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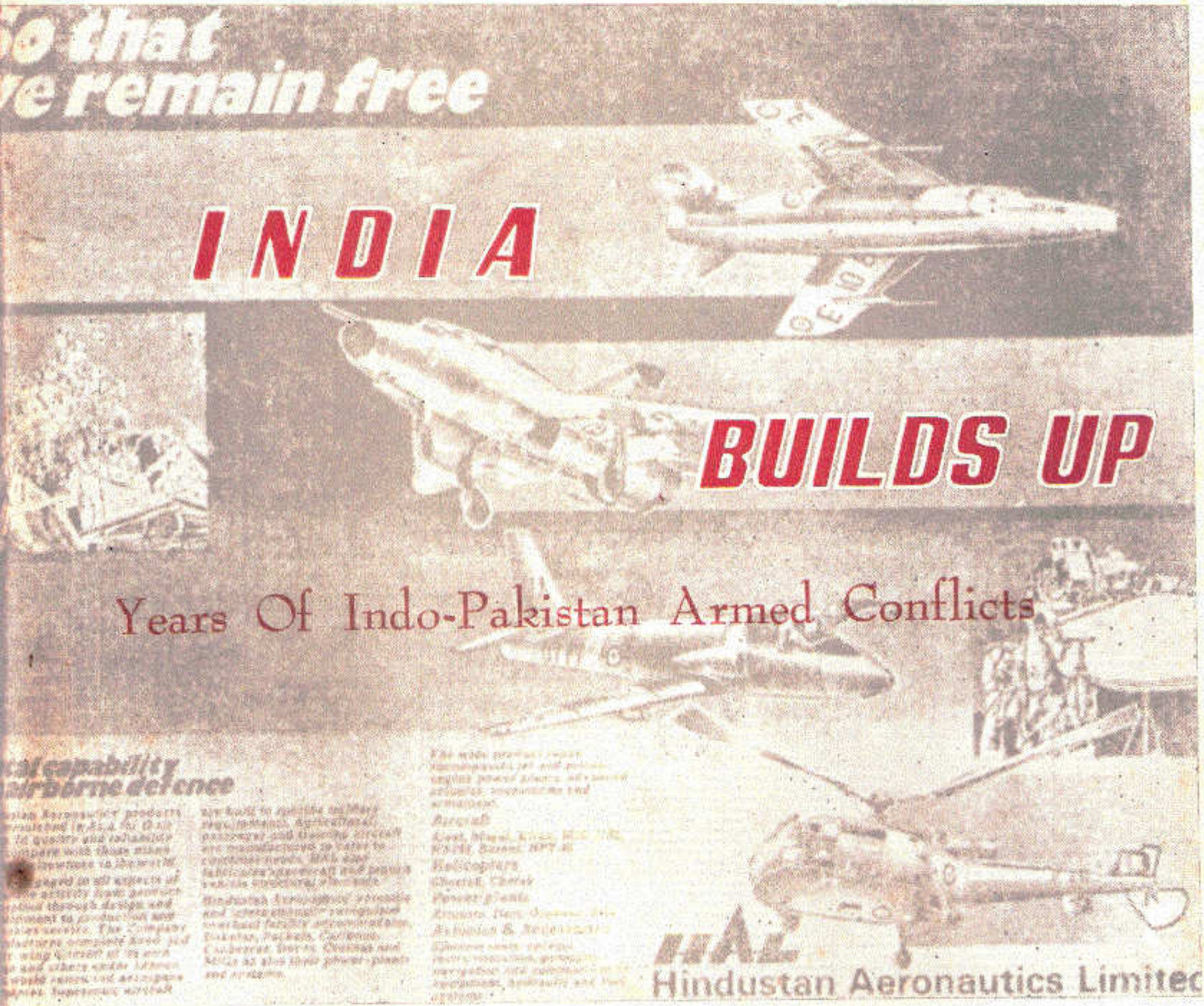

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Years Of Indo-Pakistan Armed Conflicts

Armed conflict has been the predominent feature of the troubled Indo-Pakistan history through the past over 30 years. It is as unfortunate as ironical for two countries born of the peaceful political process to go to so much war and violence. The birth of the two sovereign countries had indeed been a most painful one through a prolonged spell of massive civil violence. All that had, however, been an outburst of mob fury rather than part of a cold-blooded and well-thought-out plan. The partitioning of the subcontinent itself had been a purely political affair in which the only role assigned to the military had been that of a peace-keeping boundary force. While peoples and ideologies clashed, the military establishment stood severely aloof from the subcontinental Armageddon until well after the emergence of India and Pakistan. It had been nothing like China where political revolution and its consolidation had been linked inseparably to the clash of arms between the communist and the Kuomintang forces. Neither did it bear any resemblance to the earlier French and the Russian examples of soldiers and civilians making a common cause against a common enemy—the thoroughly discredited and detested *ancien regime* in either case.

Except for the solitary case of Subhash Chandra Bose's Indian National Army (INA), inspired and aided by the war-time Japanese fascism, the Indian Army (as also the fledgling Royal Indian Navy and the Royal Indian Air Force) never had any history of political involvement since 1857. The mainspring of the "Mutiny" itself lay more in the disgruntlement of the Muslim soldiery rather than in any collective political consciousness and plan. That was the reason why the mutineers had failed to find a common cause and common leader. The effete king Bahadur Shah Zafar would not be persuaded to lead the struggle against the British. The 1857 Mutiny highlighted the futility of an impulsive military effort against established authority; and thus ensured the strict political non-involvement of the military in the future. Accordingly the late British Indian Army had created and maintained a record of sound professionalism, without any political strings attached, that might have been the envy of the best military establishments anywhere in the world. The fighting field units fought more for the regimental *izzat* and glory than for such high flaunting concepts as the king and the country. Once inducted into his units the man lived the best years of his life there; and when called upon died for the regimental honour in the best tradition of his professional code.

OUR COVER

OUR COVER IS BASED ON A H.A.L. (HINDUSTAN AERONAUTICS LTD.) ADVERTISEMENT FROM THE TIMES OF INDIA.

Assured of the unflinching loyalty and neautrality of the army, the British ruled the subcontinent with uninterrupted authority. Come wars—local or global—come revolts —internal (e.g. Jallianwalla Bagh in 1919, the Moplah rebellion in 1921 etc.) or external (Boer War, 1899, Arab Revolt, 1914-18, end of the Ottoman Empire 1922-23) the British established their *pax Brittanica* throughout the diverse and historically-divided subcontinent. Native in class composition and ethos the British Indian Army remained markedly professional in its training and code of conduct. In due course it also emerged as the only institution in the subcontinent where the British and the native mixed more freely and naturally than in anyother. The rank and file, and particularly the elitist officer corps, rejoiced in their regimental life more than the humdrum (political/communal) world outside.

So deep-rooted had been their sense of belonging to their parent regiment (of infantry, cavalry, artillery in particular) that a change of regiment was much feared and regarded as a severe punishment. The battalion would be a man's home away from home and he would prize it above everything else in life.

Such had been the traditional code of conduct of the late Indian Army before the Partition. It had withstood the numerous stresses of world wars and weathered the storm of the Indian freedom movement and such eruptions as the INA and the naval mutiny in Bombay in 1946. By and large the armed forces had kept themselves scrupulously out of any extra-professional involvement and preserved their esprit d'corps. Even mixed regiments managed to keep their head above the troubled waters of communal tension and distrust. They continued to take their orders from the lawful authority and strictly desisted from any public or political initiative. Military unity and harmony had stood in sharp contrast to general political disorder and anarchy throughout the country.

Admittedly, the majority of Hindu/Sikh-Muslim segments of the armed forces had been mentally converted to the idea of political independence based upon the emergence of two sovereign states of India and Pakistan. Yet the overall professional fabric of the military establishment had remained essentially unimpaired. Loyalty to the regiments and to the service held political passion in abeyance and kept it from surfacing. Prolonged denial of political independence by the British would, however, have eventually strained regimental loyalties to the breaking-point. The British appeared to have realized that and decided to make a timely withdrawal. Rather than drive the armed forces to desperation and run the risk of yet another mutiny, they decided to call it a day and quit India at the height of their popularity (if not power) in the military establishment.

Attached equally strongly to their regiments, arms and services, the British wished to leave the military establishment as their finest gift to India and Pakistan. They seemed to be flirting too much with the idea that countries could break but old regiments wont; people could fall apart on the basis of diverse religions and persuasions but soldiers wont. The British, in spite of their comparative aversion to blatant militarism, showed a peculiar love, even weakness, for martial virtue and strength. They had indeed been more martial than militant and looked at armed conflict as the fine flowering of the best in a human-being rather than as just a means of territorial conquest. Carrying the analogy a step further they would much rather train and groom their armies in peace time than shatter them during the war if they could really help it. The army to their mind though an instrument of violence was also a prized show piece (what with its colourful uniforms, regimental

reunions, ceremonial parades, polo and horse shows!) to be cared for and preserved unmarred for as long as possible. Once hostilities would start, however, the glory and glitter of the parade ground and the mess hall at once yielded place to the rough-and-tumble of the battle-field. Too frequent use of the military in aid of the civil power and at the cost of its professional commitments and political neutrality was also frowned upon by the no-nonsense career types. Under alien rule, political neutrality also implied ideological non-involvement and the military was supposed to maintain its neutrality either way. Such a stipulation or tradition could not but have retarded the national consciousness of the military. It did, however, protect its purely professional character from any extraneous influence.

As a result, when the British eventually left the subcontinent in August 1947, the armed forces emerged as perhaps the best professionally-oriented and the least politically/ideologically inclined institution. So strong had been the soldier's sense of neutrality (unconcern?) outside his own profession that several years after the emergence of the new state, its first native commander-in-chief described Pakistan as "a soldier's nightmare". The soldier, he said, while addressing the convocation of the Lyallpur (Faisalabad) Agricultural College towards the end of 1953, did not make Pakistan—with sprawling borders and no depth. It is the politicians who made the country and left the problem of its defence for the soldier to tackle (Sic.).

The emergence of India and Pakistan therefore did not have a military aspect at all being the product of a wholly political/constitutional and primarily non-violent struggle against the British. Full political independence, however, suddenly forced the military establishment into the limelight on both sides of the border. First came the great refugee exodus and the military's active participation in the safe conduct of the uprooted millions. In this case the brunt was borne more by the Pakistan Army than its Indian counterpart. For its part the Indian Army first got itself professionally involved in the "police" action in forcibly occupying the states of Junagadh, Mangrol and Manavadr which had earlier acceded to Pakistan. Then came the Kashmir problem when the Indian Army rushed to the Maharaja's rescue after the latter's arbitrary accession to India. That brought the Pakistan army into action also; and presently the two armies were locked in battle. About eleven months later, the Indian Army marched into the recalcitrant Muslim state of Hyderabad, Deccan, and occupied it after a short and swift operation under the garb of police action once again.

The annexation of Junagadh and its neighbouring states, all Pakistani by accession, followed by the fighting in Kashmir and the military action in Hyderabad, rendered armed conflict as the principal basis of arbitration between the two countries. India had ostensibly been wedded to non-violence all along under the influence of Gandhi; Pakistan, more than anything else had been the product of Jinnah's (Quaid-i-Azam's) super constitutionalism. The great leader had shown a constant horror of extra-constitutional struggle of the type which Gandhi had favoured and also managed to launch in the shape of his non-violent non-cooperation movement outside the assemblies in the early 20's. In each case, the freedom struggle had been wholly non-military right up to the end: yet the military took hardly any time to come to dominate scene after Independence.

Pakistan had inherited a deep sense of insecurity from the terrible circumstances accompanying its birth. It had also harboured a growing suspicion of India's ambition to

undo the Partition (Pakistan) at the first available opportunity. Furthermore, divided India when juxtaposed with Pakistan, had acquired a size and a strature bigger than undivided India. Pakistan's peculiar bi-zonal geography further aggravated the problem of its security. Defence thus acquired the top priority in the Pakistani national thinking and planning. The military became the sole repository of national defence. The military establishment thus rose to the pinnacle of power in national affairs. Almost in direct proportion to the growth of the military power, the political process (the determining factor before Partition) began to lose force. Senior military officers—(rightly or wrongly is besides the point) hustled the government into hasty nationalization of the top rungs of the armed forces. Although it went largely unnoticed, it had been the first case of the military asserting its power over the civil. The second and the more powerful military thrust against the civil authority came about early in March, 1951 in the form of an abortive coup d'etat. By itself the so-called 'Pindi Conspiracy was scarcely more than a sensational episode in a rather realistic suspense thriller. It did, however, underscore the deeper-than-professional involvement of the military in national affairs. It also underscored the crucial role of the military in the handling and final settlement of such vital disputes as Kashmir. The ceasefire in Jammu and Kashmir on January 1, 1949, had been manifestly contrary to the wishes of the armed forces.

On the other hand, India in its frenzied pursuit of regional primacy, undertook to strengthen its armed forces. Fighting in Kashmir had been enough reason for India to dismiss the Gandhian pacifism as a thing of the past. Nehru had all along looked forward to an India full of industrial and military clout. Regardless of the unequal and one-sided nature of the operations in Junagadh, Kashmir and Hyderabad, the Indian Army had imprinted on the popular mind an image of unfailing professional perfection. The military establishment accordingly grew from strength to strength and became the principal source of India's political clout.

In 1951 India invoked the military threat against Pakistan once again presumably to cash in on the spell of civil-military tension in the wake of the disclosure of the 'Pindi Conspiracy. India would just not let Pakistan to rest awhile and concentrate on the task of its development. Psychologically also it wished to see an early fulfilment of its own predictions regarding the untenability of Pakistan. It would therefore keep the latter under constant pressure by political and military means as the situation would demand. General mobilization of the Indian forces in 1951 could be cited as an example: there had been no earthly reason for the 'Flap' at all. That it came barely a year and half after the casefire in Kashmir emphasised the role of the armed forces (armed conflict) in the future Indo-Pakistan relationship. India as the older, bigger and the stronger of the two countries could have perhaps reversed the course of events. Unfortunately, however, in matters political and military (particularly the latter) it behaved rather uppishly and without the requisite sense of responsibility that went inescapably with its status as the largest country in the region.

The 1951 flap went a long way to making Pakistan's perception of the Indian military threat all the more acute. It aggravated its inborn sense of insecurity. Pakistan, too vulnerable geo-politically sought security in the arms of the armed forces. In India on the contraray, the military machine remained largely confined to its limited professional role;

make outright conquests or scare off smaller neighbours. The politicians saw to it that they were the ones always to call the tune while the military obeyed and followed. What accounted for their success in this regard was the size of the country even more than the strength of their political institutions. An army even twice the size of the Indian Army could not have just taken over a country of the size and diversity of India and also run for any length of time. In Pakistan on the contrary, the military and the country had been a more well-adjusted couple in size, ethnic composition, martial tradtion and history. It had been particularly true of West Pakistan—the taproot of the armed forces. Hence the ever-growing predominence of the military establishment in Pakistan.

However, if only India had been less touchy about Pakistan's military "might" and Pakistan more prone to decision-making independently of India's actions and reactions, the post-Independence history of the subcontinent may well have been different from what it had been. Instead of the two countries hastening to cross swords at the slightest provocation, they would have been more willing to talk it over and out. India's highly imaginative assessment of Pakistan's striking power coupled with the latter's innate sense of insecurity made armed conflict, potential or actual, the principal arbiter of disputes in the subcontinent. Additionally, the ceasefire line in Kashmire served as a constant source of provocation. It provided soldiers on either side a regular opportunity to shoot if only to break the tedium of the long and the solitary vigil atop high mountains and across rugged valleys. The ceasefire line either hotted up or cooled down in keeping with the ruling political tempers. It had been like a standing casus belli in a region under the perpetual threat of armed conflict. Kashmir, 1947-48, general mobilization, 1951, Nekowal (Sialkot area) 1954, Chadbet, 1956, supplemented by endless ceasefire violations (some of them as big as the Neelum Valley operations in January/February 1964) had been some of the landmarks in the history of armed conflicts between India and Pakistan prior to the 1965 show-down.

Even in East Pakistan, hundreds of miles away from the J & K ceasefire line (the eye of the storm!) there had been pin-pricks here and there. In 1958 a regular battle was fought at Laxmipur in East Pakistan between the two border forces. One Pakistani officer and one JCO lost their lives amongst others and were instantly awarded the Nishan-i-Haider and the Sitara-i-Jurrat respectively.

Pakistan's grinding sense of insecurity (spurred by constant Indian hostility) drove it into the vortex of global power struggle in 1954. That year in the wake of the announcement of the US military aid, Pakistan signed the Manila Pact and joined the South East Asia Treaty Organization (Seato). That year it also entered into bilateral security arrangements with the US. An year later, Pakistan joined the Baghdad Pact—later Central Treaty Organization (Cento). The US military aid had been sorely needed to rationalize the Pakistani armed forces consisting of bits and pieces of an unequal inheritance from the late Indian army. Ever so morbid in regard to a strong Pakistan, India first screamed over the US military aid and then scurried and scrambled all over to stock its own arsenals. It would buy, borrow or steal arms from where it could—the U.K., the USSR, France and the US. A kind of a mini arms race started in the subcontinent. That could not but have paved the way for an armed conflict in the future bigger than a ceasefire violation or a border clash. Arms cause and dictate conflict. This appears to be particularly true of undeveloped countries having foreign-made weapons—gifted or paid for. Also the more

sophisticated the arms the shorter the duration of war and the less decisive (or wholly indecisive) its outcome. As soon as stocks of munitions (necessarily limited being foreign made and supplied) run out the confiict, fierce at first, peters out into a tame draw.

The advent of the US military aid raised hopes in Pakistan for a satisfactory military solution of the Kashmir dispute in the near future. To India it provided yet another excuse for deviating from the Gandhian path of pacifism. Not that the Gandhian path had ever found favour either with Jawahar Lal Nehru or Vallabh Bhai Patel—India's post-partition strongmen. Both had shown a remarkable degree of militancy and had fought a war against Pakistan already. The US aid provoked India to shed its thin mask of pacifism completely and appear in its true colours. Thenceforward, the inevitability of a major armed conflict between the two neighbours became awfully clear.

At home Pakistan had its first experiment with 'general' martial law (the first 'local' martial law in 1953 had remained confined to the city of Lahore only) in 1958. After four years of arms inflow from the US, the armed forces were beginning to experience a new sense of strength. Unshackled from the British hold top military planners felt more free to experiment with new concepts and techniques. They also enjoyed and basked under the sunshine of international recognition as members of a military establishment having some of the world's "finest human material". Psychologically, the US aid signified the break from the past and to that extent advent into a free world. There had been a feeling of growth all over and the sense of strength and overconfidence that goes with that. Life looked like an endless adventure with armour, medium and heavy artillery and modern jet fighters coming in. An army in such a frame of mind must find a catharisis in action: India had been there like always to provide the opportunity almost on demand.

But for the military's involvement in civil affairs under martial law, occasional release of accumulated heat through ceasefire violations and last but not least India's own mindless involvement with the China in November 1962, the 1965 war could have been advanced by at least two to three years. That war had been like an act of fate; and none perhaps could have stopped it. Pakistan could have waged it in 1962 at the time of India's China War and 1964 at the time of fierce civil strife in the Kashmir valley over the theft of Prophet's sacred hair (Hazrat Bal). But for its designs against China India for its part could have waged a war against Pakistan at the time of its choosing. However, suffering from its all too familiar *follies les grandeur*, India decided first to take on the big before taking on the small neighbour. India's war with China proved a disaster. It shattered India's dream of regional primary. It dealt a grievous blow to Nehru's thrust to sophistication (in a country with immeasurably vast areas of darkness and poverty!) based on military power.

From Kashmir to Goa (1961) Nehru had flashed his armoured punch many a time to his entire satisfaction. Goa—a three-dimensional operation using the army, navy and air force—had given him a grossly exaggerated notion about his armed forces' ability to make swift conquests and add up to the glory of his civil power. China turned out to be a back-breaking upset, however. India might have felt obliged to Pakistan for its refusal to fish in the troubled waters. Gratitude unlike revenge is however a fleeting emotion only. India needed to redeem the honour lost in NEFA (North Eastern Frontier Agency) against China. Another adventure against China would have amounted to courting total disaster: it would therefore be out of the question. India therefore picked on Pakistan as its whipping boy in the next round.

The Chinese success (unilateral ceasefire) left the West (including the USSR) in a state of alarm. It could not afford to see the 'world's largest democracy' collapse suddenly. It rushed to India's aid nursing its ruptured military muscle and make it combat worthy again. India had suffered a defeat at China's hands. Logically, the western military aid would have been intended against China. But only logically and ostensibly and as the Western powers saw it. In reality it had been and was eventually used against Pakistan. The fact remained that any military build-up in the subcontinent whether relating to Russia or China, could not have been isolated from the context of perpetual Indo-Pakistan conflict.

Strengthened by an uninterrupted flow of arms deliveries, India launched its ambitious roll-on five-year defence plan in 1964. Expansion and further modernization of the naval and air arms were the two principal and noteworthy features of the defence plan. Neither of these arms could have been much use against China. India had no maritime borders with China and the MiG's and the Hunters did not have the range to hit targets inside China. The US also undertook to equip India with ten mountain division ostensibly for deployment in the NEFA area. However, there was nothing to stop India from using these divisions in East Pakistan, up in the Kashmir mountains or across the Punjab plains, as and when it so wished. Between 1962 and September 1965, when the two countries went to war, the setting for armed conflict had acquired a menacing poignancy and immediacy. The two countries stood face to face sizing each other up and waiting for the right opportunity to strike for a final solution.

Accumulation of hardware on either side did not only augment their sense of power but also stimulated their historical vision of Hindu-Muslim wars: of the crusades; of the mythical clash between good and evil and of the triumph of the former over the latter. It is amazing how the gun in hand can inflame the mind of the holder and make it run riot with the heady visions of glory. It is as true of groups and nations as of individuals. Common dreams of great victories, common fears of hated enemies weld nations into a single organism with a single will and a mind.

The year 1965 awoke to the sound of the bugle. The thunder clap of war could be heard not too far away. Troop movement and build-up started from late January, '65; and by the end of March, police rangers on either side were engaged in small but provocative actions close to the border in the Rann of Kutch. The Rann—an endless vista of sand dunes and swamps—offered very little to fight for. It had no strategic importance and very little tactical value for either India or Pakistan. And yet it was chosen to serve as the prologue to a discursive play of armed encounter without either a story or a plot. Kutch offers a noteworthy example of battling for the sake of battling: of tactics torn off strategy. It also seemed to confirm the thesis that armed conflict (arm-twisting) became the rule rather than the exception in any attempts to settle the Indo-Pakistan disputes. Neither country would have liked to miss an opportunity to show it's military clout. The long history (or nostalgia?) of the Hindu-Muslim confrontation seemed to have played a greater role in the Indo-Pakistan predilection for armed encounter than the existing geo-strategic reality. In popular imagination war seemed to have acquired the quality of a crusade or a quasi-mystical aura urging the two peoples on to the path of glory and victory. Kutch had taken months (perhaps years if it is linked historically to the first eruption there in the 50's) in planning and preparation but days in actual fighting. It left behind a blazing trail of glory and of shifting sand dunes across the sprawling desert. It also aggravated

the climate of mutual distrust and hostility between the two countries. Armistice led to general mobilization which led to operations in Jammu and Kashmir. That finally led to the Indian invasion of (West) Pakistan on September 6, 1965.

Although many times bigger in scope than the Kutch operation, the September War in essence followed the pattern of its forerunner. Despite the fact that the armed forces in their entirety had been involved in the conflict, the war was fought mostly at the battalion /company level. The air force and the navy performed well individually but for want of an overall strategic framework had been unable to make their full contribution to the total effort or actual outcome. The '65 war underscored both the inevitability of armed conflict in the subcontinent as well as its utter futility in finding satisfactory solutions. The Tashkent Declaration signed on January 10, 1966, failed to bring about abiding peace in the subcontinent. It did however prove that the quest of peace by military means is simply a wild goose chase. That simple but awfully vital lesson was somehow missed by both contending parties.

