U.S.I. JOURNAL

INDIA'S OLDEST JOURNAL ON DEFENCE AFFAIRS

(Established : 1870)

PRINCIPAL CONTENTS

OCTOBER-DECEMBER 1993

USI PUBLICATIONS

USI NATIONAL SECURITY PAPERS

Para Military Forces
by Lt Gen ML Chibber, PVSM, AVSM — Price: Rs. 25.00

Defence Budgeting in India
by Shri DS Nakra (Retd) — Price: Rs. 25.00

Possible Counter Measures against Satellite Reconnaissance
by Air Marshal IW Sabhaney, AVSM — Price: Rs. 25.00

Higher Defence Organisation
by Lt Gen SK Sinha, PVSM (Retd) — Price: Rs. 25.00

Leadership in the Indian Army During Eighties and Ninetees
by Lt Gen ML Chibber, PVSM, AVSM — Price: Rs. 25.00

China's Strategic Posture in the 1980's (Revised)
by Lt Gen AM Vohra, PVSM — Price: Rs. 35.00

Intra-Regional Interventions in South Asia
by Prof KR Singh — Price: Rs. 50.00

A Profile of Terrorism
by Maj Gen Afsir Karim, AVSM (Retd) — Price: Rs. 50.00

National Security : Integrated Approach to Policy Making
by Lt Gen Hridaya Kaul, PVSM, AVSM (Retd) — Price: Rs. 50.00

USI SEMINARS

Report on Armoured Personnel Carriers
Chairman Maj Gen D Som Dutt (Retd) — Price: Rs. 15.00

Report on the Imposition of a Manpower Ceiling on the Army
Chairman Lt Gen ML Thapan, PVSM (Retd) — Price: Rs. 15.00

Report on Recruitment into the Officer Corps of the Armed Forces
Chairman Maj Gen D Som Dutt (Retd) — Price: Rs. 15.00

Report on a Seminar on Cooperation in Defence
Chairman Lt Gen ML Thapan, PVSM (Retd) — Price: Rs. 15.00

Report on a Seminar on Review of the Organisation Pattern of the Indian Army
Chairman Lt Gen ML Thapan, PVSM (Retd) — Price: Rs. 25.00

Report on the Military Threat in the Nineteen Eighties
Chairman Lt Gen AM Vohra, PVSM (Retd) — Price: Rs. 30.00

Report on Nuclear Shadow over the Sub-Continent
Chairman Maj Gen DK Palit, VrC — Price: Rs. 25.00

Relationship of Military Law and Discipline with the Judicial System of the Country
Chairman Lt Gen ML Thapan, PVSM (Retd) — Price: Rs. 35.00

Naval Strategy in the Indian Ocean
by Admiral S. Prakash — Price: Rs.30.00

Report on Military and Society
Chairman Lt Gen AM Vohra, PVSM (Retd) — Price: Rs. 50.00

Report on Foreign and Defence Policies for India in the 1990s — Price: Rs. 50.00

The Impact of the Gulf Crisis and the New World Order on South Asia — Price: Rs. 75.00

Disintegration of the Soviet Union and its Impact Upon the International Political System with Special Reference to South Asian Security — Price: Rs. 75.00

USI NATIONAL SECURITY LECTURES

India's Problems of National Security in the Seventies
by Gen JN Chaudhuri — Price: Rs. 50.00

India's Defence Policy and Organisation Since Independence
by Shri PVR Rao, ICS (Retd) — Price: Rs. 50.00

Some Problems of India's Defence
by Air Chief Marshal PC Lal, DFC (Retd) — Price: Rs. 50.00

Defence and Development by Shri HC Sarin, ICS (Retd) — Price: Rs. 50.00

The Indian Ocean & India's Maritime Security
by Adm SN Kohli, PVSM (Retd) — Price: Rs. 50.00

Internal Threats and National Security by Shri Govind Narain, ICS (Retd) — Price: Rs. 50.00

National Security and Modern Technology
by Dr Raja Ramanna — Price: Rs. 50.00

India, Pakistan and the USA by Shri S Nihal Singh — Price: Rs. 50.00

Higher Defence Organisation
by Lt. Gen S K Sinha, PVSM — Price: Rs. 50.00

The World Power Structure in Transition
by General K Sundarji PVSM (Retd) — Price: Rs. 50.00

USI JOURNAL CENTENARY NUMBER (OCT-DEC 1970)

Contains informative and authoritative articles — Price: Rs. 50.00

(Postage & Packing extra)

Ask for you copy from:

DIRECTOR, UNITED SERVICE INSTITUTION OF INDIA

Kashmir House, Rajaji Marg, New Delhi-110011

ISSN 0041-770X

The

Journal

of the

United Service Institution

of

India

Published by Authority of the Council

(Established : 1870)

Postal Address :
KASHMIR HOUSE, RAJAJI MARG, NEW DELHI-110011
Telephone No. 3015828

Vol CXXIII **October-December 1993** **No. 514**

USI Journal is published Quarterly in April, July, October and January. Subscription per annum : In India Rs. 120.00 Foreign £18.00 or $ 33.00 by Air Mail £14.00 or $ 26.00 by Sea Mail. Subscription should be sent to the Director. It is supplied free to the members of the Institution. Articles, Correspondence and Books for Review should be sent to the Editor. Advertisement enquiries concerning space should be sent to the Director.

CONTENTS

EDITORIAL

The Year in Retrospect

End of the year, and it is time for introspection. 1993, by all reckoning, was an eventful and landmark year in the USI's long history of one hundred and twenty-three years.

The much-awaited USI Building Project was launched in April when the foundation was laid by the three Service Chiefs. From the President's report, which follows, it is evident that the progress of construction has been more than satisfactory and we can look forward to functioning from our permanent lodgings by end 1995.

The new building complex, with its large library on two floors, an auditorium, seminar halls, hostel facilities, and other support services, would provide opportunity for vastly expanding USI activities in the field of research and study on issues concerning national security and defence forces.

Connected with the above, another significant milestone, was the establishment of the Research Centre for Strategic Studies. This is to commence its activities on a limited scale in 1994 at the present location, and will assume full-fledged status when the USI moves to its permanent home in 1995.

The focus in this issue of the Journal, as in the previous two, is on the nuclearisation of South Asia. During the last two years, there has been mounting pressure on India and Pakistan to sign the Nuclear Non-Proliferation Treaty. In this context, George Perkovich's highly analytical paper, reprinted from *Foreign Policy*, for the benefit of our readers, assumes special significance; for it accepts the need for Pakistan's nuclear deterrence as a balancing factor in the Sub-Continent, against India's large conventional forces. Equally, India's nuclear weapons capability to counter Chinese nuclear pressure is also accepted as a realistic strategy. George Perkovich, with the rigor of objectivety, suggests that India and Pakistan be accepted as states possessing non-weaponised nuclear deterrence and he describes this status as the third option. K. Subrahmanyam in his appraisal of George Perkovich's article, welcomes this new Western approach to nuclear issues in South Asia which he considers more realistic and appropriate to the ground realities.

Thus, whether it is the progress of the USI building project and the establishment of the Research Centre, or the changes in Western approach to thinking on the nuclearisation of South Asia, the end of the year brings a sense of achievement for our efforts in the past, and optimism, tinged with hope, for the future.

And so, from the staff of the USI, a very happy New Year to all our readers.

President's Report for the Year - 1993

AIR MARSHAL P J JAYAKUMAR PVSM, AVSM, ADC
Vice Chief of the Air Staff and President USI Council

Gentlemen I welcome you all to this meeting of our Institution for the year 1993.

Since the last report submitted to the Council by Vice Admiral SP Govil, we have had a quick succession of Presidents. Air Marshal PM Ramachandran, Vice Chief of the Air Staff took over on 29 Oct 92 from Admiral Govil and handed over to Lt Gen Vijay Singh on 25 Feb 93. Vice Admiral Shekhawat took over on 1 Jul 93, when Gen Vijay Singh retired. I took over on 1st Oct 93 when Admiral Shekhawat was promoted as CNS. Therefore my report really covers the period during which my predecessors held charge.

USI'S NEW BUILDING PROJECT

I am happy to report at the very outset that after many long and frustrating years of waiting we have at long last been able to start on the construction work of our new building project. As you all may remember the then COAS General SF Rodrigues laid the foundation stone of the project in the presence of the other two Services Chiefs, Admiral Ramdas and Air Chief Marshal Suri on 26 Apr 93. The construction has been going on apace and the latest progress on the construction will be given to us when we visit the site of the project later today.

RESEARCH CENTRE FOR STRATEGIC STUDIES

Earlier this year we had gone to the Chiefs of Staff Committee for financial help in starting a Centre for Research and Strategic Studies. The aim was to create a capability in the USI for formalised research and to establish the Institution as a recognised 'Think Tank' in matters concerning National Security and Strategic Studies. The paper accepted by the COSC has been circulated to you and we will discuss the matter further later on. I am glad to inform you that an amount of Rs. 29 lakhs has already been received by the USI from the three Services Headquarters. I would like, on behalf of the Council, to place on record our thanks to the three Services for their generous help, in setting up of the Centre for Research.

PRESENTATION OF PORTRAITS

On behalf of the Council I would like to thank the Naval and Air HQs, for the very fine oil portraits of Admiral RD Katari and Air Marshal Subroto

Report presented during the annual USI Council meeting held on November 24, 1993.

Mukherji, the first Indian Chiefs of their Services. These two oil paintings alongwith that of Field Marshal KM Cariappa that had been presented earlier by Army HQ, completes the collection of portraits of all the first Indian Service Chiefs.

I will now move one to the more routine activities of the Institution.

MEMBERSHIP

Upto 15 Nov 93 total number of Life Members stands at 3255 as against 3106 last year. The total number of ordinary members is 960 as against 1280 upto end December last year. Subscriber members are 759 as against 725 last year. I am glad to say, that there has been a substantial increase in the number of Naval and Air Force units, which have joined as subscriber members. Seeing the large number of units, from all the Services, that are still not subscribing to the USI Journal, I feel more could be done to persuade them to join as subscriber members.

We have sixteen Associate members who have been accepted or whose applications are pending. This matter is on the agenda today.

FINANCES

The Audited Balance Sheets along with the Revised Budget for 1993-94 and the Budget Forecast for the year 1994-95 have been circulated to all members and I hope you have had the time to examine them. The Audit Report for 1992-93 has now been placed before you along with the reply to the points raised. These were not circulated earlier as no serious points or objections, deserving your attention, had been raised.

The income and Expenditure position over the last three years is as follows:

		Income (including interest)	*Expenditure*	*Surplus*
(a)	1990-1991	Rs. 14,61,649.02	8,75,116.88	5,86,532.14
(b)	1991-92	Rs. 16,78,916.57	8,94,963.35	7,83,953.22
(c)	1992-93	Rs. 22,49,392.05	10,61,597.47	11,87,794.58

The following amounts of interest actually accrued on accounts of USI investments have not been included in the income mentioned earlier, as they were transferred to various funds as reflected in the balance sheet.

(a) 1990-91 Rs. 8,24,215.40
(b) 1991-92 Rs. 9,30,018.11
(c) 1992-93 Rs. 10,48,194.16

USI BUILDING FUND

The balance in the USI Building Fund stood at Rs. 3,91,84,375.75 as on 31 Mar 93. After 31 Mar 93 to date, we have paid Rs. 1.00 crore out of this amount to the AWHO.

We have approached the Ministry of Finance for payment of Rs. 1.30 crores promised by the Hon'ble Prime Minister from the NDF. We have proposed that payment of the first instalment of Rs. 75 lakhs be made by 01 Nov 94 and the balance by 01 Feb 95. Recently the Addl Secretary, Ministry of Finance has approved our proposal and written to the PMO accordingly.

THE USI JOURNAL

You will be happy to know that the quality of our book reviews have been attracting a larger number of books sent to us by various Indian and foreign book publishers. This has resulted in valuable additions to our library. The quality of the Journal continues to be good. We have not, however, been successful in drawing sufficient number of advertisements. I appeal to members of the Council to help in this regard.

CORRESPONDENCE COURSES

A total of 1210 officers took our various correspondence courses in 1992-93 as against 1681 who took these courses in 1991-92. This was because Army HQ had a Part 'D' Examination within six months of the previous one, and therefore, enrolment to this course was only 175 students.

GOLD MEDAL ESSAY COMPETITION

This year we had a fairly good number of entries for our Gold Medal Essay Competition. These were evaluated by the Senior DS at the NDC. The results have been placed before you and we will announce the winners at the end of the meeting.

During the tea break we will be presenting the prizes to last year's award winners. Unfortunately none of them were recommended for the award of the Gold Medal. They will, therefore, be receiving only the cash awards.

MACGREGOR MEDAL

In spite of all our efforts this year has gone by without any recommendations being received from the Joint Planning Committee of the three Services for any award.

SEMINARS AND LECTURES

The 1993 National Security Lecture was delivered by Shri Abid Hussein on 7th Oct 93 at the auditorium of the Nehru Memorial Museum and Library.

The function was presided over by Admiral SM Nanda (Retd). The lecture was well attended.

The annual USI Seminar is being held on 25th and 26th November at the auditorium of the Nehru Memorial Museum and Library. I hope all of you will participate.

During the year a large number of lectures and discussions were held which were well attended and very well received.

CONCLUSION

Looking back over the period covered by my report I can confidently say that this year has been one of landmark events for the USI. It is a commendable achievement that the USI has been able to make a break-through in the construction of their long needed building project. So far the construction has progressed very well. I hope that the AWHO will be able to continue to deliver the goods and hand over the building by 30 Sep 1995, in time for the Institution to celebrate its 125th anniversary.

The long felt need for a Research Centre for Strategic Studies is well on the way to becoming a reality. Though initially, a start can only be made on a very limited scale, I have no doubt, it will be able to grow to its full potential when the Institution moves to its new home. I hope you agree with me that our Institution has continued to maintain all its activities at a very satisfactory and commendable level.

USI GOLD MEDAL ESSAY COMPETITION - 1993 : RESULTS

On the recommendations of the Evaluation Committee, the USI Council during its meeting on 24 November 1993, selected the following officers for the award of prizes in the USI Gold Medal Essay Competition - 1993 :

Group 'A' - "THE NEED FOR SUITABLE ORGANISATION TO MEET INSURGENCY CONDITIONS IN THE EMERGING INTERNAL TURMOIL"

Lt Col Rajiv Kumar Army HQ, New Delhi	First Prize	Gold Medal and Rs. 2,000/-
Lt Cdr OP Dua, DSSC, Wellington	Second Prize	Rs. 1,000/-

Group 'B' - "IMPACT OF TECHNOLOGY AS A BATTLE WINNING FACTOR"

Captain AN Mutalik HQ, NSG, New Delhi	First Prize	Gold Medal and Rs. 2,000/-
Lt S.K. Singh 13 Raj Rif	Second Prize	Rs. 1,000/-

Credible Defence with Reduced Expenditure

MAJOR B A PRASAD

> "Where the safety of a country depends upon the resolution to be taken, no concentration of justice or injustice, humanity or cruelty, nor of glory or of shame should be allowed."
>
> Machiavelli

INTRODUCTION

"War is not an act of senseless passion...", in the very words of Clausewitz,...."but is controlled by its political purpose....(determining)....the sacrifices to be made for it in magnitude and also in duration. Once the expenditure of effort exceeds the value of the political purpose, the purpose must be renounced and peace must follow".[1] Perhaps that explains the transformation in the conventional wisdom on war even if it was unobtrusively brought about by the force of circumstances in the international arena and the basic thesis of fightability and winnability of nuclear war. Therefore, truly, "war could no longer..." perhaps "...be used as a tool of politics.[2] And in such expanding environs of disarmament and deescalatory initiatives, "a country....(like India) which plans to play its rightful role in international affairs must be careful to ensure that it spends adequately but not excessively on defence. In the emerging pattern of global relationships, nothing will weaken a nation as certainly as excessive defence expenditure".[3] Yet, "...whatever the day to day irritations between New Delhi and Washington", in the erudite view of Dr Henry Kissinger, "India's geo-political interest will impel it over the next decade to assume some of the security functions now exercised by the US....The politicians in New Delhi will not like this, but they are condemned to rivalry with .....China and Japan in South East Asia, much more than the target of their rhetoric, the US".[4] Nor is the vision of India's role in the comity of nations, as perceived by Dr Boutros Ghali, the UN Secretary General, by his advocacy in favour of India's inclusion in the Security Council as a permanent member among others, at variance.[5]

What then are the contours and complexities of this problem? To avoid the semantics and sum up the issue in comprehensible terms, it implies that in international relations where war is losing its primacy as an instrument of policy, disarmament and deescalations are the order of the day, India is

---

This essay has won the second prize in group 'A' of the USI Gold Medal Essay Competition in 1992. Major B A Prasad in serving with the 8th Bn of Bihar Regiment.

perhaps required to pick up the mantle of regional leadership. This sub-continental role combined with its national interests constrains the country to maintain a viable defence force with an intrinsic ability to project it within the regional areas of its interest. While this actually calls for an accretion to force levels and levels of technology, the state of Indian economy cannot afford it and is in fact struggling unsuccessfully to even sustain allocation of 4 per cent of the GDP.[6] This stagnation is not merely indicative but a positive level at which defence allocation is perhaps going to remain for a long time to come. Given this compulsion, there is perhaps a singular opportunity to make a virtue of the necessity.[7] Therefore it, "calls for a very rational view....to contend with foreseeable economic realities...(and)...to find ways....to ensure that the process of modernisation....does not take a back seat"[8] and the Indian armed might maintains its invinciblity in safeguarding the national sovereignty and territorial inviolability.

AIM

The aim of this paper is to examine the economics of national defence with a view to maintain a credible defence posture with reduced expenditure.

CONTOURS OF NATIONAL SECURITY

The concept of national security is a complex one in that it entails the safeguarding of the sovereignty and territorial integrity of the nation on the one hand and its core values on the other. While the former is definable and is the explicit responsibility of the defence services, the latter is dynamic and indefinable and is safeguarded by a plethora of agencies wherein the military establishment plays a significant role. A national strategy is required to translate the national objectives, as illustrated in Table 1, into reality. Therefore, the defence services will need to be mighty enough to fulfil its role and tasks. Whatever the posture adopted in terms varying from aggression to deterrence with preparedness, has never been less than extremely costly.[9] And the defence budget will need to be commensurate with the expenditure quantum. This is a crucial decision pertaining to the very survival of the nation and needs no further enunciation belonging as it does to different realms of authority and decision making. Suffice it to mention that every segment and agency of the nation will need to contribute its penny's worth and also facilitate the armed forces in surmounting its economic crises.

STRATEGIC ISSUES AND MILITARY RESPONSIBILITIES

What then are the strategic issues confronting the nation and engaging the attention of the defence services? It is imperative to identify these to

appreciate the fiduciary and its fiscal implications to the armed forces besides the need and areas where economising and delegation of responsibilities is both advisable and feasible without upsetting the apple cart.

(a) *External Security.*

(i) Sino-Indian border dispute.

(ii) Indo-Pak animosity.

(iii) Security of maritime boundary and the EEZ.

(iv) Protection of dormant boundaries with Nepal, Bangladesh, Burma, Sri Lanka and Indonesia.

(v) Low Intensity Conflicts (LIC) along the Saltoro watershed and in the Kashmir valley.

(b) *Internal Security (IS).*

(i) Counter insurgency (CI) operations in the North Eastern states.

(ii) Containment of terrorism in Punjab and Tamilnadu when required.

(iii) Vanquishing of secessionist movements as and when they are likely to assume serious dimensions in Chhotanagpur (Jharkhand) and Gorkhaland.

(iv) Containment of radical groups advocating revolutionary social changes of the ilk of Naxalites, when called upon.

(v) Aid to civil authority including containment of para police and police delinquency.

CONCEPT OF DEFENCE

The security of the nation is constantly threatened from a myriad sources. While a few are conceived and engineered by the adversaries and powers inimical to the country owing to the geo-political structure of the world and the foreign policy posture of the country, a majority are the off shoots of a variety of factors innate to the Indian polity.[11] While it is so, "historically India has almost invariably reacted to the security environment it faced instead of trying to change it. This has resulted...in our security policies and strategies being both defensive and reactive. The defensive philosophy...(may be)....both desirable and legitimate. But reactive security policies tend to lead towards

higher costs (in all aspects) and, more often than not, the narrowing of options".[12] Therefore at the outset it would be more logical and cost effective to try and reshape the security environment in a manner favourable to our strategic interests. This could be achieved by building up military power to ensure adequate security in all its aspects or through effective and dissuading international diplomacy or through politico-military measures to reduce the security challenges. In the past, we have leaned heavily on the first, partly on the second and rarely on the third.[13] It will therefore be prudent and also expedient to approach the issue through a cost economic point of view and endeavour to :-

(a) Reshape the security environment in a manner favourable to our strategic interests through (preferably bilateral) politico-military measures.

(b) Evolve a coherent national security doctrine in the field of both the civilian as well as the military establishments to facilitate optimal resource utilisation.[14]

Delineation of Inter Ministerial Responsibilities

At the outset the burden of defence will need to be shared by all the organs of the body politic. Although well known, it is rarely realised and reflected by the political and bureaucratic top brass in their planning and actions that the strength of the nation and the awe it can and needs to command emanates not from its military might alone, for it is a mere minor contributor. Does one need to elaborate on the erstwhile super power, USSR vanishing into thin air and a damnable chapter of human history? It is the failing of other ministries that invariably leads to defence expenditure escalation. While the inept foreign relations and chaotic home affairs puts the services in a spin, the detriment of its training and operational preparedness besides the avoidable additional expenditure to the exchequer, the naivete on the industrial and scientific sectors has reduced the country to the status of a technologically backward nation constrained to import the war like stores and equipment notwithstanding their prohibitive price tags.

While the socio-economic objectives the nation is to strive and achieve are unambiguously defined and enshrined in the constitution - as the Fundamental Rights and the Directive Principles of State Policy - the aspect of national security and its ingredients, although spelt out are only in generic terms more as platitudes and essentially exhortative and exoteric. This is not even an apology for a perspective policy statement. Even were they to be so, there is no agency - neither competent nor authoritative to reduce them to

identifiable and achievable objectives/targets/tasks. The sequel is natural. We arc rcactivc on thc defence front while being impulsive and ad hoc as regards issues in the other spheres of the security canvas. The Planning Commission although caters for the socio-economic goals of the nation, it is virtually unmindful and unresponsive as regards matters of security - both external and internal. Nor can it be blamed. For, the only inputs it receives are budgetary demands from the ministries of defence and home, while these themselves are 'self satisfied' with their papers/ministerial address during the 'vote on account' of Parliament's budget sessions.

Surely there has to be an agency at the professional level, to evaluate, task and monitor the entire gamut of national security. Who else but a National Security Council can fulfil this role?[15] It is imperative that such an agency is created not only to advise the CCPA and deal with the Planning Commission, but also be responsible for the evolution of a national security doctrine and its implementation encompassing long term policy and target planning to its stock taking periodically as regards the following ministries and its associated departments and agencies :

(a) External Affairs.

(b) Home Affairs.

(c) Defence.

(d) Finance (restricted to foreign funding/donors and multinational corporeal activity).

(e) Industrial (restricted to war like stores and equipment).

(f) Transportation (restricted to routine and war oriented logistic movement and support pertaining to railways, airways, shipping and roadways).

(g) Human Resources Development (to generate patriotism and obviate anti national and anti social leanings through educational, cultural and sports activities).

(h) Information and Broadcasting (encompassing the audio, video and print media to promote and compliment the national objectives through moulding of public opinion and neutralisation of inimical propaganda and disinformation).

OPTIONS OF DEFENCE

In concert with the national security objectives it is inevitable that the political leadership crystallises its thought and the status it aspires to achieve

for the country in the comity of nations in the ensuing two to three decades. With the demise of bipolarity in the international community, a new global order with a single military super power and a handful of economic super powers are likely to call the shots in the foreseeable future and for a considerable period of time. While this marginalises the significance of the Non Aligned Movement (NAM), is conducive to and will in fact encourage emergence of regional powers. Therefore India will need to contend with the super powers - military and economic - at the global level and one or more regional powers at the continental/sub continental level. India's economic weakness will make it vulnerable to neo-colonialism on the one hand and its very survival as an heterogeneous entity may be threatened on the other should it be perceived to be militarily weak. Therefore, India will need to exercise its options as to whether or not it aspires to :

(a) Achieve regional power status with its concomitant military expenditure or

(b) Maintain the status quo, by choosing between:

(i) Maintenance of offensive capabilities.

(ii) High state of defensive operational preparedness.

Unless the foregoing macro level issues are deliberated and crystallised by the statesmen, the micro level management of defence expenditure will at best be a cosmetic exercise in futility.

True, the US itself is undergoing the pangs for a smaller and lighter Army; the loud thinking of reducing the 775,000 Army to a 600,000 man force, bringing down the defence budget from five to six per cent of the gross national product to 3.5 to 4 per cent or an annual budgetary cut of $ 250 - 300 billions, besides being indicative, is the level at which the congressional support is likely to perch on.[16] But that is consequent to reduction of tensions at the global level and myriad other international and domestic developments. However, given India's persisting security predicament and geo-strategic compulsions, reduction of force levels may not be appropriate and acceptable. Therefore, it would be prudent to consider the economics of the defence budget without reducing the force levels. Further, "it would only be pragmatic to assume that the proportionate allocations within the defence budget, to the Indian Navy and the IAF is only likely to increase, at the cost of Army even if to its detriment, to maintain their current levels of preparedness owing to the escalatory cost factor of their machine intensive force levels".[17]

ECONOMICS OF DEFENCE

India's defence management and budgeting requires among others, the following criteria for proper planning and evaluation:

(a) Plans related to resources.

(b) Budget decisions related to military output.

(c) Bridged gap between plans and budget.

(d) Lengthened horizon of budget decisions.

(e) Imbalances permitted to be identified and removed and

(f) A superior context for systems analysis.[18]

HEADS OF EXPENDITURE

The defensive posture or the pattern of deployment/employment of forces is not entirely expenditure related and is a sequel to the option of defence to be exercised as elaborated earlier. Therefore, for the purpose of costing, the major heads of defence expenditure may be identified as follows :-

(a) *Capital Expenditure.*

(i) Arms and ammunition.

(ii) War like stores and equipment (for war).

(iii) Facilities (installation, living, plant, training, warehousing, medical, administrative, communication etc).

(iv) Defence production (establishment and infrastructure)

(v) R & D.

(vi) Pre entry and institutional in-service training.

(b) *Revenue Expenditure.*

(i) Pay and allowances.

(ii) Pensions.

(iii) Maintenance of arms, equipment and facilities.

(iv) Transportation.

(v) Operational preparedness (including routine and formation level training).

(vi) Clothing and equipping of personnel.

(vii) Defence Production (machinery replacement, manufacture, pay, redundancy etc).

(viii) Welfare (including rations, housing etc).

Unfortunately the further analysis in exactitude cannot progress owing to the details being privy only to the generalist staff officers at Service HQ or the book keeping bureaucrats or the lay popular representatives. Nor is the discussion/debate facilitated either in the press or within services owing to the issue being treated as a 'holy cow' and always kept in wraps.

Delegation of Economic Responsibilities

From the scarce data available from published material it appears that of the defence budget, the expenditure pattern is at the proportion of 25 percent and 75 percent under capital and revenue heads respectively. While this is in itself a dangerous pattern detrimental to asset formation and acquisition of state of the art weapons and equipment, the revenue expenditure is only likely to further increase dramatically in the years to come on account of the necessity to neutralise inflationary effect on revenue expenditure commitments on the one hand and the pay and pension bills on the other. It would be revealing to note that at present 40 per cent of the defence budget is being expended on salary and pension bills alone; the bills being Rs 3400 crores and Rs 1400 crores respectively during the financial year of 1989-90. "Quite soon, we shall have two pensioners for every serving soldier and our pension bill would almost be equal to the salary bill".[19] If one were to estimate the salaries and pensions at the turn of the century, taking into consideration the likelihood of inflation averaging between six to 10 per cent, these alone are likely to cost the exchequer approximately Rs 8000 and Rs 7200 crores respectively. This seen against the back drop of the defence budget stagnating at 4 per cent of the GDP and further being subjected to 'cuts' at the behest of international financial institutions makes the problem rather serious and warrants immediate corrective steps for no abrupt cut or freeze can impact on the defence budgetary situation.

Policy Thrust. At the outset the resolve and the policy thrust ought to aim at correcting the expenditure pattern in favour of capital expenditure to achieve a minimum of 1 : 1 ratio of allocation. This does not cater for the cut being demanded by the World Bank/IMF combine, for such a

requirement will need to be and is feasible to be camouflaged under invisible heads by numerical jugglery under the aegis of the Finance Ministry, unless the GDP itself multiplies manifold facilitating an increase in the gross allocation in real terms in spite of a reduction in percentage spending a la the Japanese/German defence budgeting. Be that as it may, the allocation of 50 per cent of the defence budget towards capital expenditure will yet not foot the bill of demands/operational requisites owing to cost escalation, inflationary pressures, rupee devaluation and the probable complete convertibility of the currency. Therefore, it is imperative that some of the economic responsibilities/liabilities be delegated to other ministries and proportionately to the state governments and the private sector.

CAPITAL EXPENDITURE

(a) *Defence Production.* This is an area which could and ought to be removed from the ambit of the Defence Ministry in particular and even the public sector in general. Licensed production through private sector and semi export oriented multi national participation shall not only reduce the burden on the exchequer but also facilitate considerable diplomatic clout, earning of foreign exchange (incidentally neutralising the cost of defence imports), indigenous infrastructural and stock level availability for the contingencies of war, technological upgradation and not the least of all, economy of scale.

(b) *R & D.* The expenditure on Research and Development ought to logically be incurred by the entrepreneurs and could partially be subsidised by the exchequer through the Ministries/Departments of Science & Technology, Space, Atomic Energy, Oceanography, Aviation, Shipping, Industries and the Human Resources Development. The harnessing of available technological know how and man power besides orchestrating and spurring development is a task best performed under the aegies of the NSC and the Planning Commission through the R & D institutional net work.

(c) *Facilities.* The infrastructural facilities for the defence services ranging from communications - maritime, rail, road and embarkation - to installation, living, plant, warehousing, medical amenities both in peace and war are a major drain on the defence budget. While the available resources in these and a myriad other associated areas are prohibitively costly to maintain in peace and not optimally utilised, are inadequate in war and national emergencies wherein the entire national resources are required to be requisitioned per force. Therefore, it is imperative that conceptually 'multipurpose utility' needs to be built into

the design parameters of the national infrastructural facilities to facilitate their optimal utilisation to the extent dedicated in peace and as required in war. These therefore ought to be logically maintained by the respective ministries and departments. It is the NSC in concert with the Planning Commission that should plan and facilitate these.

Revenue Expenditure. While other aspects of the war machine under the revenue head are amenable to reduction of costs by reorganisation, value engineering, financial management and waste elimination, any exercise in savings needs to address the issue of man power. And the first logical question that confronts us is the very raison d'etre of the contemporary model of the standing army.

Various alternatives are available to solve this problem. Among these, three merit serious consideration. Firstly, of the authorised establishment, one third could be a standing army with two thirds being 'part timer' akin to Territorial Army. Secondly, with one third 'full timers' the remainder could be conscripted. Thirdly, with one third 'full timers' with a pensionable tenure, the remainder could be recruited on a voluntary basis with a colour service of five to seven years for all ranks sans pensionary benefit.[20] While the first two may not be acceptable on account of national economic and electoral considerations repectively, the third is a feasible and economically advantageous alternative. However the essential problem associated with it is rehabilitation after discharge in the persisting environs of high incidence of unemployment. Considering the annual wastage to be approximately 66,000 it is possible to absorb these and more numbers into the civil establishment, to its and the national advantage as illustrated in Table 2. By adopting a short colour service with the enabling proviso of statutorily guaranteed alternative employment, a phenomenal saving of Rs 1000 crores immediately and Rs 5000 crores annually could be achieved by the turn of the century. The incidental advantages of lower age profile of the services and substantial number of citizens/public servants having had a stint in uniform solves equally important issues not addressed in this paper.

Waste Elimination through Organisational Changes. Organisationally the defence services suffer from serious and costly flaws. While no holistic and systemic endeavour has been made to correct these aberrations, even the macro systemic networking of the services to be commensurate with the modern contours of warfare - as unambiguously manifested by the recent Gulf War - has not been attempted. The Arun Singh Committee was fortunately the first step in this direction and unfortunately turned out to be the last, for reasons best known or perhaps unknown to the political leadership. The tinkering being attempted within the individual services albeit by high

ranking officialdom will at best grapple with micro level issues with not so substantial economising as warranted.

What then are the macro level issues eating into the vitals of the untested Indian might? Why are these not being tackled? Who and what needs to be done at macro and micro levels while incidentally increasing the bite for the buck and saving some of it in the bargain?

THE ISSUES

The economising exercise will need to be preceded by significant structural changes for and in the management of national security; inevitable from such an endeavour shall be optimal utilisation of available resources and waste elimination besides substantial savings to the state. Some of the issues are as follows :-

(a) Teeth to tail ratio. Even at the risk of being considered brazen, it cannot be gainsaid that the defence services today have degenerated into narcissism; with the fighting arms, flying and executive branches working their guts out while the increasingly complacent and competitively corrupt services/logistic branches ruling the roost, becoming an end in itself.

(b) Integration of the services into joint commands to combat the two known adversaries and to measure upto the regional contingencies.[22]

(c) Integration of logistic support of the defence services, the para military and the para police forces.[23]

(d) Reorganisation and integration of internal security (IS) forces to combat threats to IS and to play its optimal role for external security in times of war.[11]

(e) Creation of a NSC and Chief of Defence Staff (CDS).[15&22]

(f) Harnessing of national infrastructural facilities during both peace and war.

(g) Altering the parameters of the contemporary standing army to effect substantial savings to the exchequer.

(h) Reducing the average age profile of the services particularly the combat arms of the army.

(j) Loosening the bureaucratic stranglehold over the services.

THE HURDLES

The hurdles are as many as they are complicated. Some of these are as follows :-

(a) The colonial inheritance and ethos perpetrated by the services themselves on the one hand and facilitated under the garb of apoliticism and non accountability of the military establishment directly to the popular leadership.

(b) The above point is itself a sequel to the ignorance of the public and the political leadership alike of matters military. This predicament has expertly been exploited, in conjunction with the coup d'etat phobia, by the bureaucracy to increase their intimate control in the garb of financial control. Playing one service against the other and even arrogating themselves to sit in judgement over the higher direction of war, the nation is being done a dangerous disservice.

(c) The obsession of 'empire building' of the numerically inferior services, particularly one, which has successfully sabotaged the creation of the CDS and through this is subtly averting the creation of integrated commands.

(d) The vested interest of the services/logistic elements in perpetuating their mammoth establishments.

(e) The political clout of the IPS inhibiting integration of the IS forces on the one hand and their dovetailing with defence forces on the other.

(f) The perception of the problems of the armed forces in general and even the man power issue in particular as a departmental affair. The apathy towards the services except spasmodic bestowal of 'love and affection' in times of war is the source of myriad ills dogging the services significantly in the areas of motivation and morale.

THE NEED

At the outset matters military in particular and national security - both external and internal alike - in general ought to be given the primacy they deserve by the political leadership. This could only be facilitated perhaps by making the military leadership directly answerable and accountable to the political executive and popular legislature (parliament) sans the bureaucratic inter face. Either of the models of the US Pentagan or the British War Office is suitable. Logically therefore, the political leadership will need to have an authoritative apex body at the professional plane to conceptualise, plan, direct

and monitor national security in its entirety and advise the popular leadership. The NSC as more than a counterpart of the Planning Commission is an imperative and perhaps the only viable answer.

(a) The defence services on the one hand and the IS forces encompassing the para military, CPO, para police and auxiliary forces on the other ought to be integrated with co-terminus jurisdictions and complimentary operational responsibilities functioning under the ministries of defence and IS (bifurcated from the Home Affairs) during peace and subordinate to a War Council during active hostilities.

(b) Integration of the defence services into joint commands under one CDS.

(c) Integration of entire logistic support networks and systems of both the military and IS forces making maximum use of civil administrative infrastructure under statutory authorisation. The infrastructure per se ought to be the responsibility of the Planning Commission during peace with the NSC authorised to periodically evaluate and monitor its effectiveness and be accountable directly to the War Council in times of war.

(d) Create an internationally competitive and marketable defence industry primarily in the private sector with liberal multinational participation to earn foreign exchange, upgrade own levels of technology, achieve economy of scale to such an extent so as to completely finance and subsidise own war like store needs.

