakistan (New Delhi, Vikas Publications, 1971).
- Kavic, Lorne, India's Quest for Security: Defence Policies 1945-1967 (Berkeley, University of California Press, 1967).
- Kehoe, J.W, Capt., and Bower, K.S., US-Soviet Weapon Design Practices (unpublished paper, London, October 1981).
- Khan, Asghar, Air Marshal, The First Round: Indo-Pakistan War 1965 (Delhi, Vikas Publishing House, 1979).

- Khera, S.S., India's Defence Problems (Bombay, Orient Longman, 1968).
- Kissinger, H.A. (ED.), Problems of National Security: A Book of Readings (New York, Praeger Publications Inc., 1965).
- Lal, P.C., Air Chief Marshal, My Years With the IAF (New Delhi, Lancer International, 1986).
- Lee, Asher, Air Power (New Delhi, Sagar Publications, 1975).
- Mankekar, D.R., The Guilty Men of 1962 (Bombay, Tulsi Shah Enterprise, 1968).
- Maxwell, Neville, India's China War (Bombay, Jaico Publishing House, 1970).
- Military Balance 1987-88 (IISS, London).
- Rajan, M.S., and Ganguly, Shivaji, Sisir Gupta: India and International System (New Delhi, Vikas Publishing House Private Limited, 1981).
- Rao, P.V.R., Defence Without Drift (Bombay, Popular Prakashan, 1970).
- Rapoport, Anatol, ed., On War (Hammondsworth, Penguin Books Limited, 1985).
- Rikhye, Ravi, Indo-Pakistan Military Balance (unpublished paper, New Delhi, CSDS, 1984).
- Roherty, ed., Defence Policy Formation: Towards Comparative Analysis (University of Southern Carolina, 1980).
- Ross, Andrew, L., Arms Production in Developing Countries: The Continuing Proliferation of Conventional Weapons (Santa Monica, Calif., RAND Corporation, October 1981).
- Salik, Siddiq, Witness to Surrender (Karachi, Oxford University Press, 1971).
- Singh, Jasjit, Air Commodore, Air Power in Modern Warfare (New Delhi, Lancer International, 1984).
- Smith, Chris, Alternative Defence for Third World Countries: A Case Study of India (unpublished paper for UN University, Tokyo, 1986).
- Subrahmanyam, K., Our National Security (New Delhi, Scientific Research Foundation Federation House, 1972).

Thomas, Raju, G.C., The Defence of India: A Budgetary Perspective of Strategy and Politics (Delhi, Macmillan Company of India Limited, 1978).

Venkateswaran, A.L., Defence Organization in India (New Delhi, Publications Division, Ministry of Information and Broadcasting, Government of India, 1967).

Wagner, Wolfgang, Kurt Tank - Konstrukteur und Testpilot bei Focke-Wulf (Munchen, Bernard and Graefe Verlag, 1980).

Wulf, H., Arms Production in Third World Countries (unpublished paper, Paris, June 1982).

Articles in Periodicals

Bobb, Dilip, "The Message from Moscow", India Today (New Delhi) 15 August 1983.

Bodansky, Yossef, "New Pressures on Key Indian Borderlands", Jane's Defence Weekly (London), Vol.9, No.17, 20 April 1988.

Chawla, Jagan, "The Helicopter Story", Indian Express (New Delhi), 5 May 1982.

Dua, H.K., "Decisions on Jaguar Before Thatcher's Visit", Indian Express (New Delhi), 20 January 1981.

Honsa, Carol, "Big French-Indian Arms Deal Shows Signs of Bad Timing", Christian Science Monitor (Boston, Mass.), 26 October 1982.

Hussain, Mushaid, "Pakistan's Time for Reassessment", Jane's Defence Weekly (London), Vol.9, No.4, 9 April, 1988.

Karnad, Bharat, "The IAF Mirage: Do We Really Need Sophisticated War Planes?" Hindustan Times (New Delhi), 12, July 1981.

Katoch, G.C., "Beyond the Jaguar", The Statesman (New Delhi) 30 October 1980.

_____ "Building for Air: HAL's Search for Self-Reliance", The Statesman (New Delhi), 20 December 1982.

Malhotra, Inder, "Beyond the Jaguar Deal: Future Needs of Air Defence" The Times of India (New Delhi), 18 February 1982.

Mama, H.P., "India's Aerospace Giant", Interavia (Geneva), February 1987

Prasad, Srinivasa, "Advanced Light Helicopter: Designed Delays", India Today (New Delhi), 15 September 1986.

Rikhye, Ravi, "New Pak Threat to India's Security", The Times of India (New Delhi), 7 January 1982.

Sapru, S., "HAL Units Remain Idle for Want of Work", Indian Express (New Delhi), 28 June 1982.

Saw, David, "Light Combat Aircraft: A Recurring Trend", Military Technology (), October 1987.

Singh, Pushpinder, "Spinal Cord of Indian Air Defence" Air International (London), January and February 1975.

_____ "Quantity or Quality? The Indian Dilemma", Air International (London), October 1975.

Subrahmanyam, K., "Modernising Indian Defence" The Times of India (New Delhi), 27 June 1981.

Sundaram and Howarth, "India's Defense Posture", International Defence Review (Geneva), April 1986.

Tomar, Ravindra, "Mirage in the Sky: Should India Buy the French Plane?", The Statesman (New Delhi), 7 November 1981.

_____ "India's Own Aircraft - HAL's Chops and Changes" The Statesman (New Delhi), 7 and 8 December 1981.

Valluri, S.R., "Indian Aeronautical Scene: Light Combat Aircraft", Mainstream (New Delhi), March 8, 1986.

Vellupillai, D. "Hindustan Aeronautics Limited: India's Aerospace Giant", Flight International (London), 8 November 1980.

Vertzberger, Yaacov, "India's Strategic Posture and the Border Defeat of 1962: A Case of Miscalculation", Journal of Strategic Studies (London), September 1982.

Vishwanathan, A., Air Vice-Marshal, "Gearing up Defence R&D" Indian Express (New Delhi), 17 February 1981.

Journals and Periodicals

Air International (London)

Asian Defence Journal (Kuala Lumpur)

- Defence Week (Washington)
- Defence Monitor (Washington)
- Flight International (Sutton, Surrey)
- Jane's Defence Weekly (London)
- International Defense Review)
- Intervia Air Letter (Geneva)
- Military Technology (*BONN*)
- Vayu Aerospace Review (New Delhi)

Newspapers

- Hindustan Times (New Delhi)
- Indian Express (New Delhi)
- Indian Post (Bombay)
- The Hindu (Madras)
- The Times of India (New Delhi)
- The Statesman (New Delhi)