The end of war triggered the beginning of yet another a conflict vainly hoped to be decisive and final. Arms at any cost and from anywhere became the rage of the sucbontinent. To foreign arms deliveries India added its own defence production base churning out aircraft, tanks, guns and an immense variety of electronic equipment and small arms. The Tashkent Declaration looked like the faded parchment of a bygone age: the spirit of Tashkent had certainly evaporated. The lines were being drawn once again and the inevitability of the Indo-Pakistan conflict returned like the boomerang. Only Field Marshal Mohammad Ayub Khan appeared to have had his fill of fihgting: once had been too often for him. Otherwise, revanche would have overtaken reason much sooner than it did eventually in 1971.

Only coincidentaly perhaps (but unacannily enough) before the two forces got violently engaged for the second round martial law had been once again imposed throughout Pakistan. On March 25, 1969. The CMLA General A.M. Yahya Khan in his first press conference identified the Kashmir "dispute" and Farrakha barrage "issue" as the two long-standing problems between the two countries. He pleaded for a peaceful solution of the two problems. Simultaneously, however, both India and Pakistan went full steam ahead with war preparations. The 1965 was had given both the side the illusion of victory. They yearned to repeat the performance in a much bigger way. They had thought and believed that they had fully sized up the enemy and were better placed then to deal a decisive blow to him. Neither bothered to work out even a rough equation between the cost of the 17-day war and the gains made. Indo-Pakistan relations between 1966-'71 followed a roller-coaster course much as in the past. The historical perspective of armed conflict as the final arbiter between India and Pakistan continued to dominate the national psyche on either side. Field Marshal Ayub and General Yahya Khan were both soldiers. Their attachment to the war idea was more understandable than Mrs. Indira Gandhi's emerging love for it. Nevertheless, she seemed only too willing to have it out with Pakistan. Once that is the case it should not be difficult to find a way or make one.

Pakistan's unfortunate involvement in internal strife provided Mrs. Indira Gandhi "the opportunity of the century" to cut Pakistan to size. The military regime after the crackdown in East Pakistan on night of March 25/26, 1969 blundered from one crisis

into another. Their perception of the political situation had been too distorted to be clear. Once engaged in dealing with the internal crisis, the military rulers forgot all about India, its known penchent for a military solutions and familiar ambition to humble Pakistan in war to redeem at once stroke honour lost twice in 1962 and 1965. An internally disturbed Pakistan would be India's best opportunity for a military adventure. The simple fact was not grasped even after the conclusion of the Indo-Soviet treaty of friendship and cooperation in August 1971—just a little less than four months before the outbreak of the second Indo-Pakistan War.

India was the winner in the 1971 war. The war, however, was lost by Pakistan more than it was won by India. In other words, Pakistan had lost it in the cities and villages of East Pakistan long before the Indian Army mounted its "lightning campaign". It would be futile to deny the success of the Indian military tactics against East Pakistan. Without the ready and willing support of the local guerrillas, however, the Indian tactics of by-passing Pakistan's defences would have been impossible to follow. Armed conflict in East Pakistan succeeded in producing the result, wholly to India's advantage and satisfaction, only because it had been a aided by internal conflict (civilwar). Regardless of the strategic imbalance between India and Pakistan, it could be reasonably assumed that no military adventure in the subcontinent could succeed unless supplemented by civil war.

Like the Tashkent Declaration the Simla Agreement of July 2, 1972, had once again underlined the futility of armed conflict. If the conference table is the last resort why go to war at all? Particularly when resources are so scarce and so much remains to be done in the field of development and for the alleviation of mass poverty.

As regards the wisdom of the military solution of their various problems, Pakistan seemed wiser than India after the trauma of 1971. As the historic dream of military conquests melted away a more realistic vision of the subcontinental realities came in its place. India gained nothing in terms of territory as a result of 1971 war; but it added much to its strature. Bangladesh had a painful Caeserian birth by force of the Indian arms. The Indian armed intervention virtually robbed the Bengali freedom fighters of their only opportunity to win their freedom through their own struggle and say so. It also deprived Pakistan of the last chance to seek a political solution of the tortured East Pakistan question and save the essential oneness of the country in one form or another. If the 1965 armed conflict had been the triumph of ancient martial passions on either side, the 1971 war represented the conquest of reason by ambition on the part of India. India had to redeem its military honour anyhow no matter at what cost to itself in terms of the damage it did to its own pacifist image and to Pakistan in terms of its organic wholeness. The euphoria of victory had apparently blinded India to the cost of victory. It must expand militarily in order to consolidate in the subcontinent the primacy it had won for itself through armed conflict. After defeating Pakistan in detail other countries in the region and around hardly seemed to matter. They could be suitably dealth with when required. So while India professed peace and also enshrined it in the Simla Agreement, it went ahead with its military preparations. As the last batch of the Pakistani POWs left India, a shocked world heard of the Indian nuclear adventure. India's vision of grandeur mushroomed and soared; and sky seemed the limit.

India is now planning further to modernize its air and naval arms. It has earmarked Rs. 1,500 crore ($1,500 million) only to replace its ageing Hunters and MiG-21s with a

more sophisticated deep penetration strike aircraft. Apart from the need for replacement which may be real enough, the Indian decision to go in for the DPSA is inspired mainly by Pakistan's Mirages—also ageing after nearly ten years in squadron service. Pakistan had been flying Mirages even in 1971 but the sophisticated Indian air defence based on the Russian Sam 2s and 3s and airborne early warning and control systems largely neutralized Pakistan's advantage in the air. How could then the Pakistani Mirages have suddenly become so formidable as to cause so much alarm in India?

In a recent statement the Indian Defence Minister Mr. Jagjivan Ram stated: "We have always been optimistic about our relations with our neighbours...we don't anticipate conflict. But as the defence minister, I have to keep myself prepared for any mad action on the part of any nation."

In the present context of the subcontinental military balance (or imbalance?) madness looks like the interest of the stronger. Let India look within and find out its own answer. The future historian will certainly have a lot to wonder and say about two countries born in political process trying to achieve so little through so much of military effort.

Brig. Abdul Rahman Siddiqi (Retd.)

South Asia: The Arithmetic of Military Imbalance

D. Shah Khan

The current escalating build up by India of her military strength, does not seem to suggest that she is quite satisfied with the tilt in the military balance of power in her favour, as a consequence of the 1971 Indo-Pakistan war. In the last six years, Delhi has betrayed a desire, not only to increase the quantity of its armed forces, but also to acquire a higher degree of quality and sophistication in armament.

India's proposed expenditure on defence for the year fiscal 1978-79 (April to March) is 3465 million dollars—about seven per cent more than current year's 3238 million dollars. Similarly there has been a considerable increase in arms production, The Indian defence ministry announced in January that there would be an estimated 46 per cent increase from 690 million dollars in current fiscal year to about 1000 million dollars in the next. The defence industry produces a range of military hardware from guns and ammunition to helicopters and missiles.

In February this year, Reuter reported that an Indian team of experts was to tour Europe to negotiate the purchase of deep penetration strike aircraft (DPSA). The aircraft the Indians have in mind include the Anglo-French Jaguar, the French Mirage and the Swedish Viggen. An Indian defence ministry spokesman explained that preference for these aircraft, one of which would replace its ageing fleet of Hunters and Canberras, is because of their deep strike capabilities.

Such reports of India's determination to continue with the armament race, do not lend credence to the view that a powerful India would help in stabilising the region, and influencing a possible move towards harmony and peace. The former American president Richard Nixon in his report to the Congress on February 9, 1972 had said "of interest to us also will be the posture that south Asia's most powerful country now adopts towards its neighbours on the subcontinent". The term "south Asia's most powerful country" is significant and reflects a high level of American adulation for an emerging super-India.

It seems, however, that India wants much more than a mere recognition of its regional primacy by a super power. That "in south Asia, India has emerged as a great power in the region in its own right" (M.V. Kamath in *The Times of India*, June 11, 1973), is to be accepted along with the admission that in a subcontinent where six other nations reside, India is more than two thirds of all of them put to-

gether. Thus we find, that even after the 1971 war, in which, the Indian media had boasted that Pakistan had forever been eliminated as a military rival, Delhi has maintained a constant increase in her defence expenditure. According to the statistics released by SIPRI in 1977, Indian defence budget had been in 1973—Rs. 16,757 million; 1974-Rs. 20,380 million; 1975—Rs. 25,468 million and in 1976—Rs. 25,105 million. In 1977 the amount was Rs. 27,520 million, and the amount earmarked for 1978 is Rs. 29,450 million.

Not Against China. The view that India might be investing such huge sums in order to create a credible defence against China, is something that is not taken seriously even by Delhi's closest wellwishers. Mr. Nixon merely described India as "south Asia's most powerful country", but nowhere has he spoken of a larger Indian role in the sphere of super power politics. Even Indian experts are circumspect of giving Delhi a status as a possible counterpoise to China. Brig. Rathy Sawhny (Rtd.) wrote in *The Tribune* (Jan. 13, 1978): "It is evident that China's nuclear arsenal is already more than adequate inflict an unacceptable degree of devastation on a number of India's populated centres in the northern and eastern parts. Since nuclear warheads are a weapon of absolute offence—against which no credible defence exists or appears to be in sight—reliance perforce has to rest solely on deterrence. Since India herself is not in a position to deter a nuclear attack from China, she has no real option but to rely either on China's goodwill or on the country being effectively deterred by one or both the super powers. However, if and when China acquires a credible second strike capability, the ability of these powers to effectively deter China loses credibility".

Brig. Sawhny then goes on to express the view that "in the conventional military sphere it is not the totality of China's forces that India has to take into account but only those that China is likely to be able to deploy across the Tibetan plateau against this country. India has also to guard against China adopting "nibbling tactics" in the remote border region."

Even in the matter of comparative armed strength, China is far too big for India. India with her 30 divisions, 2000 tanks and 1300 aircraft is no match for China with 136 divisions, 10,000 tanks and 10,500 aircraft. The Indian writer was right when he said that one of India's options was to rely either on China's "goodwill" or the protection of other superpowers; and the expectation that conflict between China and India will be confined merely to the strip of border in the north east and north west. Consequently it is difficult to believe that Delhi's military preparation is directed to achieve an equation with China. The gap between the existing force levels of the two countries is far too wide to be wholly bridged over in the foreseeable future.

This leads us to the obvious conclusion, that Delhi's armament drive is entirely oriented to the south Asian region, and that it either sees the main threat emanating from this region or has some plan for imposing her military hegemony over it. There is much truth in this, as Lorne Kavic has written in his book *India's quest for security: defence policies* 1947-1965: "India's current defence planning is not however limited to protecting herself against China and Pakistan but indicates a deliberate intention to provide a credible military sanction for the country's ambitious, but previously "toothless" diplomacy. For this reason, the Indian military programme will probably not be unduly influenced by the state of relations with either

of her two neighbours in the foreseeable future."

India's military intervention in Pakistan's internal difficulties in 1971 probably might have been dictated by such an aim. It appears, that Indian military experts still fear some sort of a *blitz krieg* attack from Pakistan—enough to achieve some immediate objective, if not to crush India. Brig. Sawhny has something of this nature in mind when he writes that "In any prolonged conflict our forces should be able to gain the upper hand over Pakistan. However, it is not inconceivable that relations between China and Pakistan may again become very close but strained with India. In such circumstances Pakistan's military authorities might take the calculated risk of unleashing a lightning attack to secure limited territorial objectives—or serve as a valuable bargaining counter in subsequent negotiations—and rely on China blackmailing this country into desisting from launching her deliberate, as opposed to immediate counter offensive."

India Builds up. Whatever may be the reason, one sees a tremendous effort under way not only to increase but also improve India's military machine. At the same time India is rapidly expanding her defence production industries, increasing the range of products and thus reducing reliance on foreign sources for military hardware as well as cutting down on the costs. Added to this growing arsenal of conventional military wherewithal is India's nuclear potential. The Indian nuclear blast of May 1974 in the Rajasthan desert was not merely a test but a symbolical exercise to proclaim her emergence as a nuclear power of sorts. Since the blast could not have been designed to impress China, (which already has a stockpile of fission and fusion warheads) its aim could only have been to intimidate the other south Asian countries, specially Pakistan. Zalmay Khalizad, writing on "India's Bomb and the Stability of South Asia" in *Asian Affairs* (Nov.-Dec. 1977) observes that "the Indian nuclear explosion of May 1974 has affected many countries, but Pakistan has felt specially threatened by it. In the eyes of most Pakistanis, the Indian explosion dealt a severe blow to the military balance between India and Pakistan, and Pakistan's sense of security."

Given the background of the nature of India-Pakistan relations and the continuous conflict between them, there would be a strong possibility of nuclear weapon being put to use here before any where else. This point was realised by Pakistan, and the verbal reaction was swift and bitter. Pakistan warned: "If ever there was a nation capable of using atomic weapons, it was India. If India was ever in a tight corner, it would never hesitate to use the atomic bomb...the nuclear status has been acquired to brandish a nuclear sword to coerce, to impose hegemony over neighbours and to extract political concessions". It was further observed that nuclear weapons were used primarily for political blackmail and coercion and that "unlike the major powers, India could not be expected to exercise restraint, because it did not have the maturity that comes with great power status."

From a Pakistani viewpoint, not only is there a growing military imbalance between the two countries, but that this has been exacerbated by the nuclear test with its potential of being used as an atomic bomb. The Indian prime minister Morarji Desai has recently assured that the nuclear blast had been the last of its kind. It must however be noted, that India has consistently refused to sign the Nuclear Non-proliferation Treaty and also declined to accept the Carter doctrine on nuclear weapons. There is no reason to believe that the Indian government will

readily abandon its nuclear policy after having invested in it millions of dollars. Besides the political and security benefits available from having the potential of becoming a nuclear power remains a constant a temptation.

Military Balance. Thus we find that on account of India's massive build up of its armed strength, and in spite of whatever Pakistan has been able to achieve in the difficult circumstances, the balance of military power in the region—or more specifically, between India and Pakistan, tilts heavily in favour of the former. Almost seven years after the war of 1971, Delhi has emerged as a formidable military power, in South Asia The *Outlook* (August 11, 1973) in a study on "India-Pakistan military balance" had observed that "until the war of December 1971, Pakistan's major strategic objective was to maintain a military balance of 1:2.5 vis-a-vis India. She largely succeeded in it despite New Delhi's constant endeavour to upset the ratio. The war of 1971 and the emergence of Bangladesh definitely destroyed this balance."

If this yardstick is used for measuring the comparative conventional military strength of India and Pakistan, then the latest figures of the armed forces of both the countries will reveal a still wider ratio. Statistics available from a number of sources only confirm that India is far ahead in size, and to some extent in quality. Given Delhi's current ability to produce a sizeable portion of its own defence equipment, its greater resources and the readiness of major powers to invest in its military build up, the in balance will be found to be even more disturbing.

The International Institute of Strategic Studies, London gives the following figures of the relative strength of the conventional regular armed forces of India and Pakistan in its publication "*The Military Balance*, 1977-78";

Army	**India**	**Pakistan**
Armed Divs. ..	2	2
Inf. Divs. ..	17	14
Mountain Divs. ..	10	—
Indep. armed bdes.	5	3
Indep. inf. bdes. ..	1	3
Para bdes. ..	1	—
Medium tanks ..	1780	1000
Light tanks ..	150	50
Air Force		
Total combat planes	670	247
Light bombers ..	50	11
Fighters ground attack planes ..	215	160
Fighter bombers ..	—	30
Interceptors ..	400	—
Navy		
Submarines ..	8	3
Midget submarines	—	5
Aircraft carrier ..	1	—
Cruisers ..	2	1
Destroyers ..	3	4
Frigates ..	25	1
Fast patrol boats guised missiles	8	—
Patrol boats ..	8	19
Minesweepers ..	8	7

From the above figures the gap between the military strengths of the two countries becomes quite obvious. The defence expenditures of the two countries during the fiscal 1977-78 providea more concrete comparison, with India's expenditure at 3238 million dollars and Pakistan's at 915 million dollars. In this context it must also be pointed out that as India is meeting much of the hardware requirements of her army through relatively cheap domestic sources. The amount spent on defence can therefore go a little further in actual value and effect than meets the eye. In case, if Pakistan, in fact remains that it

has to buy its militarys' hardware from comparatively expensive foreign sources.

Defence Production. The Indian ordinance industry, which witnessed a dramatic expansion in the late 1950s, by 1976 was employing about 118,000 workers and had produced military equipment valued at over Indian Rs. 3,500 million. This has made India more than self-sufficient in much of the hardware the army needs, like rifles, carbines, light machineguns, light mortars, mountain artillery, recoilless rifles, anti-aircraft guns and heavy mortars. The Hindustan Aeronautics Ltd. with 11 factories in six states employs more than 40,000 skilled and semi-skilled workers, had a production target of Indian Rs. 1,490 million in 1976-77. Its products include jet fighter/ground attack aircraft, helicopters, jet fighters, trainer aircraft, and the MiG-21M supersonic jet fighter. Besides it also produces engines for a variety of aircraft. Most of its products are made under license from foreign manufacturers/countries, such as France, Britain and the USSR.

According to SIPRI—1977, India is producing, apart rom those listed above, its own Vijayanta medium tank, anti-tank missiles, air-to-air missiles and the "Leander" class frigates. Compared to this Pakistan according to SIPRI-1977 is manufacturing SAM-system, Alloutte-III helicopters, anti-tank missiles, Cessna primary trainer aircraft etc.

However, the only official information about Pakistan's defence production given so far, was the statement issued on January 29, 1977. The statement revealed that "Pakistan's armament industry had been developed to the point that it now has facilities for the assembly and progressive manufacture of light aircraft." The statement went on to say: "Besides, there are several projects set up by the People's government, or are being set up now, which will enable Pakistan to manufacture immediately or in due course, aircraft of an advanced type, submarines and other naval craft, tank, artillery and tank guns, military trucks, bombs, missiles, radar and other sophisticated electronic equipment."

It may however be pointed out, that the above information, which according to the Pakistan Press International (PPI) "has been disclosed for the first time", was released at a time when the Bhutto government had announced general elections for March 1977 and the PPP was launching a massive campaign to brush up its somewhat tarnished image. The SIPRI information however corroborates the production of some of the items. Zalmay Khalilzad in his article in *Asian Affairs* (quoted earlier) writes that "special emphasis has been placed on the domestic production of an increasing number of conventional weapons. Pakistan has been licenced by France to produce 120-mm guns and mortars (*Le-Monde*, Oct. 22, 1976). According to the *Asian Recorder* (Nov. 26, 1975), Pakistan has also persuaded the French to set up a Mirage fighter aircraft plant in the country. Cessna Aircraft, the world's largest producer of lightweight planes, has entered into an agreement with Kiyuski International for the production of Cessna A-41D aircraft under license in Pakistan, and Kiyuski International has also contracted with Hughes Helicopters to produce "500-series helicopters" in Pakistan (*Pakistan Times*, Nov. 24, 1975). The anticipated rate of production is 50 helicopters and 60 to 70 light aircraft annually."

But, despite such immense progress in the field of the domestic defence industry, it must also be realised that India with its manufacture of the formidable supersonic MiG-21M, Vijayanta tanks, cruisers and a variety of sophisticated missiles is still far ahead of Pakistan. India's armament industry which has undergone con-

siderable advancement, is not without its share of difficulties. Much of the hardware it has started producing on a large scale, specially the Ajeet jet fighter, Marut MK-I jet fighter/ground attack aircraft etc., are becoming increasingly obsolete. The Indians themselves realise the necessity of replacing these with something more sophisticated.

Production Snags. Then there is also the added fear of running into snags over the manufacture of some of the hardware should the foreign manufacturers/countries decide to withhold supplies of vital spares. A. Hariharan, in an article "The Price is High" in the *Far Eastern Economic Review* of Dec. 2, 1977 says that "India theoretically should drive continued advantages from collaboration with the Soviet Union, particularly in aircraft production. Already three plants—at Hyderabad, Koraput and Nasik-manufacture the various parts, electronic equipment and engines for MiG-21s. If the Soviet Union can be persuded to license manufacture of later versions of the same aircraft, investment will be held down and delays in obtaining designs and patents from other nations avoided.

"But the Egyptian experience showed how dangerous it can be to put too many eggs in one defence basket, When President Anwar Sadat expelled Soviet technicians and openly squabbled with Moscow, the Soviets cut off even the spares for Egyptian MiGs. Indians are uncomfortably aware that the Soviets intend to keep a firm grip both on the manufacture and use of Soviet-designed aircraft. It is also no secret that they are wary about supplying ultra-sophisticated equipment to a country which cannot guarantee total secrecy."

Dependence on locally manufactured foreign defence equipment is apparently better than dependence on foreign manufactured defence equipment, but this too has the potential of creating problems. This is the situation in India, and although she can boast of satisfying much of her defence requirements through her massive defence industry, she is still tied down, as are other Third World countries, to the foreign suppliers of the military hardware. Such an occasion had arisen once when the Soviet Union, possibly for political reasons started dragging its feets on the matter of arms supply to India. According to the Bombay weekly *The Current* (July 7, 1973) "for over a year now the Soviet government has shown an unusual hesitation in meeting some of its major commitments with regard to defence supplies for our armed forces. The result is a massive backlog of unfulfilled promises." The weekly went on to complain that "when representatives of the Soviet government sidetrack the important issue of supplies about which the Russians have already entered into formal or informal agreements, the gap between friendship and performance becomes difficult to understand."

There is not much a recepient country can do on such occasions except to go along with the supplier. India's Soviet arms connection probably has a similar ring to it. "The Russians are India's principal—and almost exclusive supplier of imported weapons", says Col. W. Saunders in an article "India: Ending the Permit Licence Raj", in the *Asian Affairs* (Nov.-Dec. 1977). He adds "It is here that the weaoons procurement issue becomes vital. If Desai can switch at least some of his weapons procurement to the west—including the United States—on favourable terms, then the Russians cannot pull his regime to heel with the threat of an arms cutoff."

Another facet of Indian ordnance dustry is that it has not acquired that standard of defence science and technology which is necessary to give it international

acceptance. Apart from the sophisticated and modern war equipment India produces under license from foreign manufacturers, she has not much to boast of as being a product wholly of Indian genius and workmanship, and whatever little that is being done is still in the early stages. A prestigious project of the Hindustan Aeronautics—the HF-73, a deep penetration strike fighter, has been on the drawing board since it was first conceived in 1969. The aircraft was due to test fly in 1980, but litt'e progress has been reported on the project. a'though it was expected to prove an answer to the air force's quest for a more sophisticated aircraft than the MiG-21. Probably, by now the Indian authorities have given up any hope of seeing their first locally designed and built deep penetration strike fighter becoming a reality. This explains Delhi's decision to send a team of experts to select a foreign made deep penetration strike aircraft.

A. Hariharan points out that the "Pokhran underground atomic test and the Soviet launched Indian space satellite might give the impression of extraordinary technological advance. But it is evident that India has neither the resources nor the research teams necessary to keep pace with the latest advances in electronic, missile and undersea warfare."

Pakistan's defence industry possibly must be about in the same phase as India's, if not a little behind. Our ordinance plants still produce foreign equipment under license of the manufacturers and probably with a higher component of foreign made vital parts. As most of the weapons systems are continuously being improved and made more sophisticated, our defence production, like its counterpart in India must be findng itself burdened with military arms aid equipment which is already becoming obsolete. Seen against the background of the poor patronage that has been given to science and technology in the country and the unending sapping brain drain that is depleting the country of its talent, keeping up with the Jonses in defence production must be becoming a difficult if not an impossible task for our military plnners.

Moreover, Pakistan too, like India faces the danger of from over reliance on military equipment from a single source. One can only hope that our age of innocence in this respect ended after the 1965 war. The American decision to cut off arms supplies did affect our performance in the war. Lars Blinkenberg writing on the 1965 war says in his book "*India—Pakistan: history of Unsolved Conflicts*" that "Foreign experts have generally agreed that the striking power of Pakistan's armoured forces was blunted at least temporarily on the battlefield. One reason was that Pakistan's armour was running short of spare parts, which were in short supply, due to American restrictions, and this factor eventually made Pakistan's acceptance of the ceasefire a necessity." If this appreciation is correct, then it is quite possible, that had Pakistan no problem of spares and supplies, results of the war would have been vastly more satisfactory for us. Alastair Lamb admits in his book "*Crisis in Kashmir* 1947-1966" that "Other things being equal, Pakistan might perhaps have gained from a few more days of fighting and the possibility of a more dramatic repulse of Indian attacks."