(e) Make the provincial governments to completely foot the bill of the facilities - the burden being shared by them proportionately commensurate with their size, resources and population.

(f) Alter the expenditure pattern in favour of asset/capital formation.

(g) Alter the teeth to tail ratio in favour of combat arms. Yes it is easier said than done. Yet it needs to be done and sooner at that. How, can only be answered by an objective and open minded expert team. Suffice to indicate the mere direction at this point of analysis. Cannot the entire AEC be done away with by utilising the services of the net work of open universities? Cannot the AMC, AD Corps and MNS be cut to one tenth of their size to be just adequate to be available within the tactical battle zone with the facilities being procured through government medical and private clinical agencies both in peace and war? Cannot EME be reduced to one third of its size by dovetailing private industrial repair and recovery facilities in situ even in the battle

zone? Cannot the Public Distribution System, the Road Transport Corporations, Indian Railways, FCI, Ware Housing Corporation and myriad other agencies directly provision for the services both during peace and war? Cannot the notorious services of the MES be substituted by local contractual arrangements? Cannot the professional, essentially pre entry training be acquired at the civil academic institutions? Do we really need lieutenant generals to head institutions teaching medicine, engineering, material management and a myriad other disciplines? Are all the Communication Zone HQ required to support the services defending the nation right at its frontiers? Are all the training centres required, dedicated for each and every arm and service even if they utilise a mere 25 to 30 per cent of their optimum capacity? Is it necessary to maintain a permanent staff of 7000 to train a mere one thousand cadets at institutions like the NDA and IMA when even Sandhurst and West Point can do with a mere one tenth of it with automated/mechanised equipment? If only we are honest to ourselves and cease to behave like burra sahebs we could be better professionals and save thousands of crores to the exchequer.

(h) While conscription with two to three years of national service for ORs and officers respectively with minimal pay and allowances and as a mandatory step prior to entering any government service is perhaps the logical solution to the neutralisation of the cost factor of the man power, changing the contours of the model of standing army with one third full termers and two thirds of volunteers with short colour service sans pensionary benefit, as elaborated earlier, is the practical solution to alleviate the crisis.

(j) Lateral induction from the officer cadre from the rank of Colonel and equivalent into the civil services including para military forces is the only possible way to maintain professional excellence and dynamic leadership. The accumulation of dead wood at higher echelons of leadership, inevitable in a pyramidal hierarchy is most detrimental to the organisational health and operational efficacy.

(k) The prohibitively costly large inventory of arms, ammunition and equipment certainly needs to be conserved. But the concept of moth balling is a mere ad hoc and transitory solution in the absence of its adequacy for real time training - ranging from mechanical handling to tactical deployment. Therefore the need and the practical aspects of training of all ranks ought to be deligently orchestrated.

(l) The disposition of formations while being defensive in concept and reactive in philosophy and planning, detracts the offensive punch

and is essentially a sequel to the proximity of our adversarial contonments and incorrigible ineptitude of the intelligence agencies. Therefore, first and most importantly own external intelligence agencies ought to become efficient and reliable enough in giving an early warning in an acceptable time frame. Secondly, the para military forces ought to hold the international borders and be capable of giving more than mere prophylactic defence. Thirdly, own cantonal dispositions ought to be within an acceptable frame of time and distance with dedicated means of mobilisation. Fourthly, own diplomatic endeavour should try to negate the possibility of collusive threat. Fifthly, while desisting to be dogmatic about 'defending every inch of the motherland' the Indian armed might must endeavour to destroy one adversary and make deep inroads into the other in a short span of time before international pressure and public opinion becomes strident enough to coerce an abrupt cease fire.

(m) As regards training, the actively practised tragedy of self deceit including high flown woffling and voluminous memoranda mostly in the Indian Army is a threat with greater hazard to the territorial inviolability than the might of the adversaries. In the absence of actual combat this is one area being exploited expertly by all and sundry to keep rising on the ladder. This ought to worry the highest leadership. Be that as it may, the endeavour ought to grapple with the issue at three levels viz individual skills, operational training till unit level and training of senior leaders and decision makers. While increasing the standard of intake and scientific aids do have potential to reduce cost overheads, a new concept needs to be evolved to reduce the burden on the exchequer particularly in the area of the training of senior commanders, conceptualiser and decision makers. The evolving half hearted measures of simulation and war gaming is neither holistic nor a practical alternative to formation training. The solution to this ought to come from the best brains both within and outside the armed forces. For this shall substantially alleviate the burden on the exchequer.

(n) Changing the 'five star culture' perpetrated by the senior officers and the socially inconsistent and operationally detrimental life style of the officers per se is socio-economic necessity in the contemporary scenario with incidental cost saving implications. Even general approximation reveals that in the Army itself approximately 100,000 combatants are wasted, being employed as Sahayaks. This is an alarming figure indicative of how the organisation is managing to fulfil its role without such large numbers being utilised in combat. Besides under the euphemism of welfare of other ranks and maintenance of an elite status for the officers, the entire organisation is being exploited adversely effecting the morale on the one hand and making a mockery of the

operational training and preparedness on the other. Even if sounding pessimistic there is no gainsaying that change in both these spheres is inevitable, it is preferable to arrange for it organisationally rather than letting it come through subsequent to a mutinous development. Scrapping the system of sahayaks or batmen and diluting the institution of the 'officers mess' into a normal and decent board and lodging arrangement besides saving substantially to the exchequer shall check the professionalism from sliding into decadence a la the Italian Army of the World War II.

CONCLUSION

The ability to defend one's own sovereignty, territorial integrity and the core values is an indispensable national necessity and surely is no mere manifestation of the nation's arrogance or wealth. The force so created ought to be viable and strong enough to fulfil its role and tasks. The incidental cost is unavoidable and is the material price of eternal vigilance. In this national endeavour all the segments of the society and the government machinery ought to play its rightful role to reduce the burden on the exchequer. The men in arms themselves have no choice but to make their major contribution even if should it appear sacrificial owing essentially to the perpetuating colonial inheritance. When the crises are serious the solutions cannot but be less than revolutionary.

NOTES :

1. Clausewitz, Carl Von, *Vom Kriege (On War)*.
2. President Gorbachev and Chancellor Kohl, Berlin, Joint Declaration, June 1989. Also see K Subrahmanyam, Can War Remain a Tool of Politics in the 21st Century?, *Trishul* January 1990, pp 13 to 28.
3. Madhavsinh Solanki, External Affairs Minister during his speech in Parliament on Indian Foreign Policy Perspectives, August 91.
4. Dr Henry Kissinger, *Newsweek*, 12 September, 1988.
5. Strengthening the UN, *Indian Express*, 24 August 1992.
6. Major B A Prasad, Making Defence More Affordable, *Combat Journal*, April 1992, p 38.
7. Dilip Mukerjee, Need for a New Thrust, *Times of India*, September 1991.
8. Lt Gen Vijay Madan, VSM, Commandant's Note, *Combat Journal*, August 1991.
9. Lt Gen K S Brar, PVSM, AVSM, Vr C, National Interests and Strategy, address to DSSC, Wellington, July 1989.
10. Utpal K Banerjee, The Economics of Defence, *World Focus* November - December 1981, pp 110 to 123.
11. Maj B A Prasad, Restructuring Forces to Combat Threats to Internal Security, *Strategic Analysis*, December 1991, p 1085.
12. Jasjit Singh, India and Pakistan : Security For Both At Lower Costs, *Times of India*, 29 September 1991.
13. Jasjit Singh, Ibid.

14. Sudhir K Arora, The Indian Army : A Million Strong Force in Search of a Doctrine, *Combat Journal*, April 1992, pp 3 to 17. Also see Jaswant Singh, Rationalisation of Security Forces in India, *Indian Defence Review*, April 1985 and Maj B A Prasad, Restructuring Forces to Combat Threats to Internal Security, Op. Cit.
15. See Why No National Security Council, K Subrahmanyam, *The Hindu*, 21 August 1990; Holistic Approach to Security, Air Commodore Jasjit Singh, *The Hindu*, 20 February 1990 and Maj B A Prasad, Op Cit, ibid.
16. Barry Blenchman of Defence Forecast Inc, *Christian Science Monitor*, as reported in *The Hindu*, April 1990.
17. Maj B A Prasad, Making Defence More Affordable, Op Cit.
18. Utpal K Banerjee, Op cit, p 111.
19. Lt Gen M L Chibber (Retd), Saving on Defence : Two Proposals, *Times of India*, 1 June 1989.
20. See Maj B A Prasad, Making Defence More Affordable, Op cit, for detailed evaluation and also Air Cmde S Kulkarni, VM, Man Power Planning in the Armed Forces, *NDC Journal*, November 1985.
21. A N Agrawal, H O Verma & R C Gupta, *Economic Survey, 1986-87* and India : *Economic Information Year Book 1987-88*, National Publishing House, New Delhi.
22. Also see Sudhir K Arora, The Indian Army : A Million Strong Force in Search of A Doctrine, Op Cit and Gen K V Krishna Rao, *Prepare or Perish* : A Study of National Security, Lancer Publishers, New Delhi, 1991.
23. The plethora of IS forces are as follows :-

			Strength
(a)	*Union Forces*		
	(i)	BSF	1,20,000
	(ii)	Assam Rifles	40,000
	(iii)	Coast Guards	10,000
	(iv)	CRPF	1,20,000
	(v)	ITBF	12,000
	(vi)	CISF	50,000
	(vii)	RPF	70,000
	(viii)	RPSF	30,000
	(ix)	NSG	7,500
	(x)	Indian Reserve Police (under raising)	50,000
(b)	*State Forces*		
	(i)	UPSPF	1,000
	(ii)	BMP	7,000
	(iii)	State Armed/Reserve Police	2,50,000
		Total	7,67,500
(c)	*Auxiliary Forces*		
	(i)	Home Guards	4,50,000
	(ii)	Village Guards	3,000
	(iii)	Village Volunteer Force	2,000
	(iv)	Border Wing Home Guards	5,000
		Total	4,60,000

Note : Maj B A Prasad, Restructuring Forces etc, Op Cit.

Table 1

CONCEPT OF NATIONAL STRATEGY

Table 2 Employment Potential Available in Civil Establishment (On a 30 year Service Span)

Establishment	*Total Personnel Employed*	*Annual Recruitment (wastage)*	*Reservation Proposed (Per centage)*	*Annual Intake of Ex-Servicesmen*	*Remarks*
Para Military/ Para Police Forces	7,60,000	25,333	100	25,333	All ranks
PSUs	1,00,000	3,500	100	3,500	Security personnel only
Departments of :					
Forests	1,50,000	5,000	50	2,500	-do-
Customs & Excise	1,00,000	3,500	50	1,750	-do-
Jails	75,000	2,500	100	2,500	-do-
RTCs	6,00,000	20,000	50	10,000	Class III and IV staff only
Central/State/ Quasi Govt/local bodies/Railways/ Ordnance Factories	2,00,00,000	6,60,000	10	66,000	
Total		7,19,833		1,11,580	

Concentration - The Forgotten Principle

BRIG R D LAW (RETD)

INTRODUCTION

In proposals written in February 1916 by a Colonel Swinton of the British Army, one of the Points emphasised was that tanks must be used in mass. However, in the very first employment of tanks in battle at Somme on 15 and 16 September 1916 this new British weapon was used in driblets over unsuitable ground, in complete disregard of Swinton's proposal. The failure of these attacks led many, including the Germans, to believe that there was little future for this new weapon. The good Colonel was proved right in November 1917 when tanks were used concentrated in large numbers at the Battle of Cambrai where they penetrated 10,000 yards in 12 hours capturing 8,000 prisoners and 100 guns in the process. By trench warfare standards of World War I this was remarkable achievement by those primitive machines[1]. Since the Battle of Cambrai, concentration has been propounded as one of the cardinal principles for the employment of armour by one and all. Several cliches like 'the more you use, the less you lose' and 'use a sledge hammer to break an egg' have been coined over the time. However, despite universal acceptance it is frequently given the go by. In military history there are numerous examples of a side possessing more armour, but using it in penny packets, being vanquished by a weaker adversary who employed his armour concentrated. Two of them which stand out prominently are the Anglo-French defeat in France in the spring of 1940 and Rommel's victory at the Battle of Gazala in North Africa in 1941.

For the attack across the Meuse in France in May 1940 the Germans employed only a small portion of their Army. The Force used for the invasion of the West consisted of only twelve divisions of which ten were panzer divisions, one airborne division and one air mobile division. This amounted to less than 9 per cent of the total German Army strength of one hundred and thirty six divisions. The concentrated and bold employment of the German panzer divisions created the effect of an overwhelming superiority of armour over the Allied forces and achieved results completely out of proportion to the size of the force used, even though the Anglo-French forces had more armour which was distributed piecemeal.[2] The allies had over 4,000 tanks which were superior in fire power and armour protection against 2,800 German tanks which had an edge in speed. The French alone had fifty three tank

Brigadier R.D. Law is a former Director of the Armoured Corps at Army Headquarters, New Delhi - India. He has written several articles on the role of the armour, in the Journal and other publications

battalions, half of which were in infantry divisions and the other half in three light mechanised and four armoured divisions. There were ten armoured regiments with the British Expeditionary Force which were distributed amongst the infantry divisions.[3] For the attack on the German flank at Arras the British could only muster two weak armoured regiments and two infantry battalions. The Germans had a total of only thirty six tank battalions, but they were all concentrated in panzer divisions.[4]

At Gazala in North Africa the British initially had a three to one superiority in tanks against the Axis forces. In addition they had superiority in artillery and the overall mobility of the British Eighth Army was better. There was parity in the air. Contrary to common belief, British tanks were superior in gun power as well as armour protection. Despite this the Eighth Army suffered a defeat at Rommel's hands. Right at the beginning, before the battle was joined, XXX Corps, which was mostly armoured, was given the task of countering armoured thrusts by the Afrika Korps in the centre, an unlikely possibility, and on the Southern flank. The responsibility for guarding the centre fell upon 1 Armoured Division, which had two armoured brigades, and 7 Armoured Division which had only one armoured brigade was employed in the South. The Army Tank Brigade was to take care of a break-through in the North. This deployment had split the British armour even before Rommel attacked. The Afrika Korps, on the other hand was kept concentrated and attacked around the Southern Flank. British armour which attacked the Afrika Korps was committed in bits and pieces, never more than a brigade at a time. Rommel's plans to swing North to reach the sea and cut off the Eighth Army were, however, foiled by the appearance of US made Grant tanks for the first time which completely out-gunned all German tanks. Rommel, who had poised his forces for the thrust Northwards, was thrown off balance. In order to regain balance he temporarily went over to the defensive in an area which became known as the 'Cauldron'. The Cauldron was repeatedly attacked by the RAF and the Eighth Army, the latter employing an inadequate force of armour each time which suffered heavy casualties at the hands of German tanks and cleverly sited 88 mm guns. Badly shaken the British armoured divisions started to withdraw Eastwards. Rommel broke out in pursuit with both his panzer divisions and continued to inflict further casualties on the British, chasing them all the way to the Egyptian border. A notable feature was that though the Eighth Army had two armoured divisions, in this operation neither of them was ever employed as a division, leave alone both being committed together.[5]

In this article it is proposed to examine how the Indian armoured forces were used in the 1965 and 1971 Indo-Pakistan Wars and whether in the evolution of the present organisations the principle of concentration has been observed or not.

1965 INDO-PAKISTAN WAR

In 1965 tanks were initially employed in the Amristar Sector in support of infantry, mainly at squadron levels. Besides the three regiments of 2 Independent Armoured Brigade, there were some other regiments of armour in the Sector, one with each infantry division operating on each of the two axes on which attempts were made to advance to Lahore. Neither of these regiments were used concentrated. If they had been the results could well have been different. After the bridge on the Ichhogil Canal on the Armistar-Lahore Axis had been captured intact, and armoured regiment put across to rush forward to close in with the defences of Lahore could have achieved good results. Such actions can often pay unexpected dividends. The opportunity was not made use of and attempts were made to continue the advance with infantry with a squadron supporting the leading battalion. The fault lay in the infantry formation commanders failing to look upon armour as a powerful combat arm and treating it as a supporting arm and distributing it by sub-units to support infantry attacks instead of employing it concentrated.

The action at Asal Uttar where 2 Independent Armoured Brigade fought concentrated as a brigade remains the sole example of a successful battle, albeit a defensive one, fought by an armoured formation in war.[6] If Pakistani I Armoured Division had succeeded in its bold attempt to break through and capture the Beas bridges, the consequences would have been disasterous, possibly resulting in the loss of all territory west of the Beas River and several thousand Indian troops and a good deal of equipment falling into enemy hands. This action, though at a lower scale, has much similarity to the Battle of Alam Halfa in Egypt in 1942. If the Afrika Korps had succeeded in getting past Alam Halfa, there was nothing which could have stopped Rommel from pushing on to Cairo and in the process bottling up the Eighth Army[7]. The credit for foiling Pakistan's plans by inflicting unacceptably heavy tank casualties on its 1 Armoured Division is due to the Army Commander for correctly appreciating the need for all armour employed for this task being concentrated under 2 Independent Armoured Brigade, the Brigade Commander for the sound deployment of his brigade and his cool-headed handling once the battle was joined and finally the officers and men of the regiments which fought with the Brigade. Another important factor, though somewhat out of relevance in relation to the subject of this article, was the decision of the Army Commander to group one of the Centurion regiments of 1 Armoured Division with this Brigade. The presence of Centurion tanks, which completely out-gunned the Pattons, came as a complete surprise to the Pakistani armour, and the Commander of their Armoured Division was unnerved as he thought that he was opposed by the Indian 1 Armoured Division[8].

The achievements of 1 Armoured Division, which operated in the Sialkot Sector, concentrated as a division, were negligible, although there was display of excellence by some of its regiments.

1971 INDO-PAKISTAN WAR

In this war 1 Armoured Division was not employed, primarily because this solitary Armoured Division could not be committed until Pakistan, which had two of them first showed its hand. By not raising more armoured divisions between the two Wars and scattering its armour resources as independent armoured brigades and unattached regiments, India had handed over the initiative to Pakistan and reduced itself to a position where it could only react to the latter's moves. It was India's good fortune that Pakistan did not mount an offensive against India employing one or both of its armoured divisions and some of its armoured brigades concentrated at a weak spot. It would have been extremely difficult for India to react effectively in time with its armour scattered from Chhamb in J&K to Rajasthan. The only armoured formation which was not committed and was not scattered was 1 Armoured Division, but it would have been a major problem to redeploy it if the need arose in view of the difficulties of lateral movement, particularly between Punjab and Rajasthan.

The independent armoured brigades were scattered and split up. 16 Independent Armoured Brigade, the most effective from the equipment point of view, being equipped with Centurions, was divided by I Corps between two infantry divisions. The Division which had the Brigade less a regiment had further split it with one regiment each allotted to two of its infantry brigades. The Armoured Brigade Commander had located himself near the Divisional Headquarters, perhaps in the capacity of 'armour adviser' to the General Officer Commanding! Operating South of Samba in J&K the Division advanced a total of about 15 kms in the direction of Zafarwal at a rate of less than a km a day against light opposition consisting of covering troops based on a light armoured regiment with elements of a reconnaissance and support battalion and some tank destroyers grouped with it. This force used minefields as successive delaying positions. If a group based on the Independent Armoured Brigade less a regiment had been used by the Division the distance would have been covered in a fraction of the time. The fact that the Pakistani minefields in the area were not particularly effective was discovered later when one of the armoured regiments went through a partially cleared minefield by night, without any mishap, to the aid of an infantry brigade under extreme pressure. The minefields would not have posed much of a problem to the Armoured Brigade as it had mechanical clearing devices available in the form of trawl tanks. Once again the regiments displayed

excellence, particularly at Basantar where there was a spirited tank battle in which a regiment blunted repeated attacks by a Pakistani armoured brigade which suffered heavy causalties.

2 Independent Armoured Brigade was similarly split with its regiments allotted to infantry brigades of a division launched across the Ravi River towards Shakargarh.

14 Independent Armoured Brigade less a regiment was stretched out in a thin line from just South of Dera Baba Nanak to the Amristar-Lahore Axis guarding against an armour thrust by Pakistan in that sector, with the command tanks of the Brigade Headquarters providing the depth! Its detached regiment was allotted to an infantry division in the Fazilka Sector.

3 Independent Armoured Brigade remained in the vicinity of Jammu with little to do while two loose armoured regiments without an armoured brigade headquarters to coordinate their actions operated with the infantry division at Chhamb where they fought very gallantly despite being grossly mishandled at the formation level. Another loose regiment guarding the Hussainiwala Bridge at Ferozepur with some of its elements across the Bridge merely passed the time at Ferozepur after the Bridge was demolished by an impatient sapper just as its last tank was pulling back over the Bridge, but ended in the river bed. Another loose regiment which had been moved across from the East after the end of operations in Bangladesh was located South of Amritsar. In Rajasthan there was a divisional regiment and some independent squadrons which had been pulled out from certain schools of instruction. Of the latter, one operated with the force which chased out the Pakistani force which had intruded towards Longewala, after it had been roughed up by the IAF.

The employment of armour on the Western border presented a dismal picture of being scattered about in bits and pieces, which explains why India achieved so little despite its superiority in armour against Pakistan. The major failing was failure to realise that armour used concentrated is an effective combat arm and not a supporting arm in terrain which is suitable for armour operations. There was a tendency to give a little bit of armour to all those who asked for it and so keep every body happy. There will never be enough armour in war to meet all demands of the infantry. Higher commanders have to be very firm about not allowing their armour resources to be dissipated so that they can use armour concentrated to destroy the enemy's fighting potential. The line of least resistance is to give a little bit to every one, but this can only be at the cost of offensive capability and the ability to defeat offensive action by the enemy.

Other than at Chhamb the only incursion by Pakistani armour into Indian territory was in Rajasthan where a force of about a regimental group drove towards Longewala in Rajasthan. Fortunately this force was caught in a close harbour by the IAF who did an excellent job of destroying most of its tanks. If this thrust had been carried out by a Pakistani armoured division with adequate air cover, India could have done very little about it other than looking terribly embarrassed. Luckily this was a case of neglect of the principle of concentration by Pakistan as well as they used too small a force of armour.

POST INDEPENDENCE GROWTH OF ARMOUR

In 1947 India's share of the Armoured Corps was twelve regiments of which seven were armoured regiments equipped with what was then termed medium tanks and the remaining five were light armoured regiments. All the seven armoured regiments were grouped in two armoured formations with four in 1 Armoured Division and three in 2 Independent Armoured Brigade, ie 100 per cent of the armoured strength was concentrated. One of the light armoured regiments was with 1 Armoured Division as its reconnaissance regiment and the remainder were located in different stations wherever they could be accommodated. Soon after the Pakistani incursion into J&K one of the regiments from the Armoured Division was sent to the Jammu Sector as a temporary expedient. Even so over 85 per cent of the Army's medium armour strength was pretty well concentrated in two armoured formations.

The tank strength of an armoured regiment in 1947 was 51 medium and 9 light tanks. Of the medium tanks one in each squadron headquarters was fitted with a dozer blade. All light tanks were in the reconnaissance troop. As light tanks got wasted out, they were not replaced and were eventually deleted from the establishment. It may appear that the removal of the light tanks did not affect the combat effectiveness of a regiment which primarily lay in its main battle tanks (MBTs), but this view is superficial. After the removal of the light tanks a regiment is not left with any means to carry out reconnaissance other than jeeps which can only be used for topographical reconnaissance and for limited other tasks such as establishing observation posts to watch enemy movements. Other reconnaissance tasks requiring cross country mobility, a certain degree of protection, the ability to fight for information and to make a get away if engaged by the enemy require light tanks or other suitable tracked light armoured vehicles. Besides reconnaissance another important function of light tanks in the regiment was flank protection. For these tasks a regiment now has to use some of its MBTs, possibly upto two or three troops on occasions. The combat effectiveness of the regiment is correspondingly reduced. This fact may not be fully appreciated

by those who have entered service after withdrawal of light tanks from armoured regiments. With the phasing out of Stuart light tanks from service, light armoured regiments were converted into armoured regiments for which tanks were found by cutting down reserve holdings, re-building unserviceable Sherman tanks and reducing the number of tanks in each regiment to 45. The holdings of armoured regiments had earlier come down to 48 due to the non-availability of dozer tanks. Reduction to 45 was achieved by cutting down the number of tanks in each squadron headquarters from 3 to 2. The squadron headquarters of an armoured squadron, besides exercising command and control, was designed to fight as one of the troops of the squadron. This also enabled the squadron commander to 'lead from the front'. The functions of a squadron commander, or for that matter a regimental commander, in the Armoured Corps are a analogous to those of flight and squadron commanders in the Air Force when they lead their commands into combat. One tank less in each squadron changed this concept of exercising command by leading from the front and also reduced the effective strength of a squadron from five troops to four. This digression at some length may appear to be making a mountain out of a mole hill, but it is in fact not so as it represents the beginning of the dilution of strength and dispersion of armour resources, which goes against the fundamental principle of concentration and changes the concept of leadership at sub-unit level. The reduction of the tank strength of a unit to find tanks for raising additional units is also uneconomical, in that it creates additional overheads in the form of headquarters and administrative sub-units without increasing the overall tank strength or combat effectiveness.

The German Army which owed its success in France and North Africa to its strict adherence to the principle of concentration was also guilty of diluting its armour strength before the Russian Campaign, when the number of panzer divisions was almost doubled from ten to nineteen. This was achieved by reducing the number of panzer regiments in each division from two to one which brought down the tank strength of a panzer division by 180 tanks.[9] This halved the effectiveness of the division and was one of the factors which contributed to the German success against the Soviet Union being less spectacular than in France. This dilution was contrary to the German Army policy and was evidently done on the express orders of Hitler who had a penchant for such interference. As far back as 1934 it had been appreciated that Germany could not match the quality and quantity of tank holdings of its neighbours and it had been decided that its entire tank strength would be put into a 'tight concentration' in the form of panzer divisions and panzer corps.[10]

In India, between 1947 and 1965 only three regiments were added to the Army's order of battle. One was an armoured regiment to bring 1 Armoured

Division upto strength, one a light armoured regiment and the third was a divisional regiment. Divisional regiments were a new idea. Each infantry division was to have one of them. They had come into being when it was mistakenly believed that anti-tank protection should be a role of the Armoured Corps. A divisional regiment was organised in an identical fashion to the erstwhile Artillery self-propelled anti-tank regiment. It had 36 tanks with 12 in each squadron and none in regimental and squadron headquarters. With these headquarters unmounted in tanks these regiments could not be employed in any offensive or mobile roles and its tanks had no utility other than as static anti-tank guns. It was an ill conceived idea universally resented in the Armoured Corps, but, strangely supported by its hierarchy. Later, good sense prevailed and they were reorganised as armoured regiments.

After the Chinese attack across the Indo-Tibetan border in 1962 the focus shifted to the mountains and the Armoured Corps began to be looked upon as redundant even at the highest levels in the Army. After the 1965 war, when India faced a tank threat from Pakistan for the first time the picture changed and expansion of armoured forces was started. In the intervening period between the 1965 and 1971 Indo-Pakistan Wars several new armoured regiments and an armoured delivery regiment were raised. The latter proved a very valuable asset and kept up the tank strength of the regiments engaged in operations. In fact the Armoured Corps was the only arm in the 1971 War whose units received replacements of personnel and equipment battle casualties, often within hours of their occurrence. The raising of new armoured regiments has evidently continued after 1971 as the number of regiments stands at fifty three which are organised into two armoured divisions, a mechanised division and five independent armoured brigades.[11] This accounts for thirty regiments on the assumption that there are six regiments in each armoured division, three in the mechanised division and three per independent armoured brigade. As there are no light armoured or reconnaissance regiments, the remaining twenty three are presumably in infantry divisions, of which some may be RAPID divisions which reportedly have two armoured regiments each.

UTILISATION OF NEW RAISINGS

With over a fourfold increase in the number of Armoured Corps units since 1947 there has not been a corresponding increase in offensive capability of the Army in terms of armoured divisions, which alone are capable of deep and rapid penetration of enemy territory, when suitably grouped in armoured or mechanised corps, along with mechanised divisions. Until the raising of the second armoured division after the 1971 War, Pakistan had a two to one advantage over India in this respect, despite the latter possessing more armour.

Pakistan could, if it chose, tie up the lone Indian armoured division with a couple of its independent armoured brigades and launch both its armoured divisions concentrated in an offensive into Indian territory. The raising of the second armoured division has created a situation of parity in this respect, though with the mechanised division India could claim a little edge. A mechanised division cannot be employed for a major offensive task on its own, even though it is a valuable component of a mechanised or armoured corps together with one or more armoured divisions. A mechanised division may, however, lead an offensive in a sector where heavy armour opposition is unlikely. In the Gulf War a US mechanised division was grouped with US XVIII Airborne Corps and led its ground thrust in a sector where much Iraqi armour opposition was not anticipated. To its right, US VII Corps moved off with three armoured divisions towards the Kuwait-Basra Road North of Kuwait where several armoured and mechanised divisions of the Iraqi Republican Guards were located.

Independent armoured brigades operating on their own or grouped with infantry divisions are not suitable for offensive operations involving deep and sustained penetration of enemy territory. Operating round the clock, endurance of tank crews is limited to about 48 hours without appreciable drop in their efficiency after which fatigue sets in and in 60 hours men begin to fall off into involuntary sleep. An armoured brigade will, therefore, have to pause after 48 hours of operations or be relieved by another armoured brigade. An armoured division, on the other hand, can keep going for several days by turning its armoured brigades around. In the Gulf War armoured divisions operated non-stop for 100 hours and could have gone on longer if needed. Armoured brigades grouped with infantry divisions can lead the advance of the latter over comparatively shorter distances. They are more suited for countering enemy penetration and offensive defence. The Pakistani attacks on Chhamb in 1965 and 1971 as well as the Indian thrusts into the Shakargarh salient in 1971 fall in the latter category.

PAKISTAN'S ARMOUR STRENGTH

Pakistan has two armoured divisions and seven independent armoured brigades. It also has in addition three light armoured regiments.[12] The source of this information does not give the total number of armoured regiments in Pakistan, but assuming that the number of regiments in each type of armoured formation conforms to the usual norms and that, in keeping with their past practice, there is no armour in infantry divisions, the total should come to 33 regiments. Of the three light armoured regiments one could be with each armoured division and the third may be allotted to one of the corps or held as Army troops.

INDIAN OFFENSIVE CAPABILITY

Pakistan's armour strength is in a 'tighter' concentration than India's. In the Pakistan Army, 97 per cent of the armour strength, including the light armoured regiments, are concentrated in armoured formations while in India's case only a little over 56 per cent is so concentrated, the remainder being with infantry divisions including RAPID divisions. It is clear that since 1947 India has been steadily dispersing its armour strength and a proportionately higher percentage of new raisings of armoured regiments have been utilised for providing organic armoured regiments to infantry divisions rather than raising new armoured divisions to improve the Army's strike capability. Even the additional independent armoured brigades essentialy improve the defensive capability of corps, at the very maximum giving their defensive capability a somewhat offensive character provided these brigades are used concentrated. This has brought about a situation in which India can only react to any moves that Pakistan makes and does not have the capacity to take an offensive initiative at a point of its own choosing.

Pakistan has been conducting low intensity warfare against India by promoting terrorist activities in Punjab and J&K quite unconcerned about any action that India may take. This is obviously so because Pakistan is aware that India, despite its military superiority in numerical terms and its considerably larger resources, is not in a position to do much beyond undertaking some localised offensives which it can take care of. The warnings held out by Indian leaders from time to time have no impact because India does not have a deterrent in the shape of a powerful strike capability. The raising of additional independent armoured brigades, the provision of armoured regiments to infantry divisions and the conversion of some of them into RAPID divisions has only improved the Army's defensive capability by giving it a more offensive posture. The Army is in a better position to conduct the type of operation that it conducted in the West in 1971, but it must be remembered that the other side is also stronger. The raising of a second armoured division and a mechanised division has only levelled out the earlier Pakistani superiority in this respect. India, however, has the necessary force level to be able to create a strike force which could serve as a credible non-nuclear deterrent.

As presently constituted the relative armour strengths of India and Pakistan bear an ominous similarity to those of France and Germany in 1940 when the German panzer forces drove across France. India has fifty three armoured regiments of which a little more than half are in armoured formations and the rest distributed amongst infantry divisions, while all of Pakistan's thirty three armoured regiments are concentrated in armoured forma-

tions. The relative armour strengths of France and Germany in 1940 have been mentioned earlier.

Armour resources required for a strike force of three armoured or mechanised corps, while maintaining the present level of independent armoured brigades, would be as follows:-

(a) Six armoured divisions (six regiments each) - 36 regiments

(b) Three mechanised divisions (three regiments each) - 9 regiments

(c) Five independent armoured brigades (three regiments each) - 15 regiments

On this basis the requirements of armoured regiments comes to sixty and with the existing fifty three regiments there is a shortfall of seven regiments. With the available regiments it is possible to create a strike force of five armoured and two mechanised divisions. It should not be difficult to raise seven additional armoured regiments during the next two years. This can give India two strike corps now with the third one coming up during the coming couple of years. There will, of course, be a shortage of self-propelled artillery and assault engineers. As regards the former even the existing armoured and mechanised formations are bound to be deficient. According to published information besides some old 105 mm Abbots the only self-propelled guns in service in India are some 130 mm guns on stretched Vijayanta chassis which is, at the best, an improvisation. Until a new medium calibre self-propelled gun is introduced in service, armoured formations will have to manage with a mixture of existing self-propelled and towed artillery. Similarly there could be a shortfall of assault engineers. If required some assault engineers could be pulled out from the independent armoured brigades as the requirements of the strike force formations must have priority in this regard. There can be no argument about armoured and mechanised divisions being more effective in mobile offensive operations than infantry divisions, RAPID or otherwise, with independent armoured brigades under command, even if the former have to make do with towed artillery and normal engineers instead of assault engineers. Once these strike force formations come into being they can be provided self-propelled guns and assault engineer equipment over a period of time. Additional mechanised infantry battalions would be required. Some of them can come from RAPID divisions and even from independent armoured brigades. The balance would have to be raised. The required number of normal infantry battalions could be converted and transferred to the Mechanised Infantry.

The aspect of command and control of a strike force of two or more mechanised or armoured corps in mobile offensive operations involving deep penetration of the opponents territory would require study. The handling of such a force would seem to call for a mobile field army headquarters as static command headquarters, with a multitude of other functions, may not be able to do justice to the conduct of such operations.

ARMOUR IN INFANTRY DIVISIONS

The growth of armoured and mechanised forces and the organisational evolution in India from 1947, more so after 1965, indicates that the emphasis has been mainly on the use of armour in support of the infantry, which continues to be regarded as the 'Queen of the Battlefield' or the primary combat arm irrespective of the type of terrain or the nature of operations. The tank is still looked upon more as a supporting weapon to assist the infantry to move when held up by enemy weapons and to protect it against enemy armour. The existence of this flawed doctrine is clearly evident from the fact that since 1947 there has been a consistent dispersion of armour strength in the Army. Even with Armoured Corps officers holding very senior positions in the army in recent years the trend seems to have continued unabated. It is about time that the Army recognises that in the plains, in tankable country, armour is the prominent arm. This is by no means a new concept. It was talked about by a few British military thinkers since the 1920s, accepted by at least one country, ie Germany in the 1930s and proved time and again since World War II. The German Army was the first to officially recognise the importance of armour as a combat arm in modern warfare. In this context it is apposite to quote General Hienz Guderian, who is deservedly considered the father of the German panzer forces. He wrote, "My historical studies, the exercises carried out in England and our own experience with mock ups had persuaded me that tanks will never be able to produce their full effect until other weapons, on whose support they must inevitably rely, were brought up to their standard of speed and cross country performance. In such a formation of all arms, the tanks must play the primary role, the other arms being subordinated to the requirements of armour. It would be wrong to include tanks in infantry divisions: what was needed were armoured divisions which would include all supporting arms to allow tanks to fight with full effect". Guderian had come to this conclusion as far back as 1929.[13]

Until the late 1970s armour suffered from the limitation that its effectiveness diminished considerably during the hours of darkness due to the limited effectiveness of night vision systems in use until then. The coming of thermal imaging has completely changed the picture and armour can now

operate at night and in conditions of zero visibility almost as effectively as in daylight in clear visibility. This was amply demonstrated during the Gulf War last year. India unfortunately still suffers from this limitation due to a wrong choice of equipment in the 1980s when an obsolete three generation old active infra red night vision system was accepted on the T-72 for introduction in service.

