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UNITED SERVICE INSTITUTION OF INDIA

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the furtherance of interest and knowledge in the art science and literature of the Defence Services

Secretary and Editor
Col Pyara Lal, AVSM

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West Asia

REGIONAL DEVELOPMENT : THEIR IMPLICATIONS FOR INDIA

COLONEL R RAMA RAO* (Retd)

COUNTRIES of West Asia and adjoining North Africa are beset with problems. Most of these have been with the countries of the region for some time. Some others have arisen in the wake of the earlier developments. The interaction of Great Powers in pursuit of their own interests have in general aggravated the problems faced by West Asian countries.

Among the factors affecting the region and influencing events in West Asia and neighbouring South Asia are :

(a) Super Power interests;
(b) The Palestinian issue;
(c) The crisis in Afghanistan;
(d) The situation within Gulf States;
(e) Factors affecting regional co-operation;
(f) Iran-Iraq war.

It is proposed to assess these factors and consider their implications on India's security.

(a) *Super Power Interests in the region* :

Before the Second World War, Britain exercised direct or indirect control over the Suez Canal, Palestine, Jordan, Iraq, the Gulf region, key ports along the south coast of the Arabian Peninsula and critical waterways on the route from Gibraltar to Singapore. Her control over the Indian subcontinent was near absolute. Britain's economic interests were centered round Iranian oil, mineral and other natural resources of her colonies and dependencies and the protected markets for her manufactures that these countries constituted. Britain maintained her control over the region by utilising her Navy to police the waters around colonies and used her colonial armies to maintain control inshore as necessary.

At the end of the Second War and more significantly after Britain's withdrawal from East of Suez, the United States took over Britain's role in the region.

The principal objective of the United States, in taking over Britain's mantle was to "contain" the Soviet Union and prevent it from gaining influence in countries bordering it. On the positive side, containment of the Soviet Union within its own Eurasian landmass and its adjunct in Eastern Europe, would serve USA's immediate as well as long term economic interests. Firstly, West Asian oil. Till the late Sixties and to a lesser extent until King Faisal used the oil weapon, its investments in West Asian and especially Saudi Arabian oil yielded USA a dividend of over 100 per cent a year. Only for a short while after the 1973-74 oil price rise, did USA feel the effects of the hike in energy costs.

Subsequently by its sales of armaments, manufactured goods and by providing consultancy and the services of instructors and technicians, United States is recovering more than the cost it incurs in importing the oil it may need. However, it is well to remember that if it tries, USA can do without importing West Asian or any other oil. It can reduce oil consumption by using oil saving devices, drawing on its own hydro-carbon reserves by developing on and off shore oil fields, its vast shale deposits and alternative energy sources such as nuclear, solar, geothermal and wind and tidal power. Some effort is being made in these directions but not nearly enough, except perhaps in developing fusion and advanced fission technologies.

USA may not be anxious to develop its own on and off shore oil fields since the sooner West Asian oil reserves are depleted the sooner will Gulf countries lose their present bargaining power (which they seem to be losing anyhow because of their inability to compose their internal differences). Further, world demand for oil may either stagnate or actually fall gradually because of increased production in non OAPEC countries, installation of oil saving devices in oil importing countries and the development of new sources of energy in the major oil importing countries.

USA is also interested in having control over the natural resources of Southern Africa through her surrogate, South Africa. Hence, USA considers it important to acquire and retain a certain amount of control over countries of Indian Ocean region. Hence, also the development of bases in Islands of the ocean and at ports on the African see-board, and the Arabian and Makaran coasts. As explicitly made clear by spokesmen for US Administration, these bases apart from providing USA its strategic communication and surveillance facilities, and logistic

support for fleet units, would also accommodate Rapid Deployment Forces (RDF) whose purpose would be to intervene in countries of the Gulf region and possibly in other nearby countries as well, This in fact, was the main reason why Diego Garcia was acquired and developed in the first instance.

Any regional country trying to adopt an independent policy is considered as being in the Soviet camp and therefore USA's enemy. This provides cause for concern among non-aligned countries of the region.

As RDF strength in the region is built up, the chances of the forces being used in countries of the region to destabilise regimes or keep in power locally unpopular governments would increase. USA's activities to stir up trouble in the Asian republics of the Soviet Union would also increase. This seems to be the main concern of the Soviet Union. Fearing USA's indirect interference in Afghanistan, the Soviet Union, hastily perhaps, intervened in that country with their troops, which has added to the probability of the USA intervening in Iran.

This US-Soviet confrontation poses further threats to the security of non aligned countries of the region.

(*b*) *The Palestine Issue* :

From the point of view of most countries of the Third World the issue is simple. Palestinians have been dispossessed of their homes and their lands. They must have the option to return to their homes. The people who lived in what was Palestine, must be allowed to return and re-establish a state of their own. They, unlike the Jews, are not asking for a theocratic but a secular state wherein all citizens irrespective of their religious or racial affiliations would have equal rights and equal obligations.