Forced by the American embargo on supply of arms, Pakistan has wisely diversified its sources of supply of military hardware. This policy is likely to prove of immense benefit to Pakistan in the future in relation to India depending mainly on the Soviet Union in matters of arms supply. The nexus apparently is strong enough to prevent the Indian Prime Minister Desai from making good his pre-election pledges that he would render the Indo-Soviet

treaty of friendship and cooperation "null and avoid".

Assessment. In making a comparative study of the military strength of India and Pakistan, one cannot help concluding that not only is the gap widening, but that India's progress in this field is faster than Pakistan's. The present political climate in the world is hardly conducive to our efforts to acquire sophisticated arms and equipment for our forces. The American decision to disallow the sale of 110 deep-penetration A-7 fighter/bomber to Pakistan would illustrate this point. The long-delayed supply of the French nuclear reprocessing plant is yet another example. It has become almost a touchstone of Pakistan-United States relations for the present and in the future. The Americans see in Pakistan's acquisition of the nuclear plant the emergence of the seventh nuclear power, especially at a time when another country in the region—India—has already become the sixth. It is conveninently forgotten India, armed with even a few nuclear bombs, will wholly upset the Pakistan government's efforts to "give the armed forces and the nation a credible defence capability". "The Indian nuclear explosion had dramatically changed the military balance between India and Pakistan in favour of the former." According to experts the May 1974 Indian nuclear test "a ten-15 ton device detonated at a depth of 100 metres, creating a carter with a radius of 200 metres and an artificial hill—would have caused a great deal of destruction and killed tens of thousands of people if used as a weapon against a city such as Lahore or Karachi in Pakistan." Besides, it must also be noted that "India's large force of Canberra bombers, with a 1,500-mile radius of operation, gives it potential capability of striking any Pakistani city in a devastating nuclear assault".

Pakistan's efforts to atleast offset the nuclear threat by achieving nuclear capability is understandable. The gap between the conventional military muscle of the two countries loses all meaning in this force of the Indian nuclear potential. The defence priorities therefore have to be changed, the emphasis for the future being on nuclear rather than on military power. No government in Pakistan, however interested it might be in good neighbourly relations, can possibly ignore the new compulsions.

India's Thrust to Regional Primacy

M. Y. SIDDIQI

Pakistan has always reacted to the Indian action· our policies are always a counter to the Indians'. The Muslims of the subcontinent tend to overreact and feel insecure most of the time. If Pakistan is to stand up to its bigger neighbours and is to refute the primacy of any of its immediate neighbours then the people must learn to stand on their feet firmly and produce the appropriate response to the challenge. Any nation which fails to respond to challenges must then pay the ultimate penalty. Pakistan involved itself in two fruitless and economically disastrous wars, either wittingly as in 1965 *or through sheer folly as in* 1971. *Strange as it may appear, on both occasions Pakistan's foreign policy was guided and advised by Mr. Bhutto. Perhaps he never understood that a war is often the collapse of foreign policy.—*

1971 has been a historic year in the affairs of Asia. The Sino-US diplomatic breakthrough saw the end of the bipolar power system and China received recognition of her rightful place in the international power system. That year Pakistan was cut asunder after the war of December 1971, losing over half of its population and nearly half of its territory. The Indian people expressed their joy at the disintegration of Pakistan by giving an overwhelming vote of confidence to Indira Gandhi. The Indians felt that by disintegrating Pakistan they had at last achieved their cherished aim of primacy in the subcontinent. Earlier that year, the Indians, in their panic over the Sino-US friendship, had rushed into the treaty of friendship with the Soviet Union. It is too early to assess the forces released as a result of the Indo-Russian endeavour to balkanise the subcontinent. However, it did release silent and potent forces for good for for evil.

Indian Dream. The Indian dream of a new order in the subcontinent has never been universally shared. Their claim of cutting down Pakistan to size and their plan to see a secular, and client Bangladesh have turned sour. The Indian people themselves acknowledged the futility of these dreams subsequently by rejecting Indira Gandhi and her party. The world presently realised that India was a minor actor on the wide stage of the superpower strategy. Even the Third World did not endorse the Indian designs to reshape the subcontinent. The reality of the Russian endeavour to establish the Soviet hegemony through India over the subcontinent and the Indian Ocean and to obtain a political and military base against the southern flank of China was too harsh to be ignored. Even enlightened Indian opinion conceded the truth that without the treaty of friendship, India dared not 'liberate' Bangladesh. Pakistan astonished India by its strong and adroit resistance to the latter's designs of regional hegemony. It received political, moral and economic assistance from the Muslim block and thus frustrated the India scheme to isolate it from the region.

The Chinese gave strong support to Pakistan and their veto against Bangladesh further damaged the Indian image. By 1974 some of the invisible forces generated by the '71 war began to cast their shadows. Failure to impose India's will and primacy in the subcontinent, economic crisis, inflation, corruption and declining production changed the self-confident mood of the Indian people.

India Explodes the Bomb. On 18th May, 1974 India exploded the atomic device in the Rajasthan desert. Besides signifying the advance of the Indian technology, the 15-kilo ton underground explosion failed to impress even the masses of India. It did not gladden the heart of the Russians and certainly failed to put the fear of God in the Chinese. The explosion demonstrated the futility of drawing distinction between peaceful and military implications of nuclear programme. The plutonium used in the Indian nuclear device had been produced in the Canadian CIRUS reactor at Trombay using the US-supplied heavy water. The Indians are still receiving the US supplies. There is not doubt that the Indian nuclear programme and its development of military capability has the tacit approval both of the US and fthe Soviet Union. Both the superpowers live in fear of China and their strategy seems to be that in case of a global conflict (or even before that) India should take on China. At present the Indians lack a delivery system but their rocket launching programmes are advancing at a fairly brisk pace with the help and assistance of Russia and France. India in all probability would produce its first delivery system capable of reaching southern China in three to five years. It is unlikely that India would use the bomb against Pakistan at whim for the serious repurcussions it must produce for India internally and externally. This cannot, however, allay the fears of Pakistan or other regional nations. The fear of a nuclear blackmail can be very real. This definitely poses a dilemma forfthe entire region.

Pakistan Seeks Security. Pakistan has had security problem from the very first day of its existence. Instead of gracefully acknowledging and accepting the Partition, India still dream if undoing it. The Indian leadership by their irrational and unfriendly behaviour created a sense of anxiety, fear and mistrust in the people of Pakistan. The narrow-mindedness of Motilal Nehru had laid the foundations of the partition of the subcontinent and the short-sightedness of his grand-daughter destroyed the chances of peace and amity in the subcontinent. Threatened by India and frowned upon by the USSR, Pakistan entered into a military pact with the US in 1954. It was primarily the Indian hostility which drove Pakistan into military and economic pacts with the US. The first skirmish between Pakistan and India took place in Kashmir drawing the US and the USSR to the sub-continent. The Russians, considering India a more fertile ground for their brand of socialism, became constant supporters of India. Pakistan's fears and mistrust and the interference of external powers in the affairs of the subcontinent are all reactions to India's own actions. The irony is that India has ever since been reacting to the reactions produced by its own actions.

The quantum of the US military aid to Pakistan was never such as to cause any real threat to ndia. It is true that in 1965 Pakistan Army and the PAF had better weapons but Pakistan was in no position to inflict any meaningful defeat upon the Indians. The US always kept the Pakistan armed forces very short on spare parts; this was one sure way of keeping Pakistan under control. While the US gave token military aid to Pakistan, they gave massive economic assistance to India. It is interest-

ing that during the years of the US military aid to Pakistan, India's defence expenditure had been minimal. At the same time the Indians obtained political and military support of the Russians. The US military aid in spite of the strings attached, certainly provided good quality military hardware and sound training to the Pakistan armed forces. The PAF received special attention because in case of a conflict, Pakistan was the only ally in the region capable enough to handle the modern aircraft; the Iranians were not yet ready. Ever since the emergence of Iran as a sound military machine, the US has lost much of its interest in Pakistan military development. It is doubtful if the US anvisaged any substantial role for the army in their scheme of things. But since the army occupied a powerful place in the corridors of power, it was necessary to please and oblige the army and woo the generals. The navy was given a couple of old, worne-out destroyers but brand new minesweepers to keep the approaches open for the US ships. India's China war set a new pattern in the subcontinent once again India suffered through the folly of a Nehru.

Pakistan and N-Power. Pakistan's reaction to the Indian atomic blast was typically loud, hysterical and emotional. More than any other politician in power, Mr. Bhutto had the longest and closest association with the atomic energy programme in Pakistan. He never concealed his ardent desire for an atomic bomb. He even wanted the people "to eat grass" for the sake of the Bomb. What were his real intentions? An obsession for deadly power for his own personal greatness? or was it a a deliberate and planned sabotage of Pakistan's nuclear programme? One will perhaps never know the real answer. However, it is too obvious to miss that in a desperate bid to hang on to his chair, Mr. Bhutto made the reprocessing plant issue as emotional as the Kashmir dispute. It is best that the issue of the reprocessing plant and the nuclear energy programme be looked into with objectivity and is not made subject of public controversy.

From 1970 onwards most of the nations began serious studies of using nuclear energy to reduce their dependence upon oil. Like most developing countries Pakistan's energy requirements continue to increase. It is estimated by the International Atomic Energy Commission (IAEA) that by the end of this century, nuclear energy will supply 50% of world electricity requirements. By that time nuclear power will be playing major part from nuclear-powered ships to desalination of sea water. Such prospects have great appeal for countries like Pakistan. But there are certain attendant problems which require satisfactory answers. Nuclear programmes need heavy investment and also require great skill and energy to build and service nuclear power stations. The problem of building nuclear capacity to the desired levels is proving, in terms of economics, formidable even for the most advanced countries. A 100 MW nuclear power station is economically viable and becomes more economic as the size grows. A station of this size may take five to ten years to build. At the same time the economics of very large power stations have certain very disquieting features e.g. a power station producing 1,000 MW of electricity would also generate approximately 2,000 MW of heat which cannot be fully utilized and has to be discharged in to the surroundings. The cost of the reprocessing plant under contract from France is about $ 150m and is capable of reprocessing 100 tons of fuel. This is an enormous capacity even for the advanced countries of Europe. The reprocessing technology is highly complex involving fearful amounts of radioactive materials. Reprocessing also produces high level radio-

active waste materials like strontium-90 which remains active for hundreds of years.

These observations are not intended to alarm our scientists. The only point is that the nuclear energy programme is not an emotional matter to be shouted about in the streets. It is a complex matter involving economic, social, cultural and ecological problems. One must examine the entire spectrum before embarking upon such programmes and take into account different sources and technologies of energy supply.

It will be folly to link the nuclear energy programme with Pakistan's security. No doubt Pakistan has the technological skill to produce a nuclear device for military use in due course of time. To produce even a meagre nuclear arsenal and to develop a delivery system is however beyond Pakistan's economic resources. Perhaps Pakistan can obtain the necessary finances from certain Arab quarters for the nuclear programme but it will take at least five to ten years to produce a credible nuclear arsenal and that is too long a time for the complexities of the international power politics. By then many factors may alter and events occur which could leave Pakistan high and dry. It is also worth mentioning that the Egyptians and the Iraqis are also well advanced in the nuclear energy field. Pakistan therefore must look for some other options as a deterrance to the Indian threat.

Need for Greater Objectivity. Pakistan has always reacted to the Indian actions; our policies are always a counter to the Indians. The Muslims of the subcontinent tend to overreact and feel insecure most of the time. If Pakistan is to stand up to its bigger neighbours and is to refute the primacy of any of its immediate neighbours then the people must learn to stand on their feet firmly and produce the appropriate response to the challenge. Any nation which fails to respond to challanges must then pay the ultimate penalty. Pakistan involved itself in two fruitless and economically disastrous wars, either wittingly as in 1965 or through sheerf folly as in 1971. Strange as it may appear, on both occasions Pakistan's foreign policy was guided and advised by Mr. Bhutto. Perhaps he never understood that a war is often the collapse of foreign policy.

India's defeat by China so panicked the West and the USSR that they rushed military aid to India without any preconditions or committments on the part of India. That heavily tilted the balance of power in the subcontinent in India's favour. At the same time because of its involvement in Vietnam, the US virtually conceded the subcontinent to the Soviet Union. The 1965 war provided the USSR with an opportunity to publicly stage-manage the affairs of the subcontinent. From 1965 onwards the Soviet Union and China became the prime forces in the subcontinent. Since the Russians were more resourceful of the two, the balance remained heavily tilted in India's favour. Once again the Indians failed to realise that by their continued hostility towards Pakistan they were continuing their dependence upon external powers. In an overpowering desire to humiliate Pakistan, India shackled its options to the superpower strategy and destroyed all chances of a great, happy and prosperous subcontinent in which two peoples could live in peace and amity.

Pakistan and the USSR. *Only a couple of years before the signing of the treaty of friendship with India, the Russians had been wooing Pakistan. During the autum of Ayub era, the Russians made serious offers of military aid and indeed limited qualities of some military hardware was also received by Pakistan. It is ironic that the very missile boats that were [earmarked for delivery to the Pakistan Navy attacked the Pakistan naval ships in the '71 war.*

The Pak-Russian honeymoon did not last long and the Russians withdrew rather abruptly. Perhaps it was an exercise in detaching Pakistan from China. This was also the period when Indira Gandhi's leadership was under attack from pro-West Desai group. The Russians therefore endeavoured that in case they had to move out of India, they could turn to Pakistan and retain their footing in the subcontinent. Whatever their real motives might have been at a particular time, the Soviet Union has never been very friendly to Pakistan. In 1972 Kosygin told Bhutto that "were history to repeat itself we would act as we did in 1971". The velvet glove of Tashkent had turned into the iron fist of Dacca.

The Soviet Union occupies vast and rich Muslim lands with large Muslim population in Central Asia. These Muslim lands make more than substantial economic countribution to the prosperity and well being of the Soviet Union and the European Russia is greatly dependent upon this economic contribution. Despite the closest historical, cultural and spiritual links with the Central Asia, the Muslims of the subcontinant have been isolated from the Central Asian Muslims by the iron curtain, firstly drawn by the imperialist powers and later by the communists. The isolation was so total that today Pakistanis hardly realise that their entire cultural pattern and spiritual heritage is in essence Central Asian. The European Russia has always feared a resurgence of Muslim nationhood in occupied Central Asia. Hence the Russian efforts to discredit Pakistan and to demonstrate the failure of two nation theory. The ideology of Pakistan, by sheer chance, has thus become the soft under-belly of the communist Russia.

The Russians do not really covet Pakistan's warm ports. From Karachi to Jiwani there is neither a natural harbour nor large enough anchorage to provide any facilities to the Soviet ships. Most of the hinterland is barren, underdeveloped—even fresh water is not available—with poor means of communications. In order to develop direct overland route from the Russian border to the Arabian sea, massive economic investment by the Russians would be required to develop and improve roads, communications and ports etc. This venture is only feasible if Iran also falls into the Soviet orbit otherwise the flanks would be constantly threatened.

The recent Russian airlift to the horn of Africa has clearly demonstrated the Russian ability to by-pass Baluchistan for operations in the Indian Ocean and within Africa. In any case the Russians have always been interested in the Indian Ocean through the Gulf. As early as 1940, the Russians had clearly stated (Molotov-Ribbentrop Agreement) "Our territorial claim extends to the south of our borders towards the Indian Ocean". This aim was ultimately achieved with the signing of the treaty of friendship with Iraq. The Russians did not desire the port of Chittagong either; they had the use of the most natural, spacious and strategically located harbours of the Andamans. The principal motivation behind the creation of Bangladesh had been the destruction of the two nation theory.

Emergence of Iran. Another important development in the region is the emergence of Iran as a regional power. Iran's determination to play a more positive and dominant role in the Gulf and the Indian Ocean would further weaken the Indian position. Pakistan and Iran have had friendly relations since 1947; these friendly relations were facilitated by identity of interests and the absence of any disputes. In the first two decades, Pakistan was the leading partner with a stronger defence capability and a more developed industrial base. But

by '70 the pattern had begun to change and with the military defeat of Pakistan in the '71 war and its dismemberment, the equation between Iran and Pakistan changed in favour of the former. For Iran, Pakistan is a useful buffer state and therefore the territorial and the internal stability of Pakistan is very important for Iran. A weak, dependant and junior Pakistan under Iran's wings (primacy) is also to Iran's advantage. At present the Indo-Iranian relations are excellent with economic and technical cooperation between them. *The Shah has been advocating Asian Common Market. This has naturally posed a dilemma for Pakistan who is no longer in a position to speak out loudly to the Shah. And it is perhaps under the Iranian pressure that Pakistan has slowly moved towards normalisation of relations including trade with India. However in view of the Shah's friendly concern for Pakistan, it is fair to assume that Iran must have provided certain assurances and guarantees to Pakistan. Despite the cooperation mood between Iran and India, it is likely that in their bid to be paramount in the region, their relations would turn sour before not very long. India is most likely already feeling perturbed at the growing military power of Iran. On the other hand Iran must be feeling the heat of the Indian nuclear explosion.*

Future Moves. Pakistan has excellent relations with the Arab countries and therefore in any type of confrontation between Iran and India both are likely to seek Pakistan's friendship; in case of Iran it would simply mean promoting Pakistan to its earlier relationship of equality. Indian may try to offset this situation by inciting Afghanistan against Pakistan as India has been trying for the last thirty years without any meaningful gains. It is also high time that Pakistan adopted a more positive approach towards Afghanistan. It is a historical fact that from the times of Mahmud of Ghazna to the last days of the Mughal Empire when the Marhattas were on the rampage, the Afghans had always responded to the call of the Muslims of the subcontinent. No doubt that ever since the establishment of Pakistan, Afghanistan has been making lot of noise but it has never taken advantage of our difficulties. On the other hand, Pakistan on the strength of its military power has been acting in a rather haughty manner towards the Afghans. This attitude must change and Pakistan should give tdue consideration and respect to the Afghans as a matter of historical debt. A police and cordial approach with full economic and technical cooperation with Afghanistan should be Pakistan's policy. In fact Pakistan should have no hesitation whatsoever to offer confederation to Afghanistan. Afghanistan has already made a friendly gesture of reducing 'disputes' to 'differences'. With the continued help of Iran and other Muslim countries Pak-Afghan relations can be made friendlier. It would also be in India's interest, if it desires to contain the growing influence of Iran, to see that relations between Pakistan and Afghanistan are friendly and cordial. Even the combined strength of Pakistan-Afghanistan will pose no threat to India's security but it can effectively check Iran's primacy.

Kashmir. Like all other newly independent nations Pakistan's bureaucracy and the military were its only stable and organised institutions at the time of Independance. Due to the ineptness of feudal politicians-concerned mainly with their personal welfare-the bureaucracy and the army have in effect been ruling this country by turns. A number of artificial and emotional problems were stressed to divert people's attention from economic and social problems. Kashmir has been one such problem. No doubt Pakistan has been the aggrieved party and this has been

universally accepted. Just the same Pakistan has been following a path of futility, frustration and constant confrontation.

Whereas this confrontation has been a useful handle in the hands of corrupt and unscrupulous politicians to enjoy the power and glory at the expense of the poor masses of Pakistan, it had been most wasteful in terms of national development and welfare of the people. Due to this emotional confrontation huge expenditure has been incurred upon the defence establishment. The people of Pakistan are now aware of their inherent strength and have gained the self-confidence to demand their rights from any political leadership. The people will therefore expect better social and economic conditions. After nearly a quarter of a century of political anarchy, the people will no longer place their trust in any new political adventurism. Today Pakistan is standing at the edge of a precipice. Internal as well as external forces are posing serious threats creating a sense of dismay bordering upon hopelessness. The supreme task is therefore the creation of a cohesive and unified Pakistani nation.

The 1965 war with India was an economic disaster for Pakistan. It did not only arrest the dynamic growth of economy also released political and social fores that eventually led to the painful events of 1971. It was sheer folly to believe that India would allow a military solution of the Kashmir problem. The people must be honestly told that Pakistan can never inflict a meaningful military defeat upon India due to India's geographical advantages of depth, its industrial capacity, man power and India's position in the international power system. India can lose many a battle and concede large territory without effecting its power base and ability to wage war. This is neither a defeatist attitude nor passimism but a statement of reality. This is a plea for realism and flexibility in dealing with objective conditions.

The political leadership of Pakistan should direct its efforts towards creating a nation with a common will and resolve for ameliorating their socio-economic conditions and establishing a stable and dignified political base. The politicians need no longer exhaust the people emstionally over the Kashmir issue. For the past quarter of a century, the truth about Kashmir has not been told. Changes have to be made in solving this problem in order to end this long-standing conflict. The fate of Kashmir can only be resolved by the people of Kashmir themselves. If the Kashmiris do not have the desire or the will to severe their ties with India, then Pakistan cannot force the issue. In the life of a nation, sometimes bold and visionary decisions have to be made in the larger interests of the people. The people of Pakistan therefore must face and accept the reality and resign themselves till such time that the objective conditions change in their favour. Meanwhile they should direct their efforts and resources to more fruitful activities.

Wages of War. India fought three wars within a decade which did very little to enchance India's image and satisfy the aspirations of the Indian people. Even victorious wars are costly and India paid the penalty heavily for these fruitless wars. Apart from India's increased dependence on external powers and the curtailment of its independent options, India's economic growth has been extremely low. The industrial output fell down drastically. There is no doubt that India has many attributes of a major regional power. It possesses the world's fourth largest army and is enhancing her military capacity through internal as well external sources. It is also likely that despite the denials of the Indian politicians, India would

manufacture within a decade, nuclear weapons. But due to India's economic resource limitations, she cannot become a formidable nuclear power. The chances are that India would be the smallest of would-be nuclear sub-powers like Iran, Japan and and Israel etc. With her present military strength, India need have no fears to her security from any of the immediate neighbours and least of all from Pakistan.

There is, however, no doubt that India's huge and still expanding military power is solely directed against Pakistan. For this there can be only two explanations: either India definitly harbours evil designs towards Pakistan or sub-consciously the Hindus are still scared of the invaders from the north-west. If either explanation is correct then India is certainly demonstrating a ridiculous lack of realistic appreciation. It is stated earlier that militarily Pakistan cannot conquer India and sujugate it whereas India can achieve a military victory. However, in such an eventuality the entire subcontinent will go up in flames of a civil war. India will have to pay a very heavy cost for such an adventure and it will certainly ruin her economy. Thus India has no justification to devote her huge resources towards military build-up at the cost of India's poor masses.

Sanity Plea for India. The Indian leadership should understand that no self respecting people can be subjugated by military force. The Bangladesh lesson should have opened the eyes of the extremist elements of the Indian leadership. By now it should be obvious to India that the Muslims cannot be battered into submission; it will be prudent to come to an accommodation with them. By creating a military-industrial complex, and ignoring the economic development, India is sowing the seeds of tremendous social upheavel. Any large scale civil disorders would involve the military into the political affairs of India and the consequences of such an intervention by the all powerful military are not difficult to predict. The coming decade is going to be of great tensions in India; there will be demands for radical social and economic changes. The political leadership will come under heavy pressure from the rural masses and India will have to make drastic changes in her development strategy or else risk the collapse and disintegration of the Indian social order and her society. If India is to successfully meet the coming challenge then she must strengthen her domestic structure and disengage herself from the wrangles of international power politics.

The simplest thing for India to improve relations with Pakistan and find an ally in Pakistan for India's hour of crisis. There is a basic identity of interests and problems of the two people living in the subcontinent. The initiative therefore lies entirely with India. By withdrawing her forces from Pakistan's borders, by unilateral reduction in her armed forces and by at least freezing the Kashmir issue, India can test Pakistan's intentions. It is certain that the Pakistan leadership will respond to these gestures. The peoples of the subcontinent not only deserve but expect such noble and bold statesmanship from their respective leadership.