German infantry divisions had no organic armour in World War II and yet they were able to fight against Allied tanks. The reason lay in the scale of antitank weapons they were provided with. Even the celebrated 90 Light Division which, as a part of Afrika Korps, operated against British armour in North Africa had no organic armour and on no occasion was it even temporarily allotted any armour for any specific operation throughout the campaign as Rommel, an infantry officer himself, firmly kept all his armour concentrated in his panzer divisions. 90 Light Division, however, had 220 anti-tank guns on its establishment.[14] In contrast to this a British infantry division, as also an Indian division, was authorised only 36 anti-tank guns. Furthermore, the Germans had a superior technique for the employment of anti-tank guns. The German 88 mm employed in the anti-tank role was so effective that many British officers considered it unsporting of the Germans to use it against their tanks! British infantry divisions, though they did not have organic tanks were frequently allotted armour. For this purpose independent tank brigades existed on the order of battle. These brigades were equipped with so called infantry or 'I' tanks whose primary role was infantry tank cooperation. At times even armoured divisions were broken up to provide armour to infantry divisions. In Operation 'Battle Axe' in North Africa in 1941, 4 Indian Division was allotted an armoured brigade for attacking the Halfaya Pass-Sollum-Capuzzo area while 7 Armoured Division which had provided the armoured brigade was given the secondary task of guarding the Southern flank and had to do a 30 mile approach march to attack the German armour which had been concentrated against 4 Indian Division. The Operation was a failure despite British overall superiority in armour.[15]

Guderian's conclusions are as valid today as they were in 1929. It is unsound to fritter away armour by allotting it to infantry divisions in areas where it can operate as the primary arm. This applies virtually to the whole of India's Western border except where it is decided to maintain a defensive posture. Infantry divisions, irrespective of the amount of armour placed under them are not suited for deep and rapid penetration into enemy rear areas to create confusion and panic there. The main functions of infantry divisions in the plains should be to provide firm bases from which armoured and mechanised divisions can be launched, assisted by independent armoured brigades breach enemy defence to enable armoured divisions to break through, take

over and clear areas overrun or bypassed by armoured divisions and undertake deliberate crossing of major obstacles. In defensive operations independent armoured brigades, besides being used for counterattacks or for countering penetration by enemy armour, can be used for limited action along with infantry divisions to give an offensive character to the defensive operations. The anti-tank resources of an infantry division should be increased as necessary so as to enable it to beat off armour attacks without any assistance from armour. The anti-tank guided missile (ATGM) with a much higher hit probability has replaced the anti-tank gun, the last of which was the recoilless gun, which is no longer effective against the composite armour used on most modern MBTs. Whether ATGMs should be held by infantry battalions or by or special ATGM units is a matter of detail. Perhaps a combination of the two may be the answer, ie a shorter range missile within the infantry battalion to make it capable of its own anti-tank protection and a longer range one in a separate ATGM unit at divisional level. The important thing is that armour should not be employed in the anti-tank role as by doing so its characteristic of mobility, which distinguishes it from static guns, is not utilised. British military thinkers had visualised this as far back as the early 1930s, but the ultra conservative infantry and horse cavalry dominated British Army took no notice. However, the German Army did and implemented many of their ideas.[16] In addition to ATGMs modern artillery weapons are very effective against tanks. Artillery, particularly medium calibre, firing top attack ammunition and guided projectiles at very high rates of fire is highly effective against armour concentrations. The ATGM armed military helicopter which is found on the inventories of most modern armies has added the third dimension to anti-tank warfare and made it possible for enemy tanks to be engaged with a high degree of accuracy at ranges beyond ground level visibility. The efficacy of the attack helicopter as an anti armour weapon was very convincingly demonstrated in the Gulf War. It is unfortunate that the Indian Army has been denied this capability so far. Hopefully, once the IAF comes of age it will willingly hand over armed helicopters to the Army, where they rightly belong in the same manner as the US Air Force who, in the 1960s came to realise that flying larger aircraft faster, higher and longer, rather than 'hoverbugs' and 'puddle jumpers', fitted in better with its image of glamour and stopped opposing the growth of aviation in the US Army.[17] With the availability of such an array of anti-tank weaponry there should be no requirement for tanks to protect the infantry against enemy armour.

The addition of an armoured regiment does not increase the offensive capability of an infantry division to any significant degree beyond providing it with some organic close support weapon to the infantry for neutralisation or destruction of weapons which may hold up its movement and a limited

counter attack force. An armoured regiment does not improve the mobility of the infantry division to which it may be allotted. Independent armoured brigades when allotted to infantry divisions do add significantly to the offensive capability of the divisions, but not to their overall mobility. Moreover, independent armoured brigades, as already mentioned do not have the endurance for sustained offensive action required for penetrating deep into enemy territory.

RAPID divisions, the formation of which was given some publicity at the time of Exercise 'Brasstacks' in 1986-87 are supposed to have two organic armoured regiments and a mechanised battalion each. This writer has no knowledge of how these divisions operate, but it would appear that an ordinary infantry division with an armoured brigade allotted to it would be more effective in limited offensive roles. A RAPID division's overall mobility would still remain at the level of an infantry division. Independent armoured brigades at corps level provide greater flexibility as these brigades can be switched about from one division to another, or even from one corps to another, whereas the detachment of the armour and mechanised infantry component of a RAPID division would break up the division's organisation. Due to their inferior overall mobility RAPID divisions would not be able to perform the functions of mechanised divisions. It would, therefore, appear that these divisions are neither fish nor fowl.

Some armies may be able to afford to provide organic armoured regiments or tank battalions to their infantry divisions while maintaining the required level of offensive capability in the form of armoured and mechanised divisions. India cannot afford such luxury.

CONCLUSION

For successful conduct of armour operations, it is of prime importance that tanks are employed in mass. Though this principle has never been questioned it is frequently neglected. Military history is replete with examples which show that those who have conformed to the principle of concentration in the employment of armoured forces have been crowned with success while others who neglected it have had to face the ignominy of defeat even though they possessed more armour then their adversary.

At the time of Independence all of India's armoured strength was concentrated in two armoured formations. The dispersion started with the commencement of operations in J&K and has continued throughout. The real growth of the Armoured Corps started after the 1965 Indo-Pakistan War and this also marked the acceleration of the process of greater dispersal of armour in the Army. Starting with 100 per cent of the armoured strength of the Army being concentrated in armoured formations in 1947 a position has been reached today that a little over 50 per cent of the armour is in armoured

formations and the remainder is scattered amongst infantry divisions. This has brought about a situation in which India no longer has the ability to conduct any worthwhile offensive operations against its Western neighbour should the need arise, although its overall armour strength is greater. India has the necessary strength to create a worthwhile strike force by pulling out armour from infantry divisions and forming more armoured and mechanised divisions. The former may require an augmentation of their anti-tank resources.

The allotment of armoured regiments to infantry divisions at the cost of the Army's offensive capability is fallacious. By doing so India has placed itself in a situation that it is unable to take an initiative and can only react to any moves that the other side makes. This is militarily unsound. Infantry divisions with organic armoured regiments or even with independent armoured brigades allotted to them can only undertake limited offensive action. They are incapable of conducting offensive operations aimed at rapid and deep penetration of the adversary's territory to create confusion and panic in his rear areas. India has the resources to create a credible strike force which can place the initiative back in its hands and put others in the position of having to react to any moves that India might make, provided all armoured regiments are pulled out from infantry divisions and along with mechanised infantry and other arms formed into armoured and mechanised divisions grouped into armoured or mechanised corps. It requires a bold decision, which may not be popular in all quarters.

NOTES

1. Lt Col G Le Q Martel, DSO, MC; *In the Wake of the Tank*, Sifton Praed & Co Ltd, London 1931, pp 7, 8, 21-24.
2. BH Liddell Hart, *History of the Second World War*, Cassel, London, 1970 p 66.
3. BH Liddell Hart (Ed), *The Rommel Papers*, William Collins & Co Ltd, London, Reprinted by Natraj Publishers, Dehra Dun, 1977, pp 27-30
4. '*History of the Second World War*', op cit pp 75, 76.
5. Ibid pp 271-274.
6. Lt Gen Harbakhsh Singh VrC, *War Despatches*. New Delhi, Lancer International, 1991, pp 105-109.
7. '*History of the Second World War*', op cit pp 283, 291-293.
8. Lt Gen Harbaksh Singh VrC, op cit p 83.
9. '*History of the Second World War*', op cit pp 157, 158.
10. Gen Hienz Guderian, '*Panzer Leader*', Micheal Joseph Ltd, London, 1952, p 35.
11. IISS, '*The Military Balance, 1990-91*', Brassey's, London, p 161.
12. Ibid p 173.
13. Gen Hienz Guderian, op cit p 24.
14. '*The Rommel Papers*', op cit, p 263.
15. '*History of the Second World War*', op cit pp 177, 178.
16. Maj Gen JFC Fuller, '*Armoured Warfare*', Eyre & Spottiswood, London, 1943, (Originally published under the title 'Lectures on FSR III'), pp 98-105.
17. Fredric A Bergerson, '*The Army Gets an Air Force*', Johns Hopkins University Press, Baltimore. pp 64, 65.

Toning up Defence Production
Why Armed Forces Must Take Interest

MAJ GEN V K MADHOK (RETD)

Over the years, India has built up a large defence production infrastructure. Its 39 ordnance factories and 8 PSUs (public sector undertakings) employing over 1,80,000 personnel under the DGOF (director general ordnance factories) and an OFB (ordnance factories board) alongwith 47 laboratories under the DRDO (defence research and development organisation) whose chief also happens to be the Scientific Advisor to the Raksha Mantri (RM) have made India the 4th largest weapon producer in the 3rd world (others being Argentine, Brazil and South Korea) consuming 4% of its GNP on the way. In turn, all defence production is subject to inspection and monitoring by a DGQA (director general quality assurance) of the rank of a Lt Gen. This agency is perhaps the most powerful of all, without whose approval no defence equipment - whether produced in the public or the private sector or purchased from abroad can find its way to the User's (defence forces) hands. DGQA has an equally vast empire. Its 108 odd units are spread all over the country, with detachments attached to those sectors of the civil industry who supply items like motor cycles, staff cars, clothing and fabrication equipment to the defence services.

Yet, inspite of this and considering that India was the 3rd largest recipient of defence technology transfer between 1985-89 and has a well established military research base, our quest for self reliance has remained a mirage. 70 percent of the equipment with the IAF and the Army and 60 percent with the Navy is of erstwhile USSR origin. With its break-up into Russia and the CIS, and East European countries' economy in the drain, India is facing a spares crisis which has resulted in sheer panic. Factories which were producing defence spares are now spread all over the CIS and those in the East European countries are selling these spares to west European countries at higher prices. So bad had the situation become that India had to purchase 200x130 mm guns from Russia in Dec 91 for the purposes of cannibalisation. Our four shipyards have been running at a loss as the cost of construction is much higher than the sale price.

The overall impact of this is, that first; armed forces are held hostage

Maj General V. K. Madhok commanded an Infantry Division during his service with the Indian Army. He is a regular contributor to newspapers and magazines on defence related issues.

to foreign countries for the supply of defence equipment. Second, the more this truth dawns with every passing day, it is bound to lead to demoralisation-because armed forces cannot achieve self reliance without indigenous equipment.

In the process, many modernisation programmes undertaken as a result of lessons learnt from the Gulf War have had to be shelved so that energy is not diverted from production of defence spares to newer projects. Armed forces, particularly the Army cannot acquire a capability for high technology warfare with this approach and delay, which is so essential to make a shift from conventional warfare, before we arrive in the 21st Century. Further, India is not in a position to make any worthwhile defence exports in the current situation inspite of our best intentions. In 1991, on taking over, Sharad Pawar-erstwhile Defence Minister had informed the media, that he intended to increase defence exports to Rs 1000 crore; not a new idea, as in 1989 the then Defence Minister, KC Pant had announced a similar figure for 1990-91. The defence exports in that year, however, stood at Rs 78.9 crore and now for the year 1993-94, these stand fixed at a measely sum of Rs 103 crore or so for a country with the type of defence production infrastructure and private industry that India has.

What reasons have led to such a situation and why no long term planning was done to assess our requirements and to involve the public and private sectors? How is it that there is seldom any well informed debate on the subject of defence production in Parliament? Above all, why even the Users have kept quiet on this important issue which affects them the most? What are the views of the civil entrepreneur and the private industry as a whole, are issues for deep reflection by one and all. But before that, a few more facts.

It is reported that 60 percent of our defence factories and PSUs are using 50 percent production capacity and the remaining 40 percent -partial capacity. According to a statement made by the Defence Minister in Nov 91, machines worth Rs 40 crore were lying idle in our factories. That he would have had no objection in letting the private sector use these. As regards production and supply of stores and equipment, the procedure is that indents (demands) are projected to defence production agencies four years in advance by the Users. The position on 31 Mar 92 was that between 1963-64 to 1989-90, 1276 indents were outstanding with a delay of 5 to 29 years.

As regards the R&D, the current position about some of the projects is equally interesting. First; the ALH (advance light helicopter): It is an ambitious project which was conceived to meet the multi-role requirements of the three services. After more than 20 years, ALH has failed to deliver an

armed helicopter to the IAF. It was rejected by the IAF and the Army-after the trials in Sep 92, as being too bulky and that is inspite of the fact that, the IAF had floated fresh guidelines in 1987 for a light attack helicopter in an anti tank role. Second; the LCA (Light Combat Aircraft). It was to be inducted in 1995. Now it is scheduled to be delivered in 2005. Third; the production of indigenous T72 tanks: It has been in the dole drums at HVF Avadi, whose production capacity had slumped from 200 to 85 tanks a year in the absence of engines. As a result, a delegation had to be rushed to Poland to buy 200 engines at a cost of Rs 20 lacs each against Rs 8 lacs spent on each engine before the break-up of erstwhile USSR. The factory would have had to be closed in Dec 92 in the absence of these engines. Four; MBT Arjun: Here is a project which was started in 1974 at an original cost of 10 million dollars, now bloated to over 170 million dollars and was to be ready by 1995. There is no hope of seeing this tank with the troops before the early 21st Century. And possibly-as some reliable sources feel, the tank may never see the light of the day.

Even from the above few facts it is apparent that, there is a wide coordination gap between defence production agencies. Recently, the CAG (Comptroller and Auditor General) has pulled up the defence services and the Army in particular, for various lapses. He said that two projects meant for setting up maintenance and overhaul facilities for tanks and ICVs (infantry combat vehicles) were not being progressed after execution of certain preliminary works at a cost of Rs 7.03 crore, and that as a result tanks and ICVs could not be overhauled. Land measuring 1388 acres acquired for one of these projects (Bhopal) was handed over to a training centre. The setting up of such projects, acquisition of land, consultation with foreign delegations and so on takes a lot of time; it is obvious that these projects have run into trouble because of inadequate planning.

So far as the private sector is concerned, the industrial policy resolution bans the private sector from manufacturing defence equipment. Members of the CEI (confederation of engineering industries) had met the Defence Minister in Aug 91 and submitted that the production of all sub systems, sub assemblies and components should no longer be restricted. All manufacturers, whether in the public or the private sector, should be allowed to participate freely. Easier said than done; the cabinet would need a lot of convincing before this is approved.

Currently, the private sector is being primarily used as 'Fabricators' or for production of selected items like barrels, calibration or for supply for jeeps and so on. Large industries are reluctant to commit themselves to research, because the government is not in a position to assure them of

orders when the prototypes go in for bulk production. It is a fact that defence production and defence exports are closely interlinked, when it comes to involving large civil industrial houses.

To overcome this drawback, an announcement was made by the DRDO in Jan 92 that they would open up almost all of their 47 laboratories to the private sector for conducting joint R&D in defence related areas and also to enable them to enhance their technological base with a view to enter the world military markets. How far, this consortium approach announced with much fan-fare by the then Scientific Advisor to the Defence Minister has succeeded, only the civil entrepreneur can tell. The fact is that the civil sector has continued to remain outside the domain of defence production. There is a big communication gap and the civil entrepreneur is sensitive to the fact that all these years, he has been kept away at an arm's length. Therefore, it would need much more than mere pursuation to evoke any positive response from them. As the things stand, in 1989-90, against a defence expenditure of Rs 14,500 crore, all civil industries put together, supplied orders worth Rs 134.02 crore.

The players in the game of defence production are: the policy making organs, the production agencies that is the ordnance factories and PSUs, R&D, and quality assurance - all under the Ministry of Defence, and the private sector. Besides, there are the Users for whom the equipment is produced, the defence agents representing various firms and their interests - who are all looking at the next war with their eyes focussed on profits and an export mechanism.

The policy making organ is the Ministry of Defence. Obviously, its policies would draw criticism as these have led to the present sorry state. Although there is a Defence Minister's equipment and policy making committee, primarily it is the Secretary Defence Production who coordinates policy as well as the execution of various production assignments. Devoid of a professional military background and close inter-action with the User, even the most brilliant of officers who is well versed in finance and statistics will find the task of coordination most difficult. Therefore what we need is a Defence Production Board headed by a professional, but under the Ministry of Defence, which will lay down long range policies based on service forecasts and also exercise effective control over diverse production agencies.

At the production level, as mentioned before, the civil entrepreneur has been kept away. He needs encouragement, an opportunity to familiarise with the battlefield environment, positive R&D assistance and firm orders when the prototypes go into bulk production. There are sufficient signs based on

which one can say that the civil industry is in a position to take on the production of low technology equipment without delay. But they want everyone to realise that they are as patriotic as every one. An important issue is that a system would need to be devised wherein the production agencies become partially if not fully accountable to the User.

As regards defence exports, so far, India's record has been dismal. There is a need to have a Defence Export Board. An effort to constitute it was made in 1983, but its inception was aborted. Such a board would again have to be headed by a professional officer, with members (equipment specialists) from the three services, R&D, scientists and the civil industry. It would need inputs from and accessability to military attaches and our own intelligence concerning foreign markets, authority to allot R&D services to the civil industry and to maintain a roster of defence agents - duly vetted by the intelligence. It is this Board which would be held accountable for everything connected with defence exports.

In the Indian scenario, the tragedy is that so far, the DRDO has functioned in total isolation, the civil industry has been kept outside the domain of defence production - with no justification, and defence continues to remain a sacred cow, thus avoiding any useful contact between the Users and the civil entrepreneurs. Further, the government and the services have fallen prey to external pressures for importing latest gadgets. Because of insufficient confidence in the R&D & production and many delays which have become the norm, our tendency has been to rush delegations abroad to purchase guns, tanks and aircraft at tax payer's expense without making a sincere effort to produce these in our own country. And that will remain the pattern in the future too, unless India can restructure its defence production assets, get hold of a long term indigenisation plan based on a technological vision and a futuristic doctrine of the armed forces: But that needs political will, User commitment and a patriotism of a different order by all concerned.

A Nuclear Third Way in South Asia

GEORGE PERKOVICH

The threat posed by nuclear weapons has shifted dramatically in the aftermath of the Cold War. The longstanding prospect of Armageddon has all but disappeared, while the chance of local nuclear conflict among undeclared nuclear weapon powers has grown. The primary threat is no longer from conflict in Central Europe but from conflict in Asia - the Middle East, the Persian Gulf, the Korean peninsula, and the South Asian subcontinent. The danger is especially acute in South Asia, which, in strategic terms, embraces the subcontinent and parts of China, Central Asia, and the Middle East.

As a March 29, 1993, *New Yorker* article by Seymour Hersh warned, India and Pakistan have the means and possibly the motives to engage in nuclear conflict. Both countries have the knowledge and nuclear materials required to construct nuclear weapons quickly. Both are developing, or are seeking to acquire, ballistic missiles capable of delivering nuclear weapons. Conventional forces or insurgents backed by each country shoot at each other almost daily in three troubled regions: Kashmir, the Siachen Glacier (in northern Kashmir), and the Punjab. In Kashmir, as the *New Yorker* reported, the conflict flared so hot in 1990 that Pakistan apparently threatened to go nuclear, deploying an armored caravan from a nuclear facility to an air base where F-16s with modified bomb racks stood waiting. Though a nuclear conflict was averted and steps have since been taken to bolster nuclear restraint, the widespread Hindu-Muslim flare-ups since late 1992 and the instability of both governments are a reminder that the relationship between India and Pakistan is fraught with uncertainty.

Fortunately, the basis of a stabilizing, threat-reducing nuclear policy can be found in India and Pakistan today, notwithstanding the alarms generated by sensational press reports. The fact that neither India nor Pakistan has chosen to build nuclear weapons suggests that near-term policies designed to encourage both sides to refrain from turning know-how into actual weapons could be framed positively-neither country would have to openly surrender anything of value. The two countries could thus negotiate a detailed, largely verifiable settlement based on "non-weaponized deterrence" in which deterrence derives from the power of each to construct nuclear weapons

George Perkovich is director of the Secure Society Program of the W. Alton Jones Foundation in Charlottesville, Virginia.

quickly. That is fundamentally distinct from the minimal deterrent advocated by some Indians, Pakistanis, and outside analysts in which nuclear weapons and ballistic missiles would be deployed in small numbers under the rubric of a "Nuclear Weapons Safe Zone". Under a regime of non-weaponized deterrence, India and Pakistan would have to undertake a rather demanding set of confidence-building measures to assure each other and the international community that they have not built weapons. Such steps could be taken discreetly, though, in the technical milieu of arms control and international safeguards. Such an arrangement could bring India, Pakistan and perhaps even others into the global non-proliferation regime without abandoning the long-term objective of winning their adherence to the Nuclear Non-Proliferation Treaty (NPT).

India's nuclear weapons program is intertwined with its enormous civil nuclear program. In terms of employees, India's combined civilian and military nuclear complex is one of the largest in the world. It employs more than 20,000 scientific and technical personnel at 16 sites and provides some measure of political cover for the weapons program. When India exploded a nuclear device in 1974, it could conveniently claim it was for peaceful purposes. More important, the civil program provided the plutonium used in the device. Plutonium is still the main fissile material in India's weapons program. According to rough estimates by nuclear weapons analysts David Albright, Franz Berkhout, and William Walker in the *World Inventory of Plutonium and Highly Enriched Uranium 1992,* India could have possessed approximately 290 kilograms of weapons-grade plutonium by the end of 1991, enough for almost 60 weapons. As the 1974 test showed, India knows how to manufacture a nuclear weapon's non-nuclear components as well. It is plausible to assume that the extensive Indian nuclear establishment continues to conduct research and development on lower-weight, higher-power weapons.

For its part, Pakistan could have had enough highly enriched uranium by the end of 1991 for "roughly 6-10 nuclear devices", according to the *World Inventory.* U.S. intelligence agencies have reported longstanding Pakistani programs to procure, design, and produce the nonnuclear components required to complete a nuclear weapon. Pakistan could probably construct a basic fission weapon without much trouble, and that is why the United States terminated aid to Pakistan in 1990.

Both India and Pakistan have fixed-wing aircraft that can be modified to deliver nuclear weapons, and both are trying to develop or acquire ballistic missiles capable of delivering nuclear weapons, though it is uncertain whether either country can build a light enough warhead. India is developing and testing both a short-range missile, the Prithvi, and a medium-range ballistic

missile, the Agni. If the missiles prove reliable, they could hit targets in Pakistan and China. Pakistan, with help from China, has developed and tested two kinds of surface-to-surface missiles, the Hatf I (range 50 miles) and the Hatf II (range 186 miles). Recent press reports state that Pakistan is attempting to acquire larger-payload M-11 missiles from China. If efforts to develop or acquire ballistic missiles are successful, they would be highly destabilizing and could bring a dangerous missile arms race to the subcontinent that would encourage both countries to assemble nuclear weapons.

Despite all their expense and effort, though, India and Pakistan have *not* yet deployed nuclear arsenals or even declared themselves to be nuclear weapons states. While the exact status of the Indian and Pakistani nuclear programs remains uncertain, then CIA director Robert Gates testified before the U.S. Congress in January 1992 that while the United States has "no reason to believe that either India or Pakistan maintains assembled or deployed nuclear bombs....such weapons could be assembled quickly." It is important that neither country has yet assembled and deployed nuclear weapons, despite pressure from militant factions to do so.

India and Pakistan treat the demands of nuclear competition very differently than do the United States, the former Soviet Union, and other declared nuclear powers. Neither Pakistan nor India is believed to have coherent, detailed doctrines to guide the use of nuclear weapons. Nor does either country have an extensive community of analysts and decision makers versed in Western-style nuclear strategy. The costs of managing complex nuclear arsenals go largely unaddressed. There is no indication that Pakistan and India have reliable, sophisticated command and control systems for managing the process from building to actually using nuclear weapons. In the words of eminent South Asia specialist Stephen Philip Cohen, "a wide range of nuclear and missile programs has been authorized, started, and allowed to slowly mature, without a clear policy decision about their consequences".

Wisdom may lie beneath the surface of casual nuclear discussions in South Asia. By intuition, calculation, or penury, military specialists in India and Pakistan appear to reject the hyperelaborate intellectual and technical apparatus of the U.S. Soviet nuclear competition. Most Indian and Pakistani elites show little interest in postulating how nuclear war could be managed, how deterrence could be extended across a range of conventional and nuclear scenarios, or whether worst-case analyses require an ambitious program to deploy nuclear weapons. Instead, at least for now, they simply seem to accept the basic and mutual deterrent effect of one country's capability to drop a nuclear weapon on another.

Achieving that deterrent does *not* require deploying a nuclear arsenal.

The former Pakistani army chief of staff, General Mirza Aslam Beg, said in a September 1992 interview, "In the case of weapons of mass destruction it is not the numbers that matter, but the destruction that can be caused by even a few.... The fear of retaliation lessens the likelihood of fullfledged war between India and Pakistan". Faith in crude deterrence can lead to grave risk taking in saber-rattling crises involving nuclear bombs, as in the 1990 Kashmir crisis; but it also shows how basic and simple the requirements of nuclear deterrence can be in South Asia. Whereas Western nuclear policy makers would agitate vehemently for a reliable, survivable, and secure arsenal that would give some hope of crisis stability, Lt. General Hamid Gul, former director of Pakistani's Inter-Services Intelligence agency (ISI), has stated, "this is not our issue. It is your concern". Pakistan has neither the technology nor the money for such a nuclear arsenal, and an open but insufficient attempt to construct one would cause greater instability than exists with today's ambiguous non-weaponized deterrent. A deployed arsenal that lacked the redundancy and survivable command and control capabilities to withstand a first strike could invite preemption.

Recognizing its military inferiority to New Delhi, Islamabad has consistently proposed that both countries simultaneously undertake bold steps toward de-nuclearization. Its proposals have included binding agreements prohibiting the acquisition or manufacture of nuclear weapons, accepting International Atomic Energy Agency (IAEA) safeguards on all nuclear facilities, mutual inspections of nuclear facilities, joint declarations of South Asia as a nuclear-weapon-free zone, and ultimately, joining the NPT as nonnuclear states. Because Pakistan knew that India would reject its proposals, they were cost-free. Yet the proposals establish an official view that Pakistani security can be achieved without nuclear weapons, and that Pakistan is willing to accept intrusive inspections.

For its part, the Indian defense elite exhibits a similar, if less categorical, wariness of abstract nuclear strategies built around deployed nuclear arsenals. Deployed nuclear weapons are seen as self-deterring and unusable. For example, Raja Ramanna, the former head of India's nuclear complex, concluded in a summer 1992 address that "the logic of deterrence, namely that neither country possessing nuclear weapons will start a war, depends on many assumptions. For example, the fear that the user nation will suffer as much damage as the attacked nation." Ramanna indicated twice in the speech that such damage could come not only from retaliation by the opponent, but from inaccurate delivery systems that could land a weapon on the attacker's own country. Knowledgeable Indians and Pakistanis recognize that geography, demography, politics, and even wind patterns can make an attack on the adversary self-destructive. The resultant fallout, religious upheaval, refugee

flows, and the unconscionable destruction of family and cultural ties across the border would likely overwhelm the attacking country[1].

Of course, only a tight circle of people actually have authority over the isolated nuclear weapon establishments in both countries. Their views on the benefits and costs of building weapons and the adequacy of non-weaponized deterrence are difficult to ascertain.

The Pakistani nuclear weapons program operates nearly autonomously from the larger political system. Aside from A. Q. Khan and the technical personnel who actually perform the nuclear research and development, the decision-making circle is not much larger than President Ghulam Ishaq Khan and the army chief of staff. Benazir Bhutto, prime minister from 1988 to 1990, was reportedly kept in the dark about the program's activities. She apparently had virtually no say when army chief of staff Beg and President Khan escalated the Kashmir crisis with India in May 1990 by signaling a willingness to use nuclear weapons. A knowledgeable source interviewed in Pakistan in September 1992 stated that no Pakistani prime minister has ever been allowed to visit the Kahuta nuclear facility. The uncertain and ad hoc nature of the Pakistani political system makes it extremely difficult to predict how decisions to construct or use nuclear weapons would be made. Corruption, which is rampant throughout Pakistani society, no doubt creates material interests among nuclear elites to keep money flowing into the program.

Decision making for the Indian nuclear weapon program is more systematic. Biographies and scholarly analyses indicate that prime ministers from Nehru through the Gandhis and now Narasimha Rao have held ultimate authority over decisions to develop, construct, test, deploy, and use nuclear weapons. The scientific directors of the nuclear complex play dynamic roles, however, presenting prime ministers with technical options, which, given the nature of bureaucratic politics, can become faits accomplis. India's military leadership appears dubious about building nuclear weapons and worries about command and control. A nuclear arsenal would drain resources from more useful conventional forces and would interject civilian leaders more deeply into military decision making in the event of war. Currently, the parliament's interaction with nuclear decision making is a half-hearted charade (as it is in Pakistan and Israel); there is little serious or sustained nuclear debate, either on policy or budget. And in India, too, the massive nuclear complex provides officials with attractive opportunities for personal and familial enrichment.

U.S. Policy Options

Growing international pressures have contributed to the technological drift and the apparent strategic indecision of the Indian and Pakistani nuclear

programs. The Cold War's end has boosted financial and political incentives to cooperate with the West and constrain nuclear programs, prevent open proliferation, and avert an arms race. India has been particularly affected because its Soviet patron is gone and the power of socialist economies is discredited. Yet decision makers remain ambivalent. Pakistani and, more decisively, Indian leaders balk at entering a non-proliferation process whose outcome they cannot predict or confidently control. They-like the leaders of the established nuclear powers-do not feel they can afford to trade away the symbolic sovereignty embodied in a nuclear capability.

For Pakistan, the moment of truth was forced upon it when, pursuant to the 1985 Pressler Amendment, Congress cut off economic and military aid in 1990 because the U.S. president could not certify that Pakistan did not possess a "nuclear explosive device". The resultant economic squeeze has weakened Pakistan, already a poor country. Many Pakistani leaders now appear eager to find ways to satisfy U.S. proliferation concerns and resume the flow of military and economic aid.

There are problems, however. While the strategy of squeezing Pakistan has compelled Pakistanis to reappraise their nuclear program, the highly visible pressure tactics have made it extremely difficult for Pakistani leaders to satisfy American demands without losing face. A hardline nationalist opposition stands ready to exploit any capitulation. Former ISI director Gul, who was secretly behind the 1988 formation of the conservative Islamic Democratic Alliance in Pakistan, put it this way: "The real masses of Pakistan-ask them on what issue they are all one: the nuclear option. Nuclear capability is one symbol of Pakistan's sovereignty... It is a symbol of national honour. This is one issue where if we compromise we will be dishonoured as a people." "The masses" probably care more about economic well-being and ending corruption, but without those things, symbols of national sovereignty against the colossal India can be manipulated by cynics like Gul to unseat governments.

Moreover, for security and political reasons, Pakistan feels it cannot reduce its nuclear capability without a corresponding step by India. Yet U.S. sanctions against Pakistan help India. India has no incentive to take any step that would help Pakistan satisfy U.S. demands and resume the flow of aid. India's rejection of the five-power conference proposed by Pakistan and the United States may in part reflect New Delhi's desire not to let Pakistan off the Pressler hook. One thing is clear: The Pressler Amendment, in its current form and application, has outlived its usefulness and become conterproductive.

With Pakistan and India more constrained to satisfy the international

community's interest in non-proliferation and regional development, the question for American policymakers is how best to proceed. Three possible directions for policy are emerging.

First, the traditional position, with many advocates in the broader community of non-proliferation specialists, is to insist that both countries eliminate their nuclear weapons capabilities and sign the NPT as non-nuclear weapon states. That policy, while reflecting an optimal objective, is deeply flawed. An NPT-centered policy fails to recognize how thoroughly opposed Indian officials and citizens are to signing a document that divides the world into two classes of power: the few with nuclear weapons, and the many without. For many Indians and Pakistanis, long-time victims of European colonialism, a nuclear capability gives their countries sovereignty on par with the greatest world powers. The politics encasing such a symbol of sovereignty are difficult to crack. By acting as if those politics are not of genuinely great significance, Western policymakers appear cynical. Further, many Pakistanis view a nuclear weapons capability as a necessary "last ditch" deterrent against a more powerful India that has not thoroughly accepted that Pakistan is an independent state.

The NPT-centered policy suffers a further flaw insofar as its proponents rarely offer serious measures to redress the treaty's inherent discrimination. American interlocutors often act as if that discrimination should be accepted as a fact of life; Indians and Pakistanis, they say, should skip the rhetoric and move on to more serious issues like the danger and pointlessness of their nuclear programs. But, especially for Indians, discrimination is precisely the fact that animates much of their interest in nuclear capability. Saying "no" to the NPT gives them power.

Of course, now that the Cold War has waned, American officials and analysts seek to deflect discrimination-oriented criticism of the NPT by arguing that its Article VI, which calls on the nuclear weapon states to pursue disarmament, should satisfy the demands of countries like India and Pakistan for equity if the major powers are taking their obligation seriously. Proponents of that approach argue that the established nuclear powers are now, in fact, fulfilling Article VI through the Intermediate-range Nuclear Forces (INF) Treaty, the Strategic Arms Reduction Treaty (START), and, perhaps later, START II and a comprehensive nuclear test ban. Such progress, it is argued, makes it fair and persuasive to continue to center a near-term non-proliferation policy on the NPT.

However, while recent arms reductions are profoundly constructive, the heart of the discrimination case is that some states-the recognized nuclear powers-uncompromisingly reserve the right to possess the deterrent power of

nuclear weapons while denying it to others. Strategic threats to the United States may be uncertain, but the United States insists on the right to have nuclear weapons to deal with them. Meanwhile, India and Pakistan face clearly identifiable threats to their security - Pakistan is conventionally overmatched by India, while India faces not only Pakistan but the larger and nuclear-armed China - and the United States blithely insists that they must abjure nuclear deterrence. (That the United States has been more accommodating to Israel on that point further undermines diplomacy with Pakistan and India). Nothing in the current and prospective nuclear arms reduction agenda indicates that the nuclear powers are willing to do without nuclear deterrence. Their position is, therefore, still discriminatory. Discrimination, per se, does not then generate an Indian or Pakistani national interest in assembling and deploying nuclear arsenals.

In nuclear diplomacy with India and Pakistan, tone and attitude matter greatly. One cannot escape the possibility that race complicates nuclear diplomacy with South Asians. An eminent Indian strategist revealed much in a recent discussion when he said, "What the world needs is for blacks in America to become 51 per cent of the population. Then you will get rid of your nuclear weapons the next day, as South Africa has prepared to do." The feeling exists among some Indian and Pakistani elites that Western non-proliferation policy in the Third World reflects a "white man's" view that "black and brown" people are peculiarly unfit to have such weapons. The tolerance of the Israeli nuclear program is seen as the non-proliferation exception that proves the racial rule.

That perception affronts the dignity of Indians, Pakistanis, and no doubt others in Asia.

A second school of U.S. and South Asian non-proliferation specialists seeks to "manage" overt proliferation. Recognizing that security interests may impel India and Pakistan (and Israel) to seek nuclear weapons, such specialists-found in the United States at the Pentagon and assorted think tanks-argue that India Israel, and Pakistan should be declared nuclear weapon states. If proliferation is bound to occur anyway, they argue, the United States should help to manage it by assisting such countries to build safe, survivable, and stably configured small arsenals with centralized and efficient command and control systems.