Israel having annexed Palestinian territory by force is unwilling to vacate the areas so acquired. United Nation's Resolutions No 242 of November 1967, though now being variously interpreted, called upon Israel to vacate occupied areas and retire to its pre-1967 borders.

Israel has vacated the Sinai in accordance with the Camp David settlement. The area so vacated is demilitarised and an Allied Peace Keeping Force under USA's leadership has the responsibility for ensuring that the Sinai does not become a battle ground once again. Israel, in vacating Sinai which she had gained by aggression had probably three reasons for agreeing to do so. Firstly, it would secure Israel's Western border, since USA would be in position to safeguard its borders. Second, it would deprive its enemies of the most important constituent

of their military strength, namely the Egyptian armed forces. Third and most important consideration, by drawing Egypt into the Camp David peace process, the Arab front against Israel would be disrupted, perhaps beyond repair. It was being said that Arabs are not united in anything except in their opposition to Israel. Camp David has demonstrated that even in the matter of opposing Israel, Arab States are far from being united. The continuing differences between Syria and Jordan; Syria and Iraq; Morocco and Algeria/Libya; between Libya and Egypt/Sudan and between several Arab States and Libya, are telltale fissures in the Arab world which Israel and Great Powers are interested in perpetuating and exploiting to the full. There is also the continuing Iraq-Iran war which has its implications for the security of the region as a whole. Of this more later.

The utmost that Israel may do for the Palestinians seems to be to let them have local autonomy on the West Bank, with the West Bank still being a part of Israel. The possibility of excercising what is referred to as the 'Jordanian option' has also been mentioned by some Western observers. This would mean restoring the West Bank to Jordan. But even in this eventuality, Israel would probably ensure that either it retains direct military control over the area or the area is secured by the presence of a Western force under US leadership on the lines of the force that looks after the Sinai.

The PLO, from present indications, is unlikely to 'buy' either of these plans. This may suit Israel since possession is the proverbial nine points of the law and the longer it holds on to the West Bank creating 'facts' in its favour, the more difficult it would be for Palestinians and Arabs generally to recover their lost territories. Even so, Israel and its backers would have to reckon with the possibility of spontaneous violence erupting in Arab lands directed at Israel as well as at its principal supporter.

Although US policy for West Asia hinges round ensuring the undisputed military superiority of Israel over any combination of Arab states, if Israel's policies result in building up Arab resistance to the United States to the extent that Saudi Arabia begins moving away from it, American West Asian policy would suffer a reverse if not total collapse. American policy makers, however, have their own differences. While State Secretary Haig appeared to base American policy on practically endorsing Israel's approach to solving its Arab problems, Defence Secretary Weinberger and Haig's Successor Schultz would like reasonable accommodation with Saudi Arabia in order that the latter may not, in despair, be driven to adopt a position of neutrality vis-a-vis the Super Powers.

Israel over a period of time has encroached into South Lebanon and virtually set up a vassal state contiguous to its border and extending up to the River Litani. In June (1982) Israeli forces carried out massive attacks on PLO positions inside Lebanon as well as on Syrian positions adjoining North Lebanon. PLO as well as Lebanon have suffered grieveously. PLO fighters entrapped in Beirut are awaiting safe conduct in batches to Egypt, Syria, Jordan and Iraq. Small parties of PLO may be provided asylum in the two Yemens and Sudan also.

But the question of providing a permanent home to the Palestinians remains. If Palestinians do not receive reasonable satisfaction, it is not unlikely that radical movements may gather momentum in all Arab States. There is no knowing how the movements once started, would end; but the process may not be in the interests of USA, which today is the only power that can persuade Israel to see reason and opt for a settlement that would be fair to the Palestinians and in the long run would be to Israel's advantage also.

(c) *The crisis in Afghanistan* :

It is unnecessary to recall the circumstances under which Soviet troops entered Afghanistan. The fact is that 70,000 to 100,000 Soviet troops are in position in that country. The Afghan Army now is very different from what it was only a few years ago. Large scale desertions from the army have taken place, and a form of conscription is probably in force in order to restore the Army to its former size of about 90,000. What has to be remembered, however, is that ever since the Daud Coup, the command structure of the Afghan Army has been steadily changing. Successive coups and convulsions have resulted in senior officers fleeing the country or becoming casualties for other reasons. This must inevitably have altered the character of the armed forces.

The last two years of close contact with Soviet troops, the near elimination of Western oriented officer corps have had their impact on the Afghan army and on the attitudes of army personnel generally. The effectiveness of the Afghan army would probably improve steadily as also their importance to the Soviet armed forces in the country, given the division of people within Afghanistan into pro-Western and pro-Soviet groups. These divisions intensified by external support to the factions would inevitably prolong the Afghan crisis, cause further hardships to the people of Afghanistan and even engulf neighbouring countries.