For the past thirty years India has been following a path of self defeating strategy and moving towards stagnation and destruction. *Consumed by a desire to re-establish the glory of a misty and bygone age, India is bent upon defying here historical past and destiny. Even in the golden age to Asoka, the most peaceful era of the Hindu history, India did not enjoy a position of absolute primacy in the subcontinent or the region. India's greatness has always emanated within her own frontiers; the Indians never colonised any other people.*

Modern India cannot changeher ethos: the people of India must not be sacrificed on the alter of false pride of assuming the role of a superpower or in futile effort to wrest this role from China. India has failed to assert her hegemony in the subcontinent. China, Iran and to some extent the US have frustrated India's designs. Supported by Iran, who is assuming the role of primacy in the region, backed by the Muslim block and strengthened by China, Pakistan will never accept India's primacy. It is in India's long term interest to improve her relations with Pakistan and thus reduce her preoccupation on at least one front. Unless India accords respect, equality and just treatment to Pakistan there can be no peace and amity in the subcontinent.

BOOKS

India's China War

A STUDY IN THE FUTILITY OF ARMED CONFLICT

After their abortive war against China, armed services, specially the Indian army, were given almost a blank cheque for reorganisation and re-equipment, with the result that the defence expenditure more than doubled in the next two years. The political position of the army also changed. It was decided that the civilians would not interfere in army's internal matters in the future. Neville Maxwell comments on the new civilian-defence relationship in these words: "The politicians' prennial fear of any army coup was sharpened. In a letter to Bertrand Russel in December, Nehru referred to "the danger of military mentality spreading in India, and the power of the army increasing."

The 'forward policy' was not only indicative of India's readiness to take unilateral and forceful action in territorial claims against China, but it was also followed in the casc of Goa which was invaded and forcibly occupied under various pretexts. The seizure of Goa had political and military implications for thc India Government's handling of its dispute with China. Neville Maxwell comments: "It showed how Nehru could drift into courses of oction that allowed no retreat.... It showed how amorphous and subjective were the decision-making processes of the Government; the seizure of Goa, like the forward policy', was not decided upon in Cabinet. It demonstrated the duality of India's attitudes towards the use of forces—reprehensible in the abstract and in the service of others, but justifiable both politically and morally when employed by India in disputes over what she regaderd as her own territory.

The failure of the summit meeting between Pandit Jawahar Lal Nehru, Prime Minister of India and Mr. Chou En-lai, Prime Minister of China held in Delhi in 1960 marked the end of hopes for a negotiated settlement of Indo-Chinese border dispute and ultimately led to a clash between the two countries in 1962.

The Indian Prime Minister failed to appreciate the military situation and could not foresee Chinese reactions to his 'forward policy' which amounted to a direct military challenge to China. The Indian Army was resistant to this policy, as it was only beyond her power to implement it. The foreign ministry could not understand army's hesitation to move forward and confront the Chinese.

The objective of the 'forward policy' appeared to be, first, to block the potential line of Chinese advance on the western border, second, to establish Indian presence in Aksai Chin; third, to undermine Chinese control of disputed areas by interposing Indian posts and patrols between Chinese positions and fourth, to cut their supply lines in order to ultimately force them to withdraw. According to Neville Maxwell, "Nehru and his colleagues were unwavering in their faith that, whatever

India herself did along the borders, China would not attack. That was the basic assumption of the 'forward policy', the military challenge to a militarily far-superior neighbour."

The state of Indian armed forces at the time was such that they could not take on the Chinese army. After the Independence, the Congress Government had not paid due attention to the requirements of the defence forces. This neglect was primarily due to a feeling in the ruling Congress circles that there was no danger of any attack on India. It was Nehru's view, before the Independence, that India's size, its geo-strategic position and the interest of great powers in seeing that it did not fall under foreign domination would keep India immune from external attacks. Pandit Nehru continued to hold this view until the Chinese assault in November 1962.

Immediately after the Independence, there was no apprehension of a military threat from Pakistan in India. Actually it was Pakistan who was threatened. Compared to the Indian army, the Pakistan army was much small and national resources rudimentary. The Hindu nationalist feeling against Pakistan was intense. There was a constant clamour in a section of the Indian press to avenge the wrong of 1947 and the extreme-right politicians expressed themselves openly to undo the Partition. The fighting between India and Pakistan which erupted in 1947-48 had brought the two countries close to war. Again in 1950 and 1951, the Indian army had concentrated on Punjab border and threatened Lahore. It will, therefore, be seen that Pakistan was not a threat to India. The shoe was on the other foot. Under the circumstances the Indian administration's considered policy was to keep the expenditure of the defence forces to the minimum, so that resources were not frittered away unproductively and unnecessarily.

India's share of the old British Indian army after Partition came to 2,80,000 men. India wanted to cut down her armed forces; instead, the army slowly grew in strength. By 1953, it numbered about 3,50,000. It was organised into seven divisions, out of which six were infantry and one armoured. Three infantry divisions were in Kashmir. The Indian army moved into Ladakh. Two divisions were kept in Punjab and the armoured division was based at Jhansi in western U.P.

After Longju and Kongka Pass incident of 1959 resulting into clashes between elements of Indian and Chinese border forces, the expansion of the Indian Army received purposeful consideration. The troops deployed against West Pakistan were sent to the border areas facing the Chinese and a new division was raised.

Commenting on the deployment of forces Neville Maxwell wrote: "The transfer of 4 Division made little immediate difference to India's defence posture in the north-east" There were logistical difficulties at this time both on western and eastern borders. No roads reached more than a few miles from the plains into the foothills. There were no lateral roads in NEFA at all. On top of this the great ridges running down from the Himalayas made lateral movement almost impossible; access to the different sectors of the McMahon Line was from the Brahmaputra valley. The division's move into NEFA was very slow. In January 1960, an infantry company established itself at Bomdi La; in March another reached Tawang; which could become a battalion HQ as late as August 1960. By this time, two other battlions reached NEFA, the headquarters of 7 infantry brigade was established at Bomdi La. "Such was the slow reality behind Nehru's declaration in August 1959 that the McMahon Line had been made the direct responsibility of the army."

In his book 'India's China War' Neville Maxwell writes: "The complaints from army became more pressing in the early 1960s, and in 1961-62 a series of letters went from Army HQ to the defence minister enumerating deficiencies in equipment and supplies and warning that these could be crippling in the event of war. The letters were drafted by General Kaul, by now chief of the general staff, and in the last and most urgent of them he described the quandary in which government policy had placed the army: On the one hand we are required to raise additional forces as soon as possible, failing which we run the risk of our territory being occupied by foreign aggressors; on the other hand, the weapons, equipment and ammunition available to us are so meagre that we are finding it impossible to equip the new raisings.' This particular letter included the request that it be placed before the defence committee of the Cabinet, reflecting the soldiers' belief that Krishna Menon, then defence minister, was not passing on their urgent warnings. But like its predecessors, it had no effect in increasing the army's budget allocations."

The 'forward policy' was conceived in the beginning of 1960, but it was put into effect towards the fag end of 1961. The intervening period reflected Indian Army's unwillingness to undertake a course for which military means were lacking. In February 1960, Western Command was ordered to take up certain forward positions roughly between Murgo, Tsogstsalu, Phobrang, Chushul and Demchok and given as its task the prevention of any further Chinese incursions. The western most positions of the Chinese at that time were at Qizil Jilga, Dehra La, Samzungling (on the Galwan River;, Kongka Pass and Khurnak Fort; so distances of between twenty and fifty miles separated the two sides (except at Demachok, which was less than twenty miles from the southern extremity of the main Chinese road) even when the Indians had set up these posts.

In August—September 1960, instructions were issued by Army HQ in which Western Command was advised that patrols could be sent into areas claimed and not occupied by China "to determine the extent of Chinese ingress, to ensure that no further advance is made by Chinese troops in the area where no static posts have been established by them so far." This message indicated the implementation of the 'forward policy', but this order did not appear to be mandatory. At the same time Army HQ informed the defence authority that the forward patrolling for which the government was pressing involved serious military risks. It would invite a sharp Chinese reaction and the international border, dormant at the moment, could become active. The Army HQ also clarified that in view of the limited army troops available and the acute difficulties of transport and supply in the western sector, Indian troops could not be able to counter effectively any large-scale incursion by the Chinese. The reaction of foreign office to this report was that they were surprised that the decisions reached in May had not been implemented so far. It is evident that the civilians, politicians, and officials failed to grasp the logistic dicffiulties and the capability of the Indian army to implement the 'forward policy!

It is strange that Pandit Nehru, in 1961, gave a wrong picture of the military situation in the western sector by saying in the Lok Sabha that it had changed in India's favour. The actual position was that by mid 1961, the Indian strength in the eastern sector had only slightly increased, but the relative position of the Indian troops to the Chinese had changed for the worse. The Chinese had spread a network of roads upto their western most posts.. The terrain

occupied by the Chinese was easy; they had plenty of labour and road-building equipment. The Aksai Chin road was a vital strategic link for the Chinese. The position on the Indian side was reverse. It was only in October 1961 that the first Indian road had reached Leh in Ladakh. Previously troops were supplied by air or mules. Western Command had informed Indian army HQ that a full Indian division was required in the sector to contain the Chinese threat. It was one regular and two militia battalions that Indian could deploy there against the Chinese. Yet the Indian Government pressed the implementation of the 'forward policy.'

However, according to Maxwell the Government of India was not being spurred to implement the 'forward policy' by popular pressure. After the climax of the New Delhi Summit (between Pandit Nehru and Mr. Chou En-lai) in April 1960, public interest simmered down. The Sino-Indian border was only disturbed by isolated and trivial incidents which, nevertheless, occasioned formal protests from both sides. Meanwhile a battle of maps was going on between the officials of the two countries to codify the disagreements on the boundaries decided upon in the Summit meeting of April 1960. Both the sides produced maps supporting their own claims.

The boundary dispute, however, again simmered up when Burma and China signed an agreement in October 1960. The Sino-Burmese boundary treaty map gave India strong new argument for maintaining that the McMahon Line should also be the Sino-Indian boundary. Notes were exchanged between the two countries on the Sino-Burmese boundary settlement, but these notes did nothing except to highlight the Sino-Indian deadlock. India re-iterated that her boundaries with China could not be a matter for negotiation and that they stood defined "without the necessity of further or formal de-limitation." Chinese reaction was that India was refusing to negotiate boundary settlement and was trying to impose a unilateral claim on China. India also resented strongly the boundary settlement between Pakistan and China.

When the 'forward policy' began to be implemented, small parties of Indian troops moved out eastward from their main position in the western sector. This move continued throughout the winter of 1961-62. The areas in which the troops moved the general altitude was between 14,000 feet to 16,000 feet. The temperatures were extremely cold and the troops' winter clothing was indequate and in short supply. The rarefield air against troops carrying heavy loads. Mules were not of much use. All supplies had to be dropped by air. The 114 Brigade based at Leh in Ladakh (one regular plus two militia battlations) had to guard the front of more than 200 miles which stretched from Karakoram Pass to a few miles beyond Demchok. Their responsibility (at least in theory) was also the Indian claim line on the Kuen Lun mountains more than a hundred miles to the east which was the far side of "empty, freezing wasteland of the Aksai phin plateau—empty, that is, except for the Chinese."

The general shortages in the Indian Army at that time as recorded by Maxwell were—the army was short of 60,000 rifles, 700 antitank guns, 200 two-inch mortars. Supply of artillery ammunition as critically low; 5,000 field radio sets were needed, thousands of miles of field cable, 36,000 wireless batteries. If vehicles of pre-1948 vintage were considered obsolete (and most were below operational requirements) the army was short of 10,000 one-ton trucks and 10,000 three-ton trucks. Two regiments of tanks were unoperational because they lacked spare parts.

The winter of 1961-62 was quiet on the ground, but diplomatic exchanges continued between the two countries. In March, the Chinese in their diplomatic note described the forward patrolling and establishment of border posts by Indians as "deliberate attempts to realise by force the territorial claims put forward by the Indian Government." Mr. Neville Maxwell has summed up the Indian and Chinese positions in the following words:—

"As Peking saw the situation, China had from the beginning sought a boundary settlement through friendly negotiations and urged that, pending such a consummation, the two sides should jointly maintain the status quo. Although India rejected the proposal for a joint twenty-kilometre withdrawal, China had unilaterally stopped patrolling within twenty kilometres of the boundary on her side. India, on the other hand, had refused to open negotiations and steadily pushed forward, first in the middle and eastern sectors, and then in the west, while loudly accusing China of aggression because of China's presence in an area which had long been under Chinese control, and which since 1950 had been a vital land link between Sinkiang and Tibet. China maintained that the McMahon Line did not constitute a legal boundary, but as nevertheless observing it and making no demands that India should withdraw from the area between the McMahon Line and the foothills, where China declared the traditional and customary boundary to lie. India had said that she desired a peaceful settlement, but 'what the Indian Government termed peaceful settlement is for China to withdraw from her own territory, which is in fact tantamount to summary rejection of peaceful settlement.' Similarly, India said that she desired maintenance of status quo; but was in fact rejecting maintenance of status quo and again demanding that China withdraw. 'Anyone who is sensible and reasonable can see that such a rigid and threatening attitude will certainly lead to no solution... To refuse to maintain the status quo and to reject a peaceful settlement.' India's line of action 'is most dangerous and may lead to grave consequences'; but 'so far as the Chinese side is concerned the door for negotiations is always open.'

In New Delhi's view, the Sino-Indian boundary had long been settled and had the sanction of tradition and custom as well as the confirmation, for almost its entire length, of valid treaties and agreements. In recent years China had comitted sysematic and continuous aggression and 'sought to justify unlawful occupation by unwarranted territorial claims.' India wished to 'maintain the status quo' but that could only be done if the status quo were first restored by Chinese withdrawal from India territory. (status quo was thus used to mean 'status quo ante'). Such withdrawal was a pre-requisite for negotiations which even then could only be on 'minor mutual adjustments in a few areas of the border.' As for the forward movement, 'it is the legitimate right, indeed the duty, of the Government of India to take all necessary measures to safeguard the territorial integrity of India.' India was 'dedicated to the use of peaceful methods for the settlement of international disputes' and peaceful withdrawal of chinese forces from 'Indian territory' would go a long way toward restoring friendship between India and China.

India had thus reiterated that she would not negotiate a boundary settlement. It had also been made explicit that Chinese withdrawal from the territory claimed by India was a precondition for the discussion of even the minor adjustments in the Indian claim line which was all in the way of negotiations that India would agree to.

In the first half of 1962, another exchange of diplomatic notes buried the Panch Sheel agreement—on trade and intercourse in Tibet—which had been intended to cement the friendship of India and China, and set an example for Asia and the world. A note from China on December 3, 1961, reminded India that the 1954 agreement was due to expire in six months and proposed negotiations on an agreement to replace it. Peking made no mention of the boundary dispute, holding that the two subjects were distinct and hoping that a new agreement on Tibet would ease relations with India and open the way to settling other questions. This was an approach that India followed and prescribed in other contexts. For example, she has always advised Pakistan to leave the Kashmir dispute aside and amicably settle other issues, thus improving the general climate. But in this case New Delhi declined to negotiate a new agreement until China had withdrawn from the territory India claimed—'outrageous preconditions', Peking said, 'which demand China's subjugation.' The trade which the 1954 agreement had been meant to protect was anyway almost dead by now, strangled—each side said, by the other—in the tightening of regulations and military dispositions on both sides, and the agreement lapsed on June 3, 1962, India withdrew trade agencies from Yatung, Gartok and Gyantse in Tibet, China withdrew hers from Kalimpong and Calcutta.

The 'forward policy' ultimately led to a clash of arms between the Indians and the Chinese in both the eastern and western border areas; the Indians got a severe beating at the hands of the Chinese. Pandit Nehru made an open appeal for intervention of the United States with bomber and fighter squadrons to go against the Chinese. In response, an American aircraft carrier was also despatched to the Indian waters, but it was turned back before it reached the Bay of Bengal as the crisis had passed after Nehru's appeal. On November 21, China declared unilateral ceasefire and subsequent withdrawal. Nehru ahad made an appeal for transport aircraft which was immediately granted and a squadron of C-130s despatched to India. This appeal and the subsequent development marked the turning point in American Indian relations which had been cold so far. The whole of India and its army, however, stood thoroughly demoralised. Request for military aid from America also gave a blow tc India's claim of neutrality.

The armed services, specially the Indian army, were given almost a blank cheque for reorganisation and requipment, with the result that the defence expenditure more than doubled in the next two years. The political position of the army also changed. It was decided that the civilians would not interfere in army's internal matters in the future. Maxwell comments on the new civilian-defence relationship in these words: "The politicians' prennial fear of an army coup was sharpened. In a letter to Bertrand Russell in December, Nehru referred to the danger of military mentality spreading in India, and the power of the army increasing" The Government made plans to anticipate any attempt by the military to size power...The decline of Nehru, in personal bearing as well as political stature, was one of the most marked and perhaps saddest consequences of the war. Krishna Menon said: 'It demoralised him completely because everything he had built up in his life was going." (India's China War By Neville Maxwell. First published in 1970 by Jonathan Cape, London.

INDIA BUILDS UP

In the following pages is reproduced material on India's military build-up and strategic posture towards Pakistan. The material has been gathered entirely from the Indian sources and being exiomatical beggars comment. Admittedly India has achieved a position of greater superiority in the sub-continental strategic environment. Considering the size of its territory and population smaller neighbours including Pakistan need not begrudge India its regional primacy. However, regional primacy is not the same as regional hegemony.

Thrust to local (regional) hegemony could only generate an endless variety of local irritants and phobias not only in the military but also in the economic and cultural spheres.

India's continued obsession with Pakistan looks quite needless in the context of the existing strategic balance in the subcontinent. It is not so surprizing though in the light of its traditional distrust of its neighbours be that China, Pakistan, Nepal, Sikkim, Burma or Sri Lanka.

"Our defence preparedness," says an Indian defence analyst," must be based on the military capabilities of potentially hostile powers rather than on our current perception of their intentions".

Who are these "potentially hostile powers?" The answer is not far to seek. It is as follows. "To say that our entire defence planning has been dictated by Pakistan's military activity may be an exaggeration but is essentially true".

It may be altogether morbid to believe that India has territorial designs on Pakistan. What leaves one wondering, however, is the unmitigated promnence of Pakistan in India's military thinking and planning. Is the present sawed-off Pakistan not enough to convince India of Pakistan's predominent desire for peace and harmony? Pakistan seeks security consistent with freedom of action in all matters concerning the management of its internal and external affairs. India's continued, unconcealed jubilation over the earth shaking events of 1971 may be natural but is not in a frightfully good taste.

The current DPSA (deep penetration strike aircraft) debate is yet another expression, if not the proof of India's overconsciousness of Pakistan in defence matters. It appears that whatever India does in the military field is done with an unblinking eye on Pakistan. That's primarily India's own business though.

The debate, however, offers a most useful lesson, that is, a country and its defence organization has a lot to gain from enlightened public comment on their various moves and policies. Oversecurity in the field of military debate and information may not only be quite unnecessary but also counter-productive.

THE DEFENCE DEBATE

INDIAN DEFENCE: THE NEW LOOK

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Since the Indo-Pakistan war of 1971 there has been a significant change in the balance of military power in the subcontinent. This, in turn, has considerably enhanced the prospects of peace and stability in the region. People like William P. Bundy, editor of the American quarterly "Foreign Affairs", now describe India as being "impregnable in South Asia" and an important middle power. It is, therefore, understandable that some observers should clamour for a reduction in this country's defence expenditure and/or for substantial changes in the size and shape of our armed forces.

While a new look at India's contemporary defence posture is indeed desirable, it must be based not on any preconceived or parochial notions but on a realistic assessment of the nature and magnitude of threats to the country's national security. It takes anything from five to 10 years to develop, manufacture and introduce into service a modern weapons system. Therefore, an assessment of threats must not be confined to the current situation but should also cover rational projections into the foreseeable future. Since it is far more cost effective to ensure that production schedules cater for an even flow during the whole production span of any weapon system care has to be taken to minimise the understandable tendency to under-insure on defence when threats appear remote, and to opt for a crash military build-up when they seem imminent.

The fact that India is wedded to a policy of non-aggression makes it necessary that her defence plans be framed on the assumption that in all probability, the initiative in deciding to resort to military force will inevitably rest with our enemies who would have the advantage at the outbreak of hostilities of launching attacks at times and places of their own choosing and thus maximise chances of their successfully attaining their objectives.

Despite the welcome improvement in India's relations with her neighbours, it would he imprudent for her to disregard the possibility of their again undertaking some form of military confrontation against this country, either singly and, as in the past, with some degree of collusion, or possibly even in a coordinated joint attack. Intentions can change suddenly but capabilities cannot; our defence preparedness must be based on the military capabilities of potentially hostile powers rather than on our current perception of their intentions.

China is stated to have a theatre nuclear force that is operational and capable of reaching large parts of the Soviet Union and Asia. The stockpile of both fission and fusion warheads probably amounts to several hundred and may continue to grow. Fighter bombers could be used for tactical delivery, and for longer ranges, TU-16 medium bombers which have a radius of 2,000 miles. The Chinese are also estimated to have 30 to 40 IRBMs, with a range of 1,500 to 1,750 miles, and 30 to 40 MRBMs

having a range of 600 to 700 miles.

Real Option. It is evident that China's nuclear arsenal is already more than adequate to inflict an unacceptable degree of devastation on a number of India's populated centres in the northern and eastern parts. Since nuclear warheads are a weapon of absolute offence—against which no credible defence exists or appears to be in sight—reliance perforce has to rest solely on deterrence. Since India herself is not in a position to deter a nuclear attack from China, she has no real option but to rely either on China's goodwill or on that country being effectively deterred by one or both the superpowers. However, if and when China acquires a credible second strike capability, the ability of these powers to effectively deter China loses credibility.

In the conventional military sphere it is not the totality of China's forces that India has to take into account but only those that China is likely to be able to deploy, across the Tibetan plateau, against this country. India has also to guard against China adopting "nibbling tactics" in the remote border regions. This necessitates the deployment of large numbers of troops in forward positions with back-up reserves in each sector. It would not, therefore, he unreasonable *to assume that the 10 mountains divisions, some tanks and a substantial part of our Air Force would be tied down on this front. Subtracting these from India's total leaves this country with, at best, only marginal superiority in forces that can be prudently deployed against Pakistan, both on the ground and in the air.*

The fact that modern guided anti-tank missiles can, in certain situations, impose prohibitively havy attrition on assaulting tanks has led some observers to contend that India does not need any more expensive tanks and should, instead, concentrate on procuring large numbers of far cheaper guided missiles. Similar arguments have also been propounded in favour of anti-aircraft missiles vis-a-vis interceptor and strike aircraft. Although there is some force in these contentions they do not constitute the whole story.

The history of warfare has witnessed a constant competition between offensive and defensive weaponry with the pendulum swinging to and fro. Even though it must be conceded that today the balance seems to have tilted in favour oi defensive weapons tanks and strike aircraft can still perform an important and perhaps decisive role, especially in the context of an Indo-Pakistan military conflict. Even with a high proportion of troops being equipped with modern missiles, it is just not possible to effectively defend the extensive common border so as to prevent the enemy securing a sizable bridgehead on Indian territory, which he can do by concentrating superior forces at the time and place selected for his main attack.

Limited Objective. *In any prolonged conflict our forces should be able to gain the upper hand over Pakistan. However, it is not inconceivable that relations between China and Pakistan may again become very close but strained with India. In such circumstances Pakistan's military authorities might take the calculated risk of unleashing a lightning attack to secure limited territorial objectives —to serve as a valuable bargaining counter in subsequent negotiations—and rely on China black-mailing this country into desisting from launching her deliberate, as opposed to immediate, counter offensive. By far the best way for India to guard against such a contingency would be for her to maintain a sufficiently strong strike force so as to enable our forces to immediately retaliate in sufficient strength to punish the aggressor. In the long run it is cheaper to deter aggression than to fight and win a war.*

In recent years steps have been initiated to strengthen the Indian Navy. But considering that the very favourable naval situation that prevalied during the 1971 war is not likely to the repeated, and bearing in mind that our extensive coastline, island territories and valunerable offshore installations have to be defended—apart from the need to effectively police India's 200-mile exclusive economic zone—there is an urgent need to further strengthen our naval power.