Most proponents of that option come to it reluctantly and tentatively. Believing that India and Pakistan have crossed the weapons threshold, they conclude that those states should learn the rules of the nuclear club so all can get along safely. Unfortunately, such a policy would have numerous unintended effects in South Asia. Most important, by formally designating

India and Pakistan as nuclear weapon states, the United States would win for the nuclear hawks in each country a battle they could not win themselves. Pro-bomb factions in India and Pakistan have tried for years to persuade their leaders to openly construct nuclear weapons and deploy them. Civilian leaders and many of the more liberal-minded opinion makers have resisted, arguing that the nuclear option need not be exercised for security or prestige. Those are precisely the segments of Indian and Pakistani society that can lead their countries forward toward economic development, political and religious tolerance, regional rapprochement, and beneficial engagement with the West and Japan. They should be supported, not undermined.

Open declarations of Indian and Pakistani nuclear weapon status will also make it much more difficult to persuade either country to pursue disarmament, which, after all, remains the long-term objective of non-proliferation policy.

Beyond that, the importation of Western (or Soviet) models for managing nuclear arsenals may be unaffordable and inappropriate. To conform to U.S. models of stability and security, India and Pakistan would have to construct arsenals that are diverse, large and sophisticated enough to guarantee the capability to survive a first strike and remain under control of national leaders, something that neither country can remotely afford. Even if it could be mutually controlled, the ensuing arms buildup would threaten regional neighbours and divert resources that could be better spent to benefit their masses of impoverished citizens, who ultimately pose the greatest security challenge. Were Pakistan and India to deploy nuclear weapons and ballistic missiles, those weapons systems would gradually dominate the strategy and budgets of the military establishments, limiting the fiscal and strategic options of decision makers in each country. The Pakistani political system, moreover, is so unsettled that it would probably be impossible to devise a reliable formal chain of command for nuclear decision making.

Unlike both the NPT-centered policy and the managing proliferation school, a third policy of seeking to construct a non-weaponized deterrence regime can bridge the chasm between the valid interests of India and Pakistan and those of the international non-proliferation community. Such a policy takes advantage of the current ambiguity in Indian and Pakistani capabilities. It draws the line at building weapons and deploying missiles, seeking to keep both countries from moving up the nuclear ladder toward deployed arsenals. At the same time it seeks to build confidence that could ultimately lead both countries to decide it is in their interests to move down the ladder. In the nearest term, the policy would require both countries to communicate their intention not to assemble or deploy nuclear weapons, and to accept the

objective of devising mutual measures to heighten confidence that those intentions are being acted upon. Yet such measures can be taken discreetly without requiring either country to risk the public upheaval of repudiating declared policy or relinquishing national sovereignty.

By advocating a policy of non-weaponized deterrence-instead of insisting on immediate accession to the NPT-and by increasing efforts to facilitate dialogue on the broader array of South Asian security issues, including conventional force balances, the United States could demonstrate respect for India's and Pakistan's legitimate security interests as well as their demands for equity. The international community would benefit from India's and Pakistan's promise not to construct or deploy nuclear weapons. India and Pakistan would formally recognize that their security would actually be threatened were they to build and deploy nuclear weapons.

Non-weaponized deterrence does not preclude progress further down the de-nuclearization road. In fact, all concerned should aim to improve South Asia's security environment to the point where those countries can sign binding, universal non-proliferation commitments. For that, the relationship between China and India is pivotal; if India can be reassured by Chinese accession to nuclear constraints and redeployment of Chinese missiles northward, away from India, India's steps toward denuclearization will in all likelihood be followed by Pakistan. Unlike the NPT-centered policy, though, the non-weaponized deterrence approach does not sacrifice attainable progress for remote perfection.

It will take inspired technical and diplomatic feats to structure and verify a non-weaponized deterrence relationship between India and Pakistan. Yet that task is much easier than verifying an agreement to abandon nuclear weapons completely. The Carnegie Endowment's Leonard Spector, in the fall 1992 issue of FOREIGN POLICY, succinctly described the extraordinarily detailed and intrusive measures that would be needed to account for all the research and development facilities, the nonnuclear components, and the fissile materials produced or acquired in the de-nuclearizing state. Ultimately, some uncertainty would still remain even if those measures were agreed upon and implemented. That is not an argument against the NPT, but it puts the feasibility of non-weaponized deterrence in perspective. A strong non-weaponized deterrence regime does not have to be as "perfect" as an arrangement whereby the parties agree to relinquish all nuclear weapons resources.

Verification and Other Steps

In general terms, a non-weaponized deterrence regime would have three components. Starting with the easiest and most immediate step, India and

Pakistan must agree on measures to verify that nuclear delivery systems - particularly intermediate-range ballistic missiles and modified aircraft - have not been deployed. That step would be intrinsically valuable; it is also much easier than verifying that warheads have not been deployed, given the size and numbers of missiles and the ready observability of aircraft modifications. The United States and others, particularly Japan, should offer to assist with monitoring and verification requirements.

A missile race on the subcontinent would arguably constitute the greatest single threat to stability there and provide the strongest drive to deploy nuclear weapons. Either country's deployment of an effective ballistic missile system could be perceived to threaten the other's nuclear capability in a bolt-from-the-blue scenario. Both countries would then be pressured to engage in the kind of unsettling nuclear competition that exhausted the United States and the Soviet Union. Hence, achieving a regional or global ban on ballistic missiles, as India's Jasjit Singh, director of the Ministry of Defence-sponsored Institute for Defence Studies and Analyses, has proposed, is imperative. A ban on further flight-testing of intermediate-range ballistic missiles ought to be pursued immediately. Short of that, persuading China to move the missiles from its southwest that now threaten India would heighten India's incentive-and therefore Pakistan's-not to deploy missiles capable of delivering nuclear weapons. China should also be urged to reiterate its no first-use pledge.

Second, India and Pakistan must define what level of nuclear weapons preparation is permissible and then verify, as well as possible, perhaps relying on intelligence information provided by the United States, that the line is not crossed. For the foreseeable future both countries will probably retain weapons-grade fissile materials and nonnuclear components, along with research and development facilities. Ideally, they would not maintain finished nuclear weapon cores, of which both are now believed to have a small number. In any case, finished cores are small enough that neither country could be highly confident that the other had dismantled its core (though signing the NPT in its current form would not change that). The best that can be achieved are binding agreements not to maintain finished cores and to accept verification measures that would put a "cheater" at some risk of being detected. In the near term, the most feasible approach would be to build on the openness achieved in the 1988 Indo-Pakistani agreement not to attack each other's nuclear facilities. Under that agreement the two countries exchange lists detailing the location of their "nuclear facilities and installations" and update the information each year or when a new facility is built. The data exchange began in 1992. A next step would be to begin detailing what activities occur in those facilities. Eventually mutual o: third-party inspections could be negotiated.

The third and broadest objective of a non-weaponized deterrence regime is to buttress crisis stability and escalation control. That can be done most readily by injecting time buffers into the entire process from the building to the use of nuclear weapons. There are many steps leading to nuclear weapons use: a precipitating crisis; a decision to build weapons; the assembly of a weapon; deployment; target selection; launch decision; execution of launch and actual detonation over target; retaliation decision; and so on. Regional and global security can be enhanced by adding time between each of those and other relevant stages of the process. For example, in a crisis, each country would require days to assemble nuclear weapons, install them in delivery systems, and deploy them. Much of that activity would be observable, as was the case in the 1990 Kashmir crisis, when the United States had the time to detect signs of nuclearization and to send emissaries to the region to encourage a resolution. The more demanding the non-weaponization regime and its verification measures, the greater the time India and Pakistan and the international community would have to process information, clarify facts and intentions, and mediate and resolve a confrontation short of nuclear warfare.

Three other measures would greatly buttress confidence in the non-weaponization regime. They could be pursued immediately, in tandem with early talks on formalizing a non-weaponization regime. First, both India and Pakistan could bind themselves to long-standing statements that neither would conduct an explosive test of a nuclear device. Such an agreement, however, would probably first require some significant progress toward a comprehensive test ban - to which India and Pakistan are unequivocally committed - by the five established nuclear powers. The stakes are high: A nuclear weapon test by either India or Pakistan would prompt the other to respond with some escalation of its own nuclear weapons program, initiating a major crisis.

Second, India and Pakistan could agree to cease production of the materials - highly enriched uranium, plutonium, and tritium - needed to build nuclear weapons. Such a cutoff would cap the weapons potential of both countries and add confidence in each other's intentions not to build weapons. It would also give political leaders additional leverage over the nuclear bureaucracies. As an inducement, the United States and other states could offer to consider modest technical assistance to the troubled civilian nuclear power program in India, even if that required waving or amending the Nuclear Non-Proliferation Act of 1978.

Pakistan has already frozen uranium enrichment and declared its willingness to formally stop producing fissile materials if India will follow suit. India, though, wants at least the three established "Asian" nuclear powers - Russia, the United States, and particularly China - to stop first. That may

happen. The United States has already ceased production, and Russia has consistently said it would stop by the year 2000. China reportedly has enough separated plutonium on hand to fulfil its weapons requirements. Negotiating a five-country verifiable production cutoff - among China, India, Pakistan, Russia, and the United States - should be a high priority for the Clinton administration.

Third, India and Pakistan could pledge not to be the first to use nuclear weapons and not to transfer nuclear weapons - relevant materials to other countries or actors. Their representatives could also be invited to participate in meetings of the Nuclear Suppliers Group and other nuclear export control forums, a move that would further the overall effort to increase their programs' transparency, and, in the case of Pakistan, would bolster civilian authority.

There are, then, a broad range of feasible arms control and confidence-building measures that could be used to construct a strong non-weaponized deterrence regime in South Asia. With the proper incentives, building such a regime can spare India, Pakistan, and the international community the expense and danger of a nuclear arms race on the subcontinent.

The concept of non-weaponized deterrence also deserves more study as a means to address the other nuclear-capable country that has stayed outside the international non-proliferation regime: Israel. Israel presents a more difficult case than India and Pakistan insofar as Israel has evidently constructed and deployed a nuclear arsenal and established plans for contingencies in which its weapons might be used. Israel also confronts a wider array of adversaries from a position of greater strategic and geographic vulnerability than either India or Pakistan, making an Israeli move toward non-weaponized deterrence much more demanding.

Still, Israel has not openly declared itself a nuclear weapon state, and to date none of its adversaries possess nuclear weapons, which in the long term may allow it room to reverse its nuclear program. Israel's long-term security could benefit from nuclear non-proliferation in the Middle East. A "proliferated" Middle East is arguably more dangerous to Israel than one in which nobody, including Israel, has nuclear weapons. That would require a robust global non-proliferation regime to ensure that Israel's traditional adversaries do not acquire nuclear weapons. Indeed, progress in tightening and extending the non-proliferation regime and its safeguards, which are in Israel's interests, would be augmented greatly by Israel's agreement to constrain its nuclear program, including a cessation of fissile material production at Dimona. If India and Pakistan were to formalize a non-weaponized

deterrence relationship and enter into confidence-building regimes, Israel could find itself the world's nuclear pariah.

And yet, Israel would find it extremely difficult to live securely without some form of nuclear deterrent. That is where non-weaponized deterrence could come into play. By retaining its nuclear know-how and a minimal stockpile of materials, Israel could assure itself and its neighbours of its capacity to build and deliver a nuclear weapon should it need to. Such a non-weaponized deterrent could be better than life in a "proliferated" Middle East or, alternatively, a life without any kind of deterrent. Israel's adversaries should find a non-weaponized Israel a more comforting neighbour than a nuclear armed Israel surrounded by nuclear rivals. Most of Israel's adversaries have already signed the NPT and will face severe international pressure to adhere to its requirements.

Retreating from Doomsday

Naturally, advocating something like non-weaponized deterrence for some countries risks legitimating the quest for nuclear know-how and materials. "If India and Pakistan can openly have weapons materials and facilities, why can't we?" Non-weaponized deterrence also acknowledges - temporarily - a third tier in the non-proliferation regime, which may be seen as discriminating against the NPT's noble non-nuclear adherents.

However, although non-weaponized deterrence falls short of complete de-nuclearization, it still yields a better result for the non-nuclear weapon states than the current situation: unchecked nuclear programs in India, Israel, and Pakistan. It does not preclude eventual accession to the NPT. By drawing countries into the non-proliferation regime through non-weaponized deterrence, the international community is enhancing non-proliferation, not legitimating proliferation.

Nearly the entire world has signed the NPT or, in the case of Argentina and Brazil, the functional equivalent. NPT signatories have found it in their interests not to seek nuclear weapons capability. By settling on a non-weaponized deterrence regime, India, Israel, and Pakistan would not worsen the security status of the NPT's current signatories, who would be unlikely to want to drop out of the treaty. In any case, the international community should insist on the continued maintenance of NPT obligations by all countries, including Kazakhstan and Ukraine, that have signed or committed to sign the treaty.

Regarding the risk of legitimating other countries' quests for nuclear capability, it is important to note the truly special security predicaments of

India, Israel, and Pakistan. Each of those countries faces adversaries with weapons of mass destruction on its borders. Each has found itself unable to sign the NPT from the beginning. In the absence of robust security guarantees from the international community, which each of the countries has been unable to obtain, their quest for nuclear options has made sense.

Even without further progress on disarmament, India and Pakistan have much to gain and little to lose in forgoing the assembly and deployment of nuclear weapons. Yet the prospects for the global non-proliferation regime would improve greatly if the established nuclear powers were to offer a vision in which they, too, moved toward non-weaponized deterrence.

Non-weaponized deterrence for the established nuclear powers seems far-fetched at first glance. Indeed, when Jonathan Schell proposed that basic notion in the midst of the Cold War in the mid 1980s, the strategic community ignored it, hardened by the unchanging rivalry with Soviet-led communism and the unending march of nuclear technology. Schell arrived at "weaponless deterrence" deductively, from the premise that nuclear weapons must be abolished if humanity is to survive, but that nuclear know-how cannot be "uninvented". His arguments, focused primarily on the superpowers, were brilliantly marshaled, but the circumstances of the world deflected them. Today, however, non-weaponized deterrence emerges through induction. Seeing how Indian and Pakistani elites understand nuclear capability and deterrence in the context of South Asia, it becomes evident that they can derive more benefit from their nuclear know-how by not assembling and deploying weapons than if they were to openly cross the threshold.

The logic of non-weaponized deterrence is evident in the nuclear arms reduction and control measures ratified and proposed by Russia and the United States during the last several years. The INF Treaty eliminated a whole class of delivery systems. START I and START II aim at significant disarmament, especially in types of weapons-vulnerable multiple-warhead missiles - that shorten the time between the onset of the crisis and the decision to launch. In September 1991, President George Bush decided to take American strategic bombers off alert. The following February, Russian foreign minister Andrei Kozyrev proposed taking all nuclear weapons off alert, possibly removing the warheads from the missiles that carry them. Influential arms control experts in Washington are promoting the recommendation of the Council on Foreign Relations' Alton Frye that the United States revive President Ronald Reagan's 1986 Reykjavik proposal to eliminate all ballistic missiles.[2] The American, French, and Russian nuclear test moratoria, which point toward an eventual comprehensive test ban, would cap the qualitative arms race, and over decades, gradually wither nuclear weapons

establishments. The much-discussed fissile-material production cutoff would similarly cap established nuclear weapons programs and, over time, signify the diminished value of nuclear arsenals.

All of those measures contribute to the dismantlement of the hair-triggered doomsday machine built for the Cold War's peculiar global stand-off. They are harbingers of a time when all that remains are blueprints and disassembled components. For now, a time when proliferation has rightly become a dominant security concern, global strategies are required. Non-weaponized deterrence must be considered a serious part of the strategic mixture, and South Asia is a place to begin.

NOTES :

1. For an explanation of the physical effects of nuclear detonations in South Asia, see S. Rashid Naim, "After Midnight", in *Nuclear Proliferation in South Asia*, ed. Steven P. Cohen (Boulder, Colorado : Westview Press, 1991); 23-61.

2. See Alton Frye, "Zero Ballistic Missiles" in *FOREIGN POLICY* 88 (Fall 1992).

Perkovich's Article : An Appraisal

K SUBRAHMANYAM

There are not many Americans or West Europeans who have something to say in approval of Indian nuclear policy. Therefore it should come as a surprise to many Indians, not to speak of Americans and Western Europeans, to see an article published in the influential American Quarterly Foreign Policy, summer 1993 issue, on 'A Nuclear Third Way in South Asia' in which the author George Perkovich has argued that the nonweaponised deterrence practised by India and Pakistan must be considered a serious part of the strategic mixture for global application. His view implies that India and Pakistan instead of being treated as outcastes by the NPT states may have something positive to contribute towards promoting nuclear restraint regime all over the world.

George Perkovich is perhaps the first American academic to discover and state publicly that South Asians think about nuclear weapons and strategy in a stunningly different manner than people familiar with the East-West nuclear competition. According to him neither Pakistan nor India is believed to have coherent detailed doctrines to guide the use of nuclear weapons. He is of the view that wisdom may lie beneath the surface of casual nuclear discussions in South Asia.

He feels, "by intuition, calculation or penury, military specialists in India and Pakistan appear to reject the hyper-elaborate intellectual and technical apparatus of the US-Soviet nuclear competition. Most Indian and Pakistan elites show little interest in postulating how nuclear war could be managed, how deterrence could be extended across a range of conventional and nuclear scenarios, or whether worst case analyses require an ambitious programme to deploy nuclear weapons. Instead, at least for now, they simply seem to accept the basic and mutual deterrent effects of one country's capability to drop a nuclear weapon on another."

According to him achieving that deterrent does not require deploying a nuclear arsenal. He quotes the former Pakistani Army Chief General Mirza Aslam Beg, who said in an interview to the author in September 1992; "In the case of weapons of mass destruction it is not the numbers that matter, but the destruction that can be caused by even a few... The fear of retaliation lessens the likelihood of full fledged war between India and Pakistan".

Mr. K. Subrahmanyam is a former Director, Institute of Defence Studies and Analyses, New Delhi, and at present Consulting Editor, *The Economic Times*.

In India, he feels, deployed nuclear weapons are seen as self deterring and unusable. In support of this conclusion he quotes Dr Raja Ramanna's speech in Summer 1992 when he said" the logic of deterrence, namely that neither country possessing nuclear weapons will start a war, depends on many assumptions, For example, the fear that the user nation will suffer as much damage as the attacked nation."

Given the civilisational differences between the West and the Indian subcontinent it should not surprise any one that the Indian and Pakistani attitudes towards nuclear weapons and doctrine of deterrence are totally different from that of the West. More than a decade ago an eminent Arab Academic teaching in US, Ali Mazru, pointed out that only the Indian heritage could have produced the concept of Satyagraha or even the philosophy of nonalignment. He contrasted India carying out a nuclear test and yet refraining from producing an arsenal with the actual and likely courses of action of other civilisational traditions.

George Perkovich deserves to be hailed for his insightful analysis on the nuclear situation in the subcontinent. However, after having reached the basic conclusion that the South Asians think about nuclear weapons and strategy in a stunningly different manner than the people conditioned by Western nuclear theology he cannot still escape the bondage of western conventional nuclear wisdom. Therefore in the article in the Foreign Policy he proceeds to prescribe the Western conventional confidence building and arms control measures to India and Pakistan and also reflects fears about the possibility of nuclear arms race in the subcontinent, paticularly a missile race. It is surprising that having discovered that Indians and Pakistanis practice what he calls nonweaponised nuclear deterrence, he does not extend the concept to the missiles and reach the logical conclusion that there can also be a nonweaponised missile deterrence. In fact nonweaponised deterrence by India vis-a-vis China calls for India acquiring 'Agni' missiles and keeping them without warheads during the normal times. Without such nonweaponised missile deterrence India cannot practise nonweaponised nuclear deterrence vis-a-vis China effectively.

An Indian strategic analyst, Dr Manoj Joshi, has developed the thesis that technology demonstration can be projected as a deterrent. Air Commodore Jasjit Singh Director of the Institute for Defence Studies and Analyses, talks of recessed deterrence in a paper on 'Prospects of nuclear weapon proliferation' presented to the conference on 'Nuclear deterrence: Problems and perspectives for the 1990s' convened by the United Nations Institute for Disarmament Research in Paris in December 1992.

Jonathan Schell, the celebrated author of the famous book *Fate of the Earth* had formulated the thesis in the mid-1980s in his second book *Abolition* that even after nuclear weapons are eliminated from earth which must be done if humanity is to survive, nuclear deterrence will survive because the knowledge to make weapons will still be there. Perkovich cites Jonathan Schell approvingly. The agreed reduction in strategic arsenals, the elimination of the bulk of tactical arsenals by US, Russia, Britain and France and the test moratoria all these constitute repudiation of four decades of western conventional nuclear theology. Unfortunately most of the so-called nuclear doves in India are not native to the Indian soil but conditioned by Western thinking.

Among the so-called Indian nuclear hawks there are two categories. The first accepts the Western nuclear theology. The second rejects the western nuclear theology but argues that India has to resort to 'minimum deterrence' because that is the only way of influencing the West conditioned by four decades of nuclear cult. We are now beginning to have some independent thinking on nuclear deterrence outside the conventional nuclear theology. This needs to be pursued and that process will be enriched by Indian and Pakistani interactions with people like George Perkovich, Jonathan Schell, Theodore Taglor and others who are able to escape the trammels of conventional nuclear wisdom.

(Courtesy : *The Economic Times*)

India in the Nuclear Age

M ZUBERI

I consider it a great honour to be asked to deliver this Nehru Memorial Lecture. I am deeply beholden to the Nehru Museum, specially to Prof Ravinder Kumar, for bestowing this honour on me.

When I was asked to deliver this lecture I thought how Nehru would have looked at the world scene today. The end of the Cold War would have certainly made him happy. He would have welcomed the lowering of tensions in various parts of the world. He would have been happy about the reduction in nuclear armaments which is taking place at the present moment.

But at the same time, he would have been astonished by the chain of events that transformed the geopolitical landscape.

While inaugurating the first indigenously built reactor in Asia in January, 1957, Nehru said that the atomic revolution has something in the nature of inevitability about it; either you go with it or you succumb and others go ahead. But he also related this atomic revolution to something which was equally dear to his heart.

> "As I stand before you here with the swimming pool reactor behind me I have in front of me the Island of Elephenta, not far away which represents something that happend about 1300 years ago. Both I think, have their place and any person who ignores either of them misses an important element of life".

So in a sense it is the combination of Elephenta and the swimming pool reactor, odd as it may seem, that might produce a proper balance in life. He was here pointing out the different facets of human aspirations-the scientific, technological endeavour and the artistic and creative impulses which mould human destiny. No man can prophesy the future, he added. And then he made an emotional remark:

> "I should like to say on behalf of my Government and myself that whatever happens, whatever the circumstances we shall never use this nuclear energy for evil purposes".

An edited version of the Nehru Memorial Lecture for 1992 delivered at the Nehru Memorial Museum and Library on November 11, 1992 by Prof M Zuberi of the School of International Studies Jawaharlal Nehru University, New Delhi.

Of course, he did not define what evil purposes he had in mind. On another occasion, Nehru perceptively pointed out that while he was convinced of the virtues of non-violence and its power, he was not sure that people in this country or for that matter in any country were capable of carrying the burden of non-violence.

Jawaharlal Nehru played an important role in the global disarmament negotiations starting with the appeal he made in March, 1954, after the Bravo test of the United States which was that of a hydrogen bomb. He was the first statesman in the world to appeal for a cessation of nuclear tests. The number of nuclear tests has considerably decreased in the last two or three years and more than 70 resolutions have been passed by the United Nations General Assembly pleading for a complete cessation of nuclear tests. That dream of Jawaharlal Nehru, however, has not yet been realised.

In 1957 he made a passionate appeal to the leaders of the United States and the Soviet Union:

> "Our earth has become too small for the new weapons of the atomic age. While man in the pride of his intellect and knowledge forces his way into space and pierces heavens, the very existence of the human race is threatened".

Carl Sagan, the famous astronomer, has succinctly summarised the nuclear peril:

> "If you define a city as having more than 100,000 people in it, there are only 2300 cities on the planet. If the United States and the Soviet Union conspired to destroy every city on the planet, and prudently devoted two weapons to each city to make sure, they could demolish every city on earth and have something like 20,000 strategic weapons left over to say nothing of the 35,000 tactical nuclear weapons".

Now as a result of the INF Treaty, the Bush, Gorbachev and Yeltsin unilateral initiatives and the START agreement there has been considerable progress in the process of nuclear disarmament. Tactical nuclear weapons have been withdrawn from their forward positions. And this has to be welcomed. But at the same time, there are other trends which are in the reverse direction. For instance, the fissile material in the nuclear warheads slated to be dismantled can be re-packaged into new nuclear weapons. Then there is the problem of Global Protection Against Limited Strikes - a scaled down version of the Star War project. This project would cover land-based and

space-based interceptors and missiles to protect the continental United States and its forces abroad from an accidental launch of a missile attack, or attacks from the missiles of some Third World countries. More ominous is the argument that nuclear stockpiles of the major powers are a deterrent against nuclear proliferation.

While the stockpiles of the United States and the Soviet Union are being reduced, this is not the case with regard to the British, French and Chinese nuclear forces. Britain's Trident programme will take British warhead count from fewer than 200 to over 500. The French modernisation will increase the warheads from 600 to 1100. And the Chinese have an expansion programme whose details have not been announced. But it is known that the present Chinese stockpile is more than the combined British and French stockpiles.

Moreover, the doctrine of nuclear deterrence has not been given up. Nuclear weapons are viewed as "a keystone of the arch of freedom from war". They enable the powers holding them to make easy calculations of the damage which can be inflicted, which is not the case with regard to conventional weapons; the effects of conventional weapons cannot be so conclusively calculated as those of nuclear weapons. And this enables the nuclear weapon powers to reduce their conventional forces and maintain a credible deterrent capability.

II

The disintegration of the Soviet Union and the consequent nuclear fragmentation has raised the unprecedented problems of the disposition of the nuclear stockpile. According to American writings on the subject there has been no significant leakage of material or knowhow from the former Soviet Union. Only recently it was revealed that for a little while President Gorbachev lost control of the nuclear suitcase which contained the codes for the release of nuclear weapons.

One of the startling revelations has been that the Soviet Union did not have a complete and authentic inventory of the weapons under its control. There were two different inventories-one of the military and the other of the scientific laboratories. And they did not tally. This is a horrendous revelation. According to American calculations, the Soviet Union had 30,000 or more strategic nuclear weapons. Russia, Ukraine, Belarus and Kazakhstan accounted for 97 percent of the arsenal. Approximately 3,000 strategic weapons were deployed outside Russia in the three nuclear Republics. Of course they were under the control of the Strategic Rocket Forces; and the KGB also had control over the warheads.

It is generally accepted in the strategic community that the former Soviet Union continued to have a tight control over the strategic arsenal. But this was not the case with regard to tactical nuclear weapons which were scattered throughout at least nine or ten Republics. Moreover, these tactical nuclear weapons, which can easily be captured by unauthorised persons, were kept in hundreds of storage sites scattered in these Republics and were in a wide variety of shapes and sizes. Not all of them had stringent safety devices as strategic nuclear weapons had. In addition, unlike strategic weapons, tactical nuclear weapons were spread across four separate military organisations, i.e., the Red Army, the Air Defence Forces, the Air Force and the Navy. The Soviet Union was supposed to have 15,000 tactical nuclear weapons, of which 6,500 were deployed in Republics other than Russia. Now we are told that between January and May, 1992, all tactical nuclear weapons were transferred from the three Republics to Russia. These Republics have pledged to remove all strategic nuclear weapons by the end of this century. They are also expected to join the NPT as non-nuclear weapon states. None of them has so far done it. They had made commitments to do so under pressure at a time when they wanted Western recognition and were keen to join the Conference on European Security and Cooperation in Europe. Having achieved these objectives they are now using nuclear weapons located on their soil as bargaining chips.

The CIA's assessment is that about 9,00,000 persons in the former Soviet Union had detailed knowledge of weapon design and 3,000 to 3,500 had worked in certain uranium enrichment or plutonium production facilities. Now this is a very large number of people who are living under difficult economic and social conditions, where centralised control has disappeared and where criminal elements have appeared on the scene.

The Soviet Nuclear Threat Reduction Act passed by U.S. Congress in 1991 released $ 400 million in discretionary funds for the purpose of providing facilities for safe transport and disposal of the tactical and strategic nuclear weapons of the former Soviet Union. The United States has provided armoured blankets to protect Russian nuclear containers. The Russians do not have facilities to have such a large number of weapons located in a short period of time. Emergency response equipment, rail cars and other facilities are being made available to the Russians for this purpose. Safe storage of nuclear weapon components and their casings is a very serious problem so far as the question of nuclear proliferation is concerned.

There is also the possibility of a brain drain. The disintegration of the Soviet Union led to fears about nuclear scientists and technicians offering their services to dictatorial 'rogue' regimes. Secretary of State James Baker

plunged deep into the Urals to visit Chelyabinsk 70, one of the 10 closed military industrial cities spread around Russia which form the Soviet Nuclear Weapons Complex. As he arrived at the Institute of Technical Physics, every window in the nine-storey building was packed with scientists, technicians, and their staff, creating a remarkable tableau of smiling faces and waving hands. Chief Scientist, Yevgeny Avrorin, standing in front of a blackboard in a hall with about 50 top scientists and attendants presented a long list of commercial projects on which his scientists would like to work. This was an extraordinary development in view of the relations between the two countries in the past. "It is important not just to have money for living but also interesting work", he told Baker, "It will not be profitable for any one, not profitable for Russia or for the entire globe, if our scientists are without work". Scientists at the Institute had been developing synthetic microscopic diamonds that would put an edge on knives which would never have to be sharpened. They had also done sophisticated work on fibre optics and various applications of nuclear medicines and nuclear magnetic resonance.

Avrorin suggested joint mathematical research between Chelyabinsk 70 and Los Alamos, the American nuclear weapons laboratory. Responding to these suggestions, Baker said that he realised that scientists wanted to do interesting and intellectually rewarding work and to earn decent living. Donning a white robe and protective gear Baker toured the laboratory where he received a warm welcome. The scientists appeared almost desparate in their desire to obtain civilian contracts from the West. This was a truly remarkable encounter.

An International Science and Technology Centre is being established in Moscow. It was initially proposed by Germany and the United States and Japan have also promised contributions to this centre. It will provide professionally rewarding jobs for the weapons scientists. They will enter into contracts with scientists in the United States and in the European countries so that they remain where they are instead of finding outlets in other countries.

Another problem is the fissile material which the United States and the Soviet Union produced over the whole period of the Cold War. It is estimated that the Soviet Union produced about 950 metric tons of highly enriched uranium and 150 metric tons of weapon-grade plutonium. And the United States figures were 500 metric tons of highly enriched uranium and 100 metric tons of plutonium. The two sides, in other words, produced enough weapons-grade fissile material to make nearly 100 thousand nuclear warheads.

Recently, the United States has entered into a deal with Russia. It will buy a minimum of 10 metric tons a year over the next five years and a total of 500 metric tons over a period of 20 years of highly enriched uranium from

Russia. This enriched uranium is to be blended with natural uranium to dilute it from over 90 percent to about 3 to 4 percent for use as fuel in reactors. This transaction is without any international safeguards. It is estimated that ten metric tons of highly enriched uranium, to be sold by Russia in the first year, would be worth more than 45 million dollars. This much-needed foreign exchange might be used for safe storage and dismantling of nuclear weapons. President Bush stated that the agreement will secure long-term supplies of less expensive fuel for US nuclear power stations to the benefit of American consumers. It has been calculated that 500 metric tons of highly enriched uranium, when converted into nuclear fuel, will save more than 50 billion dollars worth of oil. So here you have really an ironic twist: the fissile material of the weapons which could have incinerated American cities will now be used to provide electricity to those very cities.

III

Three days after the Hiroshima bombing President Truman described the responsibility about to fall on the United States:

> "We must constitute ourselves trustees of this new force to prevent its misuse and to turn it into the channel of service to mankind. It is an awful responsibility which has come to us. We thank God that it has come to us instead of our enemies and we pray that He may guide us to use it in His way and for His purpose".

The philosophy of American non-proliferation policy is to be found in these words. The Americans have always viewed it as their God-granted special responsibility.

The non-proliferation regime consists of treaties, safeguards and inspections, and export controls. And the linchpin of this non-proliferation regime is the Non-Proliferation Treaty. Now we are told that the non-proliferation regime has achieved a remarkable success with only a few countries outside it and the question is only to bring them into the fold. China and France having signed the NPT, all the five nuclear weapons powers, permanent members of the Security Council, are now within the fold. South Africa has acceeded to the Treaty. Brazil and Argentina, although opposed to the NPT, have entered into a bilateral agreement as well as an agreement with the IAEA for inspections. The three problem countries are Israel, India and Pakistan.

The non-proliferation regime is now under great strain. It failed first of all to stop transfer of nuclear materials and technology from nuclear weapon powers. For instance, the United States helped the programmes of Britain and France. The United States and France assisted the Israeli

programme. The Soviet Union provided crucial support to the Chinese. West Germany, Britain and Israel helped South Africa. China assisted Pakistan while the United States looked the other way because of the Afghan crisis. And then we have the extraordinary case of Iraq. Now we know that German, British and American companies were engaged in providing major components for the Iraqi weapons programme.

The International Atomic Energy Agency, located in Vienna, is supposed to act as a policeman. The Statute of the IAEA provides for three functions for the IAEA: to promote peaceful uses of atomic energy; to provide technical assistance to developing countries; and to arrange for inspections and safeguards to ensure that peaceful uses of nuclear energy were not being diverted to military purpose. So the Agency was to be an atomic Robinhood to provide assistance to the developing countries. But over a period of years, the atomic Robinhood has become an atomic policeman.

India's position has been consistent on the question of safeguards. Dr Bhabha participated actively in negotiations for the establishment of the IAEA. He pointed out that so far as material borrowed or bought from abroad was concerned, India would be willing to have inspections. But insepections of indigenously produced material and equipment could not be accepted and this has been one of the main objections of India to the NPT. While the nuclear weapon powers have augmented their stockpiles of these horrendous weapons, the IAEA has been inspecting the peaceful nuclear programmes of the non-nuclear weapon states. Bhabha put the contrast nicely when he said:

> "The problem before the world was not to put a puppy into a cage in order to ensure that when it grew up it would not bite someone; the problem was somehow to cage the tiger of nuclear armament which now roams round the world".

Recent revelations regarding the secret nuclear weapons programme in Iraq have shown the failure of the NPT safeguards because Iraq was a signatory to the NPT and its nuclear installations were regularly being inspected by the IAEA. The last inspection was in November 1980, and the Agency's safeguard's director called Iraq's behaviour "exemplary". The flaw is in the NPT safeguards system because these safeguards are applied on nuclear material and the facilities through which it passes. Inspections are not of the facilities *per se* but of the flow of nuclear material through them. The focus is on nuclear material; wherever the material goes, inspection takes place. But if a country has undeclared facilities in a covert fuel cycle the IAEA has no mandate to go round poking its nose everywhere and finding out whether something untoward was happening. Safeguards are designed to detect diversion of significant quantities of fissile material. A significant quantity of material

is defined as 8 kgs of plutonium and 25 kgs of highly enriched uranium. Now we know that nuclear weapons are being manufactured with much smaller quantities of fissile material. The NPT does not prohibit the use of nuclear material for non-explosive military research. Many countries have nuclear propulsion programmes. And this is a legitimate activity. For instance, Brazil and Argentina have had submarine propulsion programmes which require highly enriched uranium. And according to the regulations all that has to be done is to take out highly enriched uranium from safeguard operations for use in propulsion and after its use again to put it under safeguards.

What about South Africa? That is another country which has recently acceded to the NPT. For about a decade South Arica has been a *de facto* nuclear power. According to some estimates it has about 20 to 30 bombs. It is a large producer of uranium and has uranium enrichment facilities. So the problem for the IAEA inspectors would be how to prepare an authentic inventory of fissile material produced in South Africa.

Nuclear material under IAEA safeguards in 1989 included an estimated 10 metric tons of separated plutonium, 220 metric tons of plutonium in spent fuel, 13 metric tons of enriched uranium and so on. The annual safeguards budget is about $ 60 million, or the price of three jet fighters. And the Agency has only 200 Inspectors who conduct periodic inspections in almost 1,000 facilities world-wide. The Argentina-Brazil safeguards are estimated to cost $ 4,00,000 in 1992 and $ 1.5 million in 1993. The Agency's budget has been a zero growth budget for the last seven years. The largest financial contributions from non-nuclear weapon powers are from Japan and Germany and if the safeguards costs increase, the burden is likely to fall on these two States; they will be reluctant to increase the funds for safeguards.