Even after a detailed look at India's defence problem it seems difficult to escape the conclusion that if this country wishes to adequately safeguard her national security, she has very little scope, if any, for reduction in either her existing force levels or the defence expenditure. **Brig. Rathy Sawhny.**
—*The Tribune, Friday, January* 13, 1978.

INDIA'S DEFENCE STRATEGY
Risks In Short War

Col. B. N. Kaul (Retd.)

Though justified, the government's decision to acquire deep penetration strike aircraft (DPSA) is as much the result of ad hocism as its defence strategy and planning. This long overdue decision has apparently been taken primarily in response to Pakistan having acquired a similar type of aircraft. To say that our entire defence planning has been dictated by Pakistan's military activity may be an exaggeration, but essentially true.

In its "Military Balance 1977-78", the International Institute of Strategic Studies, London, gives the following relative strength of the conventional regular armed forces of India and Pakistan.

	India	Pakistan
Army		
Armoured divisions	2	2
Infantry divisions	17	14
Mountain divisions	10	—
Independent armoured brigades	5	3
Independent infantry brigades	1	3
Para brigades	1	—
Tanks (all types)	1,900	1,050
Air Force		
Total combat planes	700	250
Navy		
Submarines (various types)	6	8
Aircraft carrier	1	—
Cruisers	2	1
Destroyers	3	4
Frigates	25	1
Patrol boats (various types)	16	19
Minesweepers	8	7

Considering that the ten mountain divisions, a certain number of tanks and a substantial part of our air force are tied down on our borders with China. India has only a marginal military superiority over Pakistan. The present force level has been worked out on the basis of what may be described as the strategy of 'slight edge' or 'matching capability'.

Demoralised Enemy. Experience shows, however, that this approach has neither prevented conflicts with Pakistan nor resulted in a dicisive victory, except in Bangladesh which, too, should be viewed in the context of the fact that the enemy was physically isolated and psycholo gically demoralised.

The 'matching capability' approach of constantly reacting, both qualitatively and quantitatively, to the likely enemy's changing pattern of military strength—reflects short-term planning which, among other things, could also appear to be uneconomical in the long run. It is high time managers of India's defence made a hold departure from this policy and adopted, what may be called, a strategy of deterrence.

Somehow it appears that the strategy of deterrence came and continues to be associated only with nuclear and thermo-nuclear weapons. But it can also apply to conventional weapons and warfare.

Quantitative superiority with qualitative parity or even inferiority can deter a potential aggressor only if he knows that the war will be a long drawn one. But if the aggressor knows that the conflict will be a

short and a swift one, he will not be deterred by the 'quantitative' strategy.

A distinct qualitative superiority with quantitative parity can, on the other hand, deter an aggressor even if the prospect is one of a short duration war. The development of nuclear and thermo-nuclear weapons has created the feeling of a "dead end" in the evolution of conventional technology. Nothing could be further from the truth.

Apart from other things, conventional warheads and delivery systems have been and will continue to be developed and perfected. The Arab-Israeli war of 1973 proved this beyond any doubt. In our context, this weaponry alone is capable of causing unacceptable damage.

Quality vital Any future conflict with Pakistan as in the past will be a short, swift high-intensity war due not only to international pressure but to weighty economic reasons. Developing countries can ill-afford a long drawn-out war. Although from the point of view of manpower and economic resources, the strength of 'quantitative superiority' would be preferable. It is the strategy of 'qualitative superiority' that we should adopt wars in the foreseeable future.

'Qualitative' strategy can, however, be effective in achieving the necessary deterrence only if our political and military strategists succeed in acquiring and maintaining constant qualitative superiority over our likely adversary. The concept of constant 'qualitative' superiority goes beyond the system of *ad hoc responses*. It implies anticipation, initiative and perspective planning. In other words, R and D in the production centres should be geared not only to augmenting existing weapons but to producing qualitatively superior weapons that we would under the ad hocist policy think of doing only a decade hence.

The initial cost of adapting the 'qualitative' strategy may be prohibitive but if in the long run it reduces the frequency of conflicts, it will be fully justified. Initially deterrent weapons may have to be imported but all efforts should be made to develop indigenous technology to produce weapons systems which can deliver with speed conventional warheads of large yield at a place which will hurt the most.

As for China, the 'qualitative' strategy implies nuclear superiority. Given the government's policy on the question, the theory of conventional deterrence is obviously irrelevant. It is, however, unlikely that China will wage even a short duration conventional war against our country in the foreseeable future. At worst it may adopt 'nibbling tactics' here and there on the border. To meet this threat and also keeping in view the strength China is capable of developing in Tibet against us, the present number of mountain divisions appears adequate. But the Chinese *deployability* in Tibet should be constantly reviewed and our strength of mountain troops increased if necessary.

— *The Times of India*, dated the 10th February 1978.

India's Strategic Environment

Wing Commander Maharaj K. Chopra,
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Strategy, the art of applying resources to the problems of security, is a dynamic factor in national life. It is influenced by fluctuations in the available resources, external impacts and situations and circumstances and time. Thus, the environment which it seeks to create for national survival also goes on changing, particularly so in a a country where history takes a sharp turn from one era to another.

India belongs to that category of countries, having made its debut in 1947, when the British quit after a rule of one century and a half. It then created its own strategic environment, the development of which may be viewed in three phases since its independence.

The First Phase 1947-60. In this period, India broke through the security shell of the British imperial system. It was a vast shell indeed, containing territories as widely apart as Hong Kong and Britain. Compared to this, India's new sphere was small, but not easy to manage, as Indians had little experience of security management under the British. Indian preoccupation was with the subcontinent; the task was to uphold national sovereignty and preserve territorial integrity. Hyderabad, a recalcitrant state, was brought under central control by police action; the army was stationed in force in the northeast frontier agency; and Goa was taken after a mini war.

So far as the northern border was concerned, treaties had to be renegotiated with Nepal, Bhutan and Skikim, and an agreement had to be drawn with China over Tibet. These were by no means straightforward transactions; they reflected the strain of the new situation. More serious, however, was the dispute with Pakistan over Kashmir. It led to a war followed by a cease-fire which exuded perpetual cold war. Throughout this first phase of security, Pakistan was looked upon as a standing menace, heavily taxing India's strategic resources. Toward the latter part of this phase, India also noticed disturbing signs over its northern border, marking the beginning of a gnawing gap between China and itself.

The 1950s were the high watermark of India's policy of nonalignment which, in effect, meant no bases, no alliances and no power-bloc orientation. Because of this, India was widely accepted in peacekeeping roles in Korea, Gaza, Indochina and elsewhere, but, strategically, even more significant was the fact that nonalignment provided it a kind of shield against big power intervention.

Internal consolidation, concern with the borderlands, suspicions about China, hostility with Pakistan and a sense of security against a major external threat were thus the principal elements of India's strategic environment as the 1950s ended.

These matters were considered manageable in the normal course—a fact reflected in the routine buildup of the armed forces up to 1960. In that year, India had half a million men under arms and a defence budget of less than £600 million—two per-

cent of its gross national product (GNP). Most of the tanks and ships were of World War-II vintage, the bombers were of the medium class, and there were no submarines. No major weapon was turned put by the ordnance factories even though their number had grown and capacity had expanded.

The Second Phase: 1960-70 Almost everything was ominous from the beginning of the decade. The northeast was in the grip of insurgency, needing large-scale military operations. The treaty with Nepal showed signs of erosion, while both Bhutan and Sikkim demanded more autonomy, if not independence. After almost ceaseless violations of the borders and booming of the guns, India fought its first major war with Pakistan in 1965. This resulted in a stalemate. The Kashmir dispute was aggravated, heightened by the possibilities of another showdown.

But it was China that delivered the most violent knock of the decade with its invasion in 1962. A part of the northeast region was overrun and later evacuated, but, in the northwest, the captured territory of Aksa Chin in Kashmir remained under Chinese occupation. Peking now showed up as an adversary with no holds barred. It abetted insurgency in Nagaland, fomented tensions along the Himalayan border and colluded with Pakistan. It reinforced its troops in Tibet and developed communications linking Lhasa with Nepal and Sinkiang with Kashmir. Meanwhile, its military power grew, spearheaded by the first nuclear explosion in 1964. Quite clearly, China was set on its nuclear race, though just how fast was not clear in the second half of the 1960s.

This decade witnessed not only "cultural revolution" in one neighbouring state but strife and wars in other adjoining territories. These were events which made Indians lift their sights to wider horizon of security. Civil war and insurgency swept over Burma. The Geneva agreements collapsed in 1963, leading to the most violent limited war of history. There was upheaval in Indonesia. To the west, the Arab-Israeli war closed down the Suez, thus disrupting India's most vital overseas communication line.

Tension between the East and West blocs showed no sign of abatement, and in fact mounted. India realized that the great postwar conflicts arose essentially through a clash of national interest. Although they might be resolved through mutual adjustments, the good offices of a neutral intermediary were not particularly in demand. The policy of nonalignment had received a jolt—not only by the death of its architect, Jawaharlal Nehru, but also by its altered content. By now, Indian nonalignment had came to mean alignmant against China. In the larger sphere of security, where the high power game is played, India found strict equidistance to be impossible and even hazardous, and so it began looking out for dependable allies.

In 1970, India's defence budget was £1600 million or 3.5 per cent of the GNP—more than double in absolute amount and nearly double in percentage the budget of 1960. In the first year of its second defence plan (1969-74), India had one million men under arms in 1970. The outstanding additions were in the air force, equipped now with the modern MiG-21, Su-7 and the SAM-2 missile. The navy, though lagging behind, acquired a fleet of submarines for the first time. The army got the latest tanks and mountain divisions. There was a recognization and restructuring of commands and a reinforcement of infratructure, particularly the border roads. In a bid to be self-reliant, seven defense undertakings were established for the manufacture of major weapons. In political terms, the most significant development was that the Soviet Union replaced the

Western powers as the source of major weapons.

The Present Phase. Thus, India entered the third phase of its security environment along the road which is now coursing down the 1970s. This bears the imprint of the threats encountered or visualized, has broadened dimensions, and conditions India's defence buildup. Meanwhile, there has been an upheaval in the subcontinent, regional changes are afoot, a new worldwide configuration of forces is in the making, and technology is delivering powerful thrusts. How do these bear upon India's security framework?

A difficult question, particularly because a great variety of interlocking forces is involved. Also, the world is in the throes of transition. However, we may begin by examining India's relationship with the more important states—important for geographical, political or military reasons. In this connection, the countries that come to mind first are those of the subcontinent—because of their contiguity—and then, China, the United States and the Soviet Union-because of historical reasons and because of their capabilities to influence this part of the world.

Bangladesh. Following a civil war in its eastern wing, Pakistan broke up in December 1971. As a consequence, India is now flanked by two independent states, one on its northeast and the other on its northwest. To the northeast, with an area of 55,000 square miles, Bangladesh has a population of 70 million, homogeneous and ethnically akin to the Indian population. This basic factor, coupled with the fact that it achieved its independence largely with Indian assistance, is psychologically favourable to India.

Bangladesh shares with India a common sea front, and India is the only outlet for its external overland communications. An agricultural country, with rudimentary industry, its economy is sunstantially complementary to the Indian. Its present shattered state needs large-scale assistance which India can provide. In fact, the two countries are already working in close cooperation. Bangladesh has virtually no armed forces and would for quite some time need some kind of a protective cover—something which India can furnish.

Thus, it is reasonable to presume that, in Bangladesh, India would have a friendly neighbour during the coming years. The treaty recently signed between the two countries bears the stamp of friendship. This situation is radically different from the 1960s when East Pakistan was a base of hot and cold war, gave shelter to anti-Indian guerrillas and posed a threat of collusion with China whose border is only a few miles away.

Two conclusions may be drawn from this: India finds threats to its security in the northeast scaled down steeply, and, in conjunction with Bangladesh, it could oversee more closely the security landscape of Southeast Asia.

Pakistan. The burden has now shifted to the northwest. Here, things are still nebulous. We may assume that the Simla accord between India and Pakistan signed in July 1972 would bear fruit, and some of the difficulties confronting them (such as the release of the prisoners of war, recognition of Bangladesh and opening of intercommunications) would disappear. But this would not generate a climate of certainty.

For one thing, Pakistan will take time to recover from the shock of a shrunken territorial personality. A new basis of governance will have to be forged with the help of a constitutional apparatus which should be both workable and lasting. This will depend upon the degree of cohesion that can be mustered among its four provinces,

two of which straddling the mountainous frontier, are already up in defiance. A new basis of economy would have to be found for a people hit hard by the loss of East Pakistan.

Assuming these difficulties are surmounted, Pakistan, with its area of 300,000 square miles and population of 55 million, would be a sizable power. Would it be orientated toward India or China? In the latter case, it might seek to re-establish some kind of power balance in the subcontinent with external intervention, a prospect India would resist. And what of Pakistan's membership of the Central Treaty Organization, and what of its standing duel with Afghanistan?

Regardless of these or other eventualities, Pakistan is likely to continue looming on India's strategic horizon. However, one thing is certain: cut down to a small size, it can no longer be a competitor for power in the Indian subcontinent. Nor, in fact, can any of the other countries—Nepal, Bhutan, Sikkim, and Sri Lanka (Ceylon). The upshot is that India has now emerged as the subcontinent's most powerful state, a fact which is bound to influence its enlarged security scenario.

China. India's territorial dispute with China persists. One might assume that this is settled, contained or frozen. One might also assume that the prevailing climate of *detente* is conducive to the normalization of Sino-Indian relations. And one might assume further that China will refrain from throwing its weight into the subcontinent internal affairs.

No Indian strategist could draw a complacent picture from these assumptions, however, plausible. China is already in the process of deploying medium-range ballistic missiles which can take the subcontinent right in stride. By the mid-1970s, it would have also developed and possibly deployed, credible intercontinental ballistic missiles. Even if never used, they would be a standing nightmare. It is rapidly building up a long range bomber fleet. Its naval power is in the upswing and would try for role in the Indian Ocean once released in the West Pacific. China's armed force is between three to four times the size of India's, and the Tibetan tableland furnishes it a strategic springboard against the adjacent, heavily populated Indian plains.

India visualizes that the Sino-Soviet hostility would persist, if not grow, in the near future, with repercussions on New Delhi because of its ties with Moscow. No major conflagration may erupt between the two giants, in which case, Peking would make ample use of the flexibility it has acquired in consequence of *detente*. This is already in action in countries of East Africa, the Middle East and Southeast Asia bordering the Indian Ocean.

Thus, India reckons that its security environment, within the inner as well as outer contours, would be powerfully influenced by the growing Chinese might in the 1970s.

The United States., With the United States, India has at present what may be described as a 'love-hate' relationship. There have been differences over military aid to Pakistan, assistance to Bangladesh, attitude toward Indo-china and alliances and non-alignment. On the other hand, India has received its biggest share of economic aid from United States, and it has flowered into widespread benefits; the two countries speak the common language of democracy; and the mutual warmth between the two peoples continues. The United States has never threatened India's security as China has done on more than one occasion, and this is the stance which India foresees.

Two other factors would also count. Incident to the low-profile policy adopted by theU nited States, a certain amount of

vacuum is bound to be created in the regions adjoining India which erstwhile have enjoyed US presence. This vacuum, particularly where the states are small or week, would be sought to be filled by others, if history is any guide. India's concern would be that the states on its outer flanks enjoy independence and stability without the intervention of a hostile power.

But, while the United States is "withdrawing", it continues to be a superpower. It would prevent the domination of a single power in the region, insist upon open seas and seek secure communications. India realizes this and may even look upon US presence of this kind as a plus entry in its security balance sheet.

The Soviet Union. The Soviet Union entered into India's security environment positively with the signing of the Indo-Soviet Treaty of Peace Friendship and Cooperation in August 1971; although, it must be added this came as the culmination of a close relationship that had been developing between the two countries for a decade and a half. Three out of 12 of its articles have military implications. The use of territory of one party for aggression against the other is forbidden; neither party can enter a hostile military alliance; and, most important, in the event of attack or threat of attack, there would be mutual consultation and effective appropriate measures to ensure security and peace.

The treaty involves no promise of military aid, no standing military organization, and no infrastructure such as bases. In that sense, it is not a military alliance. But it does provide India some assurance on the score of its territorial integrity and, in this connection an implied warning to China would not be missed. Indeed, Indian strategists believe that it was thanks to this treaty that, in the 1971 Indo-Pakistani War, China neither intervened nor did it threaten to intervene. The treaty also stipulates nuclear cover.

While the treaty strengthens India's security environment, it also has the undertones of a linkage of its own interests with Soviet interests. What are the Soviet interests in the world to which India belongs, apart from its interests as a global power? There is no precise answer to this as yet, although surmises are plentiful. But, in this respect, another aspect of the treaty comes to mind: the vagueness of its commitments and application. India is thus mindful not to be caught napping, and it is striving hard to become self-reliant. It also considers that its options remain open, thus enabling it to fashion its own course. An instance of this is available already: New Delhi has shown little interest in the plan of "Asian security" about which there is countinuous tub-thumping in Moscow.

Multiple Forces In the highly complicated interlocking world of today, no single factor no single event, or no single country influences a nation's security environment. India is, therefore, keenly watching the multiple cross-currents and forces in the more sensitive parts of the world which may have repercussions on far-flung areas, including itself. How about the developments in Europe? One notes that India has by and large good relations with practically every member of Nato, many of whom are also important givers of aid, and it has also good relations with Warsaw Pact countries. Neither of the two alliances has, as a body, sought to have its presence felt in the regions of strategic interest to India. Apart from the cockpit of the Middle East, which, hopefully, may not explode into a wider conflagration, the western part of India's world would appear not to pose any serious concern presently.

This, however, could not be said of the eastern part where the dominoes' mony at

yet have found stable pedestals—where perhaps, looking at Indo-china, another kind of confrontation may be in the offing, and where, in the West Pacific, a new power equation might develop with far-reaching effects.

The Indian Ocean. In this wider context, the Indian Ocean pops up again and again as the most important region influencing India's security environment. Three developments are pertinent. The Western powers have by and large retired from the region even though they still have important areas of interest, a few bases and some links with military alliances. At least five regional powers—Australia, India, Indonesia, Iran and South Africa-are in the process of building sizable naval power capable of operating on an oceanic basis. Finally, the Soviet Union has made a significant entry into the Indian Ocean during the last few years, backed by a increase in the naval forces and merchant marine, in the capabilities of supply and maintenance across the high seas, and in the formal or informal treaties promising support on route from the home bases.

There is a UN resolution to make the ocean a peace zone, but under the circumtances, this appears to be rather naive. On the contrary, the developments seem to give a fillip to the enhancement of naval power on the part of those who are directly concerned. The utmost one can hope for is that the ocean does not become an arena of confrontation among the big powers and that it is kept a nuclear-free zone. In any case, Indian strategy would be closely tuned to the voices emanating from the waters beyond its shores.

Salt. From the military angle, India has been keenly watching the nuclear dilogue between the two superpowers which so far has resulted in a treaty on the limitation of antiballistic missiles and an agreement on the limitation of strategic arms. These are welcome insofar as they reduce tension and continue the spirit of deente. But the arrangements are by no means considered adequate. Indians argue that the thrust of nuclear danger lies not in defence but in attack, and wonder whether it has really diminished. They also note that France and China have not participated and there are powerful sections of opinion elsewhere to go nuclear. Meanwhile, some at least of the well-known treaties calling for nuclear restraint are being eroded with the advancement of technology.

The Indian Government, while not subscribing to the treaty on the non-proliferation of nuclear weapons, has adopted a low-profile posture at present, but this might not continue under the stress of international developments and national public opinion. This factor would have an impact upon India's security structure of 1970s.

Arms and Environment. What shape is India's defence apparatus taking? The second defense plan (1969-74) would be almost certainly followed by the third for the years 1974-79, thus converting practically the entire span of the seventies. The average annual defence budget is not likely to be less than £2,500 million. Some increase in manpower is anticipated, particularly in the navy. But, on the whole, the stress would be on the improvement of quality of personnel, arms and training, technique of management, and system of command and control.

India would be self-sufficient in tanks as also in practically every equipment for the ground forces. It would be producing or acquiring advanced versions of the MiG-21, a better fighter bomber. It would have completed the first phase of the manufacture of frigates and would probably have undertaken manufacture of larger warships as well as aubmarines; the submarine fleet would be sugmented; and the Indian Navy would be in a better position

to operate in the more important parts of the Indian Ocean. It would be producing many categories of missiles and substantial segments of air defense ground environment equipment.

India would have launched a medium-size satellite, based substantially, if not wholly, on indigenous manufacturing skill and rocketry and tracking technique. More than one wholly indigenous nuclear plant would be set up, and India might possibly undertake nuclear explosions in connection with mountain engineering or offshore explorations.

One would not miss a close connection between India's security environment and arms buildup. In fact, the two phenomena would act and react on each other, and this would be a significant feature of India's posture in the seventies.

—Military Review (US Army) June, 1973.

N A V Y

A Strong Striking Force

ADMIRAL S.N. KOHLI (Retd.)

Arm-chair strategists have, from time to time, suggested that India should concentrate on a navy of small ships, fitted with missiles and capable of high speeds, instead of an ocean-going navy.

These suggestions are sometimes motivated by considerations of finance and austerity and sometimes by a genuine but forgiveable ignorance of the environmental conditions under which the Indian Navy has to operate. Some people go to the extent of saying that as we are a peace-loving nation and are not likely to start a war, these smaller boats would take care of our maritime defence.

However, students of maritime history will recall that the Zamorins of Calicut faught for nearly a century, a losing battle against the Dutch and the British who had more heavily-armed ocean-going ships which could stay at sea in all weather and for long periods. The smaller and faster Indian ships and their crews fought with indomitable courage but had to make for the harbour in bad weather, and every so often had to replenish supplies and armaments. The advantage clearly lay with the larger and more sea-worthy ships of the foreigners. This was one of the main causes of the decline of India's sea power and the consequent and eventual loss of her independence.

In an era of fast-developing technology, weapons are changing, increasing their range and packing a much bigger punch. These factors influence maritime strategy and also, to an extent, determine the types of ships most suitable for different naval manoeuvres.

Geography does not change. The Arabian Sea and the Bay of Bengal will always remain vast expanses of water where during the monsoon gales, storms and generally rough weather prevail for at least half the year. To operate in these conditions India needs ships large enough to withstand varying whether conditions and to provide a stable enough platform from which to lunch their weapons. The enemy is unlikely to start a war in weather of ourchoosing.

The men who serve on warships, like others in different environments, soon get used to working conditions during the monsoon. Apart from sea sickeness, they are knocked about by the violent tossing of the boat. The ability to steer the ship efficiently and fight under such conditions is necessary.

There is an important difference between maritime operations and army and air operation in the event of a battle on land. Operations on land invariably take place at, or in the vicinity of the international border, the line of control, or the line of contact. But maritime operations can be initiated at any point in the vast ocean surrounding our Indian coasts, depending upon the combatant's naval strategy and capacity for inflicting blows. For instance, maritime operations can take the form of submarine and missile attacks in the vicinity of Indian coast, harbours and island territories, or against Indian ships which may be playing somewhere in the Arabian Sea or Bay of Bengal, thousands of miles away from Indian coast. These operations can take place simultaneously or at either combatant's time of choosing.

If one of the combatants shows signs of

an inability to operate in any particular theatre of war, then it is almost certain that his opponent will take advantage of the situation and extend his area of operations so as to exploit that weakness to the full.

For example, if one of the combatants is capable of coastal defence only, say up to a depth of 200 miles, then it would be most advantageous for his opponent to establish areas of operations beyond the 200-mile limit, and attack and stop shipping going to and from the coast of his opponent. To be a credible maritime force, it is necessary to be able to match the capability of the opponent and to be able to defend our interests at any place of his choosing.

It is also necessary to develop an ability to attack the enemy's vital maritime interests at any place of our choosing. This strategic ability calls for a well-balanced fleet, capable of harbour defence, coastal defence, defence in depth at sea, as well as one that possesses the ability to carry out offensive operations where it will hurt the enemy most. Offence is most often the best form of defence.