Then there is the problem of having an authentic inventory of fissile mataerial in the three States of the former Soviet Union which are to be non-nuclear weapon signatories to the NPT. Ukraine has 16 nuclear power plants. Their output was sometimes used for weapons purposes and some of these plants have been operating for several decades. So the inspectors will have to go through the operating records of each plant for 20 years and more; the Agency will then have to authenticate the amount of fissile material which will come under its safeguards. This will be a difficult and time-consuming process. There is also the problem of the Semiplatinsk nuclear test site located in Kazakhstan.

IV

Over 27,000 secret documents were recently released in the United States under the Freedom of Information Act. One of these documents concerns the visit of former Prime Minister Junejo of Pakistan to Washington. The

American Intelligence Agency submitted 'talking points' to Kissinger for discussions with the Prime Minister. This document, dated October 1986, says:

"Despite strong US concerns Pakistan continues to pursue a nuclear explosive capability. If operated at its nominal capacity, the Kahuta uranium enrichment plant could produce enough weapon grade material for several nuclear devices per year".

This secret document shows that the Americans were fully aware of the Pakistani weapons programme for a long time. The American aid packages of 1981 and 1987 indirectly helped Pakistan to devote its own resources for purchases abroad of vital components needed for the weapons effort; they also implied a *de facto* security relationship between the two countries. Successive waivers of the American domestic legislation enabled Pakistan to go ahead with its weapons programme without stoppage of massive American economic and military assistance. Moreover, the non-certification of Pakistan's non-nuclear status by President Bush in October 1990 amounted to an independent confirmation of the fact that Pakistan had acquired the capability to produce a nuclear device. The statement of Pakistan's Foreign Secretary in February 1992 and subsequent reports leave no room for doubt about Pakistan's ability to fabricate a few nuclear devices.

It is worth noting that China's strategic nuclear inventory has expanded at the rate of 70 percent per decade. By the end of the 1970's it had surpassed those of Britain and France. By 1985 the total megatonnage of Britain and France was about 40 and 150 respectively, while that of China was about 350. During 1992 only two countries conducted nuclear tests; six tests were conducted by the United States and two tests, including one in the megaton range, were performed in China. According to American intelligence sources, China gave Pakistan the complete design of the weapon tested in 1966. It is also reported to have provided weapons-grade uranium to Pakistan. China has not joined the recent nuclear arms control process and continues to retain tactical nuclear weapons. Recent improvement in Sino-Indian relations and various confidence-building measures in the conventional military field have not removed India's security concerns in the nuclear realm.

According to SIPRI calculations, India could have produced about 290 kgs of weapons-grade plutonium by the end of 1991. This could increase to 400 kgs by 1995 enough for about 65 bombs. Pakistan is estimated to have produced 100 to 200 kgs of weapons-grade enriched uranium by 1991, enough for about 10 nuclear devices. These estimates have been repeated in two articles on India and Pakistan jointly authored by David Albright and Mark Hibbs. Thus proposals for the creation of a nuclear weapon-free zone in South Asia are divorced from reality on the ground. Joseph Nye of Harvard

University, who crafted President Carter's non-proliferation policy and is likely to join the Clinton administration, has recently observed that there are two regions in the world where proliferation has already occurred -- the Middle East and South Asia. Israel is generally acknowledged as a country which has about 100 to 200 nuclear weapons. Leonard Spector, a non-proliferation pundit, has also conceded that Israel, India, and Pakistan are able to deploy nuclear weapons rapidly and that they have serious security concerns that remain undiminished by the end of the cold war.

Non-proliferation of nuclear weapons has been given high priority by successive American administration, but clearly not the highest. In practice, other concerns have proved to be more pressing. This is evident in the case of Pakistan in the aftermath of the Soviet invasion of Afghanistan. Commercial factors have often moderated non-proliferation concerns. Glenn Seaborg, a Nobel laureate and a former chairman of the American Atomic Energy Commission, has narrated an episode in the evolution of American thinking on the threat posed by Chinese nuclear weapons. At a secret conference shortly after the Chinese nuclear test in 1964, Secretary of State Dean Rusk thought that the basic question was whether the United States really should have a non-proliferation policy prescribing that no country beyond the five declared nuclear weapon powers should acquire nuclear weapons. He added, "might we not want to be in a position where India and Japan would be able to respond with nuclear weapons to the Chinese threat". The end of the Cold War, the disintegration of the Soviet Union and the destruction of the Iraqi nuclear facilities with the sanction of the Security Council have put non-proliferation on top of the agenda and the Clinton administration can be expected to use its leverage in South Asia to pressurise India and Pakistan on the nuclear issue. The American endeavour will be to manage the situation through a medley of encouragement, suggestions, wooing, cajoling and plain blunt warnings with emphasis on some regional arrangement and confidence-building measures. Recent changes in Indian economic policies necessitating foreign investments and the march towards integration with the world economy have increased Indian vulnerabilities. But a consensus across the entire political spectrum in India against signing the NPT and for preserving the nuclear option is an important asset for our nuclear diplomacy. Our economic vulnerabilities and domestic problems need not make us self-deterred. Many countries, including Pakistan, are facing similar problems.

There is a kind of "weaponless deterrence" already in operation based on prudential calculations in India and Pakistan. The most difficult and time-consuming part of a weapons programme is the production of fissile material. We have weapons-grade fissile material and our competence in fabricating a nuclear explosive was demonstrated in 1974. As Michael May, Director Emeritus of the U.S. Lawrence Livermore National Laboratory, has pointed out, "A

nuclear weapons programme is a medium-cost, medium-technology programme". If a country does not aspire to threaten populations in distant continents with massive nuclear attacks, the means of delivery need not cost more, nor are they more demanding, than the weapons themselves. "Only one weapon needs to get through defences to its target". In nuclear deterrence, uncertainty of response and not certainty ensures peace. Nuclear stockpiles of adversaries need not be compared and matched. Modest sufficiency is enough. In our part of the world financial stringency can be depended upon to ensure restraint on nuclear follies. Herbert York, first director of the Livermore Laboratory, has recently observed that the minimum deterrence needs of the United States could be between 10 and 100 nuclear weapons. The minimum deterrent for defences purposes in this part of the world would be much less. A nuclear weapons programme is by definition an indigenous enterprise while a sophisticated conventional weapons capability necessitates considerable expenditure of foreign exchange. It is sometimes mistakenly assumed that a strategy of nuclear deterrence would require a comprehensive conventional weapons capability as well. But this assumption is based on lessons drawn from the Cold War confrontation. It was extended deterrence over Europe and the policy of flexible response which contributed to the ladder of violence including conventional, tactical nuclear and strategic nuclear weapons capabilities. Countries which have no desire to extend nuclear umbrellas over other lands do not have to repeat the follies of states with global interests to defend. Thus a minimum nuclear deterrent capability can be achieved with very little additional cost. Such a capability should be coupled with a no first use pledge and confidence-building measures to ensure regional stability.

India's active involvement in disarmament diplomacy throughout the nuclear era and its singular restraint since 1974 entitles it to engage in dialogues with all interested powers. The disingration of the Soviet Union has fractured the brutal certainties of the nuclear regime imposed in the Cold War era and the global nuclear arrangements are now in a state of flux. The sweeping reductions in armouries proposed under the arms control agreements are dependent on decisions of countries like Ukraine. Even if the reductions are actually carried out over the next decade, the numbers of nuclear warheads in the stockpiles of the United States and Russia would remain in four figures. The policy mantra is "uncertainty", repeated with numbing regularity by American spokesmen in successive pronouncements. The jealously husbanded warheads without specific targets represent the continuing reliance on a policy of peace through nuclear strength. Nuclear pundits of the West are now advocating Western nuclear possession to deal with the threat of proliferation. The arc of uncertainty and crisis is in the Indian neighbourhood and Indian nuclear decisions will be moulded by happenings in this region.

Our nuclear policy has been broadly under technocratic control with policy guidance at the highest level. Despite periods of drift, it has acquired its own momentum. Our ballistic missiles and nuclear propulsion programmes should be accelerated. We have to organise our nuclear decision-making process which, to say the least, is minimal at the moment. There is no single organisational framework within which the different components of the programme can be promoted in a coherent fashion.

The NPT provides for periodic review conferences and an extension conference in 1995. Four review conferences have been held in 1975,1980, 1985 and 1990. Only the first conference achieved a reluctant consensus. There was no consensus at the second and fourth conferences while efforts were made to pretend that there was a consensus at the third when in reality there was none. A comprehensive nuclear test ban has been the persistent demand of the non-nuclear weapon states at these conferences. At the 1990 conference several non-nuclear countries pointed out that even if the nuclear weapon powers cut their strategic arsenals by 50 percent, they would still be retaining more than three times the number of weapons they had in 1968 when the NPT was signed.

It is generally assumed that the conference of 1995 will extend the treaty for a fixed period or indefinitely. Dramatic changes in power relationships, delays in accession to the treaty by Ukraine or Kazakhstan, inability to conclude a comprehensive nuclear test ban treaty, decline in American ability to orchestrate the nonproliferation regime--all these would certainly impinge on the deliberations of the extension conference. It would be an act of extraordinary renunciation on the part of Germany and Japan to reconcile themselves to the status of non-nuclear weapon countries for ever while Britain, France and China retain their nuclear weapon status in a post-cold war world. Germany and Japan do have a stake in the non-proliferation regime and they would not like it to be terminated without something better taking its place. They may support extension of the treaty but may also insist on a review leading to substantive changes.

V

The geographic sweep of the nuclear revolution has created a global nuclear system. Nuclear weapons are products of nationalism and science, the two most powerful forces that have shaped the 20th century. They are not the result of some ghastly accident but the culmination of three centuries of modern science. Nations with pretensions to great power status have proceeded resolutely down the nuclear route; they successfully established a coalition between grand science and high politics. National resolve and faith in the potential of their scientists and technicians succeeded in overcoming bureaucratic inertia. A scrutiny of the weapons programmes of the declared

nuclear weapon powers shows the remarkable absence of strategic thinking in the early stages. Nuclear weapons were viewed as talismans of sovereignty and symbols of intent and resolve. Strategic underpinnings to the stockpiles were provided much later.

The British, French and Chinese weapons programmes were initiated at times when the three countries were members of alliance systems led by the United States and the Soviet Union. The British decision had emerged from instinctive general assumptions about Britain's future status in the world and before any concrete military threat had materialised. The later request by the British military establishment for the supply of 1,000 nuclear weapons was based on the estimate that only 25 such weapons were sufficient to knock out Britain, and the "geographical area" they had in mind (they were still shy to mention the Soviet Union as a potential adversary) was 40 times the size of Britain.

The French weapons programme was insulated from the chronic instability of the Fourth Republic by a dedicated group which operated outside the regular institutional channels. It represents a striking example of maximum technocratic direction and minimum political guidance. The political decision was the last in a long chain of decisions in the scientific-technological arena.

The Chinese nuclear weapons programme was accelerated through a network of relationships between top political, military and scientific leadership. Chinese scientists were engulfed in recurrent denunciations of intellectuals and were bombarded with a cacophony of slogans during the Cultural Revolution. They had to go through the trauma of the famine of 1960-1962 which forced them to plant potatoes and hunt Mongolian gazelles. The manner in which the scientific potential of China was harnessed for military purposes is revealed in the message sent by Deng Xiaoping to the scientists producing the bomb: "Just go ahead with your work. You can claim all the credit for youselves if you achieve success, and you can ascribe your errors to the Party Central Secretariat if you commit mistakes".

In conclusion I would like to quote from the reflections of McGeorge Bundy, National Security Adviser to President Kennedy:

> "The United States has long since abandoned the public hostility to the programmes of other countries like Britain and France. It may have had unfriendly thoughts about the Chinese programme long ago. But it does not now complain of China's bomb nor does it complain of Israeli bomb. The Israeli case may be one more demonstration of the proposition that what you oppose before it happens is something which it is wise to accept when it becomes real".

India and the Arabian Sea: Reassessing Maritime Strategy

K R SINGH

Events, both at the global and the regional levels, have brought about a radical transformation in the geo-strategic perspective of India. The beginning of this decade has not only seen an end of the ideologically inspired Cold War but also the total disintegration of the USSR. These two changes will have far-reaching impact upon the nature of great power interest in the region around India. Rather than the Super Power confrontation, regional issues, that had gradually acquired importance since the late seventies, will now dominate great power politics and naval strategy in the region.

These changes will also radically affect the future equation between the great powers and regional powers. At the regional level, the long-drawn Iraq-Iran war as well as the Kuwaiti crisis, not only greatly eroded the military capability of Iraq and Iran but also proved that states of the Arabian Peninsula, that constitute the Gulf Cooperation Council (GCC), do not possess at present, and are not likely to do so in the near future, the capability to defend themselves even against the weakened Iraq and Iran. Hence, their near-total reliance for regime protection as well as for national security upon the states of the industrialized North, especially upon USA which alone has the capability for massive deployment of forces in the region, will continue for a long time to come.

Events of the recent past have also underlined the growing threat posed by militant Islam not only for the non-Muslims but also for the pro-North Muslim regimes in the region. Moreover, threat of international terrorism, with overt or convert state support, as well as a regional and even global network of its supporters, is becoming more and more evident. These factors are going to influence not only intra-regional relations but also the attitude of the North towards some of the regional powers. Iran and Pakistan have already been identified as states that allegedly support international terrorism. There is a growing realization that a nexus of these forces, having some linkages at government or quasi-government levels, is being steadily

Prof. K. R. Singh is Director of the National Security Programme, Jawaharlal Nehru University, New Delhi.

strengthened due to increasing equation between underground narcotic trade, smuggling of small arms and explosives, terrorism and militant religious groups. This gives a new dimension to the threat of international terrorism. India will also be affected by it.

Beside these international developments, factors of domestic politics and economic development will also influence India's maritime strategy vis-a-vis this region in the years to come. As far as domestic political factor is concerned, international terrorism has emerged as a new factor in India's maritime strategy. Till recently, only the Gulf of Manar and the adjoining waters of South India were affected by it. Now, the scope has widened to cover the Arabian Sea itself. As far as India's economic development is concerned, Arabian Sea was always of great importance. About 75 percent of India's overseas trade of more than Rs. 80,000 crores passes through the Arabian Sea region. India's own shipping is increasing steadily and amounted to more than 6 mn tons (GRT). Of that, about 5.5 mn tons (GRT) was for overseas trade. That included tankers.

India is also strategically dependent upon the Arabian Sea region for its requirements of oil and oil products. This not only includes the imports of oil and oil products but also production of oil and gas in the Bombay High. In 1990, India's crude oil production was 33.1 mn tons. Of that 21.1 mn tons was from the Bombay High. That year, India's total import of oil and oil products amounted to 33.87 mn tons, mostly from the Gulf. Even the Soviet oil was routed through the Arabian Sea. Thus, about 54 mn tons of oil and oil products out of the total consumption of about 67 mn tons (80%) was dependent upon effective control over the Bombay High and an "open" sea-route in the Arabian Sea region. It is estimated that India's oil requirement will rise to about 100 mn tons by 2000 AD. That would mean a continued dependence upon the resources reaching *via* the Arabian Sea. If India continues to import about 33-34 mn tons of oil and oil products per year then on an average ships carrying one lakh (100,000) tons of oil/oil product should reach India per day.

That calls for sustained escort duty and sea-control capability if India has to sustain its economic development even at the present low level. Thus, India's capability to keep its sea lanes open for international shipping, to protect its off-shore oil and gas installations and to take effective counter-measures against growing threat from international terrorism directed *via* the sea, assume vital strategic importance in the years to come. Also, over the years, one sees a steady growth, both quantitative and qualitative, in the naval capabilities of the regional powers. That also needs to be taken note of while evolving the long-term naval strategy for India.

In the context of India's overall maritime security, the Navy and the Coast Guard as well as other concerned agencies have to perform their appropriate roles. The Coast Guard, though geared for constant maritime patrolling, has obvious limitations because of the types of vessels and the aircraft that it operates and the weapons they are equipped with. Hence, it can only offer a supportive role in an otherwise highly sophisticated battle-field environment dominated by modern submarines, surface vessels and aircraft capable of launching long-range guided missiles. Navy will obviously have to share most of the burden. One needs to assess the extent to which the Indian maritime strategy is geared to fulfil its role and national obligations.

Indian Navy's experience, whether of the 1965 war or the 1971 war, has been conditioned by short-duration conflicts. Hence, its potential to protect strategic installations on the coast and on the high seas as well as escorting ships under adverse conditions in a possible long-drawn war of attrition has not been tested. In the present context, while blockading the adversary's coast will be important, equally vital will be to neutralize similar efforts by the adversary. It will be relevant to examine whether Indian Navy, as it is constituted at present, can fulfil the task adequately or needs to be restructured for these roles.

While India's naval strength appears to be impressive in the volumes of *Military Balance* and *Jane's Fighting Ships*, one needs to take into account a few factors before passing final judgement whether it is really tailored for the tasks that it might be entrusted with in future. The first factor that needs to be underlined is that geo-strategically, India's maritime defence is divided into four diverse and independent sectors. They are the Arabian Sea, the Indian Ocean, the Bay of Bengal and finally, the Andaman and the Nicobar group of Islands. These island groups and the adjoining Andaman Sea and the Malacca Strait are becoming increasingly important in the context of declining great power presence in South-East Asia, limited ASEAN capability, and fast growing Chinese maritime presence not only in South-East Asia but also in Bangladesh and Burma.

These four geo-strategic sectors of India's maritime defence are so dispersed that each of them demands specifically ear-marked and near-autonomous maritime security structures and appropriate forces. Thus, Indian Navy will be *per force* split into four sectors with only limited scope for readjustment of forces in times of crisis, especially if India is surprised by the adversary. At a pinch, the Indian Ocean sector can complement the Arabian Sea sector, while the Bay of Bengal and the Andaman Sea sectors can co-ordinate. That still leaves the Indian Navy split into two major fighting groups

that will have to carry on their tasks almost independent of each other. In other words, because of the geo-strategic constraints, Indian Navy already stands divided or bifurcated.

The second point that needs to be noted while evaluating the fighting potential of Indian Navy is the age and weapons capability of its fighting ships. A large percentage of India's fighting ships are not only getting old but also obsolete in terms of weapons deployed on them. Thus, new ships need to be inducted not only as replacements but also to fill the capability gap. *Table A* gives an approximate assessment of India's present effective naval capability for blue water operations, likely future requirements and the number and the types of weapons that will have to be inducted in the coming years.

TABLE A
The Indian Navy: Effective Blue Water Capability and Recommended Strength

	Effective Strength (1992)	*Recommended after restructuring*	*Additional requirements by 1995*
Naval Vessels			
Aircraft carriers	2	2	1-2
Submarines	16	20-22	4-6
Destroyers	5	8-9	3-4
Frigates	18	15	6-9
Corvettes	9-10	18-20	9-10
Missile boats	9	Nil	Nil
Large patrol craft	(Basically Coast Guard role)		
Replenishment ships	2	4-6	2-4
Submarine tender	1	2-3	1-2
Naval Air			
Land-based fixed wing			
MR/ASW role			
long-range	12	12	nil
medium range	5	9-12	4-7
short-range	(Basically Coast Guard role)		

India has two small aircraft carriers. Both are more than thirty years old, and had several major refits. No amount of refit can make an old system young. It is also important to emphasize that these are essentially light escort carriers and not attack carriers, in the real sense, as they are often listed. It

is true that the *Virat* was used during the Falkland War as an attack carrier but under special conditions. Argentina's main airbases were more than 700 miles away. Also, the *Vikrant* was used as an attack carrier during 1971 operations in the Bay of Bengal. It was a tactical decision taken under exceptionally favourable circumstances and was comparable to using the short-range Osa missile boats in attack against Karachi. These decisions were possible in 1971 when Pakistani naval and naval-air capability was grossly inadequate. Such operations are not likely to be repeated in future. Yet, these small aircraft carriers can play a more crucial role in future naval strategy especially in the escort and ASW roles, as shall be discussed subsequently.

India has an impressive number of submarines. However, of these the F-class submarines are old and getting obsolete. Reportedly, three of them are already in reserve. The fourth will also be removed from active list after the fourth German submarine of the Shishumar-class is inducted in operation. Thus, India's submarine strength will remain at sixteen with which to cover four maritime sectors. By contrast, Pakistan has six submarines (besides three midget submarines) for a much smaller and compact sector. Pakistan has the added advantage that at least some of these submarines are also fitted with long-range radar guided anti-ship missile like the Harpoon. Indian submarines are armed with torpedoes only.

Indian Navy operates five modified Kashin-class destroyers. These are fitted with anti-ship and anti-air missiles besides having a limited ASW capability. The destroyer strength, however, is too inadequate for the task, specially when India's frigate fleet is far from adequate. Six Leander-class frigates, primarily geared for ASW role, have out-moded Seacat SAMs. Of them, only two are modified to carry two anti-ship missile launchers each. Thus, these ships can operate on the high seas only under the friendly air cover and when protected by vessels armed with long-range anti-ship and anti-air missiles. Even then, the range of their ASW detection and attack system is far less than the reach of the Harpoon - armed submarine operated by Pakistan. Similar is the case with the Petya-class frigates which are armed with three-inch guns besides short-range ASW rockets. Thus, these ASW frigates of the Indian Navy cannot really be effective platform for ASW role, especially against Pakistani submarines armed with the Harpoon missiles. Rather being the hunters, they would be the preys. As compared to these Indian frigates, Pakistani ASW destroyers and frigates are armed with the ASROC launchers that extend the range of the ASW weapons.

Thus, as far as frigates with ASW and anti-ship roles are concerned, India is really left with three multi-purpose Godavari-class frigates and two

modified Leander-class frigates. The newly built Khukri-class frigate as well as the Veer-class and the Nanuchka-class corvettes have mainly anti-ship role. India is acquiring some small corvettes for ASW role but their capability to detect and destroy submarines is comparable at best to the Petya which they might replace. Moreover, its small size will limit its operations at best to off-shore waters only. Thus, this serious qualitative gap in ASW capability needs to be filled if India has to effectively neutralize the sub-surface challenges posed to its maritime security even in its immediate neighbourhood.

There are also serious gaps in the strength of support vessels, especially in respect of replenishment ships and submarine tenders. While the strength of submarines has doubled, India has only one submarine tender. India needs at least two of them if not more. Similarly, Indian Navy will need more replenishment ships if it has to seriously undertake long-range escort duty.

Present-day naval warfare depends to a large extent upon the strength of the naval-air arm both for MR/ASW role as well as for strike/interception role. Both roles are equally important. If one can provide them from the shore-based facilities all the better. If the operations are to be conducted beyond the effective reach of shore-based aircraft, then aircraft carriers become an essential complement of the naval-air operations. India's zone of immediate maritime operations covers a large area. However, Indian maritime reconnaissance (MR) capacity remains inadequate.

India has a mix of short, medium and long-range MR aircraft. At the moment, all of them are shore-based. The Alize (being replaced with the Dornier) and BN-2 MR aircraft of the Navy can act in coordination with the F-27 and the Dornier MR aircraft of the Indian Coast Guard for patrolling the off-shore and the in-shore waters. However, their endurance as well as inadequate ASW detection capability limits their area of operation. Most of them do not have even a limited anti-surface weapon capability like the ASM. Thus, even their MR capability has inbuilt limitations against a modern navy.

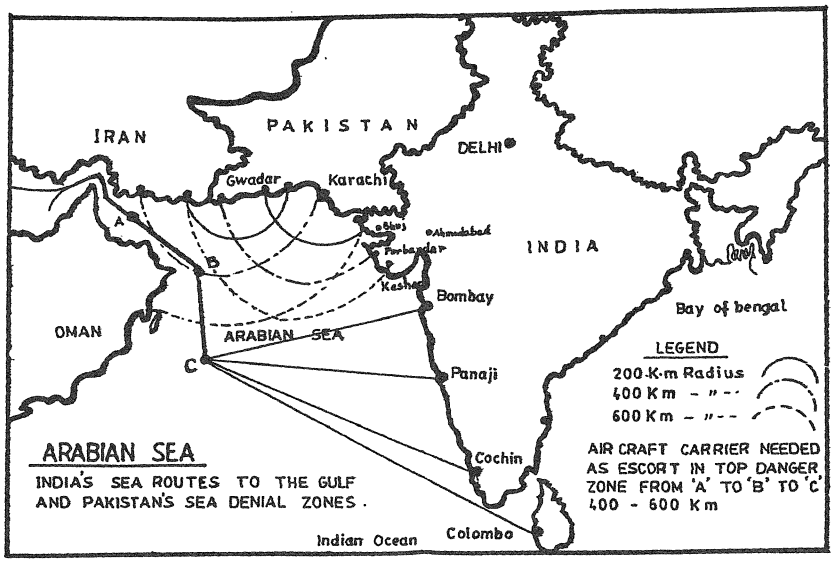
Therefore, MR/ASW role as well as strike role will have to be entrusted to more sophisticated shore-based aircraft. The IAF has modified a few Jaguar aircraft for maritime strike role by arming them with the Sea Eagle ASM. But their effective range and reaction time pose obvious limitations on their role in far away areas. The MR/ASW role, especially medium and long-range, has been entrusted to five IL-38 and eight TU-124 Bear aircraft respectively. In view of India's growing need for MR/ASW operations, five medium-range MR aircraft are grossly inadequate if constant air cover is to be provided in a long-drawn war of attrition. Hence, medium-range MR/ASW capability needs to be buttressed.

In view of the above mentioned analysis, in the coming years, India will be needing several new ships and aircraft so as to replace the old and the obsolete systems as well as to buttress the crucial sectors that are weak at present. *Table A* analyses the effective strength (1992) for blue water operations, suggests the optimum requirement after restructuring, and the new acquisitions required by 1994-95.

It may be necessary to explain the rationale for such a restructured force. Despite their adjective of being 'white elephants', at least two light aircraft carriers will always be required not only to provide MR/ASW support but more than that to sanitize the airspace of the hostile MR and attack aircraft, both fixed-wing and helicopters, in the immediate environment of about 50-80 km. of the task force on the high seas beyond the effective range of friendly shore-based aircraft. One such zone is identified as extending from A to B and to C in the Arabian Sea region. (see map).

The need for more submarines is explained in the context of the greater role that advanced submarines will be expected to take on increasingly in future ASW operations, especially in view of the fact that now-a-days conventional submarines are being modified to launch long-range guided missiles from their torpedo tubes. The effective range of these missiles far exceeds the attack or even the detection range of conventional ASW frigates and destroyers, even when they are equipped with ASW helicopters. Hence, in view of the constraints on surface vessels, especially frigates and destroyers, in ASW operations, the number of submarines with specific ASW role will have to be increased. In that case, the number of ASW frigates can be reduced. However, to compensate for that gap in surface capability, the number of corvettes, armed with anti-ship missiles and ASW rockets, can be increased both for supplementing the frigates in the escort duty as well as for patrolling the coastal waters. These corvettes will also substitute for missile boats which have relatively poor performance parameters. They can be gradually phased out. Thus, on restructuring, it is seen that while certain categories of warships have been added, other categories have been reduced and some, like the missile boats, even deleted.

It is also recommended that the Navy should gradually entrust the day-to-day patrolling at least of the in-shore waters, and of the off-shore waters in less important zones, to the Coast Guard while maintaining the over-all coordination at the strategic level. This will streamline their functions and prevent them from treading on each others toes. Also, the question of protection of off-shore oil and natural gas installations during 'peace time' needs to be examined more seriously. If need be, the task should be assigned to a group exclusively entrusted with that role so that the Navy can concentrate on its


IRAN
PAKISTAN
DELHI
Gwadar
Karachi
A
B
C
INDIA
Ahmedabad
Porbandar
Keshod
Bombay
Bay of bengal
OMAN
ARABIAN SEA
Panaji
Cochin
Indian Ocean
Colombo
LEGEND
200 K·m Radius
400 Km - " --
600 Km - " --
AIR CRAFT CARRIER NEEDED AS ESCORT IN TOP DANGER ZONE FROM 'A' TO 'B' TO 'C' 400 - 600 Km
ARABIAN SEA
INDIA'S SEA ROUTES TO THE GULF AND PAKISTAN'S SEA DENIAL ZONES.

primary task of controlling the sealanes and carrying out long-range escort operations.

In the context of India's growing dependence upon imported crude oil and oil products, the question of escorting tankers from the Gulf to refineries and other terminals in India needs to be analysed in depth. This will pose one of the most difficult questions in the event of a long-drawn war of attrition. Almost 90 percent of that oil import will have to be from the Gulf. Other oil producing areas like South-East Asia, do not have large surplus production sufficient to balance India's supply from the Gulf. Moreover, most of their oil is already committed to their major trading partner, Japan. Hence, escorting oil tankers from the Gulf to their destinations in India will be one of the prime responsibilities of the Indian Navy in any future conflict. It is presumed that the countries of the Persian Gulf region will not carry their pan-Islamic solidarity to the extent of denying oil and oil products to India in the event of a Indo-Pak war.

Pakistan's capability to intercept these tankers on the high seas, once they leave Strait of Hormuz, has dramatically increased since 1970-71. As seen from *Table B,* Pakistan has, over the last two decades, acquired a considerable sea-denial capability based upon the combination of surface vessels, submarines, aircraft and anti-ship missiles. The geographical proximity of the Makran coast to the Gulf of Oman as well as the construction of several new naval and air bases on the Makaran Coast between Gwadar and Karachi has further strengthened that capability. The map showing the possible sea lanes from the Gulf to Indian ports and the various radii of operation of Pakistan's sea-denial capability (200, 400 and 600 km zone) identifies the high risk zone (A-B-C) for these tankers.

TABLE B
Pakistan's Sea Denial Capability

	1970-71	*1980-81*	*1991-92*
Naval Vessels			
Submarine (large)	4	6	6
Submarine (midget)	-	6	3
Cruisers	1	1	1
Destroyers	5	7	2*
Frigates	2	-	10**
Large patrol boats	-	4	4
Missile boats	-	-	8

Naval Air			
Mirage III for maritime strike role (ASM)	-	-	5
MR/ASW fixed wing (ASM)	-	3	6
Helicopters (ASM)	-	8	4
Helicopters (ASW)	-	4	6
Missiles (anti-ship)			
Air-to-surface	-	Exocet	Exocet
Ship-to-ship	-	-	Harpoon and Hai Yiang-2
Submarine-to-ship	-	-	Harpoon

* Reportedly some Gearing-class destroyers are in stores or in use by Coast Guard.

** Includes 8 Brooke/Garcia-class frigates on lease from USA and might be soon returned. They are likely to be replaced by British Type 21 frigates.

Even if Pakistan ear-marks three of the six Atlantic MR/ASW aircraft and all the four Seaking helicopters as well as three submarines and four missile boats for the defence of Karachi, it still will be able to spare three Atlantic MR/ASW aircraft, three submarines and four missile boats for the purpose of intercepting ships on the Gulf-Arabian sea route in the Gulf of Oman. All these three types of platforms are armed with long-range radar-guided anti-ship missiles. Besides, Pakistan has a limited number of Mirage III aircraft modified to carry Exocet ASM. These can also be pressed into service when necessary.

It is important to note that Pakistan's present sea-denial capability is based primarily upon missile-armed aircraft and submarines. While the one has the advantage of high degree of mobility and surprise in attack, the other has the advantage of lurking in the depth while waiting to launch long-range missiles. That combination will pose a serious threat to Indian shipping, especially in the northern part of the Arabian Sea upto a range of about 400 km, from the Makran Coast. The range will increase to 600 km in case of the combination of MR aircraft and Harpoon-armed submarines or Exocet-armed Mirages.

If the Indian Navy has to contest this combination, it will have to depend primarily upon two things: high cruising speed of the convoy to evade and avoid the submerged submarines, and a sea-based interception capability to keep not only the surface vessels but also the maritime reconaissance aircraft of the potential adversary out of range of radar contact with the convoy so that anti-ship missiles cannot be targeted accurately. As seen from the map of the Arabian Sea region, the zone of possible confrontation is too

far away for the shore-based aircraft to offer any timely support to the convoy. Hence, air-support will have to be essentially sea-based.

It is in this capacity that the light aircraft carriers, capable of operating about 8-10 fixed-wing STOL/VTOL aircraft and about 4-6 helicopters can fill a crucial gap in sea-control and escort roles. No other surface vessel can peform that role because of the reason that even sophisticated SAMs on board these vessels, including those on the Indian destroyers, have a range that is shorter than that of the air-launched anti-ship missile. Hence, these missile platforms be they the fixed-wing aircraft or helicopters, can be kept beyond the effective range of their ASMs only by deploying sea-based interceptors against them. Thus, while submarines and destroyers may give the impression of a strong taskforce, the queen on the chess-board will have to be the so-called, 'white elephant' - the light aircraft carrier.

The task of these aircraft carriers will be to operate a screen of interceptors/strike/ASW aircraft and helicopters at a sufficient distance from the task force so as to keep the hostile MR aircraft as well as surface vessels and submarines beyond the effective range of their surface search radar and, more so, their fire-control radar (i.e. approximately 60-80 km). Sea Harrier and Seaking operated by India are capable of performing that role. However, India's aircraft carriers, *Vikrant* and *Virat,* are aging fast and need replacement, in the near future if the Indian Navy has to effectively fulfil the task of providing air cover on the high seas beyond the effective range of shore-based aircraft.

EX-SOVIET NAVY AND INDIAN REQUIREMENTS

Table A projecting India's future naval requirements shows that India will have to induct several additional naval and naval-air weapon systems within a short time. India does build several types of modern warships. Work on a modern destroyer and a submarine is proceeding. But India's capacity to build warships is limited. Hence it cannot fill the required gap in a short time on its own. It will have to seek weapons from outside. While some of them are available with the erstwhile 'Western' Bloc states, India will face problems of payment in hard currency. India will also have to overcome the adverse pressures from the so-called arms control lobby in these states. Even then the transfer of these weapons will take a long time in view of their previous commitments.

India, however, has other options before it that can enable it to fill that gap in a short time at a very resonable cost. The erstwhile Soviet Navy has surplus equipment capability because of the drastically reduced international commitments after the end of the Cold War. India can bargain for some of

that for a reasonable price. Indian Navy has already been using weapons of Soviet origin. Hence absorbing them will pose no serious problem.

At the moment the ex-Soviet Navy is searching for a new role. Also, the successors of the USSR are disputing over the sharing of that navy. Decidedly, the naval requirements of the components of the erstwhile Soviet Union, i.e. of the CIS members, will require far less numbers than those required by the USSR when it was confronting the Western Bloc in the Cold War at the global level. In other words, many of the modern naval ships as well as MR/ASW aircraft will become surplus (Cold War surplus) if not totally redundant for the CIS members. India can approach Russia as well as Ukraine, the two major naval components of the CIS, in the context of future utilization of these weapons.

India can offer to acquire them on hire-purchase over a long period or, alternately, to lease them on payment for a fixed period, with the option for the renewal of the lease or of final purchase depending upon the situation. That way, the Soviet Navy need not be converted into junk but can remain operational under expert care. This will not be the first time that India would be leasing Soviet naval equipment. Earlier, it had acquired on lease the nuclear-powered submarine (the Chakra) which was returned on the expiry of the lease term. Pakistan has in fact built its navy on leased equipment. Beside the submarine Ghazi, which was sunk during 1971 operations, Pakistan acquired eight destroyers of the Brooke/Gracia class on lease from the USA. If the lease terms can be successfully negotiated, India can acquire almost all the required weapons at the minimum cost and in the shortest possible time.

Russia and the other members of the CIS have almost 100 conventional submarines, including 24 Kilo-class and 18 Tango-class. Both are fairly modern vessels. Similarly, there are about 28 destroyers, including 11 Kashins, which are reportedly being phased out. There are more than 140 frigates including about 40 modern Kravik-class vessels. over the next two to three years, India can seek transfer, on hire-purchase or lease, of 4-6 Kilo-class submarines, 3-4 Kashin-class destroyers and 6-9 Kravik-class frigates. These will fill the pressing gap in the naval strength by 1995.

The question of acquiring replacement of light aircraft carriers still remains. The USSR had five aircraft carriers of the Kiev-class. These were 40,500 ton vessels. It was building a still larger vessel of 67,500 ton displacement (Kuznetsov-class). These are larger vessels than what India requires. Moreover, they might not be transferred to India. However, two vessels designated as helicopter cruisers, the Moskva and the Leningrad, are of 15,000-17,000 tons displacement. They were primarily configured for ASW

role, especially against the nuclear-powered submarines armed with the first generation of Polaris I/II SLBM. But after Polaris III increased the range to 2500 n. miles, these vessels lost their effectiveness as ASW platform against the Polaris-armed submarines. Their production stopped. Reportedly, in 1973, *Moskva* was seen with landing pad for flight testing of VTOL aircraft. But at that time USSR did not have a suitable VTOL aircraft comparable to the British Sea Harrier. Also, USSR opted for a larger aircraft carrier of the Gorshkov and the Kiev-class and subsequently of the Kuznetsov-class.

Though *Moskva* and the *Leningrad* do not rate as aircraft carriers but as helicopter cruisers, it will be worthwhile to find out if they can be modified so that the Sea Harriers and the Sea Kings could operate from them. If so, they can be refitted to the level of the *Vikrant*. Thus, at least one of them can become operational by the time *Vikrant* is finally put to rest. The other, after similar refit, can act as a reserve aircraft carrier, pending the replacement of the *Virat*.

Apart from these fighting ships, India can also approach Russia and the associated states of the CIS for the lease or hire purchase of crucial support vessels that will enable these fighting ships to carry out their roles more effectively. The USSR had twelve submarine support vessels, including six of the Ugra-class operated by India. There are also several replenishment ships that will become surplus now that the CIS has ceased to have global naval deployment like the USSR had. Moreover, USSR had more than 25 intelligence ships ranging from 1,000 tons to 5,000 tons. India can seek to acquire at least two of them if the Russians can be pursuaded to part with them along with their electronic equipment. In all, India should seek 2-4 replenishment ships, 1-2 submarine tenders, and 1-2 intelligence ships to buttress its blue water capability. India can also approach these states for transfer of about 4-7 IL-38 aircraft to strengthen its medium-range MR/ASW capability.

As suggested, most of these items can be acquired from the ex-USSR stock either on lease, through hire-purchase or by a mix of both. Terms can be negotiated. India should move in that direction as early as possible before the large surplus fleet deteriorates due to non-use and likely neglect in routine maintenance. India has been using the Soviet systems as well as the Western systems, and hence will have no problem in modifying and updating these systems to suit India's specific requirements in India itself.

The end of the Cold War has radically altered the maritime environment in the Indian Ocean region. While the Soviet naval presence has declined, the naval surplus generated by the erstwhile Soviet Navy has offered India a unique opportunity to restructure its Navy at a reasonable cost and in a short time to meet the new challenges. It will be most inappropriate to miss this opportunity.

I am No Hero

COL A G RANGARAJ (RETD)

Often I am asked how I came to be the first Indian to do a parachute jump, as if I had performed a great feat. It was nothing of the kind. In fact, the event to me, anyway was not of great significance. The happening was pure chance. Truly I might not have even been selected to be a parachutist. Let me tell you about it.

Having been commissioned to the Indian Medical Service in July 1941, and having had basic military training, I was posted to the 18 Indian General Hospital at Meerut. There, while I was getting to know my fellow officers and men and my duties, one day early September in 1941 during a coffee break, the officiating CO, one Major Charlie Wood, came to tell me that a signal had come from Army Headquarters asking for volunteers for an Indian Parachute unit to be raised shortly, and suggested I should give my name.

I asked him what it was all about. He said that it was a new kind of force to be raised and there will be a lot of future in it, and I being young and fit would be a suitable candidate.

There seems to be a genetic defect in me, which makes me to volunteer for anything and everything, sometime rather foolishly. So, I agreed to his submitting my name to the Army Headquarters.

Nothing was further heard about it for a period of two months and I had also forgotten the matter. Meanwhile, my unit, 18 IGH, was ordered to go to BASRA in the Middle East. We were all excited about the prospect of seeing 'Action'. And we started packing all our hospital equipment and training our men in embarkation and disembarkation drills. Just when we were about to depart for the overseas journey, late October (1941) a message came from the Army Headquarters that I had to report to one, Col Abbott, at the Khyber Lines, Delhi Cantt as soon as possible.

This was a bomb-shell for me. I thought I had made a mistake in volunteering. Here I was, keen, all keyed up, at the prospect of going overseas and seeing action. And I had grown to like the unit, and wanted to go along with it. I told my C.O. that I didn't want to be left behind. But he said, orders are orders and I had to comply with it.

Col A G Rangaraj is a former senior officer of the Indian Medical Service (IMS). After retirement he joined the World Health Organisation where he is now a senior adviser.

So, I left Meerut with a sad heart for Delhi the next day. I dumped my kit at the Mess of the local Military Hospital and the day after I went to the Khyber Lines, which I found deserted. There was not a soul in sight. All the barrack rooms were empty. Walking round and round I saw a ruddy face with a pipe stuck in its mouth, peering through a glass window. On seeing me, the figure came out, and it was, indeed Col Abbott of the Frontier Force Regiment, nominated to raise the first Indian Parachute unit.

I introduced myself. He asked me when I was commissioned and what I did until then. Then he went on and asked me whether I knew how to speak Urdu, the Indian Army Troops language. Coming from the South, and having been in the Army only a few months, I didn't have any chance to learn, so I said no, and saw his face fall with disappointment. He said it was important for the Medical Officer to know the troops' language, since he had not only to do physical examinations but also had to carry out psychological aptitude tests. I said, I could learn it and when he asked how long would I take to do it, I replied, "possibly in a couple of months". He seemed satisfied. Little did he know, nor did I realise that even after two years, my vocabulary was limited to few functional words like, *Jeeb Dikhao, Phet May Dard Yeh Kya?*"

I then went on to ask him when I was going to jump. He looked at me aghast; then asked me whether I had been on a plane or I had seen a parachute. I answered in the negative to both the querries. He commented, "would it not be the necessary then to do some preliminary training before". I kept silent, seeing the logic of the reasoning. He added that I would be included for the preliminary training along with some British troops, starting the next day. The British troops were for the 151 British Parachute Battalion being raised along with 152 Indian Parachute Bn.

My innocent question i.e. "when am I going to jump," I was to learn years later from the Colonel, clinched my selection. I believe the Colonel was impressed with my infectious enthusiasm to jump. The irony of it was that my question was merely out of curiosity.

However, the preliminary training started, and it lasted for four months. It was a gruelling and an arduous one. The instructors were from the Parachute Training School at Ringway, England; Army and Air Force Sergeants. Big, burly blokes they were; their intent, it seemed was to grill us, good and proper.

They kept us on the move from 5 a.m to 5 p.m every day, what with physical training, road runs, obstacle courses, route marches in full battle order, make-up drill, parachute packing, and unarmed combat.

In the unarmed combat class, the gigantic instructors took a lot of delight in picking me up and slamming me down on the mat, just as the Indian dhobi does with the clothes on a rock to cleanse them. When I lay on my back stunned, they used to say to me, "come on Doc, get up on your feet". And before I could fully achieve an erect position, they would lift me aloft again and throw me down. Fortunately I was physically fit having for years indulged in regular physical exercise along the lines suggested by such stalwarts as Charles Atlas And Eugene Sawdow. So I could take the physical punishment being inflicted on me, with equanimity.

To be fair to the instructors, I should say, they also taught me how I could, in return, grasp them by their arm, bend, lever them over my body and thus bring them down. I thought body-slamming these big titans was great fun. And so in the pretext of learning, I tried to repeat the manoeuvre as often as possible.

Then came the 'Air Experience'. They took me on the plane along with some British troops who were to jump that day. Since it was my first flight, I was interested in looking down through the window to the sights below. When I passed and looked at the British soldiers, I was struck by the paleness of their faces; those were absolutely ashen, the blood having drained off. They looked terribly scared. I turned away and looked at my Commanding Officer, who also came along for the flight. I caught him critically examining my face. Gosh: It was clear that he was trying to assess whether I was scared or not. Silently, I thanked my parents for my dark complexion, which would not reveal any emotions of fear or such like.

Meanwhile, another Indian volunteer turned up and was included in the training as well. He was Havildar-Major, Mathura Singh, a Rajput with a striking figure. Just before we were due for "jumping", this NCO took me aside and whispered to me, that he felt squeamish about the whole affair, and being a married man he felt qualms about risking his life.

I assured him that there was no real danger; I asked him to note that the British troops were jumping alright. If they could we should be able to do as well. Any way, the could see me jumping first and then follow suit. He was satisfied with my suggestion.

This was my first lesson in leadership. How an officer had to encourage his men, infuse them with enthusiasm, maintain their morale and set an example to them by leading. The Halvildar-Major did jump later. But unfortunately after a period of four months he left the battalion for some personal reasons.

Well, speaking of myself, the day for my jump came. In those days, we jumped out of Valencias, a small sized biplane. We had to jump through a big hole, in the floor of the fuselage. Since the place was restricted there could only be eight men in each stick i.e. four on either side of the hole. After hooking up our chute straps to the strong point, we sat on our haunches on the floor, and when the 'Action Station, go' was sounded we sidled towards the hole, turned and jumped down the centre of the hole alternately from either side. If you a did not drop right in the centre, you were likely to strike your head on the sides of the hole, which could be hurtful; in those days, we used to wear pith helmets to protect our heads.

People often ask me whether I felt afraid when making the first jump. To tell you the truth, there was no time for thinking. You were so drilled as to the procedures before jumping, that you acted like an automation. Hooking up and checking up not once but two or three times whether the parachute is properly secured, taking proper position, and concentrating on making a proper exit on the sound of 'Go'.

Well, when my turn came, I was bent on getting out quickly and so leapt down the hole somehow. I couldn't tell you what sort of exit I made. There was the jerk on the shoulder after a free drop that lasted only a few seconds and I saw the beautiful parachute billowing over my head. But one of my legs got entangled in the 'Rigging lines'. I kicked myself free, and I was so entranced at the beautiful sight of the parachute against the blue sky, that I didn't take the landing position, ie, head bent down, knees slightly flexed, legs and feet together, and arms tugging up the body as the ground approaches.

In my case, the ground rushed up at me before I was ready, and I landed all of a heap.

I lay stunned for a moment, then got up, freed myself of the parachute and started rolling it up, for carrying it back to the parachute collecting point according to the stipulated drill.

While I was in this act, I saw a couple of officers running up to me. One was Major P Hopkinson and the other R Stewart, they being the Brigade Major and Staff Captain respectively. They asked me whether I was all right and when I said so, they told me to stop bothering about the chute then, and asked me to accompany them to be introduced to General Auchinleck, the Commander-in-Chief, who had come to see the 'PARA' drop. General Auchinleck was a tall, huge man, broad shouldered, massive chested, with beefy arms and hands. But despite his size, he had a benign smile. He shook

my hands warmly, congratulated me on my successful first drop, reminded me that I was a pioneer and so carried a responsibility to contribute to the success of this experiment of creating an Indian Parachute force. I believe there was a lot of skepticism about Indians making good paratroopers. And this experiment was mainly the brain child of General Auchinleck, who, of course was sure of its success.

And so I went back to my parachute, and for the completion of the rest of the course, which entailed four more day jumps and two 'night' drops. The day after my first jump, all the newspapers in India carried in banner headlines of "the first Indian to do Parachute descent"; there was also of a photo that showed me making the descent. All this I came to know only days later, as we were all confined to barracks, as it were, during the training period; there was no access to newspapers; nor was there any spare time to read them. Our work-day schedule was full.

I myself did not give much thought to the publicity given to the event; I considered it of no great importance. It just happened to be me; it could have been anyone in my place.

But what did affect me was this: I believe my brothers and sisters at Vellore, my birth place, on seeing the news in the papers were so excited and worked up, they ran up to my grand mother and said, "you know, brother Rangaraj has jumped from a plane". She said, "What: I don't believe it". When they said, it is in the papers, she replied that it was foolish to believe whatever that is written or shown in the newspapers. As for herself, she knew Rangaraj better than anyone else, "He was such a timid lad, and he would never ever go out in the dark". So, I was told, to her dying day she never gave credence to the report that I did do a Parachute jump.

Review Article I

All About Maritime Affairs*

VICE ADMIRAL MIHIR K ROY, PVSM, AVSM (RETD)

The World Oceans and its attendant smaller seas occupy 362,000,000 sq. kms or nearly 71 per cent of the earth's surface. The Indian Ocean which covers 26 million square miles washes the shores of three continents and 36 littorals encompassing one fifth of the world's sea area and supporting one third of the earth's population. It is therefore not surprising that the seas play a dominant role in shaping human existence by critically influencing ocean geopolitics, strategic resources and eco systems.

This second edition of the 'World Handbook on Maritime Affairs' has been expanded from seven to fourteen chapters. The new chapters include the modern laws of the seas and a list of maritime organisations, and conventions. Living and non-living resources, maritime transport and communications, strategic ocean interests as also emerging marine science and technology, environmental protection and maritime education and training are well covered together with a comprehensive list of the different types of maritime disputes. The handbook also contains four appendices on the U.N. Laws of the Seas, lexicon of the Law of the Sea, selected periodicals, and maritime reference bibliography. The second edition is, therefore, a handy reference book covering a wide spectrum of ocean activities most of which have surfaced during the eight years of international debate on the New Ocean Order which was ratified by 160 nations on 30 August 1982.

Twenty knowledgeable scholars and scientists have contributed to this revised edition which has been compiled by Edgar Gold for the Oceans Institute of Canada. This self contained handbook therefore will be a welcome addition particularly on the Sub-continent where maritime scholars, ocean technologists and marine scientists are elbowing for more lebensraum in the proliferating environment of critical interests such as ethnic cleansing, environmental degradation, drug trafficking and globalisation of economy albeit to suit developed countries.

The physical and economic geography of the oceans affecting the demographics of the intenational community, the exploitation of the seas and seabed, the enlarging marine sciences as also the need for environmental

* Maritime Affairs: A World Handbook (Second Edition): A Reference Guide for Modern Ocean Policy and Management. Edited by Edgar Gold, U.K., Longman Group, 1991, p 479, ISBN 0-582-08693-0.

protection has been spelt out in non-technical terms which will be of particular interest to the general readers as the warm Indian Ocean has been separately mentioned in these studies.

The chapters on oceanic geopolitics which is described as the science which conceives the state as a geographic organism or as a phenomenon in space elucidates the emerging ocean order.

The chapter on maritime education and training, in turn, spells out the UNESCO report of 1988, enunciating the challenges for the year 2000 AD covering a wide spectrum of emerging maritime subjects such as environmental pharmacology and toxicology, ocean technologies, diving physiology, marine veterinary science, application of remote sensing marine archaeology and so on.

In this seemingly unipolar world, it is apparent that the management of the sea will necessarily be a multipolar and multi-disciplinary responsibility.

Again the spectrum of activities are so varied that it will require a coherent maritime policy to determine national priorities especially as the centre stage has been monopolised by super power overtones relating to nuclear proliferation, Dunkel proposals, human rights, and intellectual property rights.

But nevertheless, the developed countries which now include China have already strengthened their infrastructure for ocean development as it is apparent that by A.D. 2015, the pressure on land will compel man to look more and more to the resources of the seas and seabed.

But alas in India, where we tend to be more reactive than pro-active, in dealing with our priorities, we have nearly 17 ministries dealing with ocean activities with hardly any inter-ministerial coordination. For example, surface transport deals with shipping; ministry of agriculture and food processing with fishing; Department of Mines with seabed exploitation; Coastguard with poaching and pollution; Ministry of Defence with maritime security and so on.

It is therefore not surprising that the Department of Ocean Development structured by the late Prime Minister Indira Gandhi in 1982 for India to stride into the 21st century has now withered into a minor Department with a budget that does not attract either talent or credibility.

Hence there is an urgent need to have a Council for Ocean Affairs with the Prime Minister coordinating the policies of nodal ministries as already il-

lustrated in the National Development Council (NDC), Council for Scientific & Industrial Research (CSIR), Atomic Energy Commission, Island Development Authority (IDA) and so on with the existing ministries taking sectorial responsibilities for their allotted tasks.

The Indian Ocean is perhaps the country's last frontier for reducing poverty and unemployment on the Subcontinent. It is therefore necessary to firstly understand the seas around us and then formulate a cohesive national maritime policy. Hence this well researched Handbook on Maritime Affairs needs to navigate its way into the Parliament library as also be smuggled into Ministries, Universities, Technological Institutes and Chambers of Commerce. Failure to do so will however not be instantly visible nor seemingly catastrophic. India's sea blindness will however continue and may be likened to the AIDS syndrome which will further debilitate the nations halting stride into the twenty-first century.

Review Article 2

Persian Gulf War*

AIR MARSHAL H K OBERAI, PVSM, AVSM, VM (RETD)

This book has been written by fifteen writers of the *Time International* magazine. They have revised and updated reports and despatches of *Time* correspondents who covered the war from vantage positions. Notwithstanding the painstaking efforts of these eminent writers and the excellent get-up of the book, there is not much new that has emerged.

A point has been made, that before the war the US administration was mostly pre-occupied with Gorbachev and Eastern Europe and the Middle East received less than the desired attention. Besides, the quality of expertise available on the region had declined. Saddam's intentions thus could not be seen clearly. Such an assumption is untenable if not unbelievable. The CIA to this day has remained hyperactive in this sensitive region, and in any event satellites tell no lies.

It can as well be said, that it was the USA who perhaps unwittingly encouraged Saddam into this mis-adventure. For eight years during the IRAN-IRAQ war, USA was indulgent to him though covertly, and saw him as an instrument for stemming the rising tide of Islamic fundamentalism. Even after the war, USA remained benign to him. He was to be their 'prop' against IRAN in the strategic Persian Gulf. Ambassador Glaspie's words to Saddam on 25 Jul 90, "President Bush personally wants to expand and deepen the relationship with IRAQ", and further "we have no opinion on Arab-Arab conflicts", tell the tale succinctly. Saddam was permitted to feel free and to do as he pleased.

Early in the book, there is a reference to President Bush's State of the Union speech. He said, "These are times when we must step forward and accept our responsibility to lead the world away from the dark chaos of dictators----------". This appears to be a part of his vision of new world order, but sounds like fiction. After world war II, no other country has supported more dictators and autocratic regimes than America. Pakistan with its string of dictators, Ayub, Yahaya and Zia is one amongst many such examples. The ostensible reason was, it added to American security. It is hoped that the pattern contemplated now is without any such strings.

The Chapter on "Stealth and Smart Bombs: Will Star Wars Work" is

---

* Desert Storm - The war in the Persion Gulf ed. by Otto Friedrich, Boston, Little, Brown, 1991, p. 230, $ 19.95, ISBN 0-316-85100-0.

well narrated. Smart weapons have proved to be accurate. But in the Gulf War they were launched in ideal conditions. In a hostile environment where the countryside is mountainous and command and control of the opponent is decentralised as in Viet Nam, their effectiveness is yet to be determined. It has been admitted that Patriots were not as successful as initially reported. Putting such a system in space is an altogether different equation.

'Desert Storm' has some lessons for the IAF. Like the Iraqi Air Force, 60 percent of its combat fleet is of Soviet origin. While a machine is as good as the man who operates it yet, when the enemy is equally determined, the quality of the machine becomes the decisive factor. Russian aircraft are rugged and reliable but their avionics are grossly inadequate for the demands of modern air warfare.

Iraqi air defence system was paralysed by the overwhelming superiority of US and its allies in electronic warfare. We may not have the knowhow for AWACS technology, but we do have sufficient talent for simpler but equally crucial systems like self protection and escort jammers. Their development and production needs to be expedited.

Tornados of the RAF suffered the heaviest losses in low level runway denial missions. The Jaguars are likely to be equally vulnerable in counter air operations. IAF may wish to revalidate their low level tactics.

Review Article 3

Presidential Decision Making*

LT GEN SPM TRIPATHI, PVSM, AVSM (RETD)

This book is about the decision making process in the highest echelon of United States. The decision making process of the President of United States would any day, make an interesting reading. But when a book examines this decision making apparatus during a major crisis, that piece of literature becomes eminently readable.

Authors Burke & Greenstein have based the book on the premise that the quality of decision making differentiates a successful from an unsuccessful President. There have been repeated attempts to identify the factors, based on hard data, that tip the balance between right and wrong decisions taken by Presidents. The results obtained have been diverse but the factors that influence decision making generally belong to three categories: the Presidents advisory system (formal & informal), the President himself and the political environment of the President and his advisers.

The book essentially examines decision making process of President Eisenhower and Lyndon Johnson as applicable in 1954 and 1965 respectively, the apparatus they used and the impact of the two Presidents on that apparatus. The facts have been put down in a direct manner which is easy to understand by a lay reader. And some startling facts emerge.

Eisenhower is an interesting subject, markedly different from the image he deliberately presented to political observers and analysts in the 1950s. He projected himself in "ceremonial activities and in his recreation of golf & fishing beeming his contagious grin, uttering homely reassurances". To most of the Americans Eisenhower "seemed to be a political innocent who viewed his role as Chief Executive as duty and honour but not as a mandate to immerse himself in the direct process of governing". Once, however, documents during his Presidency became available, a totally different picture has emerged. These papers show that Ike was "a president who, far from being a figurehead, was the engine of his Presidency". His speech was "dignified, but simple and direct enough", his prose was crisp and detached and displayed considerable deductive clarity. During his Presidency the decision making process bloomed to its optimum usage because he allowed the discussions full latitude and indeed guided these discussions keeping the

* How Presidents Test Reality: Decisions on Vietnam 1954 and 1965. By John P. Burke and Fred I Greenstein, New York, Russell Sage Foundation, 1989, p. 331, $ 29.95. ISBN 0-87154-175.

larger issues in view. Thus a decision was arrived which was to benefit America.

On the other hand an experienced politician like Lyndon Johnson used the decision making apparatus much differently. He believed more in informal consultations and the impact of his personality led to considerations of immediate issues, was restrictive in nature and lost sight of long range interests of the USA. Despite having very bright advisers, Johnson led America to a war which proved detrimental to his country.

The book presents its theme in a lucid, chronological manner which makes the subject both interesting and understandable. The need for unrestricted discussion, and dissention in higher decision making has been extremely well established. This need cannot be overemphasised in the Indian context, a fact which makes this book very relevant to our readers.

Though the title of the book is uninviting, the contents make the book worth reading and digesting.

Review Article 4

The Story of the Singapore Traitor*

LT GEN SL MENEZES, PVSM, SC (RETD)

The fall of Singapore to the Japanese in February 1942 was a benchmark in the history of the Indian Army, leading to the creation of the "Indian National Army" from among the Indian prisoners-of-war; it was also one of the lowest points in British fortunes in World War II, the authors devoting a chapter to "subversion" of Indian units in Malaya. Not so-well-known is that during, and for sometime after, the disastrous Malaya campaign of December 1941 to February 1942, rumours circulated that a British Officer had been in radio communication with the Japanese. *Odd Man Out* tells the story of this alleged spy in the British-Indian Forces in Malaya, an officer whose ostensible traitorous activities played a significant part in the Japanese victory. Although the Japanese would still have captured Malaya without his apparent assistance, the information he reportedly provided, particularly about aircraft movements, helped their two-months campaign considerably. There was disagreement over his identity, variously that he was an Air Force Officer or an Army Officer, but most versions iterated that he had been court-martialled, some adding that he had been deliberately shot.

No official release was then made as to this case, because of the chaos at the time, and an official blackout for reasons of security and morale; there are no files surviving. Vague references occurred in some post-war accounts of the Malayan campaign, and it was these that aroused the interest of Peter Elphick. Court-martial records in Britain are kept classified for 75 years, and, when informed that no papers on this affair existed in any British archives, the authors set-out to research the matter. This book is the resultant absorbing story.

By diligently tracing survivors of the period, the authors have narrowed the list of suspects to one; Patrick Vaughan Heenan. Born illegitimate in 1910 in New Zealand, initially brought up from 1912 by a step-father in Burma, shuttled between public schools from about 1923 onwards for vague reasons in England, he then worked from 1929 for an established London firm. He thereafter obtained a commission in 1933 in the Supplementary Reserve, and, by this device, a vacancy in 1935, in the much sought-after Indian Army. He was not liked by the British officers of his regiment, 16th Punjab, though he got on well enough with Indian officers, and the men of

* Odd Man Out: The Story of the Singapore Traitor by Peter Elphick and Michael Smith, London, Hodder and Stoughton, 1993, pp 265, £ 17.99, ISBN 0-340-58762-8.

his battalion. He was therefore shunted about (RIASC etc). Heenan was reportedly also a womanizer, having spent a long leave in Japan with a Japanese woman, in late 1938 and early 1939. When he arrived in Malaya in 1940 in a different 16th Punjab battalion, he was again disliked by his brother British officers, though friendly with Capt AD Jehangir, Ist Bahawalpur Infantry, who later joined the INA. He was now posted out as an Air Liaison Officer.

When the Japanese struck on 7 Dec 1941, with apparent precise knowledge of British aircraft locations and intentions, he was already disliked, with much circumstantial evidence marshalled against him. It is not clear as to why, in the prevailing spy mania, Heenan only should have come under suspicion for the Japanese attacks on British aircraft, but, as stated earlier, the authors have been totally handicapped by the absence of official records. He was arrested, moved in irons to Singapore, tried, and, at the last moment, before Singapore fell to the Japanese, he was taken to the docks ostensibly to be evacuated, but deliberately shot in the head, the Royal Military Police executioner escaping from Singapore, amidst the controversial demoralisation/ desertion among Australian units, described in this book.

The authors' detective narration is skilful and unput-downable. Heenan was undoubtedly shot, the matter being deliberately obfuscated at the time, and thereafter. All military campaigns are accompanied by spy manias, the wrong man often being executed. In the absence of all the official records of the time, in this case it is difficult for this reviewer to say that the right person was tried and unofficially executed. Certainly a circumstantial case was built-up against him, not only because he was the "Odd Man Out" as the title suggests, but because he was also the "Odd Man In" the then Indian Army.

Book Reviews

Contemporary Strategy I: Theories and Concepts (Second Edition Rev and Enl). By John Baylis and Others, *New York, Holmes & Meier, 1987, p. 326, ISBN 0-8419-0930-X.*

Four authors with a cross section of views have contributed individual chapters in the book. These are, however, self contained and deal with near contemporary issues in strategic thought in a thought provoking and clear manner eschewing unnecessary jargon.

The book deals with the role of military power - the implied definition of strategy is akin to our understanding of military strategy, in that it implies the overall use of a nation's power to achieve long term ends. Although strategy is a universal preoccupation its meaning is always contextual, set by problems, perceptions, traditions, and ideology of a particular nation or group. A very relevant assumption made by the authors deserves to be mulled over by us - if war is much too serious a business to be left to the generals it is also too serious to be left to politicians. What is required is a continuous dialogue between the two. The influence of civilian and military strategists at the highest levels of political planning is no more a threat to the democratic process than the influence of any government advisors.

The 1987 edition of "Contemporary Strategy" was produced as there was a need of an update of the earlier 1975 edition, taking into account the history and the technological developments of the intervening period and an expansion into neglected areas. Post cold war developments have already resulted in the updating of large portions of the book pertaining to Cold War strategic developments. The rapid break up of the Soviet Union has further altered the environment and many aspects pertaining to issues such as strategic nuclear thinking, disarmament and arms control will require further upgradation.

The assessment of the "Role of Military Power" and "Revolutionary Warfare" will be of special interest to the Indian readers.

Overall a well laid out book, makes easy reading for the military mind as also for the layman. An invaluable addition to defence libraries.

-- Lt Gen S Roychowdhury, ADC
G O C-IN-C Army Training Command

Arms Export Regulations. By Ian Anthony. *Oxford, Oxford Univ., 1991 for SIPRI, p. 267, ISBN 0-19-829158-2.*

This very informative book deals with the arms export regulations, missile technology control regime (MTCR), and studies of 24 countries and their decision making processes for control of arms exports. Whereas some countries like Brazil, and France have an export oriented policy and therefore have less controls, others

like the USA and its allies are very worried about the export of technology and certain hi-tech components. The U.S. heads a co-ordinating committee on multilateral export controls (COCOM). This organization operates from the US embassy at Paris. It had 17 members in 1991 including Japan, Australia, Canada and the NATO countries.

The book deals with exports of conventional weapons only. Atomic, biological and chemical weapons are dealt with in other publications. First attempts by U.S., U.K. and France in 1950 to limit the supply of arms in the Near East came to grief when Egypt made the greatest purchases of arms from the USSR in 1955. The U.N. has been active in this field; surprisingly India in 1976, obstructed the passage of a request by Japan asking the Secretary General from undertaking a study on arms transfers. A study has since been under preparation but was not available till the publication of this book in June 1991. The studies in the past were incomplete due to lack of data from the USSR, which has now been promised.

An interesting table of exports by 68 countries, shows India as 49th-exports $ 36 million in ten years, just above Ethiopia. Pakistan is 39th--with exports of $ 75 million in the year, 1990.

This book should find a place in all defence libraries.

-- Maj Gen Partap Narain (Retd)

Arms Control Today. By Sir Hugh Beach, *London, Brassey's 1992, p. 75, ISBN 0961-8422.*

General Sir Hugh Beach who was a distinguished officer of the British Army has very ably put in a small book the various Arms Control Measures adopted to contain any one country to achieve supremacy. He has discussed various aspects relating to cessation of nuclear arms race and the nuclear disarmament.

The author has discussed the treaties signed at various stages in particular those between the USA and USSR and the confidence measures taken with a view to reduce the ever increasing tension and the fear of war between the two super powers. With the formation of Commonwealth of Independent States which are of no threat in the near future, the General may like to have a fresh look at the Arms Control Measures in respect of those countries which are emerging as Nuclear Powers.

-- Captain R.P. Khanna, *AVSM*
Indian Navy (Retd)

International Armed Conflict Since 1945. By Herbert K Tillema. *Boulder, Westview, 1991, p. 360, $ 52.00, ISBN 0-8133-8311-0.*

Described as a 'Bibliographic Handbook of Wars and Military Interventions', this book offers concise factual capsules on each of 269 international conflicts be-

tween 1945 and 1988, including those internal armed conflicts with overt intervention by outside powers. Opinion and criticism is avoided. The books and references listed are those in English and American libraries. Its purpose is for reference use by scholars, being a part of an ongoing study which will ultimately cover more than 600 overt foreign military interventions.

The book certainly achieves its purpose. The short introduction describes the content and format, making it easy to pick out needed information. It is a mine of terse detail, very readable and interesting as it records many easily forgotten small wars. A most valuable addition to libraries, particularly those covering international affairs, national security, and military history.

-- Tindi

Military Small Arms of the 20th Century: A comprehensive Illustrated Encyclopedia of the World's Small-Calibre Fire Arms, New 6th Edition, Fully Revised, By Ian V. Hogg and John Week, *London, Arms and Armour, 1991, 349 pages. £ 25, ISBN 1-85409-034-8.*

It is a revised and up-dated reference book to the World Small Arms. It covers the latest versions of weapons used during two world wars and designs destined to take us into the next century.

The book as usual is divided into various sections, covering pistols, bolt-action rifles, automatic rifles, submachine guns, machine guns, anti-tank rifles and ammunition with glossary and index at the end. The information on weapons is well illustrated with new photographs and line drawings. The book covers small arms of 45 countries of the world including automatic rifles of India.

The authors indicate two trends in the development of these weapons:-

(i) A compact personal weapon falling somewhere between pistols and sub-machine guns but possess fearsome fire power.

(ii) A very heavy, long range sniping rifles for attack on sensitive enemy equipment.

The authors have done a commendable job in collecting information on small arms which would be useful for study of such weapons.

-- Maj Gen K B Narang *(Retd)*

Chance and Design : Reminiscences of Science in Peace and War. By Alan Hodkin, *Cambridge University, 1992, p. 412, £ 40.00, ISBN 0-521-400906.*

Alan Hodkin tells his story with typically British under-statement, he cannot quite conceal the enormous zest for life and work which cheerfully took him through an interrupted academic career, wartime research into radar, and romantic travels, at

times when war could make these horrowing experiences. The narrative glosses over a brush with death when his aircraft was shot up during a night trial, and matter of factly describes a lifetime of intensive work on nerve conduction which turned chance and opportunity into a Nobel Laureate. An enjoyable book, but with little of military interest other than the account of early radar development.

-- Tindi

C^3I: Issues of Command and Control. By Thomas P. Coakley, *Washington, National Defence University, 1991, p. 408.*

Issues of Command and Control edited by Lieutenant Colonel Thomas P Coakley is acronymed from Command, Control, Communications and Intelligence. Best personnel, equipment, and plans are meaningless if you cannot communicate to anyone or have functioning system for command and control. The Editor has tried to effectively bring out the fact that C^3I welds the stuff of defense - weapons, ammunition, fuel, logistics, spares, buildings and personnel - into an effective fighting machine. The analogy of C^3I with the human body system is very aptly brought out. The central nervous system exercises the body's command function - receiving and processing information and making decisions. Command covers organisational levels from the apex body down to the soldier incharge of a small patrol. At each level it involves receiving and assessing information about the environment (enemy, friendly forces intention) selecting a best option and sending out orders to implement that option.

The author has effectively defined the ingredients of efficient coordinates of C^3I and has pin-pointed the responsibility of lop-sided development of resultant decision making on military commanders who have down played/underplayed C^3I and emphasised instead in better military hardware. On the other hand the Engineers/ Technicians/Wireheads overplay mechanics of C^3I-radios, computers, satellite, local area networks, etc.

-- Air Cmde S K Bhardwaj

Alexander the Great: The Invisible Enemy: A Biography. By John Maxwell O' Brien, *London, Routledge, 1992, p.336, £ 25.00, ISBN 0-415-07254-9.*

One would assume little new or of fresh interest in yet another biography of Alexander the Great (there are over 300) and one could be very wrong. This scholarly work with nearly a 100 pages of notes and bibliography examines Alexander's personality with just enough mention of military/political matters to focus on certain perplexing facets of Alexander's personality. Even as he performed one epic deed after other this superb warrior began to exhibit a disturbing personal transformation.

During the last seven years of his life Alexander became increasingly unpredictable, occasionally violent, megalomaniac and suspicious of friends as well as enemies. This book explores the question of this lamentable transformation - and almost succeeds.

Many readers will object to the way the hero is portrayed; the author commends us to the words of Alexander's tutor, Aristotle "no one is able to attain the truth adequately, while on the other hand no one fails entirely". The arrangement of the 50 page Bibliography simplifies further reading. A serious book, which is a delight to read and a treasure to have on ones bookshelf.

-- Col Balwant Sandhu

Genghis Khan: His Life and Legacy. By Paul Ratchnevsky, *Oxford, Blackwell, 1991, p. 313, £ 25.00, ISBN 0631167854.*

Thomas Nivision Haining has translated and edited the original German, a work of great erudition and complexity, into a highly readable account of Mongol administration, military organisation, laws and religious polity. The campaign accounts are clear, free of folklore, court duplicity and the 'after action' dust.

The Mongols' heavenly right to lord over the lesser nations easily translated in the harsh nomad environment of the 12th century steppe as a merciless elimination of not only the kin and the foe, whole tribes and communities but also the wayfarers the great Khan's coffin met on its journey home!

Last part of the book examines the Great Khan's achievements and his legacy. Merciless and cruel, the illiterate and uneducated Khan could be just, uncorrupt, even handed and human -(he was afraid of the dogs). He promoted on merit, had few favourites when it came to distribution of spoils of war - a strange switchback from the "edicated', literate scam-lords" of our own! No wonder he turned a small, backward nation into the most powerful and civilised nation state in Asia.

A book for the critical scholar, a lay reader or a friend.

-- Col Balwant Sandhu

Hegemonic Rivalry: From Thucydides to the Nuclear Age. ed. By Richard Ned Lebow and Barry S Strauss, Boulder,*Westview, 1991, p. £ 25, $ 41.50, ISBN 0-8133-7744-7.*

In BC 431-B.C. 404 was fought the war between Sparta and Athens, two hegemonic city-states and involving other Greek states in the natural course. Thucydides' History of the Polynesian War is not only an analytical account of the course of events, but also a philosophic treatise on international relations, multipolarity as a factor of diplomacy and on causes and dynamics of war - a classic for all times to come.

How far are Thucydides' writings and concepts applicable to the nuclear age, the global hegemony of and mutual confrontation between the Super Powers - the United States and the Soviet Union, or in a broader sense, between Democracies and Authoritarian regimes. How can Thucydide's concepts of Realism and multi-polarity

in international affairs be interpreted or stretched in modern times, or his Power Transition Theory retain validity if at all.

In the publication under review, dedicated scholars and authors ancient historians on one hand and political scientists on the other, offer us critical reviews of Thucydides' projections. In the process, the reader is benefited by new insight into the intricacies and compulsions of the Power Game threatening global peace and harmony.