Naval planners and designers must take cognisance of these important factors when deciding on the size and type of the ships that should be constructed for Indian navy. A very big ship would be stable but would be less manoeuverable and financially prohibitive if produced in large numbers. The size of the ship should be such as to permit mounting the weapon system and machinery necessary for the required speed, and to be able to house an adequate crew to man and operate the ship. It should also have the ability to remain at sea for prolonged periods and operate in distant theatres. Smaller ships cost less. A country with a limited naval budget could possibly do with more of such ships to meet the defence needs of a 4,000-mile long coastline. A workable compromise has to be evolved to design ships that meet specific needs.

The Indian Navy's 200-ton ships are essentially designed as defensive craft. They can operate in coastal waters to act as a deterrent to enemy surface forces likely to attack shipping in the vicinity of harbours, or attack base facilities and installations. They could, of course, be employed for offensive purposes, at short range, in parts of the world with narrow and sheltered waters. Their power of endurance and ability to stay at sea are limited. These conditions do not obtain in the Indian Ocean. A navy which comprises only such boats fitted with guns, missiles or other armaments, would be essentially coastal in character, incapable of sustained operations on the high seas.

It must also be remembered that the use of only small defensive boats has a bearing on the psychology of the navy personnel. Their thinking tends to become inhibited and limited. We would thus be repeating the mistakes in our own maritime history in the 16th and 17th centuries.

It cannot be denied, however, that these small boats are ideal for the purpose for which they are intended. With very high speed, and the capability of deploying powerful missiles accurately, they are a force to reckon with. They serve as complementary craft to big ships of the frigate type and not a substitute or replacement for them. To guard the sea lanes, for offensive action away from coastal waters, for contraband control and for a blockade, the Indian Navy needs bigger ships with greater endurance and staying power.

In the 1971 Indo-Pak conflict, integrated task forces consisting of a few missile boats and other ships, dealt crushing blows on the warship and merchant ships off the enemy's main harbour, sinking a few warships. The task force used the remaining ammunition to attack enemy oil installations and harbour facilities on shore. But they were successful in this offensive role by resorting

to bold enterprise. The men who manned the ships took great and calculated risks. The naval debacle the enemy suffered, early in the war, was instrumental in blunting aggression and keeping bigger enemy ships from venturing out at sea. Throughout the 14-day war, there was no major confrontation between the bigger ships of the two countries.

Such a situation may never recur and it is imperative not to get carried away by the offensive action in which these small boats were once used with such telling effect. The credit for these raids goes undoubtedly to good planning and the expertise of the naval personnel.

The navy is called upon to play a number of roles in the defence of the country. Naval warfare is getting increasingly more complex with the use of sophisticated craft like submarines, surface vessels and aircraft. It is essential that the Indian Navy should possess a balanced mix of ships fitted with sophisticated weapon systems to adequately deal with threats at sea.

For harbour defence we need nine-sweepers to keep our harbours and their approach clear of mines. We also need small patrol boats and helicopters to ward off saboteurs and spot midget submarines.

For the defence of coastal areas, extending up to about 100 miles from harbours and off-shore oil installations and island territories, we need Corvettes of about 600 to 1,100 tons, preferably fitted up to accommodate a helicopter. Each needs to be equipped with weapons, guns, missiles, torpedoes, depth charges and anti-submarine sensors. Keeping the trade routes open for our merchant ships, and providing an escort for them, is one of the tasks of the navy and calls for destroyers or frigates. These big ships, between two and three thousand tons are capable of hunting submarines and can operate in all weather conditions.

To strike at the enemy effectively and at all times, it is clear that the navy requires bigger ships with a capacity for offensive and defensive action. A mixed force of ships, aircraft and helicopters, sometimes referred to as a hunter killer group, can be deployed. The aircraft could operate from a sea control ship, a mini carrier of 20,000 tons, about the size of the *Vikrant*.

The core of India's naval strength is a balanced striking force and demands a certain amount of sea control exercised in specified areas. In addition to a carrier, the navy needs command and control ships, and anti-submarine ships for area defence against submarine and surface craft.

Submarine are essential for long-range offensive patrols against enemy warships and merchant ships, and for anti-submarine operations. Since in wartime, the navy is called upon to patrol vast expanses of water, it needs surveillance and long-range anti-submarine aircraft. These would act as the eyes of the fleet and ensure that surface ships are deployed against detected threats. Such an arrangement leads to a judicious and economical employment of naval forces.

A number of cruisers, destroyers and frigates belonging to various powerful maritime countries, and those acquired by some littoral states, are known to operate in the Indian Ocean Submarines belonging to the littoral states also infest our waters, as also aircraft with surveillance and anti-submarine capability, fitted with air-to-ground missiles.

If India is to maintain her territorial integrity and way of life, the Indian Navy must have the capability to safeguard her maritime frontiers, her offshore installations and her island territories against all forms of attack from the sea. This can only be done if she has an adequate and balanced force of various types and sizes of ships to ward off danger from a future enemy.

The *Times of India, February 2, 1978.*

MISSILE BOAT
MADE IN INDIA

The Navy has 16 missile boats (Osa class using Styx ship-to-ship missile) formed into the "25 killer squadrons". Eight of them were acquired in 1971, just before the hostilities with Pakistan. The others came later, the last one joining the force last month. (The Navy may have two or three missile boats of a larger size).

The acquisition of the missile boats by India radically altered the concept of war in the Indian Ocean, The small, fast boats, each with the punch of a battleship, are tailor-made for Indian environment. Any future war would be fought in the "missile environment" and the Indian missile boat force was well equipped to meet such a situation.

The boats are capable of operating from forward bases and their strike range can be increased by fuelling at sea. And, integral with each boat is a built-in safely factor—its size. "It is so small and its radar so good that it can pick-up the enemy before being spotted, launch an attack and get away, without the enemy coming to know about her whereabouts.

They have excellent radar-controlled anti-aircraft guns which can be fired by remote control. The fire control system is guided by computer.

With speeds exceeding 30 knots, these boats have a long-range surface radar-detection capability and an extremely accurate delivery system.

The missile is highly sophisticated, incorporating its own engines and automatic controls. An array of electronic equipment and precision instruments enable it to search, track down and lock on to the target. The electronic brain in the missile was so accurate that the West even today did not have a comparable system.

India acquired the boats from the U.S.S.R. and its engineers and technicians carried out some modifications. A workshop for servicing them will soon be opened at the Naval dockyard in the city.

They operate in groups, the aim being a simultaneous attack by a number of missile boats to deliver a crippling blow to the enemy. Such an attack would completely smother any attempts by the enemy to use electronic counter measures (E.C.M.) or close-range weapons to prevent the missile from scoring a direct hit.

The *Times of India* dated the December 4 1978.

INS "Vikrant" During War Game

The INS *Vikrant*, flagship of the western naval fleet and the pride of the Indian navy, put its men and aircraft, both fixed wing and "choppers", through their paces in war games in the Bay of Bengal last week.

The officers and every man aboard pereformed their roles with speed and precision and the 40-minute flying exercise left no doubt in the minds of the spectators that the 20,000-ton displacement aircraft-carrier was maintained at optimum operational efficiency.

The *Vikrant*, accompanied by its escort, the destroyer, *Kamorta* (a Soviet-built Petya class patrol vessel), steamed out of Madras harbour early in the morning. Some 40 nautical miles off the coast, the *Kamorta* steered a parallel course on the starboard side to carry out a replenishment exercise. With the ships about 30 metres men and materials were moved from one to the other by means of a "jackstay"—a suspended carrier pulled along a stout manila rope. Water and fuel oil can also be passed from ship to ship through suspended loops of a large-sized flexible hose. The entire operation was carried out by the crew of the two ships with precision.

The *Vikrant* and the *Kamorta* then carried out manoeuvres through signals. The *Kamorta*, which is equipped with banks of rocket-launchers, fore and after, quick-firing guns and torpedo tubes, fired a volley of rockets at a "submarine target" lurking near the *Kikrant*.

It was all hostile on the flight deck. Five jets of the *Sea Hawk* squadron were brought up from the hangar. They were "armed" quickly with 20-MM shells for the cannon and rockets carried under the foldable wings. Within minutes they were ready to be catapulted at 160 km. an hour, their engines already warmed up for take-off.

Two *Sea Kings* of the helicopter squadron, their huge blades whirling took off on a protective reconnaissance mission, to hunt for submarines that might be lying in wait in the operational area. An *Alouette* chopper took off for its hovering mission along the port side, ready to rescue any pilot who might ditch. The *Sea Kings* took off and dropped depth charges to destroy underwater enemy craft. The *Sea Kings* hovered low, lowered sonar devices to detect the presence of underwater craft. The sophisticated *Sea Kings* were able to r£main motionless during the "dunking" operation. The *Alouette* lowered a man into the sea and later winched him up to give an idea of rescue.

Trickiest Part the grand finale of the underwater, surface and air exercise came when the *Sea Hawks* took to the air with hardly a few minutes' interval. A turboprop from the *Vikrant's Alize* squadron completed the task force. After speeding away the *Sea Hawks* zoomed in, firing cannon and rockets at a target towed astern of the *Vikrant*. The *Alize* dropped a couple of bombs, raising a huge geyser on the port side.

The trickiest part came after the fixed-wing craft flew past and returned for landing on the angled deck. Each plane lowered a long-armed hook fixed to its belly to catch one of the four arrestor wires slung across the after deck. One *Sea Hawk* failed

to make the connection. The pilot opened the throttle and flew off smoothly, to turn round make a perfect hooked landing. As each plane completed its landing, it was smartly taken away to be parked in a neat row.

The *Vikrant's* battleworthiness and battle-readiness brought to this reporter's mind the scenes in the hangar, the wardroom and the flight deck as the aircraft carrier returned to Vizag during the 1971 Indo-Pak conflict. The same effciency was there with the officers and men striving to get everything shipshape after every action, to face the next call for action.

From all accounts India is lucky to possess *Vikrant* which she got fairly cheap and modernised at a reasonable cost. A similar carrier today might cost more than Rs. 200 crores, according to experts. India is the only developing country today with an operational carrier. The other country in this region to have one is Australia. The small aircraft-carrier is once again in business for the great powers are said to be going in for carriers even smaller than *Vikrant*.

With the adoption of the 200-mile economic zone, it will be a problem to safeguard the off-shore oil, mineral and marine wealth rightfully belonging to India. Till such time as a fullfledged coast guard is created—now an imperative—it falls to the navy and the *Vikrant* to keep their weather eye open for trespassers.

The Times of India, dated 18th July 1977.

AIR POWER : AN OPEN DEBATE

AIR POWER

* Pushpinder Singh
** Ravi Rikhya
*** D. S. Goel
**** A. Peerbhoy

Repeated references to the Indian Air Force's procurement plans for a strike aircraft have unfortunately served only to give a wrong twist to a straight-forward case for re-equipment and replacement of obsolescent types by more contemporary systems which is a continuing process in any armed force worth its gunpowder.

Through the 'sixties' and seventies. the Indian Army has supplanted its Centurions and Shermans with T-55s and Vijayanta tanks and is now rightly examining options for the eighties. The Indian Navy has retired its R and G series of destroyers and has spanking-new craft to boast of. The old cruisers are on their way out and will be replaced by missile-equipped equivalents. But when the IAF wants to replace its three-decade old Hunters and Canberras, there is breast-beating about the dangers of an arms race!

Even if the term "deep penetration" is misleading in our context, the IAF's responsibility is clear. The requirement is for a basic ability to strike at targets at the geographical limits of the subcontinent; the DPSA is not a strategic bomber but a modern strike-fighter as an integrated weapons system. In fact, when even the Pakistani Mirage 5 can be considered in this category, why must the IAF be denied the infusion of such combat aircraft. The MiG-21, to which continued reference is made, is the backbone of our air defence manned-intercepter force but no stretch of imagination will give it the range to carry the war to the enemy's underbelly.

It is naive to believe that a reaction-type, defensive air arm is adequate for India. The IAF's Achille's heel, increasingly alarming since the early seventies, is the lack of a credible strike force which could reach out to deny sanctuary to the enemy's war machine. The point is not whether theIAF should acquire such a capability in the 'eighties but whether what it possessed in this field in the 'sixties should entirely fade away. To expose the weary Canberra and Hunter to modern air defence wizardry is extremely hazardous. For, in order to penetrate well defended hostile airspace, strike effectively at a target at some distance and have a reasonable chance of survival, the desired strike aircraft must possess supersonic performance and ranged at low level, a sophisticated navigation and attack system and effective electronic counter-measure equipment.

The Hunters and Canberras, far from possessing such attributes, are ageing rapidly and the unpredictable stress and fatigue of vital components spell a real danger to fiight safety, With the best will in the world and genius for improvisation, these aircraft will be grounded before long for spares are increasingly difficult and expensive to obtain. The DPSA will merely supplant the Hunters and Canberras in the normal process of squadron re-equipment without necessarily involving an expansion

of force-levels.

As for costs, inflation and the incorporation of advanced technology account for the dramatic escalation in price. However, to put costs in correct perspective, the Hunter which cost Rs. 20 lakhs in 1957, would cost ten times as much if built today. The DPSA which costs four times this, possesses four times the warload of the Hunter besides incorporating all the sophisticiation in technology advances of the past 30 years. In the scenario of the eighties, cost effectiveness is the real factor.

The *Times of India*, January, 21, 1978

**** Ravi Rikhya**

Since the 1973 Arab-Israeli war it has often been argued that instead of going in for deep penetration strike aircraft India can buy SA missiles which the Arabs used with devastating effect often. The point is valid.

SAMs will not alter the inability of the IAF to hit PAF rear bases; the IAF must then fight a defensive battle; the history of war does not encourage one to assume this will be realistic or effective.

Pakistan can use its Mirages to attack IAF bases, interdiction targets like bridges, rail lines, supply dumps, etc., to support its troops on the ground, and as a terror weapon to bomb distant civilian targets. This last use will have no military effects and so may be ignored. Because of financial limitations, and the size of Indian territory, only a few targets can be protected by SAMs. Presently 22 squadrons of SAM-2s protest 21 targets and new SAMs are being deployed to supplement them. An airbase might now have a squadron of 6 SAM-2s and a squadron of—say—4 SAM-3s. A very few other vital points like radar stations can be protected. The army can protect a few bridges and dumps, and should soon have the ability to assign a battery of SAMs to selected divisions.

This will be a very thin defence. Soviet SAMs require to be deployed in overlapping fields because each is limited in some respect. SAM-2 fares very badly below 3000-feet, so SAM-3 must be used Below 500-to 1000-feet. SAM-7-8, etc., must be used in conjunction with gun-batteries. To prevent the enemy from attacking at a steep angle and throwing off SAM-2 and -3, SAM-6 must be used. In the 1973 War, Egypt used 1,000 lunchers to protect a front—200 miles wide. There is simply no way we can afford to deploy more than a fraction of Egypt's SAMs.

In 1971, SAM-2 was a singular failure against PAF aircraft, the majority of which were obsolete even by our standards. SAM-2 will not bother the PAF Mirage or Jaguar. The SAM-3s, will increase PAF losses over what they may have been had there been no SAM-3 deployed. The PAF will still get through to render the IAF base sineffective, albeit they will now have to divert sorties into duelling with the SAM batteries. This they can afford to do, and in my figures for tonnage required to reduce an air base to less than 50% of its capability I have provided for the additional sorties.

Even the Egyptians, despite their very heavy SAM defence, used 9 MiG-21 squadrons for air defence. Similarly, both Nato and the Warsaw Pact rely very heavily on SAMs, but have thousands of interceptors assigned.

Even today, anti-SAM precision weapons are available to air forces like India's and Pakistan's. These are not the same as those in firstline use by the US and some Nato countries, and coming into use in the Soviet Union, but they are nonetheless quite effective. A missile like the AS-30 normally impacts inside a 50-foot circle, which is quite enough to blow to bits a radar of SAM launcher. Plus there are easily available cluster bombs which simple wipe out personnel over a wide area. France and

Britain are likely to soon make available for general sale their *Martel* air-to-surface missile, for use against radar and SAM sites, plus France is working on laser-guided versions of the AS-30. These weapons help to lessen losses against SAM defences.

The use of SAMs to support ground troops presents especial problems for the attacking air force. The most usual way to counter forward deployed SAMs is to use long-range artillery against them. Both India and Pakistan have such artillery or are acquiring it. If Pakistan gets the *A-10* attack aircraft, the plane will make a shambles out of all our SAM defences, forward deployed or at airbases. It comes in at less than 200-feet, and is armoured against most calibres of anti-aircraft artillery shells.

To sum up, SAMs certainly complicate the attacker's job, but by themselves cannot prevent the attacker from getting through. They are a very expensive way of protecting targets, and they can be countered. Their success in the 1973 War was largely due to surprise, as Israel had not expected such a heavy onslaught, and due to faulty tactical doctrine employed by the Israelis. The surprise effect wore off in three days. Of course, that was enough for Egypt to achieve its basic objective, and as such their use was a success. But today the matter is very different and it is doubtful if the Israelis will lose even 10 aircraft (*vs* the 50-70 lost in the first three days of the war in 1973).

You will be interested to know that Pakistan has also decided to go in for SAMS, despite the Indian lack of success in 1971. As is common knowledge, they have already deployed several batteries of short-range SAMs for their army. Several reports speak of their desire to obtain the Hawk SAM from the US, a missile that is rated 6 to 7 times as effective as Soviet SAMs. In other words, 6 Hawk batteries will provide as much protection as 36 Soviet SAM batteries. I have seen at least one published report saying that several batteries of *Chapparal*, a US short-range SAM, are to be introduced in 1979. And, of course, that Pakistan Army has tripled the number of its air defence regiments. To penetrate our improved defences Pakistan has the Mirage and may get the Jaguar. To penetrate their defences we have nothing: the MiG-21s and Su-7s will suffer very heavily this time, even as the Su-7s did the last time.

—The *Times of India*, dated the 20th January, 1978.

*** **D. S. Goel**

In 1965, Field Marshal Ayub Khan and even some of the so-called defence experts in this country thought that with F-86s and F. 104s Pakistan could wipe the IAF out of the skies within the first 48 hours of a war. When he attacked India in the Rann of Kutch, he, in fact, gave a threat that his air force would decimate the Indian army if the IAF was used in this fighting. Encouraged by our response — we were afraid of using the IAF in 1962, too,—he attacked India in Kashmir in a few weeks. But our airmen not only saved Kashmir but with Gnats and Hunters—then written off by the RAF—gained an upper hand over F-86s and F-104s.

In 1971, Pakistan had not only F-104s but also a number of Mirage 3/5s. As against these, IAF had indigenously-built MiG-21s and the old faithfuls—Gnats and Hunters. A little earlier we were told that Pakistan could supplement its airpower by taking over Iran Air Force aircraft. But what happened? Except for the December 3rd night, no Mirage or F-014 was seen anywhere deep inside our territory.

In 1978, the same story is being retold viz. Pakistan has 80 Mirage 3/5s plus 50 standing by in Libya and the UAE. Even granting for the sake of argument that Pakistan can have at its disposal 130 to 180 Mirages, how are these aircraft going to be serviced, flown, rearmed and reflown?

How many pilots are there in the PAF who can be trusted to fly deep inside Indian territory, sortie after sortie, day after day, for say ten days? Pakistan may have the macnines but has it 1,000 or so pilots of the calibre required to fly DPSAs?

Mr. Chari has rightly pointed out that purchasing Jaguars is not going to help. If Mr. Rikhye's information is correct, then Saudi Arabia has already made 700 million dollars available to Pakistan. What is stopping Pakistan from going in for Jaguars, when it can have the Mirages from Libya and UAE?

If India can spend Rs. 1,000 crores for DPSA, or even half of it, India must go in for indigenous production. A VTOL aircraft of Harrier type, not necessarily the Harrier itself, will suit us more than Jaguar. VTOL is mobile and not only the IAF, but the Navy too can use it. After all how deep is Pakistan? For a stretch from Wagah to Khyber Pass, do we really require DPSA?

I do not, however, share Mr. Chari's fear that by purchasing certain types of aircraft we will start an arms race; our country's defence comes first and all other considerations are secondary.

It is here that Gen. Raina's statement is pertinent, viz., "One should also bear in mind that even if we had the resources to go in for all the sophisticated weapons developed abroad, there is always the question of the willingness of the other countries to sell them to us and continuing this supply during a war. Hence our emphasis on developing technologically advanced weapons indigeneously". What is true for the army should also hold good for the IAF.

The *Times of India* January, 22, 1978.

**** **A. Peerbhoy**

Both the IAF and the PAF are tactical air forces and neither has any strategic capabilities to speak of. Even if they did, it is doubtful if the scenario in the sub-continent would permit their use. Therefore, all this talk of "deep penetration raids" and "striking at rear bases" is really nothing but show-boxing. In 1965 as well as in 1971 the two air forces did launch strikes at targets 100-200 miles inside enemy territory but they were never more than the merest pin-pricks. Very little was achieved by these hazardous incursions by either side. No air bases were put out of action for more than a few hours, no strategic industries were destroyed or production disrupted, nor were the civilian populations demoralised to any appreciable extent (perhaps by mutual unspoken consent). This will also be the pattern in any future war. Even if we decided to attack the enemy's industry and other targets in the rear, the 2-300 tonnes of payload that the DPSA squadrons could deliver would be woefully inadequate for any effective economic offensive.

I for one feel that the IAF, instead of indulging in delusions of strategic grandeur, should restrict itself to its allotted task of close support to the army (with the MiG-21 BIS, Hunter, Marut and Ajeet) and air defence of vital areas (with the Mig-21-M and Gnat). If the government can be persuaded to revise the role of the IAF, then let us go in for some long-range strategic bombers, which will give it real clout, instead of bickering over the DPSA.

It is also my humble opinion that if we do have Rs. 1,500 crores to blow up on armaments, then in the context of the existing geo-political situation in the Persian Gulf-Arabian Sea area they would be far better spent on one of the following: Ballistic missile submarines, an additional aircraft carrier, an airborne and an armoured division or a squadron of strategic bombers.

Any of the above would go much further in enhancing our defence capabilities than a hundred of the so-called DPSA which is really nothing but an euphemism for a souped-up fighter bomber.

The *Times of India* dated the 9th February 1978.

THE GREAT D.P.S.A. DEBATE

I Danger of an Arms Race

P.R. CHARI
INDER MALHOTRA

The question of buying deep penetration strike aircraft (DPSA) has been under consideration by the government for a whole decade. To be precise, the debate in India began after Pakistan acquired its first batch of Mirage-IIIs from France in 1968. By that time India had also established facilities for the manufacture of MiG-21 aircraft under licence from the Soviet Union .

The first indigenously manufactured MiG-21 entered service in 1967 and some four squardrons of MiG-21s had been bought earlier from the Soviet Union. It is not clear whether Pakistan obtained Mirage-IIIs in response to the Indian acquisition of MiG-21s. But it would not be surprising if that was the case.

To delve a little deeper into recent history, India's decision to acquire MiG-21s was itself provoked by Pakistan's purchase of F-104 Star-fighters from the United States in 1961. This led to pressure from the Indian Air Force for an aircraft of comparable performance. Since India's efforts to obtain F-104s from the United States or Lightning aircraft from the U.K. failed, it was decided to go in for MiG-21s from the Soviet Union.

The inference must be that the purchase of Jaguars or any other DPSA by India in order to counter Pakistan's Mirages would not solve any problem; on the contrary, it will create a new one. For Pakistan, too, would feel called upon to look around for a comparable aircraft. It would be pertinent to recall the President Carter stopped the proposed American sale of 110 A-7 aircraft to Pakistan—a deal which had been suggested by Mr. Henry Kissinger as part of his effort to dissuade Pakistan from buying a plutonium-reprocessing plant from France.

President Carter has clearly ignored that consideration and committed himself to a policy which can hopefully avoid an arms race in the subcontinent. But should India procure Jaguars it can be taken for granted that Pakistan would revive its demands on the United States for the A-7, or some other aircraft, on the plea that it needs these to counter the Indian Air Force's new capability. Pakistan could also get more Mirage-III/V aircraft, of which it has around 60 at present. Incidentally Pakistan had shown interest in the Jaguar last year and there is nothing to suggest that Britain would not make these available to it.

Of course, the argument in favour of obtaining a DPSA is that it would not merely counter Pakistan's Mirages but also replace ageing aircraft in the Indian inventory. For instance, the Indian Air Force has three Canberra light bomber squadrons, which were procured in the late fifties, and are obsolete. And as Canberras are no longer being manufactured, the replacements have to be more modern aircraft.

This and other similar arguments are not incontrovertible. India does not need to match Pakistan weapon for weapon. Aircraft can, for instance, he countered by air defence. The political considerations, as it happens, point in the same direction.

Pakistan is in disarray. An exchange

of visits at the highest levels is visualised shortly in order to strengthen the bilateral ties forged in recent years. Would it not be advisable that the arms issue is frankly discussed before irrevocable decisions with long-term consequences are taken? After all both countries need to stabilise the arms build-up if they are to have any hope of raising their people's pitifully low standards of living.

Earlier statements by the defence minister to the consultative committee of the defence ministry and the Air Force commanders' conference conveyed the impression that a decision to acquire deep penetration strike aircraft was yet to be taken. Nothing has happened in recent months to compel the authorities to rush a firm decision to go in for the Jaguar.

The financial consideration, too, cannot be ignored. Each Jaguar costs around Rs. 10 crores in foreign exchange since, in addition to the basic aircraft, two years' spares/ancillaries and related training/ ground equipment need to imported. The purpose of the negotiations might well be to narrow down the difference between the two sides regarding the sale price, the terms of payment and so on. The indigenous manufacture of the aircraft might also be under discussion. In any case, if the Jaguar must be procured, India's interest would be best served by obtaining a few aircraft for immediate induction into the Air Force and acquiring the technology for its domestic manufacture.

In 1961 India was believed to have turned down the British offer of Lightning aircraft because London was not willing to permit indigenous production. The Soviet Union, on the other hand, was ready to give India the necessary licence in respect of MiG-21. This time Britain may not raise a similar obstacle, though the point is not quite clear.

Be that as it may, the proposed acquisition of a deep penetration aircraft raises larger issues than the purely military ones. As such it is only proper that the policy-makers, address themselves to the question whether their proposed move would not hamper some form of arms limitation agreement with Pakistan. **P. R. Chan.**

—The *Times of India* dated the 20th January, 1978.

II Deep Penetration Aircraft

Need for A Second Look

From all accounts it appears that the Union government has already made up its mind to acquire a reasonable number of deep penetration strike aircraft (DPSA) for the air force. The only question to be settled now is which of the three available aircraft—the Anglo-French Jaguar, the Swedish Viggen or the French Mirage—should be chosen. For this purpose a guidance committee, consisting of the Union secretaries for defence, finance and defence production as well as the chief of the air staff, has already started negotiating with one of the three potential suppliers.

But these negotiations are bound to take quite some time because much more is at stake than rival terms of sale. New Delhi insists on not only the manufacture within India of the chosen aircraft but also what is called a "buy back", arrangement, Under this arrangement the collaborating country will have to import, on a continuing basis, Indian-made spares and components for its own manufacturing programme.

All three manufacturers are understandably anxious to sell their wares in the highly competitive armaments market. But whether any or all of them will agree to Indian terms remains to be seen.

This, is, in one respect at least, a godsend. For the available time can be put to good use by the government, the service chiefs and the informed public to take a second, critical look at the plan to commit a whopping sum of Rs. 1,500 crores, almost entirely in foreign exchange, on the project to acquire, assemble and produce DPSA.

To plead for fresh thinking on the subject is not to overlook the strong case that exists for the acquisition of DPSA, especially in view of Pakistan's possession of several squadrons of Mirages. But the lack of DPSA is not the only gap in national defence, or even air defence, that has to be filled without delay. Nor are the resources at the disposal of the defence planners unlimited, despite the euophoria caused by the deceptively large reserves of foreign exchange.

The question therefore is whether, given the competing demands on limited resources, the cause of national, and even air, defence will not be better served if Rs. 1,500 crores are spent not on buying long-range bombers but on other instruments of air defence or combat. Alternatively, we must ask ourselves what grave perils will overtake the country if it refrains from buying DPSA at enormous cost. It will help to place the issue in perspective if a sedulously fostered fallacy is first got out of the way.

Some advocates of DPSA have gone so far as to conjure up the blood-chilling picture of the IAF being blown out of the skies by the Pakistani Mirages, if these aircraft are left unmatched by new acquisitions. This is as unrealistic as the contrary and cost belief that given an adequate number of Jaguars

or Viggens, the Indian airmen will knock out the enemy aircraft on the ground, interdict its supplies and destroy its concentrations in the rear, thus virtually winning the war before it can begin!

The truth of the matter is that though long-range bombing has its uses, its real value has been vastly overrated. What the Israelis could do in Egypt in 1967 was the result of circumstances peculiar to that time and place which are unlikely to be repeated elsewhere. The more relevant example is that of Vietnam where the overwhelming, indeed total, air superiority of the United States and the barbaric bombing of both military and civilian targets by the monstrous B-52s did the Americans no good at all. At no stage were the crucial supplies along the Ho Chi Minh trail interrupted; nor was the morale of the population affected. On the contrary, many B-52s were brought down by not only surface-to-air missiles (SAMs) but also MiG-21s and MiG-19s.

No less pertinent is the experience of the 1973 West Asia war during which the Israeli Mirages and Phantoms fared very poorly against Egyptian SAMs and even the Soviet-made ZSU-23 anti-aircraft gun (which, significantly, Britain is now trying to develop). At a later stage in the fighting the Israelis were able to take effective electronic counter measures (ECMs) against the SAMs, but this was largely because the Americans had divulged to them the frequency of the SAMs.

Against this backdrop it is worth considering—to put it no more strongly than that—whether the Pakistani Mirages cannot be better contained by strengthening the early warning system and air defence by both missiles and ack ack guns than by investing huge sums of DPSA which will inevitably mean some neglect at least of other important sectors.

Moreover, past experience has shown that most aerial combat in the subcontinent usually takes place at low, often treetop, levels. This deprives highly sophisticated aircraft like Mirages of much of their vaunted advantage, and add to the deadlines of such small aircraft as Ajits (improved versions of Gnats). In other words, the scope for a more skilful use of the aircraft in service in the IAF persists even though the planes are undoubtedly obsolescent by world standards.

Unfortunately, the discussion on DPSA so far has been vitiated by the strange and simplistic assumption as if a war between India and Pakistan will mean nothing more than an unfriendly match between the airmen of the two countries and their flying machines. The truth of the matter, however, is that the air force will be required to play its undoubtedly crucial role in multi-dimensional warfare in which the really decisive action will take place on the ground.

It can be argued therefore that the air force will serve the country better by knocking out the enemy armour (as it so marvellously did at Longenwala and Chhamb in of 1971) and by providing a massive air umbrella to the ground troops than if it spends most of its energies on bombing the enemy's rear as it tried to do in the initial stages of the 1965 war.

It is in this context that the stale cliche about cost-effectiveness of defence becomes increasingly relevant because, for the price of one Jaguar, this country can make no fewer than nine Ajits or four MiG-21s of the newly developed *Bis* series.

Similarly, there is urgent need for tactical transport aircraft so that, during hostilities, whole divisions can be moved from one front to another with all their armour and artillery. This may make much greater difference to the course of war than a few bombs dropped at Sargodha or Peshawar.

And this brings one to an even more crucial point. If war clouds were looming on the Indian horizon, it would have made sound sense to brush aside all other consideration and go in for DPSA immediately. But, happily, this is far from being the case. By spending a fraction of the amount now earmarked for DPSA on research and development, therefore, it might be possible during the next few years to use the existing skills, facilities and infrastructure to develop a wholly indigenous multirole combat aircraft of the type that Britain, West Germany and Italy are building now.

Such a course will be beneficial in another important respect. If war is but pursuit of policy by other means, does it not follow that important policy objectives must not be endangered by preparations for war?

Will not the purchase of DPSA by this country at this stage revive the now dormant American move to sell Pakistan more than 100 A-7 Corsair bombers? Or encourage Britain to sell to Islamabad as many Jaguars as it might care to pay for?

Even more important is another consideration. New Delhi is now engaged in fostering peace, goodwill and economic co-operation in not only the Indian subcontinent but also beyond. The Indian policy initiative fits in neatly with the Shah of Iran's imaginative plan for a common market in the region stretching from Dacca to Teheran via Kabul. Surely these projects, which are encountering considerable obstacles even now, cannot make headway if an arms race begins afresh in the subcontinent

The advocates of DPSA have understandably taken into account the contingency that Libyan and UAE Mirages, now flown by Pakistani pilots, might be available to Islamabad in case of need. Deft diplomacy can perhaps prevent this possibility from becoming a certainty, but not if India itself embarks on a purchase of long-range bombers in the near future.

Finally, it is worth recalling that immediately after the trauma of the 1962 war, the IAF was eating its heart out for F-104 Star-fighters. The American refusal to give these to us was then greatly resented. In retrospect, however, this seems a great favour because no aircraft has been so thoroughly discredited as the F-104. **—Inder Malhotra.**

The *Time of India* February 1978.

JAGUAR International: The Hot Favourite

JAGUAR INTERNATIONAL, the export version currently being delivered, combines the navigation and weapon aiming sub-systems of the RAF Jaguars with uprated Rolls-Royce/Turbomeca Adour Mk., 804 engines and the ability to carry new generation 'dogfight' missiles. In addition, initial flight trials have confirmed the offer of a multi-purpose radar to improve still further Jaguar's air-to-air and all-weather capability, and its anti-shipping role.

Take-off and Landing

Jaguar has full-span, double-slotted, trailing-edge flaps and leading-edge slats, giving good take-off performance Twin main wheels with low-pressure tyres allow take-off and landing on semi-prepared dispersed strips. Anti-skid brakes and a large braking-parachute give short landing-distances. And arrester hook is also available.

Dimensions

Wing span	28.51 ft	(8.69 m)
Length (Single-seat)	50.91 ft	(15.52 m)
(Trainer)	53.87 ft	;16.42 m)
Height	16.04 ft	(4.89 m)
Wing area	260 ft	24.18 m)
Aspect ratio	3.12	
Wing sweep	400	

Weights

			Kg.
Normal take-off weight	24,000	lb	(11,000)
Maximum take-off	,, 34,000	lb	(15,500)
Weapon load	,, 10,000	lb	(4,500)
Design ultimate load factor	12 g		
Limit load factor	8.6g		

Armament

Typical stores which can be carried on the five external weapon stations, in addition to two built-in 30 mm cannon, are:

Free fall and retarded bombs	Flares	Air-to-to-surface missiles
Rocket launchers	1,200-litre fuel tanks	Reconnaissance pack
Air-to-air missiles	Cluster weapons	Anti-shipping missiles
	Practice bombs and rockets	

Engines

Jaguar International's Adour Mk. 804 engine is constructed on a modular principal, allowing the operator to undertake a high level of in-service repair and overhaul and replace major assemblies without returning complete engines to a maintenance unit or to the manufacturers.

Maximum dry trhust at sea level, static, is 5,260 lb (2385 kg), boosted to 8,600 lb (3900 kg) with reheat. The engines are fitted with a part-throttle reheat systemfwhich allows smooth thrust-moudulation fromflow thrust-levels to maximum reheat.

Next stage in development's is the Adour'dash 58' which increases thrust further to —40% under combat conditions and —15% on take-off, when compared with the Mk. 102 fitted to Jaguars today in service. These improvements have been achieved without penalty to cruise fuel consumption figures originally specified.

Attack Mission Performance

With a constant military load, Jaguar, International is capable of the following radii action:

	Radius of Action	
Mission	Internal fuel only	With external fuel —
Lo-Lo-Lo	290 nm (535 km)	494 nm (915 km)
Hi-Lo-Hi	460 nm (850 km)	760 nm ;1410 km)

Take-off Ground Roll		Landing Ground Roll	
Clean aircraft	1860 ft (565 m)	At normal weight with parachute	1550 ft. (470 m))
With 4x100 lb bombs	2880 ft (880 m)	—Without parachute	2230 ft. (680m)—
With 8x1000 lb bombs	4105 ft (1250 m)	At overload weight with parachute	2200 ft. (670m)

PLANS TO BUY FIGHTER PLANES ABROAD

An Indian team, consisting of representatives of the Air Force, Hindustan Aeronautics Ltd. (HAL) and the finance ministry, proceeded abroad early in February last to open negotiations with the manufacturers of Viggen (Swedish), Jaguar (British) and Mirage F-1 (French) and visit their plants to assess their capabilities.

India, it may be recalled, has decided to buy a deep penetration strike aircraft to replace its aging fleet of Hunters and Canberras. Its choice is limited to the above aircraft.

All three aircraft fulfil India's minimum requirements of range, payload and manoeuvrability, and all the three manufacturers have held discussions with officials of the government of India and accepted its conditions.

In addition to buying a certain number of aircraft for immediate service, India has laid down two conditions. The manufacturers must enable it to produce 70 per cent of the parts indigenously within a specified period of, say, five to six years and agree to buy back these parts. The team was it discuss the dates of delivery, price, terms of payment which will include credit and the establishment in this country of the necessary facilities for the manufacture of 70 per cent of the parts.

On receipt of the team's report the Union government will send another team to carry forward the negotiations. It is being emphasised in knowledgeable circles that the Indian decision to acquireand manufacture one of the three aircraft cannot possibly lead to an arms race in the subcontinent.

Pakistan has already in service Mirage-III and Mirage-V, the latter having a range of 280 nautical miles against the Indian Mirage's 110. Islamabad has four squadrons of F-86 which are bound to be phased out in the next few years and replaced by one of the aircraft India is considering. Indeed, it is said to be in touch with the manufacturers of Mirage F-1 and Jaguar.

New Delhi does not propose to add a single aircraft to its fleet. It is seeking only to replace the Hunters and Canberras which it is finding extremely difficult and costly to maintain in flying condition because their manufacture has ended long ago and spares have become hard to come by.

As for the cost the point is being stressed that it will be spread over 10-12 years and that in all probability India will secure credit on reasonable terms.

It is learnt from reliable sources that the Soviet Union offered India Mig-23, SU-20 SU-22 and, as in thec ase of MiG-21, it would have gladly assisted this country to establish manufacturing facilities. But none of these aircraft meets India's minimum requirement of a range of 300 nautical miles, the best among them having a range of only 200 nautical miles.

Four additional points are being made here in support of the decision to buy a deep penetration aircraft.

Every air force must have a strike component if it is not to fight a wholly defensive war. The Hunters and the Canberras cannot provide the Indian Force this strike component for long.

The Vietnamese experience is not valid for a variety of reasons. The U.S. bombing was largely confined to thick jungles from where the guerillas operated. The U.S. did not plan to move its troops into North Vietnam.

Finally, the Indian experts do not share the widespread view that air defences have been perfected to such an extent that an offensive warfare in the air has ceased to be a viable proposition. In their view, with the help of ECM equipment supplied by the U.S., the Israeli air force was able to tackle the Soviet missiles in 1973 and seize the initiative by the time the war ended.

Mirage F-1 is in service in 10 countries, the Jaguar in four and Viggen only in Sweden.

—The *Times of India* dated the 10th February 1978.

Mr. Jagjivan Ram On Force Modernization

In a recent a press conference, (Feb. 8), the Indian defence minister, talking about India's bid to acquire deep penetration strike aircraft (DPSA) to replace her aged strike planes, indicated that the manufacture of the ultimately chosen plane by this country was basic to the whole thing.

(In the run are the Mirage aircraft of France, the Anglo-French Jaguar and the Swedish Viggen).

Mr. Jegjiwan Ram, the Indian defence minister said teams from the three countries had visited India on this country's invitation. Now Indian teams would visit those countries to check on the capability and efficiency of the aircraft offered and to negotiate the terms about payment and the plane's manufacture by India. The defence minister emphasised that no decision had so far been taken on which strike aircraft India should go in for.

Answering questions on a wide range of subjects, Mr. Ram admitted that there were nuances of difference but not conflict of views between the external affairs ministry and the defence ministry in regard to the world situation vis-a-vis the security of India.

"*We have always been optimistic about our relations with our neighbours...we do not anticipate conflict*". *he said. But, as the defence minister, "I have to keep myself prepared for any mad action on the part of any nation,*"

He said there was no dearth of able and qualified applicants to the armed forces. Many were turned away because there was no need of them in India's purely voluntary armed forces.

On defence production, Mr. Ram said the country was on the road to indigenization and self-reliance. Modernization was a continuing process, he pointed out, adding that no country, including India, could be one hundred per cent, self-sufficient.

Asked about the talk of a separate air arm for the army, the defence minister said already the air force was providing such a facility to the army. It was only a question of nomenclature. He had asked the defence wings concerned to decide among themselves and tell him.

DEFENCE PRODUCTION

SPURT IN PRODUCTION OF EIGHT DEFENCE UNITS

The production of the eight defence public-sector undertakings is expected to touch Rs. 425 crores in the year ended March 31, 1978 against about Rs. 399 crores in 1976-77.

This was disclosed to the parliamentary consultative committee for the ministry of defence, which met here recently under the chairmanship of the minister of defence, Mr. Jagivan Ram.

All the undertakings have earned profits in 1976-77, including Praga Tools and Garden Reach, which have earlier been working at a loss.

The committee was told that these undertakings made a sizable contribution to the defence effort. Hindustan Aeronautics Limited is manufacturing Mig, and Ajeet fighters; Avro (HS-748M) transport aircraft; and helicopters of Chetak and Cheetah make for the air force. Bharat Electronics is producing sophisticated electronic communication equipment and radar for the three defence services. Mazagon Dock is building Leander class frigates for the navy. Garden Reach is producing seaward defence boats, survey vessels and ocean going tugs for the navy. Goa Shipyard too is manufacturing small ships for the navy.

The extra available capacity not committed to defence needs is being used to meet civil needs and exports. The earth moving equipment manufactured by Bharat Earth Movers is used in irrigation and power, cement and steel plants, mines and other projects.

Electronic gadgets using BEL-manufactured components are being widely used in the country. The agricultural aircraft manufactured by Hindustan Aeronautics has been designed to meet the essential requirements of aerial spraying of crops. Similarly ships manufactured by the shipyards such as bulk carriers, passenger-cum-cargo ships, fishing trawlers and dredgers will help augment the shipping fleet of the country.

By establishing indigenous manufacture of a number of items, these undertakings have been able to introduce sophisticated technology in several fields.

The foreign exchange earnings of the defence public-sector undertakings have progressively increased from Rs. 2.27 crores in 1971-72 to Rs. 29.47 crores in 1976-77.

Mazagon Dock continues to be the major exporter among these undertakings. Baharat Electronics too have been able to book export orders worth Rs. 10 crores in the current year, besides a prestigious Rs. 34-crore contract from a firm in Europe.

The defence undertakings have been securing such orders against intense competition, the committee was told.

The *Times of India*, dated 10th February 1978.

Hardware Made in India

A. HARIHARAN

India has become over-dependent on Soviet military know-how and the Government is beginning to regret it. The army is least affected since all its armour, arms and ammunition are produced domestically. The navy and air force are much more reliant on foreign technology. The euphoria created by the Indo-Soviet treaty of friendship and subsequent Soviet support during the 1971 war with Pakistan, led the then Congress Government to ignore other potential sources of arms supply and cooperation.

India theoretically should derive continued advantages from collaboration with the Soviet Union, particularly in aircraft production. Already, three plants—at Hyderabad (Deccan,) Koraput and Nasik—manufacture the various parts, electronic equipment and engines for MiG-21s. If the Soviet Union can be persuaded to license manufacture of later versions of the same aircraft, investment will be held down and delays in abtaining design and patents from other nations avoided.

But the Egyptian experience showed how dangerous it can be to put too many eggs in one defence basket. When President Anwar Sadat expelled Soviet technicians and openly squabbled with Moscow, the Soviets cut off even the spares for Egyptian MiGs. Indians are uncomfortably aware that the Soviets intend to keep a firm grip both on the manufacture and use of Soviet-designed aircraft. It is also no secret that they are wary about supplying ultra-sophisticated equipment to a country which cannot guarantee total secrecy.

There was talk a few years ago of building the French Mirage in India. Lengthy discussions were held in 1971. It was expected that an agreement would be signed when Mrs. Indira Gandhi visited Paris later that year. But the French were left out of the new defence plans drawn up after the Bangladesh war.

Indian concern for the future was reflected in the September visit to Moscow by the Chief of Staff, General T.N. Raina. He was followed by Defence Minister Jagjivan Ram and later by Prime Minister Morarji Desai. Defence was an important theme in all these consultations, since most analysts consider India is too deeply committed to Soviet military assistance to change its production patterns for several years.

India's defence consumes 25%-28% of total government expenditure, that is 3.2%-3.9% of the gross national product, compared to 4%-7 in neighbouring Pakistan. Defence accounted for Rs. 27,520 million (US $ 3,127 million) out of a total budget of Rs. 72,190 million. Whether this outlay is warranted is increasingly questioned by defence analysis. There is a growing feeling that India has nothing to fear from anyone. Even the much-touted "Chinese menace" has receded lately.

The ordnance industry, so dramatically expanded in the late 1950s, employed about 118,000 workers in 1976. Production during the financial year 1975-76 topped the Rs. 2,050 million target by Rs. 450 million. In 1976-77 equipment valued at Rs. 3,500 million was produced. India can produce

all its own rifles, carbines, light machine-guns, light mortars, mountain guns, recoiless rifles, anti-aircraft guns and heavy mortars.

The most important defence establishment is Hindustan Aeronautics Ltd. (HAL), with 11 factories in six states and more than 40,000 skilled and semi-skilled workers. Manufacture and maintenance of aircraft is its principal job and the main customer is the Indian Air Force. HAL currently makes:

Marut MK 1: jet fighter/ground attack aircraft, designed and developed by HAL.

Marut MK 2: trainer-tandem two-seater version of Mk 1.

Kiran: basic jet trainer aircraft designed and developed by HAL.

Ajeet: jet fighter, an improved version of the Gnat.

Basant: low-wing agricultural aircraft designed and developed by HAL for aerial spraying.

Chetak: seven-seater helicopter.

Cheetah: lightweight helicopter.

MiG-21M: supersonic jet fighter made under Soviet licence.

HS 748: pilot trainer version of twin-engined transport.

Orpheus: 701 and 703 engines for Ajeet and Marut, engines for MiG-21M, Dart engine for HS 748.

HAL has had the HF 73, a deep penetration strike fighter, on its drawing board since 1969 and the aircraft is due to test fly in 1980. Little progress has been reported on this project although it could prove the answer to the air force's quest for a more sophisticated aircraft than the MiG-21.

The total value of production by HAL in 1975-76 was Rs. 1,137 million, an increase of 12% over the previous year. The 1976-77 target was Rs. 1,490 million. A decade ago it was only Rs. 350 million.

The navy has developed its Mazagon (Bombay) and ship-building facilities. It is developing a base in Port Blair in the Andaman Islands and, possibly, another in the Lakshadweep Islands in the Arabian Sea. The argument put forward in New Delhi is that some couter must be produced to the American presence in Diego Garcia. The navy, however, is in urgent need of quick replacements.

The carrier "Vikrant" is out of date, as are its complement of Seahawk and Seaking aircraft. The cruisers "Delhi" and 'Mysore' date back to World War II. But it is not simply a problem of hardware. The developed countries (including the Soviet Union) are way ahead in ship-killing missiles, radar, sonar and attendant gadgetry.

The Pokhran underground atomic test and the Soviet-launched Indian space satellite might give the impression of extraordinary technological advance. But it is evident that India has neither the resources nor the research teams necessary to keep pace with the latest advances in electronic, missile and undersea warfare. Vast expenditure would be required, but to what purpose? Strong arguments have yet to be advanced to suggest that the spin-off in technological expertise would outweigh the cost to other segments of the economy

—*Far Eastern Economic Review*, December 2, 1977

DOCUMENTATION

TEXT OF THE INDO-IRANIAN Joint Communique February 1978

The following is the text of the communique issued at the end of the four-day state visit by the Shah of Iran to India.