Richard Ned Lebow's essay on Power Transition Theory (chapter 7), Michael Doyle's exposition on Thucydides Realism (Chapter 8) and Mathew Evangeliste's discourse on Democracies versus Authoritarian states could constitute selective study by the modern reader seeking to understand international affairs.

– Maj Gen S K Talwar *(Retd)*

Force and Accommodation in World Politics. By Stanley E. Spangler, *Alabama, Air Univ, 1991, p. 359, $ 18.75.*

Conduct of diplomacy and international relations appears to the uninitiated as an enigmatic exercise. Stanley B Spangler in his dissertation on "Force and Accommodation in World Politics" suggests that had the US role models and paradigms in inter-state relations during the cold war not been circumscribed by "speaking from position of strength, threat of use of force, containment", but been based on quid-pro-quo concessions and attempts at accommodatin, the cold war atmosphere would not have been vitiated as much as it was. Evidence now does suggest that aggressive Soviet responses were more a result of internal economic, social and political dynamics coupled with historical feeling of insecurity. The author suggests that more accommodative policies by the US may have avoided the Korean war, the periodic eruptions over Berlin and the misperceptions about Vietnam as also relentless build up of nuclear and conventional weapons arsenals. This in turn would have had a salutary effect on the economic ferment in the Eastern and Western blocks.

The author is of the view that had there been a judicious use of carrot and stick policy by the US, instead of the belief that a concession was bound to be interpreted by the adversary as a Munich type climb down, there was a possibility that a more cooperative environment would have emerged. The author terms this approach as "Positive Diplomacy" and avers that such a conduct would have produced more durable and superior solutions to those that emanated from containment and deterrence.

A book really for students of international relations which through case studies tries to explain terms like dominance resolve and international sophistication as applicable to a Super-Power like the US.

– Air Marshal K D Chadha
PVSM, AVMS, VM (Retd)

On Not Confusing Ourselves: Essays on National Security Strategy in Honour of Albert & Roberta Wohlstetter. Edited by Andrew W. Marshall, J.J. Martin, & Henry S. Powen, *Boulders, Westview, 1991. p. 330 , £ 53.00, ISBN 0-8133-1195-0.*

This is a tribute paid to scholars by publishing essays in their honour, written in this case by authors of no mean calibre themselves. The rather involved title comes from a provocative article written in 1975 by Albert Wholstetter entitled "Optimal ways to confuse ourselves" in which he had foreseen changes coming about in the global strategic spectrum; changes which have now become realities after the break up of the former USSR.

The wealth of material in this book, and the large number of organisations working on problems of national and international strategies, is indeed revealing. The discussions concern the problems of today's analysis of warfare. This warfare is no longer confined to what many of us have been brought up on - conventional or nuclear warfare. Warfare today, in addition, is from Terrorists Groups and clashes between armed organisations not necessarily of one nation or a coalition of nations against one another.

Regretably, unlike, USA, we have a very few Think Tanks in the country which have the infusion of wideranging intellect in the study of problems of National Security.

– Lt Gen AM Sethna, *PVSM (Retd)*

'Touchlines of War', By Peter Tennant. *University of Hull Press, 1992, p 312, £ 8.95, ISBN 085958-603-0.*

(Sir) Peter Tennant, a young don at Cambridge in the early nineteen thirties worked with the British Intelligence during World War II. His marriage to a Swedish national and knowledge of modern languages led to his being appointed as the Press Attache with the British Legation at Stockholm. During his five and a half years stint in this appointment, he played a significant role in convincing the Swedes, particularly their decision makers, that it would be proper and prudent to back the anti-Nazi alliance.

Swedish neutrality and the transit facility they were forced to concede to the Germans were dictated by circumstances which are well documented. Sweden played an inglorious role in the War, but her neutrality proved advantageous to both the Allies and the Axis combine. Peter tennant who watched the goings on from a ringside seat has recorded them in a lively and highly readable narrative.

– Lt Gen PE Menon, *PVSM (Retd)*

Terrorist Games Nations Play. By Maj Gen. S. Mohindra, *New Delhi, Lancer , PUB, 1993, p. 186, Rs. 260/-, ISBN 1897829051.*

In the context of the excruciating financial, threat of mass destruction of life

and property/material inherent in modern war, and spontaneous world-wide reaction or atleast condemnation, the 'Faceless War' through sponsored insurgency and terrorism have created new threats to nations and to Society. Understanding this capability, threat has become vital for governments and people, and should constitute an essential factor of national strategy.

General S. Mohindra's book - Terrorist Games Nations Play is a veritable treatise on state-sponsored terrorism as an instrument of domination by expansionist and authoritarian regimes. In a crisp and smooth flowing style, the author has discussed numerous such ventures that have erupted across the global canvas during the twentieth century, to focus on causes, methodology and effects/achievements thereof. He thus arrives at useful lessons and guidelines on the tasking, phasing and structuring of such 'elements'.

The author then proceeds to project views and suggestions on counter-terrorism at national and international levels which national strategists and policy makers would do well to note.

Immensely readable, the book could usefully serve as a text-book for defence studies.

-- Maj Gen S K Talwar *(Retd)*

Western Political Theory in the Face of the Future. By John Dunn, *Cambridge, Cambridge Univ, 1979, p. 143, £ 5.95, ISBN 0-521-43755-5.*

John Dunn's highly scholarly commentaries on contribution of western political thought on issues like Democratic theory, Liberalism, Nationalism and Revolution would be more readily intelligible to western readers familiar with concepts stemming from Locke's individualism, Hobbes Leviathan or Rousseau's absolute freedom than to many in the orient. The author also raises very pertinent issues as to why capitalism has not been replaced by a new more relevant moral and aesthetic order and why has there been a failure of the socialist promise. He goes on to suggest that a model of representative democracy and capitalist economy is perhaps best equipped to provide material and psychic needs of present day times. He, however, cautions that with the elimination of the "cold war", future dangers do not stem from ideologies or thermo nuclear weapons but from a disregard of the environment and ecology. His poser is "do people know the overall consequences of their actions which have made the human habitat so vulnerable". His fear is that unless a realisation comes soon enough the situation may become beyond repair.

An erudite edition raising thought provoking questions but which may pose some difficulty in comprehension to the lay.

-- Air Marshal KD Chadha
PVSM, AVSM, VM, (Retd)

Global Politics: Globalization and the Nation-State. By Anthony G. McGrew, Paul G. Lewis et al, *Cambridge, Polity Press, 1992, p. 330, £ 12.95, ISBN 0-7456-0756-X.*

The book 'Global Politics' demands the commitment of concentration for imbibing its textual content. A revised and updated version of the Open University course of the same name, it is indeed staple fare for students, lay readers seeking an understanding of the fundamentals and for self education of writers whose expositions add to the evergrowing literature on the subject.

The nature of global politics, best illustrated by the cover image of 'Concentric Rinds', has been explained in the three competing paradigms of realism, liberal pluralism and neomarxism. The theme of the impact of globalisation on the existing order of nation-states permeates the theoretical discussion backed by the empirical observations on the technology impacted integration of the global political and economic order. The resultant modernity and counter currents as the attrition of the past and cultural dissent render this era transitory and interesting.

The first and last chapters by McGrew provide the conceptual framework and summation respectively of the scholastic contributions that the book comprises. The historical and by now academic percursor of superpower polemics to the present is dealt with in the first part. Of interest is the incisive observations on the limited superpower impact on the largely autonomous determinants of inter South Asian relations.

The second part describes the technology spiral inspired downgrading of the military factor in power equations and ascendence of economic concerns as central especially in post industrial societies. The regionalisation of economics, described in the third part, has made of what would otherwise have been a unipolar world, a quasi multipolar one. The impending dispensation for the South the erstwhile Third World, and the semiperipheral Eastern bloc, shall subserve the legitimacy and longevity of the economic order.

The last part dealing with the cross cultural response to globalisation as synonymous with Westernisation and as opposed to modernisation is for us most significant. Late John Vincents text on human rights issues and Becleys' discourse on today's Islam need to be read in conjunction with the articles on the same subject in the latest Fall 93 issue of the journal Foreign Policy.

The book is indeed worth gracing, the bookshelf and one can predict that repeated usage for reference shall keep it fairly well dusted.

—Capt Ali Ahmed

Global Visions: Beyond the New World Order, ed. By Jeremy Brecher, John Brown Childs and Jill Cutler; *Boston: South End 1993, p. 317, $ 16.00, ISBN 0-89608-461-2.*

The revolution in technology, information and communication has converted the globe into one inseparable entity. Thus setting off the attempts for globalisation.

New World Order being propounded currently is, globalisation from above, aimed to tranfer power and resources fron natural world to human domination, from communities to elites and from local societies to national and transnational power centres. Globalisation from below implies, redistribution of power both upward and downward to a global yet decentralised multilevel system with participation of people in decisions which effect their life. This involves issue like environment, ecology and use of local resources. It represents a convergence of goals among people the world over. The book presents a logical and strong case for globalisation from below. A very thought provoking and informative book with contributions by different authors coming from diverse fields and specialities.

– Lt Col Anil Sharma

The New Insurgencies: Anticommunist Guerrillas in the Third World. By Michael Radu, London, *Transaction Pub, 1990, p. 306, $ 39.95, ISBN 0-88738-307-6.*

This is extremely readable book, although written from the cold war angle in 1990.

The book is rich in theocritical content and provides absorbing case studies of six anticommunist militant movements including Afghanistan, Cambodia, Ethiopia, Mozambique, Angola and Nicaragua.

The introduction, written by Michael Radu, is extremely instructive and should be of interest to Indian readers in view of various ongoing and incipient insurgencies in our country.

The case study of Afghanistan's anticommunist struggle should be read carefully by our military thinkers and planners. It has useful information on the goals, strategies, tactics and assistance provided to the Afghan insurgent groups (mujahideens) from outside.

– Maj Gen Afsir Karim, *AVSM (Retd)*

Tanks, Fighters and Ships: U.S. Conventional Force Planning Since War II. By Maurice A. Mallin, *Brassey's (US), p. 275, ISBN 0-08-036245-3.*

The book Tanks, Fighters and Ships traces the major trends in the U.S. Defence Policy since World War II and suggests some of the factors likely to influence the re-examination of defence programmes and priorities.

The book takes the readers through 6 historical eras of military planning. There are also chapters which discuss specific issues, e.g., Chapter IV looks at the origin of NATO alliance, chapter VI discusses some of the changes in the National security policy that occurred towards the end of Eisenhower's administration, chapter VIII focuses on the Vietnam War and chapter XI presents conclusion drawn from the book.

A remarkable book where much research has gone into. The Indian defence planners could learn few lessons from this book.

-- Captain R P Khanna, *AVSM*
Indian Navy (Retd)

Understanding Foreign Policy: The Foreign Policy Systems Approach. Ed. by Michael Clarke and Brian White. *Hants, Edward Elgar, 1989, p. 222, £ 8.95.*

A text-book for under graduate courses on international politics, the book contains eight essays by senior academicians in international relations. The book aims to provide students with a readily available introduction to foreign policy analysis.

The basic premise of the book is that an understanding of the foreign policy process is crucial to an understanding of foreign policy. In other words an understanding of the way in which foreign policy is made is essential for understanding foreign policy. Foreign policy is treated as a system in action. Domestic and external factors influence this system. The systems approach helps the analyst to find possible explanations by taking into account various factors and their interrelationships. The systems approach is explained in great detail in the book.

The book is essential reading for serious students of international politics and for those researching the foreign policy of any country.

-- Guru

S D I: Has America Told her Story to the World: Report of the Institute for Foreign Analysis Panel on Public Diplomacy by Dean Godson. *Virginia, Pergamon, Brassey's, 1987, p. 73.*

This report was published in 1987 and is therefore somewhat outdated. The main emphasis of this study has been on how the Reagon Administration's SDI had been presented by the US Public diplomacy programmes to their Allies in Western Europe especially to counter the USSR's highly sophisticated public relations campaign against the SDI programme. This report identifies vital areas of concern relating to SDI in three West European countries, Britain, France and West Germany (erstwhile) and recommends a strategy to reverse the Soviet propaganda gains.

The book provides an interesting and comprehensive report on the evolution of SDI and its impact in three major West European countries viz Britain, France and erstwhile West Germany. With the disintegration of USSR and unification of Germany - the SDI programme may become irrelevant in the context of a changed world scenario.

-- Maj Gen Amarjit Singh *(Retd)*

Makers of the US Air Force. Edited By John L. Frisbee, Virginia; *Pergamon-Brassey's, 1989, p. 347, £ 17.25.*

This book is a part of a continuing series of historical volumes commissioned by the US Air Force Association under the aegis of USAF Historical Foundation and commemorates the memory of twelve outstanding senior officers whose contributions are considered unique in making the USAF a super aerospace power. It covers the period, 02 Aug 1909 when the Aeronautical Division of US Army Signals Corps took over its first aircraft from Wright Brothers till early 60s when the first lot of ICMBs became operational. The twelve individuals chosen for this anthology of short biographies are Benjamin D Foulois, Frank M. Andrews, Harold L George, Hugh J Knerr, George C Kenney, William E. Kepner, Elwood R. Quesada, Hoyat S. Vandenberg, Benjamin O. Davis, Nathan F. Twining, Bernard A Schriever and Robinson Risner.

While there can be little dispute in the selection of these personalities, yet, any historical treatise on USAF, without the contribution of Billy Mitchell, Curtis LeMay and Carl Spaatz would appear incomplete. It has been stated that their autobiographies have been published separately, nonetheless, consequentially the work under review suffers from some lack of continuity.

-- Air Marshal H K Oberoi,
PVSM, AVSM, VM (Retd)

Light Forces & The Future of U.S. Military Strategy. By Michael J. Mazarr, *Brassy's (US), 1990, p. 180, $32.00.*

This interesting AUSA (Association of United States Army) Institute of Land Warfare book published in cooperation with the Center for Strategic and International Studies, deals with the basic problems of the organisation of the Light Infantry Division (LID). With the change in the strategic situation, the United States has now a greater need for a lighter division, capable of being transported to any trouble spot in the world.

In a way this attempt of the U.S. Army could be taken as an attempt to elbow its way into the domain of the Marines, who in the U.S. are supposed to provide the rapid deployment force. Details of Marine organisation are given.

Examples of other countries, USSR, their need of a lighter army for operations in Afghanistan, France and their "Force d Action Rapide (FAR), of five divisions, for support of their African interests, are cited.

Eventually Mazarr suggests of middle weight force with greater fire power weapons, to deal with uncertain future deployments.

A very useful book to stimulate discussion on this most important subject.

-- Maj Gen Partap Narain *(Retd)*

The Making of US Foreign Policy. By John Dumbrell with a chapter by David Barrett, *Manchester, Manchester University, 1990, p. 265,£ 12.95 (ISBN 07190-3188-5.*

The US foreign policy has been variantly described as incoherent, inconsistent and incongruous. The American nation which professes to uphold the liberty of an individual and the traditions of democracy has conflicting attitudes in being very friendly to dictators at places and inimical to other democracies. The restrictive nature of the exclusive membership of the nuclear club cannot also be cogently explained. One does not know as to which is the exact foreign policy - sponsored by the Pentagon, articulated by the State Department or the outcome of the ongoing struggle for dominance between the Congress and the President. The primary purpose of this book is to understand this puzzlement by describing the structures, institutions and traditions which shape American foreign policy.

The book has three major themes: first the interaction between American foreign policy and America's changing position in the world, secondly the process and substance in foreign policy-making and thirdly the relationship between foreign-policy-making and democratic institutions and practices.

– Maj Gen J N Goel *(Retd)*

A Shield in Space? Technology, Politics, and the Strategic Defense Initiative. By Sanford Lakoff & Herbert F. York, *London, University, of California Press, 1989, p. 409, $ 39.95, ISBN 0-520-06650-2.*

This book authored by Messrs Sanford Lakoff and Herbert F. York provides a fairly comprehensive review and evaluation of the project SDI or 'Star Wars' announced by President Reagan in March 1983. Ever since the subject of Strategic Defence Initiative has been analysed by various scientists and military thinkers, being one of the most controversial issues of this decade.

Although the authors, one political scientist and other physicists, have been highly sceptical about the prospects of SDI providing a defensive shield so impenetrable as to make nuclear weapons "impotent and obsolete", the project can no more be branded visionary. The efficacy of the SDI as a preferable alternative to the MAD philosophy is no more questionable. It has been proved beyond doubt that defensive strategic shield, even if it is not 100 per cent leakproof is worthwhile. Further, the objectives of SDI being aimed towards catering for a strategic philosophy of Mutually Assured Survival in lieu of the Mutually Assured Destruction, is obviously preferable. There is enough evidence to support the point of view that the SDI project is technically feasible and economically affordable.

The concept of SDI has been validated after the Gulf War. Although there is an on-going re-orientation of the SDI from its earlier bi-polar manifestation after the collapse of the Soviet Union yet, the SDI is there to stay.

In the final analysis, the book is exhaustive in its thesis to present an anti-SDI

view but it has failed to bring out the positive side of this project. Despite its recent publication of 1989 vintage, its contents are not fully uptodate as it does not take into account the outcome of Gulf War wherein SDI received a total ratification.

– Lt Gen MM Walia, *AVSM, SM*

Secrets of the Vietnam War. By Lt Gen Phillip B Davidson, *Novato, Presidio, 1990, p. 214, $ 18.95, ISBN 0-89141-382-0.*

It is indeed a surprise to know, that, the Vietnam War of the Americans, about which so much has been written, broadcast and telecast, should have any secrets left at all, as late as 1990; when Davidson was compelled to bring out this book on the behest of Peter Braestrup - highly regarded war corespondent. But it seems, they do have-atleast in the field of intelligence operations - about which the author had first hand knowledge. He has revealed the ones that have since been declassified, but the success of which was not detected by the North Vietnamese, with a hope that they might work in some future wars as well. About the ones that cannot be made public still, the adage, "doctors bury their mistakes, while intelligence officers bury their successes" holds good.

Comprehensively commended by the likes of Gen Westmoreland the US Army 'Infantry' magazine, *Secrets of the Vietnam War* should find its rightful place in the libraries of institutions concerned with the art and science of warfare.

– Lt Col AK Sharma

Ridgway Duels for Korea. By Lt Col Roy E Appleman, Texas, A & M University, *1990, p. 665, £ 39.50, ISBN 0-89096-432-7.*

This is the third volume of a combat history of the Korean War, based on records and archives from all sides involved; and on personal observation of the author, who served there during the combat, as well as visited before and after the fighting. It is authentic, factual, extremely well illustrated with maps, diagrams, tabulated data, and some photographs. It concentrates on the fighting, after going down to patrol and individual details. Comments are reduced to the pertinent, impartially highlighting combat performance, and minimising political and diplomatic events to the bare framework needed to place the war in context of the international situation. We learn much of how different units functioned, and the pervasive effect of command style and morale on the soldiers' performance. Altogether an excellent well referenced source for military study of this campaign.

– Tindi

B-17s Over Berlin: Personal Stories from the 95th Bomb Group (H). ed. By Ian L. Hawkins, New York, Brassey's (US), *1990, p. 308, $ 25.95, ISBN 0-08-040569-X.*

The element which makes this book so readable is that the story of the 95th

Bomber Group is told sequentially through individual crew members who relate their personal experiences to form pieces of the jigsaw for the reader. In this, the editor Ian Hawkins and his team have done a marvellous job of patiently gathering and compiling the stories, the sketches of the formations used during the attacks on major targets and providing photographs taken during the war. The compilation itself took four years of research and the book was finally published in 1990, 45 years after the event. This dedicated research is rewarded by the fact that this work becomes a narration of events which sets new standards of accuracy in reporting a formation's history during the war. The personal narration is sometimes dry and reads like crew debriefs.

However the courage and the bravery of the aircrew comes through in the understatements that they make on the terrible opposition encountered by these rugged, but vulnerable B17s as they head for their targets in broad daylight-watching aircraft in their own and other formations being hit by flak or fighters which crippled or destroyed them. It mirrors their fears as they approach the target, the high morale of the crews in sustaining their attacks in the face of the enemy and the relief when they spot aircrew parachuting out of broken fortresses.

There is a fitting tribute to the crews by their doctor which sums up their courage in these words: "I became a hero worshipper, because I saw so many boys that went on missions when they were absolutely scared to death to go. It wasn't a question of if they were going to be shot down, but rather when they were going to be killed, injured, or if they were lucky, taken prisoner, or even luckier still, to complete their tour of combat missions. But they still kept on going".

The figures tell it all. Among their heaviest aircraft and crew losses were 38.5 percent over Kiel, 33.3 percent over Brunswick and 34.8 percent over Berlin. A terrible toll of brave young men in the "war to end all wars".

-- Group Capt K Advani

Moving Mountains: Lessons in Leadership and Logistics from the Gulf War. By Lt Gen William G. Pagonis with Jeffrey L. Cruikshank, *Massachusetts, Harvard Business School, 1992, p. 248, $ 24.95, ISBN 0-87584-360-3.*

Lt Gen William G Pagonis is an American logistician who commanded the US 22nd Support Command during the Gulf War. The author has attempted to draw lessons and observations on leadership, manmanagement and logistics. To that end, the book is disappointing. It is an anecdotal account of the authors military career with hardly any details on the Gulf War. No worthwhile leadership lessons or challenges facing military commanders of the 21st Century have been mentioned.

On the logistic front a few ideas merit consideration.

(a) The success in having a single point contact for all logistical needs in a theatre. This is in consonance with the principle of centralised planning and decentralised execution.

(b) Importance of logistic bases and Replenishment Points to be mobile to be able to move forward and stay within easy turn round of the spearheads.

(c) Effective use of "Jump Command Posts" which are mobile logistic command posts acting as extension of the senior corps/field army logistic officer. These command posts ensure the logistic plan is understood at the lower levels and is being implemented.

(d) Greater thought must be given for acquiring materials handling equipment (MHE) at depots and logistic bases. The author even recommends the raising of MHE companies.

– Brig Arjun Ray

Red Thunder, Tropic Lightning: The World of A Combat Division in Vietnam. By Eric Bergerud, *Boulder, Westview, 1993, p. 328, $ 24.95, ISBN 0-8133-1128-4.*

This is the story of 25 Infantry the 'Tropic Lightning' Division tour of duty in Vietnam from 1966 to 1971. In these five years the formation experienced every facet of Vietnam War.

The book does not describe the Vietnam War in a narrative form, instead the subject is dealt with by topics. Laid out in seven chapters it deals with terrain & climate, weaponary, nature of warfare, arrangement of medical support, the type of enemy and so on. Just the way a student of military history would like to classify a subject. The presentation is innovative and brings out the issues more clearly.

It seems that the author realised very early in his research work that official records presented a very different view of Vietnam War and that view was much different from the ground realities. The book is therefore entirely based on personal interviews. The author has opted for authenticity and relied heavily on the opinion of individuals; most of those who saw the sharp end of the war. The picture thus built up looks authentic but naturally individual perception differ, and differ considerably in a crisis. Therefore the picture of the war that emerges is uneven and sometimes contradictory. However the one point that stands out in sharp focus is the lack of respect for the quality of middle level and higher level leadership in the American Army during the Vietnam War, as seen by the soldier.

The book gives a new angle to Vietnam war and is very readable.

– Lt Gen S P M Tripathi

In Many A Strife: General Gerald C. Thomas and the U.S. Marine Corps 1917-1956. By Colonel Allan R. Millett, *Maryland, Naval Institute, 1993, p. 456, $ 39.95, ISBN 0-87021-034-3.*

A detailed, painstaking biography of General Gerald C. Thomas, US Marine

Corps. The career of General Thomas span almost half a century, from 1917 to 1956. These years also saw the growth of US Marine Corps from providing ship detachments, occupation forces in the Caribbean and security forces at naval bases", to the dreaded force of half a million that it became by the time World War II ended.

Every detail of Gen Thomas' carreer has been brought out. The author has taken great pains to gather the material. The General himself emerges as a true professional soldier, having a high sense of duty, a great deal of mental and physical staying power, determined to do well for the marines and himself, in that order. He sought operational service and was an active participant in nine battles during the two World Wars and the Korean War. As a staff officer he proved equally competent and imaginative.

Alongside, the book describes the battles and successes of the US Marine Corps both on the battlefields as well as with the defence establishment.

A very readable book which must rank as a good biography of a front rank soldier of our time.

-- Lt Gen S P M Tripathi

Tragic Mountains: The Hmong, the Americans, and the Secret Wars for Laos, 1942-1992. By Jane Hamilton-Merritt, *Bloomington, Indiana Univ, 1993, p. 580, $ 29.95, ISBN 0-253-32731-8.*

Tragic Mountains is the story of an ethnic group of the Hmong tribe, a fiercely brave and freedom loving people who had migrated from China to the mountains of Laos. It is also the story of Indo-China War culminating in the defeat of the French and subsequently the Vietnam War ending in the rout of the Americans and setting up of the Communist rule.

Tragic Mountains focusses on Laos, the land of OZ with the HMONG as the central theme whilst it also covers the Indo-China War & the Vietnam War as background to the story. The author has researched the subject extensively and has given an extremely well documented account of the events. She has integrated with the people and indeed felt for them. And she has been successful in depicting the final horrors that the people had to face with the world turning away from them.

A very good book indeed, well written, well documented and very well presented.

Gp Capt D Yadav, *AVSM, VM (Retd)*

China Rising: The Meaning of Tiananmen. By Lee Feigon, *Chicago Ivan R Dee, 1990, p. 269, $ 19.95, ISBN 0-929587-30-8.*

The Chinese students have demonstrated for democracy and ending the

bureaucratic corruption over the last few decades and in the process created an awakening in the nation. The Cultural Revolution had weakened the Communist Party apparatus and therefore, to maintain power, the Government had to undertake a number of reforms. This led the students to believe that they had the capability of overthrowing one of the world's most powerful authoritarian regimes. This time they had support both from the Politburo and the people, but tragically ended in the massacre at the Tiananmen Square. The student's uprising failed due to lack of leadership and as they were unable to provide an alternate to the present system.

The author gives eyewitness accounts of the events which shocked the world in 1989, analyzes the Chinese politics, the main personalities involved and brings out the implications of student power for the future of China; thus making a good book to read.

-- Maj Gen SC Suri *(Retd)*

The Mandarin and the Cadre : China's Political Cultures. By Lucian W. Pye. *University of Michigan, Centre for Chinese Studies, 1988, p. 203, $ 19.50, ISBN 0-89264-083-9.*

One of a series of monographs in Chinese studies published by the University of Michigan USA, this book studies the changes that Chinese culture has brought about in 'Marxism Leninism', as propounded by the orthodox Russian leaders.

Written by Lucian W Pye, a scholar in Asian studies at the MIT, with a number of books on China to his credit, the author contends that China's commitment to Marxism, and to the four principles, has not obliterated Chinese culture, but rather it has produced the distinctive culture of Confucian Leninism."

He commences by enunciating the concept of a political culture and the importance of its study in understanding Chinese politics. The psychological roots and the play of contradictory psycho-social elements in the Chinese make up, leading to essentially pragmatic policies in various fields, are discussed next. The cultural revolution and its causes are examined, and finally, the Confucian ideals of leadership and followership, and their continuing relevance in today's China are considered.

An erudite and scholarly work - essential reading for the professional dealing with Chinese.

-- Maj Gen Jasbir Singh *(Retd)*

Japan Today. By Roger Buckley, *(2nd Edition, reprint July 1991, Cambridge University, 1990, p. 155, $ 10.95, £ 8.95(P), ISBN 0521-38885-6.*

This is a comprehensive account of what Japan has been through since the Meiji Restoration, whose aim was to make Japan "a rich country, a strong army". With its history of cultural hegemony and linguistic unity, Japan had achieved much during the late nineteenth and early twentieth century. As the author has pointed out

in the Introduction itself, Japan's position today can hardly be appreciated without understanding events of the recent past.

The road from Pearl Harbour led to Pacifism the author has noted. True indeed, but Japan's role today has been more aptly stated by former Prime Minister Nakasone Yashuhiro (on September 10, 1983) in these words:

"We cannot become a truly international State unless we internationalise not only our economy but also make further progress in playing a positive global role culturally and politically" None can say that Japan has not acheived this objective. Recommended for study by all students of current affairs and in particular by those specialising in Asia Pacific affairs.

-- Col R Rama Rao, *AVSM (Retd)*

European Security - Towards 2000. edited by Michael C. Pugh, *Manchester, Manchester-UP, 1992, p. 185, $ 10.95, ISBN 7190-35775.*

The book is collection of a score of articles written by an international team of eleven eminent writers on political, economic, nuclear and security affairs. The collapse of Cold War (1947 to 1989) security system has deprived the Western block of an established 'enemy'. The book advocates a fresh framework to encompass a wider concept of security for Europe as one entity rather than individual nation states.

The glaring omission in the book pertains to state of affairs in Europe: whereas the erstwhile Western allies would like to shake off US umbrella, their poor Eastern brethern are facing internal problems where they find it difficult to hold on to their original form. Ethnic affinities are taking overriding priority over nationalism.

The book has comprehensive bibliography and an elaborate index. It is a value book for libraries and for the students of international relations in general and European politics in particular.

-- Col BK Khanna, SM

Muslims in Central Asia: Expressions of Identity and Change. ed By Jo-Ann Gross, *Durham, Duke University, 1992, p. 224, $18.95, ISBN 0-8223-1190-9.*

The sudden emergence of Central Asia as a new geo-political entity after the demise of the Soviet Union in Dec 1991 has suddenly generated a great deal of interest in this region. This book, a part of the Central Asia Book Series being brought out under the sponsorship of the Columbia University, attempts to address some of the more basic questions. The articles were originally presented at a workshop on "Approaches to the Study of Islam in Central and Inner Asia". Therefore, its thrust is on ethnic and religious issues.

There are a total of nine papers in the Book grouped under three headings, The Shaping and Reshaping of Identity, Islam as a source of Identity and Discourse as a Cultural Expression of Identity. Each article is a facinating study of a single micro aspect of the relevance of identity and its orientation, written by a distinguished expert of the topic after careful research. Some topics are of an earlier era and others of the contemporary period. The subjects acquire a special poignance, because of the possibility of the influence of resurgent Islam on the region. This is the major issue that seems to concern strategic analysts at present. By highlighting the influence of Sufism in the region the authors present one dimension of the moderating influence of religion. Perhaps this will help to balance some of our other perceptions.

The reviewer visited the region and in particular Tashkent and Almaty, the capitals of Uzbekistan and Kazakhstan, in Sep-Oct 93. The lasting Russian influence and the modern orientation of the people reminds one more of East Europe than West Asia. The region is not yet influenced by trends of political Islam, but given conditions of political instability and economic deprivation, developments in future may take any direction.

The Book will be of fascinating interest to the discriminating scholar on Central Asia rather than to the lay reader.

-- Maj Gen D Banerjee, *AVSM*

A History of Modern Ethiopia (1855-1974). By Bahru Zewde, *London James Currey, 1991, p. 244, £ 9.95, ISBN 0-85255-067-7.*

For the last two decades, the political ferment in Ethiopia has made constant news what with the country being plagued and beset by other calamities over a period of time. The recent independence and creation of Eritrea as the 52nd African state has heightened focus once again on this ancient land located near the Horn of Africa.

Here then is a definitive book on the history of this country from antiquity till the demise of a feudal society and rule in 1974. The book catalogues in a most admirable manner the charter of events from the middle of the 19th century, advent of Western powers into the country and finally after the Second World War its emergence as an autocratic monarchy. The reasons leading to the Revolution of 1974 reveal the depths of which governance of the country had eroded.

The book makes splendid and lucid reading being well served by a plethora of maps and illustrations.

The author, Bahru Zewde, a Senior Lecturer in History at Addis Ababa University has written a very well documented and readable book indeed.

– Maj Gen MS Shergill

A Paper House: The Ending of Yugoslavia, By Mark Thompson, *New York, Pantheon Books, 1992, p. 350, $ 23.00, ISBN 0-679-42187-4.*

To many of us in India and perhaps to many a bit removed from the Balkans, the turmoil, the bloodshed, the senseless destruction in Yugoslavia, all seems incomprehensible if not somewhat bizarre. Mark Thompson, who has encyclopedic knowledge of the Balkans, through his book not only brings one abreast with events but also explains the reasons why things turned out the way they have. The deeprooted antagonisms between the ethnic groups in the erstwhile Republics of the Socialist Federation of Yugoslavia, compounded by the Ottoman conquest of the area, had all the seeds of strife. After the disappearance of charismatic Tito from the scene a conflagration was inevitable. Yugoslavia essentially was an artifical construct of World War I, and hence according to the author a tinderbox which was bound to explode. The authoritarian and fascist streaks ingrained in practically all the ethnic groups and inaction by Western nations of Europe against Serbian chauvinism and hegemonism in the author's view all expedited the process of disintegration.

The "Ending of Yugoslavia" is a timely and an extremely relevant book for understanding the violence and tribalism in the erstwhile country. The incisive analyses and the media man's style of writing makes the book extremely readable.

-- Air Marshal KD Chadha
PVSM, AVSM, VM, (Retd)

Desperate Venture: The Story of Operation Torch, The Allied Invasion of North Africa. By Norman Gelb, *London, Hodder & Stoughton, 1992, p. 366, £ 18.99, ISBN 0-340-58135-6.*

Japanese naval raid on the Pearl Harbour on 7 December 1941, followed up four days later by Hitler's declaration of war on USA introduced a new factor in the Second World War. "The United States had been catapulted out of an uneasy neutrality into the role of senior Allied Power without whom the war could not be won".

Inevitably, there were innumerable areas of conflict and confrontation amongst the Allied nations - diverse strategic perceptions, strong national attitudes and ethos, and, not the least, personal sensitivities of military commanders now thrown together to fight a joint war. As Field Marshal Jan Smuts remarked to Sir Winston Churchill "Much of your time will have to be devoted wisely to guiding Washington in its war effort and not letting vital war direction slip out of our hands".

Through the maze of politicking and hard bargaining, Allied overall war strategy finally emerged with a joint sea-borne invasion of North Africa as its opening salvo. Operation Torch was thus launched on 8 November 1942 with General Eisenhover as the Supreme Allied Commander.

In a masterly and poignant literary style, author Norman Gelb has inquisitioned the evolution planning and the ricketty course of the first-ever campaign of such dimension, by forces of diverse military systems.

-- Maj Gen SK Talwar

World War II in the Mediterranean 1942-45. By Carlo D'Este. *Carolina, Algonquin Books of Chapel Hill, 1990, p. 218 ,$ 22.95, ISBN 0-945575-04-1.*

The decisive battles to defeat Germany during World War II were fought on the soil of Europe and Mediterranean was considered as a secondary theatre of operations. Notwithstanding this, the Mediterranean compaigns form a vital part of the history of the war.

The strategy, main battles, the logistic problems and the capabilities and personalities of the opposing forces are discussed from the time the combined US and British forces landed in North Africa in Nov 1942 till the end of the war in Europe in May 1945. This is covered in three distinct parts i.e., the landings and campaigns in North-West Africa; the invasion of Sicily; and the battles fought on the mainland of Italy.

The author analytically brings out the need of evolving a correct and unified politico-military strategy otherwise it would result in heavy and avoidable casualities in men and material without affecting the outcome of the War, as demonstrated by the long drawn out Italian compaign.

The shortcomings and achievements have been critically analysed and the students of military history can draw a number of useful lessons from this absorbing book.

-- Maj Gen SC Suri *(Retd)*

Aegean Adventures 1940-1943. By Michael Woodbine Parish, *Sussex, The Book Guild, 1993, pp 400, £ 14.95, ISBN 0-86332-788-5.*

The British attempt to capture the Dodecanese Islands, was, with the available resources, one of the most ill-judged strategic enterprises of World War II. The author a veteran of the illfated campaign, throws light on an episode which officialdom had tried to cover up, in the course of narrating his own personal adventurous war memoirs. Woodbine Parish was a participant in many of the events, which began in the Battle of Crete in 1941 and culminated in the capture of Samos and Leros on 12 September 1943. He describes for the first time the debacle of 9 September 1943 (in which he became a prisoner-of-war), which may have altered the course of World War II. Churchill had pressed Roosevelt to implement his plan to capture Rhodes - thus securing a route through the Dardanelles to Turkey, and bringing Turkey into the War.

Had the Allies together invaded "the Soft Underbelly of Fortress Europe" as Churchill had wanted, Hitler would have been forced to defend a 3000-mile front, from Finland to Turkey. The author feels one-and a half more years of war in Western Europe may have been prevented, and Stalin would not have been left in the position of dominating Eastern Europe. Roosevelt's refusal to commit US Forces in the Aegean, together with the procrastination of General (later Field Marshal) Maitland-Wilson, created a tragedy from which Eastern Europe is only now beginning to recover. The author's viewpoint merits consideration. This book also encompasses the exceptional pre-war and post-war acumen and enterprise of the author in the private sector.

A good read. The author manifestly is not one to follow the crowd, and is always original in what he says or does.

Lt Gen SL Menezes, PVSM, SC

There shall be Wings: The RAF from 1918 to Present. By Max Arthur, *London, Hodder & Stoughton, 1993, p. 413, £ 18.99 ISBN 0-340-58761.*

"There Shall Be Wings" a talking history of the Royal Air Force, from the days of its inception till 1992, is a masterpiece in collecting and recording the facts truly, simply and without any bias or tilt. The source of information is all 'first person account' covering varied and vast span of activities, achievements, failures ranging from 'design to actual use in trials and operations during peace, war or in between the wars and sporadic skirmishes right from the first World War to Kuwait/Iraq battle cum test ground. It covers all the three services and all the weapon system -- inert to alert, psychological to physiological, orthodox intelligence to satellite surveillance. Yet the style and syntax are different than the earlier literature on the subject i.e. immediate post war spurt of books, memoirs, reminiscences, diaries, PR releases et al.

I won't like to reproduce any part of the text in the review lest the reader's interest gets diluted while reading the book; the production of the book and the technical aspects or simply excellent -- pleasing to the eye and mind -- particularly the reproduction of vintage pictures with wonderful clarity and black & white resolution.

The book is considered an in-escapable addition to all defence libraries, big or small - more so for the Indian Air Force, whose growth had been closely linked with that of the RAF all through and have so much in common - experiences, memories, materials and what not. IAF could also draw inspiration from such books and record our own 'talking history' before the available facts die with their holders, rather than wasting our efforts in producing 'coffee table' memorablia.

-- AVM SS Malhotra, *AVSM, VM*

War and Peace in Israeli Politics: Labour Party Positions on National Security. By Efraim Inbar. *Boulder, Lynne Rienner, p. 184, $ 27.50.*

The book examines the intense political debate which has been raging in the eightees (right upto 90s), amongst various groups within the labour party - varying stands taken by hawks, doves and yonetz, in relation to security perceptions vis a vis the annexed Arab territories.

-- Lt Col YP Gupta *(Retd)*

Oil and Politics in the Gulf: Rulers and Merchants in Kuwait and Qatar. By Jill Crystal, *Cambridge University, 1990, p. 210, £ 30.00, ISBN 0521-36639-9.*

In the late nineteenth century Qatar was, by local standards, a flourishing sheikdom Yet, Palgrave, the well known writer, who visited Qatar in 1863 had ob-

served that Qatar was a "wretched, most wretched collection of earth cottages and palm leaf huts, narrow, ugly and low; these are the villages of Qatar".

While Qatar was apprehensive of Saudi Arabia's intention to gain control over it, Kuwait was uneasy about its big neighbour Iraq, which never concealed its desire to absorb Kuwait, since under the Ottomans, the latter was treated as past of Iraq. The advent of the British who gradually gained command over the Gulf Waters, enabled Kuwait to retain its independence, since Iraq could not muster the strength to annex Kuwait, when the British were close by.

Fortunately Qatar has not been rocked by demands from her big neighbour, but Kuwait went through the trauma of invasion and annexation by Iraq. Fortunately for Kuwait, this annexation ended soon because of the Gulf War, and Kuwait has regained her independence and is well on the way to regain her former economic and political stature.

-- Col R Rama Rao, *AVSM*
(Retd)

Great Game, Grand Game: Memoirs of India, the Gulf & Diplomacy. By T E Rogers, *London, Gerald Duckworth, 1991, p. 238, £ 14.95, ISBN 0715623990.*

This personal account by an erstwhile member of the 'heavenborn' Indian Civil Service, who later went on to the Foreign Service of the UK through the Political Service of the Raj, is marked by several lyrical passages of prose in the beginning of the book. Particularly touching to an Indian reader are his comparisons of Hindu-Muslim antagonism to the Protestant-Catholic belligerency in his native Ulster. His childhood experiences of deep-rooted strain between co-religionists in N Ireland led him to believe that partition of India was the correct and only solution to the discord, prior to independence, between the Muslim League and the Congress.

The promise held out in the early part of the book of more delights to come is not kept in the rest of it. Mr Rogers describes his career in minutae - in Bengal as an officer of the ICS, in the Middle East when with the Political Service and later as a diplomat in various parts of the world.

The descriptions of the journeys undertaken by the author are engaging and give a unique point of view and make his account almost an adventure story. This is, perhaps, the redeeming feature of a book otherwise a bit too personal.

-- Col R Subramanyam

The Middle East from the Iran-Contra Affair to the Intifada. Ed. By Robert O Freedman, *Syracuse University, p. 441, $ 18.95.*

The book is a collection of contributions from a dozen authors, dealing with the contemporary history of the Middle-East in a short but highly significant span of four years from 1985-1988.

The essays are uniformly of good quality. The parts played by all the major

players in the region (including the superpowers) have been incisively analysed in separate chapters, limitation of space dictates a selective review.

The chapter on "Arab-Politics and Iran-Contra Affair" besides being an accurate chronicle of all important events makes engrossing reading. "Egypt wanted to support Iraq against Iran, because like other moderates in the region, it feared attempts by Iran..... to foment the type of revolution that brought Khomeini to power. Current events have shown how prophetic these words were.

In no time Iran emerged as the major threat to regional stability as well as to the moderate Arab regimes. Iran's confrontation with Saudi Arabia on July 31, 1987, when Iranian Mecca bound pilgrims clashed with Saudi police in Medina (nearly 400 died) sent shockwaves throughout Muslim world and symbolised a serious challenge to the Saudi royalty's special role as the custodian of Islam's two holy shrines. This event is perceived as a watershed in the history of the Middle East, for Iran's fundamentalism and fanaticism stood out in stark profiles. This was to have far-reaching repercussions.

In the first major Arab League summit in five years (22 heads of states participated) in Amman in November 1987 "its main agenda item was the creation of unified Arab stand against Iran". This approach helped in the readmission of Egypt in Arab fold, for it was imprudent to exclude the best armed Arab country from playing its role in the Iraq-Iran conflict. The relegation of the Palestine question, which was hitherto priority one for the Arabs, to the second place was yet another consequence.

Cogently it is postulated that the decisions of the Amman summit brought home to Palestinians within and without Israel that their cause was being studiedly ignored by the Arabs. This led various factors of the PLO to close rank and subsequently made Arafat renounce violence (terrorism) as a tool for self-determination and recognise the right of Israel to exist as a nation. A more profound consequence, however, was the disillusionment of the Palestinians within Israel including the occupied territories not only with the Arab states but also with the PLO. This expressed itself in the shape of the uprising by unarmed but highly motivated Palestinian youth (the Intifada), which cought by surprise the Israelis, the Arabs and the rest of the world.

All other chapters are equally educative, analytical and interesting.

The book should be of interest to the novice as well as the expert. In the Middle East there are a number of complementary and mutually contradictory concerns of the diverse regimes. Since the perceptions, of all the major players have been critically examined, the book becomes a useful document of reference for any serious watcher of the region.

-- Vishwa Pal Singh

Egypt from Independence to Revolution, 1919-1952. By Salma Botman, *New York, Syracuse University, 1991, p. 170, ISBN 0-8156-2531-6/BOEFP.*

Selma Botman's book covers the period between the 1919 Revolution and the 1952 coup d'etat, an era characterised by varied political, economic and social experiences for Egypt: industrial advance, ideological conflicts, the rise of nationalist fervour and a World War which saw major military operations on Egyptian soil. The book attempts to highlight events and themes current in Egypt, the role of nationalism in a semi-colonialised country, the experience of pluralism in a limited democracy, the impact of a war fought on its soil and the birth and influence of social groups and cultural trends in a largely illiterate society.

The Egyptian Constitution of 1923 visualised a popular sovereignty enjoying political pluralism with amicable competition between political parties and a free press. But in reality, it bestowed excessive powers on the Monarch to dismiss cabinets and dissolve parliaments as he chose. Unlike the Western Societies which faced similar changes when they were fairly well developed consequent on the rise of a bourgeois class with an adequate level of education and literacy, industrialisation, urbanisation, and per capita income, the Egyptian society between the two world wars was a semi-liberal one striving to find its way politically. It had neither a thriving bourgeoisie nor a sufficiently large proletariat and all the social, economic and demographic characteristics of an underdeveloped society were discernible in Egypt. Despite all these odds, ideological pluralism did exist. The main events which took place between the two world wars and the two wars themselves exposed Egypt to Western thought and irrevocably changed her in the social, economic and political fields. The 1952 Coup and Nasser's subsequent style of leadership responded to the great need for national dignity and self esteem.

A very readable book and a useful addition to our library.

– Lt Gen PE Menon, *PVSM (Retd)*

Stalemate: The War of Attrition and Great Power Diplomacy in the Middle East, 1967-1970, By David A. Korn, *Colorado, Westview, 1992, p. 326, $ 36.00, ISBN 0-8133-8237-8.*

The book is a serious indepth and well-researched analysis of the crucial years between the two major Arab-Israeli wars of 1967 and 1973. The author, a senior US diplomat, posted in Israel from September 1967 to August 1971, has not only exhausted the vast published material on the subject but also interviewed several high ranking officials of Egypt, Israël and USA that were involved in the high intensity military and diplomatic moves for either promoting or hampering a peaceful settlement of the Arab-Israeli dispute. The details of the military moves are dovetailed with the US diplomatic moves designed not only to play a reading role in the peace process but also to isolate USSR from that process. The author analyses various causes that were responsible for the ultimate failure of the peace process initiated by the 7 August 1970 ceasefire under Rogers' initiative. He not only points accusing

finger at Kissinger who did not want the State Department to take the credit for the peace process but also holds the Israeli hardliners like Begin and Golda Meir responsible for missing that opportunity for initiating the peace process and indirectly for paving the way for the October War.

-- Prof KR Singh, *JNU*

The Gulf Crisis: An Attempt to Understand, By Ghazi A. Algosaibi, *London Kegan Paul International, 1993, p. 156, ISBN 0-7103-0459-5.*

This is an 'inside' story of the Kuwaiti crisis by a high-ranking Saudi official. He has sought to explain away the Saudi-American stand through his interpretations of the psychology of concerned leaders. President Saddam Hussein suffered from a burning thirst for power, inclination towards adventurism and a persecution complex. (pages 6). He also failed to correctly assess the responses of President Bush or of King Fahd. The explanation for Saddam Hussein's reluctane to withdraw from Kuwait even after several UN resolutions was as follows: a gambler who bets everything can only stand helpless waiting for the wheel to stop (pages 37-38). Thus, Saddam Hussein has also been made into a fatalistic gambler.

Two chapters, not directly connected with the Kuwaiti crisis, however, deserve more attention. The one titled 'The Heirs Expectations' discusses the effect of asymmetry of wealth among the Arab states and its impact upon religious fundamentalism. The other titled 'the Unattractive Beduin and the Ugly Arab' deals with the socio-economic and cultural gap between those Arab states that are urbanized like Syria and Egypt, as opposed to those that have yet to evolve, like the states of the Gulf. In that context, the author's speculations about the evolution of democracy in the Arab world need to be studied more carefully.

-- Prof KR Singh, *JNU*

Information India 1989-90: Global Review. By S P Agrawal and J C Agrawal. *New Delhi, Mittal Concept Publishing, 1990, p. 530, Rs. 500/-.*

This book is a compendium of statistical data related to India since independence covering land and its people; state of economy and successive five year plans including agriculture, rural development and industry; fiscal issues and other important topical issues. Besides it also covers a comparative data on the world as a whole relating to different developed, developing, and underdeveloped nations. In addition, it also provides a panoramic view of all major national and international events in 1989-90. The book would be of interest to the economic analysts, planners, researchers and candidates of different competitive examinations.

-- Maj Gen Amarjit Singh *(Retd)*

Foot Prints and Milestones: A Story of the Army Service Corps. By Maj Gen PKD Kapur, *New Delhi, Army Headquarters, 1990, p. 349, Rs. 450.00.*

This is third in the series of Regimental Histories of the Army Service Corps. The first two were written by Brig Humphery Bullock and Brig V J Mohrair. The

present volume is extremely well illustrated and written in a style that a normally drab subject has been made interesting and readable, almost like a good historical adventure story.

The history covers the period from the birth of the Corps, from the middle of the 18th century, cut off date being 1760; "the very rudimentary supply and transport organisation of the three presidencies of the East India Company were brought under the control of a single authority". The book in some detail also covers the history of the Indian Army; because where the Indian Army goes, both in peace and war, the Army Service Corps is likely to go, from the snow bound regions of Siachen to the deserts of Rajasthan.

-- Brig YP Dev *(Retd)*

Nuclear India. By Brig Vijay K. Nair, New Delhi, *Lancer, International, 1992, p. 267, Rs 350, ISBN 81-7062-141-0.*

This first book on the nuclear capabilities of India and it's neighbours Pakistan and China-based on the data available from the United States, makes interesting reading. Almost half the bookspace is allotted to Pakistan, it's nuclear facilities, arsenal of 10-20 weapons, and its delivery systems - fighter bombers and missiles including Haft 1&2, and now M-11's with a range of 350 Kms imported from China.

The Chinese position has been treated perfunctorily, for a huge country, an allocation of eight nuclear strikes as compared to 17 for Pakistan appears unrealistic. The strategic bombing of Pakistan using 200/500 Mega Ton devices for two dams, and 20/50 KT for five airfields, is an overkill scenario.

The Indian position is illustrated with a statement of Mr. Chandra Shekhar, our ex Prime Minister, who in reply to a question, assured that India was well prepared to deal with nuclear threat. An arsenal of 895 missiles with 1,800 warheads (300 in UK) at a cost of Rs 5,710 Crores, at the end of a ten year period, with a separate Strategic Command, five to six Submarine Launching Platforms, bombers with Air Launched Cruise Missiles, and mid air refuelling and I.C.B.M's are suggested.

In the end the author feels that nuclear strategy will lead to economies, in defence expenditure.

This expensive book (Rs 350) deserved maps drawn with a little more care.

-- Maj Gen Partap Narain *(Retd)*

Muslim Fundamentalism in the Indian Sub-continent. By Baljit Rai, *Chandigarh, BS Publishers, p. 382.*

This book is of contemporary interest in view of the continual communal tension in the Indian sub-continent. Indians who look towards integrity of the country, unity of the Nation and harmony amongst Hindus and Muslims must know the mind of the Indian Muslims. What all Indians should study are the factors affecting

the Muslims psyche - their fears and provocations; their grievances and challenges; their fundamentalism and nationalism.

This book should not be put aside as 'saffron-coloured' but read and digested by all who are serious about bringing the Indian Muslims into the national mainstream to forge genuine and long-lasting Hindu-Muslim unity.

-- Lt Col Daljit Singh, *MSc (Retd)*

Buddhism Betrayed? Religion Politics and Violence in Srilanka. By Stanley Jeyaraja Tambiah, *Chicago, University of Chicago, 1992, p. 203, $ 14.95, ISBN 0-226-78949-7.*

The title of the book is rather misleading as the author tries to analyse the contradiction between the perceived nonviolent ideology of Buddhism and a realistic political violence in Sri Lanka. The author traces the main development in recent past (1880-1980) with particular reference to the influence of Buddhism, as a public and collective religion, on the politics of the Island and its contribution to the civilian riots and ethnic conflicts.

Author's analysis of basic economic issues, clouded deliberately, by politicians with cultural, historical and religious overtones are of relevance to most of the countries including India. Temptation of politicians for transient gains, without due consideration to generation of forces that damage and destroy unity, integrity and national interest has been brought out in the book, in adequate details.

Author's contention of active involvement of monks by JVP in 1989 and their participation in political issues contributed considerably to the emotional anti-Tamilian feeling. Use of religion as a cover for illegal activities and of religious places for storing of arms and ammunition is a phenomenon also witnessed in other countries.

A good book, with a thought provoking analytical approach, and covering a broad canvas. Has great interest for Indian readers partly because of Tamilian involvement but largely as a case history of a neighbour which provides valuable advice for our country with similar problems.

-- Col RN Khanna *(Retd)*

The Hope and the Reality: U.S.-Indian Relations from Roosevelt to Reagan ed. By Harold A. Gould and Sumit Ganguly, *Boulder, Westview, 1992, pp. 231, $ 44.95, ISBN 0-8133-8383-8.*

Indo-American relations is a subject of profound interest among scholars probably because it defies specific categorization in terms of either friendly or inimical, beneficent or maleficent. Except for a brief respite of the Kennedy years, on the whole, the veil of suspicion regarding each other's actions misled the policy-makers to advance towards subsequent confrontationist postures, though at times it was realized that at least a tolerable relationship would be beneficial for both of them. From the period of initiation, to the days of Reagan, the book under review records the evolution of this unique relationship, phase by phase, with a fair amount of insight of changing

motives and ideological perceptions of different presidential administration. It also includes an examination of Congressional attitudes toward India and fluctuations in public opinion in both the nations.

Informative and scholarly, this book is educative and useful.

-- Anindyo J Majumdar, *JNU*

Sons of John Company - The Indian & Pakistan Armies 1903-1991. By John Gaylor-*New Delhi, Lancer International, p. 379, Rs.390.00.*

The author, presently in the Military Historical Society, UK had come to India during the early forties. Having seen action in Burma, he was seconded to the Indian Army. In 1977-80, he conducted a party from the Military Historical Society to India and Pakistan, visiting various regimental centres. The author has researched his subject in depth and the book provides an enormous amount of detail about both the armies.

The book traces the evolution of the Indian Army from 1903 onwards, covering both the world wars. Thereafter, the partition and its aftermath - the division of the Armed Forces, upto the present including details of re-organisation, raising and disbandments and accretion in both armies are studied - a spectacular canvas spanning five decades.

As a work of reference, the book provides "lineages, class composition, battle honours and a record of services of all the units in both armies.

To the average officer who may indubitably be well-versed in his own Regimental history, this book provides excellent knowledge of other Arms and Services in both the armies in an encapsulated form. The history of regimental dresses and accoutrements and regimental customs makes interesting reading - viz, The Special Service Group (Pakistan) doubling past the Saluting base, with their machine carbines at highport, while other units march past in normal quick time.

The book is recommended for our training establishments and Regimental Centres. A few more illustrations, possibly in colour would have certainly added to the book's merits.

-- Maj Gen Nirmal Sondhi,
AVSM and Bar (Retd)

The Battle Axes No.7 Squadron, Indian Air Force 1942-1992, By Pushpindar Singh, *New Delhi, Society for Aerospace Studies, 1993, p. 232, Rs. 650.00.*

The book 'The Battle Axes' - is yet another master piece by the celebrated Shri Pushpindar Singh - author of "Touching the Sky". The author has brought out the history of the famous 7 Squadron chronologically, lucidly and authentically. Virtually, it intermingles with the history of the IAF in the nascent years. This is the result of painstaking effort and arduous research work done by the author who has so realistically presented the whole story as if he was a member of the grand family of The Battle Axes. The usefulness of the book has increased manifold because of the abundance

of photographs of the Battle Axes and their mounts (including cut away drawings) in the liar, in the sky, in action, in exercise and in fact, in all conceivable modes. The bibliography and the index have further enhanced the value of the treatise. The two maps showing the area of action of No. 7 Sqn in the Western & Eastern Sector are very apt and act as great aid to the reader in comprehending the exploits of the Squadron pilots. The get up, the plastic coated jacket and the selection of the cover photographs alongwith the insignia of the Squadron speak volumes for the aesthetic sense of the author and publisher alike. The book is recommended to all those who are interested in knowing about the punch of the IAF - students, researchers and the servicemen and should find its rightful place in all the libraries.

-- Air Cmde SK Bhardwaj

Nepal: Problems of Governance. By Lok Raj Baral, *New Delhi, Konark Pub, 1993, p. 241, Rs. 250.00, ISBN 81-220-0304-4.*

Nepal, a land locked State in the Himalyan Mountains, is strategically placed with China and India as two giants as its neighbours. Slopping down to the Indian Sub-Continent its cultural, traditional and economic dependence must necessarily depend on India and this has indeed been brought out by the author. Nepal, to begin with is essentially a Hindu State and during the period of review by the author, was mostly governed by an absolute monarchy system. The book deals with the problems of governance that this tiny kingdom has faced and is facing.

The author has been objective in his study but leaves the impression that he has gone into what should constitute governance and not the problem faced or what went wrong and what the problems were of the governance - why the monarchy failed or why the present system of democracy is not functioning as it should. Nonetheless the book certainly makes the reader more knowledgeable about Nepal and the efforts of its people in promoting democracy.

An absorbing book, the get up and layout is good and is reasonably priced at Rs. 250.00

-- Group Capt D Yadav,
AVSM, VM (Retd)

Pakistan: Problems of Governance by Mushahid Hussain and Akmal Hussain, *New Delhi ,Konark Publishers, p. 180, Rs. 175.*

The book presents historical genesis of the problems that the rulers of Pakistan, whoever they may be, faced today. In doing this the authors have indicated how the politics of governance in Pakistan has ultimately in the eighties begun to move in a positive and progressive direction. It does not mean that any attempt has been made to hide the negative aspects, which have been far too many or there is an attempt to project chronic political instability of Pakistan as otherwise. As a matter of fact the erosion of political institutions, qualitative degeneration among the personnel of various state organs and the role of key-individuals with the power structure in Pakistan forms the master perspective of the book.

The most interesting and valuable insight that the book provides, is about the way the people of Pakistan have begun to play the significant role in shaping the political destiny of their country. The historians and commentators have usually tended to ignore Pakistani people in favour of their leaders, but in the post Bhutto period the very struggle among different groups for either holding on the power or for snatching power has created opportunities and scope for the people of Pakistan to have their say and in the process to force their leaders to listen to them. The value of the book for Indian readers, specially policy makers lies in the fact that through it they can come to know how enlightend Pakistanis view their own country and the problems of governing and governance are endemic to the whole of South Asia today.

– Major Sunil Chandra, *JNU*

The Rise of V.P. Singh and the 1989 and 1990 Elections. By Surindar Suri, *Delhi, Konark Publishers, 1990, p. 216, Rs. 150.00, ISBN 81-220-0185-8.*

November 1989 general election to the Lok Sabha rejected Rajiv Gandhi and his political party and brought in the Janata Dal government, led by V P Singh, but 'propped up by the BJP on the Right and the CPI-M on the Left'. The author discusses this election and the rise of V P Singh in detail in his book. He also discusses the 1990 elections of eight states and the Union Territory of Pondicherry to their Legislative Assemblies three months after the Lok Sabha elections.

The author brings out clearly that V P Singh, at that time, was in tune with the peoples' psychology which helped him in winning the 1989 election for the National Front. He further brings out convincingly that it was V P Singh's personality only which could bring all the Opposition parties together before the election. He has also discussed the philosophy of an election in India which would be of lasting interest.

– Lt Gen KK Nanda, *PVSM (Retd)*

Olive Green Home Truths: How Army suffers from Colonial Hangover. By N Kunju, *New Delhi, Reliance, p. 118, Rs. 125.*

Kunju has now come out with another set of 'home truths' about the Army. Most of them are relevant to the other two Services aslo. But the Army has older traditions of some 200 years. Most of the regiments were raised by British officers and carried their names and associations which they do so even now. Times have changed. It is now an army of independent India. A review of the marching columns on 26 January indicates that every thing is as it was in 1947.

Kunju is amply qualified to write on the subject.

The opening chapter highlights the fact that thousands of Indian soldiers who joined the INA to fight the British and raised the standard of revolt in the Navy and Air Force also still suffer from the ignominy and have been denied recognition as freedom fighters.

The subjects covered are thought provoking - 'Secularism and the Soldier', 'Army and Policing duties', 'Justice for Jawan, 'Sex and Soldier', 'Defence and Paraliament' and 'Olive Green to Saffron', etc.

The author has done well to reproduce the letter which General Cariappa (later Field Marshal) first Indian C-in-C had written to all Army officers in 1950. This is relevant even to this day.

A valuable hand book for those interested in defence policies of the country and Armed Forces Officers.

– Lt Col Gautam Sharma *(Retd)*

"Fakhr-E-Hind", The Story of the Poona Horse, By Lt Gen Hanut Singh, *Dehradun, Agrim Pub, 1993, p. 301, Rs. 350.00.*

Regimental History plays an important role in inculcating espirit-de-corps, loyalty, sense of belonging and so on. Unfortunately, most of the regimental histories are either incomplete or written without imagination. The recorded history of the Poona Horse ended in 1931. This book fills the void and is the story of one of the oldest, finest and highly decorated regiments of the Indian Army. The layout of the book is well conceived. The periods between the two Great Wars & Post Independence are well covered by reminiscences and reflections. The value of the book is enhanced by inclusion of details of battles, in which the regiment participated, at the macro level.

After its raising on 15 Jul 1817, the Unit saw action against the Peshwas, in the First Afghan War, the Sind War, in Persia, Abyssinia & China. In World War I it fought in France in the role of infantry and suffered casualties from severe cold as the troops were illclad. After mechanisation in World War II, it was not employed in its classical role but for guarding/security duties in Egypt & Iraq. During 1965 War, it gave a good account of itself in Sialkot sector, but appears to have been poorly handled by higher commanders. In 1971 the regiment performed excellently and was well led by officers, especially the Commanding Officer.

I enjoyed reading the book. One is impressed by the courage and leadership of British Officers, be it Swanston at Koregaon of Moore at Kooshab, as also the loyalty of the Indian soldier to their officers. Lt Col Adi Tarapore was awarded the highest decoration in 1965 War. As per the account, he was killed by a shell, while having tea, with some officers (Page 213). It does not do justice to the gallantry and supreme sacrifice of the officer. Perhaps, the inclusion of his citation would have been appropriate. The citation of Moore and Malcolmson has been given twice, erroneously. (Pages 26 & 31). Credit must go to those responsible for writing the overviews, as well as reminiscences, as these have enhanced the value of the book. In 40 pages of Reminiscences 1, 3 & 4, under the chapter "Forging the Sword", there is some repetition. Also, the reader is not inspired to read, adverse comments on professional/personal qualities of senior officers, written by YO's some 36 years later. Its relevance to Regimental history is also questionable (eg. Pages 172, 173).

The author, well known in contemporary military circles, is most suited to have written the book. He embodies the very best, of 'PH' spirit and was to large extent responsible for the professional excellence exhibited by the unit. His painstaking research and dedicated effort is most commendable. He has written in a simple, straight forward and lucid manner.

A well presented book, which should appeal to all those interested in matters, military.

-- Maj Gen Ram Nath, *SM*

Reign of Terror in Mongolia 1920-1990. By D. Dashpurev and S.K. Soni. *New Delhi, South Asian Publishers, 1992, p. 93, Rs. 95, ISBN 81-7003-161-3.*

The waves of change that followed the disintegration of the erstwhile Soviet Union swept over Mongolia in much the same way as it did in the Eastern Europe. Consequently a saga of torment and repression was revealed which the authors have termed as 'the Reign of Terror' signifying a time of 'big political crimes' by the Mongolian Communist Party against the common people.

Stalin sought to transform Mongolia into a Soviet satellite state and how his stooges actually terrorized the people of Mongolia into submission, is the main theme of the book. One interesting feature of the work is the account of first-hand experience narrated by the Mongolian scholar D. Dashpurev. Analyzing the events, however, stipulated the competent involvement of his Indian counterpart S.K. Soni. The effect is a scholarly work tinged with facts, insight and thought-provoking observations.

The book which is not voluminous but deals at length with the regimes of Choibalson and Tsedenbal should prove beneficial to any inquisitive reader and quite useful for the students of relevant fields.

-- Anindyo J Majumdar, *JNU*

High Endeavour: The Life of Air Chief Marshal Sir Ronald Ivelaw-Chapman GCB, KBE, DFC, AFC. By John Ivelaw Chapman, *London, Leo Cooper, 1993, p. 164, £ 16.50,* ISBN 0-85052-316-8.

This biography of Air Chief Marshal Sir Ivelaw-Chapman-Chief of the Indian Air Force in 1950-51-by his son John, is the story of a colourful life of an outstanding officer of the Royal Air Force, who was one of the few to experience the thrill of adventure and romance associated with the evolution of air power from its early beginnings to the jet age of supersonic fighters.

The narration interspersed with extracts from Sir Ronald's diary, presents a panoramic picture of the life in the Royal Air Force from 1918 to 1957 and the part Sir Ronald played in it. Writing after retirement, about his days in India, Sir Ronald says, "I could not have been happier than during my couple of years as C-in-C of the Indian Air Force."

The book is a nostalgic reminder of the good-old, innocent, and carefree days of military aviation in Britain and India; it should be of special interest to the Indian readers.

-- N.B.S.

Additions to the USI Library for the Quarter - Ending December 1993

(The books reviewed in July-September1993 issue have been added to the Library during this quarter but not shown in this list.)

		Air - Force	
1.	Karim, Afsir (Maj Gen)	The Story of the Indian Air Borne Troops	1993
		Air - Power	
2.	Winton, John	Air Power at Sea: 1945 to Today	1987
		Assam	
3.	Miri, Sujata	Communalism in Assam: A Civilizational Approach	1993
		Biography	
4.	Khan, Mohammad Shabbir	Tilak and Gokhle: A Comparative Study of their Socio-Politico-Economic Programmes of Reconstruction	1992
		China	
5.	Chopra, S.N.	China Today: An overview of People's Republic	1993
		Espionage	
6.	Rusbridge, James	The Intelligence Game: The Illusions and Delusions of International Espionage	1989
		Gulf War - India	
7.	Banerji, Arun Kumar	The Gulf War and the Energy Crisis in India	1993
		Gurkha	
8.	Morris, C.J.	The Gurkhas: An Ethnology First published in 1933, (Reprint)	1993
		India - Foreign Policy	
9.	Chopra, Pran	The Crisis of Foreign Policy: Perspective and Issues	1993

		India-Sri Lanka Relations	
10.	Muni, S.D.	Pangs of Proximity: India and Sri Lanka's Ethnic Crisis	1993
		Indian Economy	
11.	Khusro, A.M.	Managing the Indian Economy	1993
		India - History	
12.	Allana, G.	Eminent Muslim Freedom Fighters 1562-1947: Twenty One Great Lives	1993
13.	Thomas, R. Hughes, ed.	Memoirs on Sind, 2 Vols First published 1855, Reprint	1993
14.	Ahmad, Tasneem, Tr.	Tarikh-I-Akbari: Muhammad Arif Qandhari	1993
		India - Defence	
15.	Khanna, DD and Mehrotra, PN	Defence Versus Development: A Case Study of India	1993
		Kashmir	
16.	Maheshwari, Anil	Crescent Over Kashmir: Politics of Mullaism	1993
17.	Raina, Dinanath	Kashmir: Distortions and Reality	1994
18.	Kumar, D.P.	Kashmir: Pakistan's Proxy War	1993
19.	Wani, Gull Mohd.	Kashmir Politics: Problems and Prospects	1993
20.	Wani, Gull Mohd and Naqash, Nasir A.	Reflections on Kashmir Politics	1993
21.	Soz, Saifuddin, ed.	Selected Papers Presented to the Seminar on Kashmir Crisis; Agenda for the Effective Dialogue	1992
		Memoirs	
22.	Trevelyan, Sir George	The Competition Wallah; The Right Hon	1992
23.	Bhoothalingam, S.	Reflections on an Era: Memoirs of a Civil Servant	1993
24.	Wolpert, Stanley	Zulfi Bhutto of Pakistan: His life and Times	1993

		Mizoram	
25.	Ranjannag, Chitra	The Mizo Society in Transition	1993
		Navy	
26.	Ramunney, Murkot	Eshimala: The Abode of the Naval Academy	1993
		Nepal	
27.	Khadka, Narayan	Politics & Development in Nepal	1993
		Pakistan	
28.	Rizvi, Hasan-Askari	Pakistan and the Geo Strategic Environment: a Study of Foreign Policy	1993
29.	Bhola, P.L.	Pakistan's Nuclear Policy	1993
		Somalia	
30.	Aidid, M. Farah and Ruhela, Satya Pal.	The Preferred Future Development in Somalia	1993
		United Nations	
31.	Murthy, C.S.R.	India's Diplomacy in the United Nations: Problems and Perspectives	1993
		UN - Peace Keeping Force	
32.	Harbottle, Michael	The Blue Berets: The story of the United Nations Peace Keeping Forces First Published 1971, Revised	1975
33.	Rikhye, Inder Jit	Military Adviser to the Secretary General: UN Peace Keeping and the Congo Crisis	
34.	Sundram, J.	Operation Shanti: Indian Army on Peace Mission in Egypt 1956-1967	1993
		Vietnam War	
35.	Wintle, Justin	The Vietnam Wars	1993
		War	
36.	Macmunn, Sir George	Vignettes from Indian Wars, Reprint	1993
37.	Dupuy, Trevor	Future Wars	1992

JOIN
USI
Correspondence Courses
And
Plan Your Career

Courses run by the USI

Courses	Dates		Fees*	
	Course commencement	Examination	All subjects (Rs.)	Each subject (Rs.)
1. DSSC Entrance Examination (Army)	Nov	Sep	700	160
2. DSSC Entrance Examination (Navy)	Jan	Jul	--	225
3. DSSC Entrance Examination (Air)	Jan	Jul	375	200
4. TSC Entrance Examination	Nov	Sep	400	160
5. Promotion Examination Part D	Jun	Jan	550	130
6. Promotion Examination Part B	Sep	Apr	350	110

*Membership of the USI is compulsory for all Courses. The fees given above do not include membership fees which are as follows :-

Membership Fees

	Life (Rs.)	*Ordinary* (Rs.)
Entrance	100	100
Subscription	900	100(annual - 1 Apr to 31 Mar)

Bank Drafts/Postal Orders and Local Cheques ONLY will be accepted.
For further details write to the Chief Instructor,

UNITED SERVICE INSTITUTION OF INDIA
Kashmir House, Rajaji Marg, New Delhi - 110 011 (Tele 3015828)

USI

(Estd. 1870)

OUR ACTIVITIES

Library Service

One of the oldest and finest military libraries in India, today it has over 50,000 books, and journals on its shelves, including books published in the 17th, 18th and 19th centuries, on an astonishing variety of subjects. While the principal emphasis is on strategy and defence, there are a large number of works on different facets of Indian life, as well as on other countries. It is a store house of rare books and manuscripts for scholars and research workers devoted to political and military study.

Correspondence Courses

The introduction of Correspondence Courses for promotion and Defence Service Staff College examinations some years ago found ready response and today the Institution has 1,500 members who participate in the Training Courses annually. Material is despatched to them regularly wherever they may be.

The students have undoubtedly profited by these courses, as evidenced by the success achieved by them in these Examinations. Popularity apart, the courses contribute substantially to the revenue of the USI.

USI Journal

Oldest Defence Journal in India, it contains proceedings of lectures and discussions, prize essays, original articles, book reviews, etc.

It is published quarterly in April, July, October and January each year (the first issue being Jan-Mar each year). The Journal is supplied free to members. It provides a forum for the most junior officer to express his opinions relating to his profession.

Gold Medal Essay Competitions

The gold medal essay competition is held every year. The subject for essay is announced during the month of March each year. On the occasion of the Centenary, an additional Gold Medal Essay Competition nas been instituted for Junior Officers of not more than ten year's service.

Lectures and Discussions

A series of lectures by outstanding experts on service, international affairs and topics of general interest to the Services are organised for the benefit of Local Members in Delhi.

Mac Gregor Medal

This medal is awarded every year to officers for any valuable reconnaisance they may have undertaken.

Rules of Membership

1. All officers of the Defence Services and all Central Services Gazetted officers Class I (including Retired), Cadets from NDA, other Services' Academies and Midshipmen shall be entitled to become members on payment of the entrance fee and subscription.

2. Life Members of the Institution shall be admitted on payment of Rs. 1000/- which sum includes entrance fee.

3. Ordinary Members of the Institution shall be admitted on payment of an entrance fee of Rs. 100/- on joining and an annual subscription of Rs. 100/- to be paid in advance.

4. The period of subscription commences on 1 April each year and shall be operative till 31 March of the following year.

For further particulars, please write to Director, USI of India, Kashmir House, Rajaji Marg, New Delhi - 110011.