At the invitation of the President of India. Mr. Neelam Sanjiva Reddy, His Imperial Majesty Mohammad Reza Pahalvi Aryamehr, The Shahenshah of Iran, and Her Imperial Majesty Farah Pahlavi, the Shahbanou of Iran, paid a state visit to India from February 2 to 5.

Their imperial Majesties were accorded a very warm and cordial welcome by the government and the people of India during their stay. The mayor and the citizens to Delhi held a civic reception in their honour at the historical Red Fort.

The warm and spontaneous reception given to them is a manifestation of the growing amity between the two contries, the keen desire of the two peoples to deepen further the wide-ranging co-operation between them in all fields and a testimony of the long and close historical and cultural ties that have bound them together over the centuries.

His Imperial Majesty, the Shahenshah Aryamehr held detailed discussions with Mr. Morarji Desai, the Prime Minister of India, on important international issues and on matters of regional significance. The two sides expressed satisfaction at the progress of their bilateral relationship in economic and cultural fields and decided to explore further avenues for expanding bilateral co-operation between them.

Similarity of Views. The talks were held in an atmosphere of complete understanding and cordiality, confirming the close similarly of views of the two countries on international issues, regional problems and bilateral relations of India and Iran.

They recognised that these relations were precious gifts of history and decided to establish two chairs, one at Teheran and the other at Delhi, to promote research and study of that history. The details of the project would be worked out and settled separately through appropriate discussions.

His Imperial Majesty and the Prime Minister reviewed the international situation and noted with satisfaction that the global trends towards relaxation of tensions and settlement of disputes through negotiations were continuing.

They, however, observed with regret that there continued to exist tension and potential sources of conflict in certain areas of the world, such as West Asia and Africa, which posed a threat to international accord and peace.

They confirmed their deep conviction that a peaceful and secure world order could be built only by strict adherence by all countries to the principles of the U.N. charter, non-interference in the internal

affairs of other countries, respect for their sovereignty and territorial integrity and the inadmissibility on the use of force for the settlement of disputes between nations.

His Imperial Majesty and the Prime Minister stressed the urgent need for the speedy establishment of a new international economic order based on interdependence, equality and justice.

They particularly stressed the need to reform the international trading system on these principles so as to bridge the gap between the industrialised and the developing countries which, if unattended to, would threaten the prospects of peace in the whole world.

With this object in view, the two leaders called upon the developed industrial nations to cooperate fully in the economic development of the developing countries by respecting the right of these countries to fair and equitable prices for their export commodities and to have access to advanced technology for their development.

They urged that the international community should also adopt urgent measures to enable the most seriously affected developing countries to overcome their present difficulties and to sustain the momentum of their development.

Nuclear Proliferation. They also stressed the full sovereign rights of all states with regard to their natural wealth and resources. They agreed that while retaining and safeguarding those rights, developing nations should stimulate cooperation among themselves to minimise their dependence on affiuent countries and to maxamise thoir own strength to deal with their own economic problems.

The two sides agreed on the necessity of achieving complete and universal disarmament, specially nuclear disarmament, under effective international control.

While reviewing the question of peaceful uses of nuclear energy, His Imperial Majesty reiterated his government's adherence to the non-proliferation treaty.

The Prime Minister of India, while recognising this position, stressed that, it was essential for the avoidance of proliferation that those who have developed nuclear technology for military purposes should set an example to others who were pursuing nuclear research and development for peaceful purposes through the announcement of underground tests, progressive reduction of nuclear armament with a view to its ultimate elimination and a complete ban on the utilisation of research for non-peaceful purposes.

Both sides have agreed to cooperate with each other for the development of nuclear science for peaceful purposes.

The two sides reaffirmed the urgent necessity for a peaceful solution of the problem in West Asia on the basis of the UN security council resolutions Nos. 242 and 338. They emphassed that a just settlement of the problem was possible only on the basis of the total withdrawal of Israel from Arab territories occupied by it and the restoration of the legitimate rights of the Palestinian people.

The two sides reviewed the grave situation in the southern part of Africa resulting from the policies of racial discrimination and aparthied being followed by the minority regimes in this region.

They reaffirmed their solidarity with the people of Southern Africa in their just struggle against the forces of racialism, colonalism and exploitation. They pledged their support to the people of Zimabawe, Namibia and South Africa in their just struggle. They hoped that the last vestiges of colonialism and racial discrimination in every form would be ended without delay.

The two sides discussed developments in the Indian Ocean region. They reiterted their support for the declaration of the Indian

Ocean as a zone of peace, free from tension and great power rivalry. The two sides further agreed that peace and stability in the area should be secured through co-operative efforts of the countries in the region.

The Prime Minister of India explained that further progress had been made in the normalisation of relations among the countries of the subcontinent. His Imperial Majesty welcomed these developments.

The two leaders reiterated their conviction that success of such efforts to solve bilateral problems through negotiations which had resulted in the lessening of tension in the region should lead to an era of friendship and fruitful cooperation between the countries in the subcontinent, thus contributing to the stability of the region and peace in the world. The Prime Minister of India appreciated the efforts of His Imperial Majesty to promote understanding between these countries.

The two sides took note of the recent trends towards increased economic and technical co-operation amongst developing countries as a collective strategy for development in order to secure the optimum utilisation of their industrial, scientific and technological capabilities and resources.

They felt that such cooperation should be based on the respect for the sovereignty and equality of the countries concerned as well as the principles of equity and common benefit. In this context, His Imperial Majesty and the Prime Minister discussed the need for greater economic co-operation between the countries in the region.

Iranian Oil Fund. They believed that the imperatives of history and geography, the sharing of common traditions and culture and the aspirations of the people of the region point to the indispensibility of co-operation among the governments of the region in order to bring greater prosperity to their peoples. Such cooperation could, in the initial stages, take the form of identification of areas of common interest which would contribute to the well-being of the peoples of the participating countries and benefit the economies of all participants.

It could include cooperation in the fields of cultural exchange, trade policy, industrial and technological collaboration and mutual assistance in agricultural, transport, tourism and communications. Such cooperation would strengthen the economic links between the participating countries of the region, and would make an effective contribution to the establishment of a new international economic order.

The two leaders decided to hold further consultation with each other to work out the ways in which these ideas can be given concrete shape.

His Imperial Majesty and the Prime Minister reiterated their desire to give priority to forging closer and deeper bilateral links between the two countries. They noted with satisfaction that a number of agreements in the economic, technical, industrial and cultural fields had been concluded and were at various stages of implementation. The deliberation of the last session of the Indo-Iranian joint commission had identified new areas of cooperation.

In order to participate in or finance approved projects such as the annual project for the eastern coast, deposits of bauxite, paper and pulp factory for Tripura and the second stage of the Rajasthan canal, His Imperial Majesty offered to make available additional crude oil supplies annually at Opec price on credit terms or lumpsum payment, as might be suitable.

The rupee equivalent of these instalments or the lumpsum as the case might be, would be funded in India as required, whether for investment or expenditure, or could be used to finance the approved projects. The Prime Minister of India, accepted the offer and thanked His Imperial Majesty for it.

In other areas, the two sides felt that the plans for economic development of the two countries provided an excellent opportunity for mutually beneficial cooperation in accordanec with their respective capabilities and capacities.

Some of the areas in which such co-operation could take place are: rural electrification, generation and transmission of power, development of railways, rehabilitation of tracks, construction of railway lines, consultancy services, technical assistance, supply of railway equipment and construction materials, and participation in the construction of industrial estates, new townships, housing colonies, ship building, repair of ships, etc.

The two sides agreed that a special joint sub-committee on petro-chemicals should be constituted for pursuing possibilities of bilateral co-operation in this field.

His Imperial Majesty and the Prime Minister stressed the need for greater co operation between the two governments in the cultural field, taking advantage of the long history of close cultural interaction between the two countries.

The government of India has agreed to assist in an exhibition of Indian art and culture ranging from ancient to present times, which the Iranian Centre for Study of Civilisation is proposing to organise in Iran in 1980.

The two sides felt that continuous contacts and exchange of visits at different levels between the two countries had proved useful in strengthening the relations between the two countries and should be maintained.

His Imperial Majesty, the Shahnshah Aryamehr, and Her Imperial Majesety, the Shahbanou, expressed their deep appreciation for the warm and friendly welcome extended to them and to the members of their party by the government and the people of India.

The Prime Minister of India assured their Imperial Majesties of the intense desire on the part of the people of India to forge even closer bonds between the two countries and to achieve as wide a field of co-operation as possible both amongst themselves and, through joint ventures, in other countries.

His Imperial Majesty extended a cordial invitation to the President of India to visit Iran at a mutually convenient time. The invitation was accepted with pleasure.

Research and Development

The Euromissile Group. The origins of Euromissile go back tothe 1960s, at the time the French ana German governments and industries expressed a wish to cooperate in the field of missile-based weapon systems.

At first politically inpired, this wish was the direct consequence of the *rapprochement* between France and Federal Germany brought about by Chancellor Adenauer and General de Gaulle. This *rapprochement* was concretized by the cooperation treaty signed by the two countries in 1962. Apart from its political overtones, the pooling of the programmes would bring other important advantages as well:

Development Stage. The necessary credits, though higher in absolute value, would be divided between the two countries. Each country's contribution would be less than if the development work had been purely national. The planned programmes were to embody advanced technology, for making the technical resources of both countries available would widen the range of options for equipment characteristics and make higher-performing systems possible.

Production Stage: Combining the needs of the two countries would result in larger production runs, at a more rapid rate and hence at lower cost.

Utilization Stage: The advantages of having common equipment would also include common application doctrines, maintenance, spares, repairs and personnel instruction.

The validity of these hypotheses was to be amply confirmed and it should be noted that none of the three cooperation programmes was scrapped in the course of implementation.

Finally, the fact that the hardware became operational concurrently in the French and German armies greatly enhanced its "brand image" and helped to make it an export success.

Nord-Aviation/Bölkow association accords went into force in September 1962 after receiving government approval. They were four in number: the general accord and a specific accord for each of the three programmes (for a light infantry antitank missile, a high-subsonic antitank missile, and a clear-weather low-altitude surface-to-air missile).

The formation of UVP The two companies soon felt the need to supplement their association with a joint organization for marketing their products. The *Union pour la Vente des Produits* (UVP) was formed on 15th December 1965 as a limited liability company with a capital of 100,000 francs equally divided between the two partners (approved by decree on 31st March 1966).

This company bore the seed of Euromissile in its articles of association, which gave it numerous prerogatives including:

- research, studies and coordination of all necessary means, from market surveys to product support for weapon systems,
- negotiating and concluding contracts and licence rights; and
- taking all appropriate steps to ensure proper execution of the contracts (information, centralization, coordination).

However, UVP's activities were limited to export contracts and it played no role in the essential activity of relations with the Franco-German sector. Because development work took longer than expected, this activity was comparatively limited.

The Roland

THE ROLAND IS A SURFACE-TO-AIR MISSILE MOUNTED ON AN ARMOURED VEHICLE, SPECIFICALLY FOR COUNTERING THE THREAT OF AIRCRAFT FYING NAP-OF-EARTH. THIS WEAPON SYSTEM, WHICH IS PRODUCED JOINTLY BY FRANCE AND GERMANY, HAS ALSO BEEN ADOPTED BY FRANCE, FEDERAL GERMANY, NORWAY AND THE UNITED STATES. THE FIRST PRODUCTION UNITS WERE DELIVERED THIS YEAR TO FRANCE, GERMANY AND BRAZIL.

THE ROLAND IS ALSO PRODUCED IN THE U.S. BY THE *HUGHES* AND *BOEING* COMPANIES, UNDER EUROMISSILE LICENCES. THE FIRST UNIT MANUFACTURED IN AMERICA IS TO BE DELIVERED TO THE U.S. ARMY IN NOVEMBER THIS YEAR.

The 1962 accord had provided for the setting up of a supervisory body at production level for all projects. Because of this, responsibilities remained ill-defined, as did the various decision-making chains between government departments and industry.

In the face of the growing scale of all three cooperative ventures, new conventions were signed to spell out more clearly the conditions under which prime contractorship would be exercised.

Thus—and still under government sponsorship—Messerschmitt-Bölkow and Nord-Aviation signed a convention on 16th June 1969 which set out the manner in which project management was to be organized.

* A responsible prime contractor firm was designated for each project and appointed its own project chief. The deputy project chief was nominated by the partner firm.

* The Milan, Hot and clear-weather Roland systems were assigned to Nord-Aviation.

* **MESSERSCHMITT-BÖLKOW** assumed responsibility for the Roland's "all-weather" version, which had been covered previously by a German national contract without French financial participation.

A few months later, in February 1970, the two governments created a Franco-German programmes office (abbreviated BPFA in French) a permanent joint organization, to be spokesman for the Management Committees and to run the bilateral contracts.

Despite the restrictions on its efficiency resulting from the protracted development of the three systems and the delays in marketing them, the UVP experiment demonstrated the advantages for the two parent companies to have a permanent joint team responsible for coordinating all common operations.

Moreover: the assumption of responsbility for all government related problems by a single mixed body—BPFA—meant setting up an equivalent production group with which the latter could deal.

This need is clearly expressed in the preamble to Euromissile's articles of association, from which a few excerpts follow: "The development of tactical missiles, and notably of the Milan Hot and Roland, has hitherto been conducted within a pragmatic cooperation framework by the responsible divisions of the AEROSPATIALE and MBB companies. At a time when problems of quantity-producing and selling the Milan, Hot and Roland missiles, now in their final development stage, are arising, in-

cluding the problem of possibly initiating new tactical missile or target-drone programmes, it is clearly vital to back this industrial cooperation with a more precise legal, administrative and financial structure to enable the programmes to be conducted with maximum efficiency.

Accordingly, the two companies hereby agree to form, with equal rights therein, the Euromissile Group, with the object of implementing the following operations:
* industrial management of tactical missile programmes, and notably of the Milan, Hot and Roland missile and target-drone programmes;

* market surveys and marketing of such missiles;

* and designing and developing new missiles and derivatives thereof."

The French and German governments have agreed to make Euromissile to titular head of all bilateral contracts and also of a large part of the national contracts tailored to the specific needs of each country. In exchange, the two companies undertake not to let the existence of Euromissile weigh upon the prices quoted under any circumstances.

The Group's financial results have naturally been negative during the first years of operation but will be well in the black from 1978 onwards thanks to the rapidly growing number of orders booked.

Because of the way Euromissile is organized financially *vis a vis* its members, losses or earnings are shared equally between them at the end of each fiscal year.

Current Programmes The Milan and Hot missiles will soon have a night firing capability. As for the Roland system, it can now be integrated into a point defence system whilst retaining its intrinsic performance capabilities in full.

* **Third-Generation Anti-tank Systems** Tank and battlefield characteristics will have changed profoundly by the 1990s. It will not be possible for the third-generation anti-tank missiles which are operational then merely to be more sophisticated versions of today's second-generation missiles. Specifications will have to be complete revised and adapted to the new threat and its environment. This is the reason why MBB, AEROSPATIALE and BAC have brought some of their best specialists together to form a think tank. The studies which come out of this joint group should lead to the definition of a weapon system to be manufactured and marketed jointly by the three countries.

* **Long-range Anti-ship Missile Systems** In order to meet NATO requirements, Euromissile's members have formed the ASEM consortium together with HAWKER SIDDELEY DYNAMICS with the declared object of developing and producing a supersonic anti-ship missile (ASSM).

* **Low and Very Low Altitude Anti-missile system** This programme (also initiated by NATO under the designation 6S) is intended to equip battleships with an effective defensive weapon, particularly against the threat of antiship missiles. Euromissile's member companies, which have already done research work in this connection, are taking part in the current negotiations for development of such a system.

Tornado. A prolonged series of automatic, computer controlled, terrain-following and blind-navigation sorties have proved that Tornado's prime operational capability—low-level high-speed operations against ground targets in all weathers—will be achieved. Tornado flies in all three modes—soft, medium and hard. This means flying at virtually a constant height over hills, pylons, valleys etc. following the terrain fairly closely or hugging the contours.

The bulk of navigation trials have already been completed during a series of "blind" sorties of well over an hour's duration. All navigation modes have been evaluated, including the main mode. Accuracy was not only very good indeed but better than anything else they had experienced to date. The system's precision was very good without updating: trials with updating have been started. These trials have been undertaken at various speeds, heights and wing configurations. "Blind" navigation sorties have also been undertaken from BRITISH AEROSPACE, Warton.

Initial performance figures achieved to date indicate that Tornado, when fitted with production-thrust engines, will at least attain and in certain areas exceed its design performance. Weight and performance figures recorded by prototype and preseries Tornadoes powered by development engines have been revealed for the first time. A brakes-off to 30,000 ft. (9144 m) time of less than two minutes puts the Tornado in the high-performance fighter class and the carrying of heavy external stores at speeds of up to 600 kts (1112 km/hr), or Mach 0.92, reveals a formidable ability to carry a large weapons-load at high speeds. Some of these weapons have been carried at supersonic speeds.

The maximum weapon-load carried so far weighed 16,000 lb. (7527 kg.) and the maximum take-off weight recorded was in excess of 56,000 lb. (254000 kg). A maximum normal acceleration figure of 7-1/2g, and rapid rolling clearance through 360° up to 4g with full lateral control, have been attained—indications of the aircraft's ability and manoeuvrability. The Tornado has flown at speeds of just under Mach 2 at altitude and will exceed this figure with production engines.

Tornado is undergoing exhaustive evaluation by Canada as a possible replacement for their CF-104s and CF5s in NATO and CF-101 Voodoos at home. It is one of six contenders for the Canadian Government's New Fighter Aircraft (NFA) programme for which 2.3 billion dollars has been allocated for purchase of some 120-150 aircraft and supporting equipment and services. The new aircraft is likely to remain in service throughout the 1980s and 1990s.

PANAVIA is offering Canada offset arrangements, including a substantial amount of Tornado manufacturing work.

A Canadian team visited PANAVIA and associated facilities last November for in-depth briefings and in late-January, 1978 a flight evaluation team carried out a programme of Tornado flights at British Aerospace, Warton. Responses to Canada's Request for Proposals (RFP) have been delivered in Ottawa.

Results of evaluations will be assessed and the selection of an aircraft made towards the end of this year. With first deliveries to the Services due in 1979, major components of production Tornadoes are already taking shape at factories in the United Kingdom, West Germany and Italy.

General Support Rocket System (GSRS)

VOUGHT Corporation, the aerospace subsidiary of the LTV Corporation successfully launched its first general support rocket system (GSRS) demonstraction rocket here December 5, less than three months after being selected by the U.S. Army as one of two contractors in a development competition.

This launch gave VOUGHT an opportunity for early evaluation of a launch tube, rocket interface and rocket ballistics. Earlier, the company fired two short-range GSRS demonstration rockets at Redstone Arsenal, Ala.

VOUGHT is in competition under a £ 30 million contract which calls for fabrication

and testing of the GSRS system. The U.S. Army will select one contractor for final qualification and initial production of the system, at the end of the 29-month validation phase programme.

The Army plans to field GSRS in the 1980s. It will provide the U.S. Army with massive artillery fire power at reduced manpower costs.

The GSRS features a multiple rocket system on a highly mobile tracked carrier. Each launcher carries 12 rockets which can be fired singly or in rapid ripple fire. The carrier itself is based on a modification of the Army's Infantry Fighting Vehicle (IFV) design. GSRS rockets will accommodate several warhead types to accomplish a variety of battlefield missions.

VOUGHT is doing most of its GSRS development work in its Dallas, Texas headquarters facility. However, ordnance loading involved in the final assembly of the rocket will be accomplished at a former government ordinance loading faci ity, Highland Park Industrial Park, East Camden, Ark.

Air Data Sub-system (ADS). The first delivery of a new Air Data Subsystem (ADS) and associated Ground Support Equipment (GSE), has now been made to Bell Helicopter Textron, Forth Worth, Texas a division of Textron Inc. by MARCNI-ELLIOTT AVIONIC SYSTEMS LIMITED (A GEC-MARCONI ELECTRONICS COMPANY.)

The ADS part of the new Fire Control System to be fitted on Bell AH-1S Cobra helicopters for the US Army was completed and delivered, on schedule, only 6-1/2 months from placement of contract. During that period, the company's Instrument Systems Division, Rochester, England, developed and built the ADS and placed a sub-contract with its United States associate, E-A Industtlanrial Corp., Ata, Ga, to develop and produce the GSE in the same time scale. The GSE was shipped to England and tested for compatibility with the ADS before the equipments were delivered to Fort Worth.

The ADS, which provides a precise measurement of air data, including true and indicated airspeed and direction throughout flight, operates right down to the hovering condition. The information will be used by pilots to aid them in handling the helicopter at low speeds when firing weapons, in the doppler navigation system, to enhance navigation accuracy, and in the AH-1S Fire Control Computer, to ensure a better ballistic weapon firing performance than has ever previously been attainable in a production helicopter.

The first ADS, designated the "feasibility prototype", will undergo bench testing in conjunction with the rest of the AH-1S Fire Control System, followed by helicopter integration testing and initial flight testing on an AH-1S helicopter at Fort Worth. A more extensive evaluation of the system by the US Army, in conjunction with Bell Helicopter Textron will take place this summer at the YUMA proving ground Arizona. The ground and flight test activity is being supported by E-A Industrial Corp., from its Fort Worth facility. Meanwhile, the next four "production prototypes" of the ADS are being built at Rochester, England, and are due for delivery during the flight test programme.

Thereafter, ADS systems are to be supplied for fitting on both in-service and new production AH-1S helicopters as part of a modernisation programme for which Bell Helicopter Textron is responsible to the US Army Troop Support and Aviation Readiness Command, St. Louis, Mo.

The feasibility prototype ADS, which comprises an Airspeed and Direction Sensor (AADS), an Electronics Processor Unit

(EPU) and Low Airspeed Indicator (LAI), is externally and functionally identical to the production design. Development and manufacture of the system, which incorporates a microprocessor and other advanced features, has been accomplished in a remarkably short time scale for a new avionic system. MARCONI-ELLIOTT AVIONIC SYSTEMS Limited has been able to apply the necessary resources to achieve this by virtue of the care with which the technical specification and contract were prepared by Bell Helicopter Textron and agreed prior to their selection of a supplier. The contract covers the five prototype ADS, the development and supply of the ground support equipment for intermediate level maintenance at the Army's operational support units, and agreed production options for up to 50 sets of GSE and 507 aircraft sets of ADS equipment.

150-H Trainer. The French Army's light aviation arm (ALAT) has just taken delivery of its first helicopter pilot trainer from LMT, the THOMSON-CSF subsidiary.

This 150-H trainer has been installed at the ALAT experimental center at Valence in south-eastern France. Based on digital technology, it enables exercises to be run in piloting, in instrument approach and holding procedures, in radio navigation and air travel and in the use of zero-visibility landing procedures (GCA and ILS).

The 150-H trainer delivered to ALAT simulates the SA-341 Gazelle helicopter's performance characteristics very realistically. It includes a "cockpit" equipped with the main flight and radio navigation instruments, and a comprehensive instructor's post that notably comprises a large course plotter.

This 150-H trainer--which can be adapted to reproduce the performance characteristics of the principal helicopter types now in service—joins the LMT line of IFR (Instrument Flight Rules) trainers which also includes the LMT 350 trainer for fixed-wing aircraft, about fifteen of which have already been sold in France and abroad.

Brazil to Manufacture Helicopters. AEROSPATIALE has just been granted from the Brazilian Council for Industrial Development an agreement for the manufacture of its helicopters in Brazil. The programme applies to the assembling of 30 "LAMAs" and the manufacture of 200 "SQUIRRELS" in a ten-year period. To this end AEROSPATIALE shall participate for 45% in the constitution of the HELIBRAS Company, now under way, with the state of Minas Gerais and the Aerophoto Company for 45% and 10% respectively, as its Brazilian partners.

Thus is proceeding the penetration effort in the South American continent, already materialized by the operation of 22 "ALOUETTE III" and 2 "PUMA" for Brazil alone, and more than one hundred helicopters for South America.