First, the arming of Afghan refugees and dissidents and provision of sanctuaries for them on Pakistan's side of the border. Secondly, the

positioning of elements of American RDF at locations in Baluchistan, Sind and Frontier Province. These RDF elements would be for intervention in Gulf States. As of the moment Iran is probably the first on their target list. But actual intervention is likely to occur only when internal troubles within Iran make it ripe for external intervention. Should US forces initiate steps to move into Iran, Soviet forces positioned close to Iran's northern and north eastern borders may also be expected to move into northern Iran, as they did during the early years of the Second War. Soviet aims would be to secure their own Southern, largely muslim Republics and prevent infiltration of US agents into these Republics. Soviet Union would also be anxious to prevent US/ Pakistani forces from entering Baluchi areas of Iran.

Since the move of US troops into, for example, the Gulf or Arabian sea coasts of Iran would provide legitimacy for Soviet troop presence in Northern Iran and more ominously from Pakistan's point of view, into Iranian Baluchistan, USA may not rashly deploy its RDF in Iran but endeavour to instal in Iran, a regime which would be amenable to it, to succeed the Khomini regime.

This would enable USA not only to 'manage' Iran from whithin thus keeping the Soviets out, but also to insulate Gulf Arab States. USA could then control these States utilising Pakistani troops. Simultaneously, increased rebel activity inside Afghanistan, may be organised, but this may lead to sharper Soviet reactions against Afghan rebels. Also, movements for an Independent Baluchistan which already seems to be gathering momentum would receive even greater support than at present from the Soviet Union.

(d) *The situation within Gulf States and regional co-operation* :

Much has been written about the domestic situation in Gulf States, their large per capita incomes, low population densities, wide disparities in wealth and power as between a miscropic minority of the population and the vast majority, the relatively under developed state of the countries despite their huge oil revenues and the opulence of their ruling elites, their dependence on immigrant labour, foreign experts and consultants and above all, on the vulnerability of the countries and on difficulties in the way of their coming together. These generalisations are probably correct to some extent, and in varying degrees in respect of the different countries of the Gulf. However, during the past few years, leaders of Gulf countries have been taking steps to move closer to each other and consider concrete measures to safeguard their collective security.

At the Islamic Summit Conference held at Taif, Saudi Arabia, in January 1980, Heads of State of Gulf Arab countries decided to set up the Gulf Co-operation Council. This move has brought the smaller Gulf States closer together and a common approach to solve their economic and security problems is also being evolved. These states have expressed opposition to the move of RDF units into Gulf States. Saudi Arabia has also expressed its opposition to positioning RDF units on its soil for the purpose of 'safeguarding' oil wells. However Saudi Arabia's AWACs are being flown and maintained by US personnel (at Saudi expense) and would undoubtedly be utilised by USA for obtaining information of value to itself. However, permitting US Air Force to operate Saudi facilities and planes is equivalent to the provision of air bases. Among the smaller Gulf States, Oman has already provided bases to USA.

A Saudi officer appears to have remarked that US intervention forces on its soil may be a greater threat to Saudi Arabia than distant Soviet troops. This would apply even more to the smaller Gulf States. Thus the main problem that Gulf Arab States face (apart from that arising from a sparse population and near total dependence on foreign skilled and unskilled labour) is that they are in no position to resist a strong outside power should it decide to intervene.

In recognition of this, Kuwait has taken significant steps towards moving to a position of neutrality as between one super power and another. The other Gulf States, too may make cautious moves in the same direction. Saudi Arabia too has been stating that Israel, not the Soviet Union, constitutes the principal threat to Arabs. However it may not take immediate steps to recognise the Soviet Union, since it knows how vulnerable it is to US pressures.

Economically also, the position of Arab States, especially Saudi Arabia, may not be quite so strong as its cash reserves and its oil revenues would suggest. This is because it has embarked on a massive development programme which by and large is still in its first phase. In this phase infrastructural facilities such as roads, air ports, housing units, schools etc are being built. These represent expenditure on which no returns are being received. They are no doubt necessary but unrequited expenditure has stoked the fires of inflation. Industrial projects—apart from the petro-chemical refineries started by King Faisal have yet to be built. Until industrial projects are started and begin paying their way, Saudi Arabia will have to live on its oil revenues and its economy will not be immune to pressures, especially as most of its Current account surpluses are invested in USA, which may be frozen if it adopts a policy which US may not like.

Kuwait in contrast, recognising its strength as well as its limitations is utilising its accumulated savings to invest in developing markets, which would yield fair dividends. There is no threat of seizure and Kuwait would also be conserving its capital resources. Over the longer time frame, since oil is an exhaustible resource, West Asian oil producers would do well to save and invest in developing countries, for the good of both parties.

All this adds up to a complex mosaic with its potentialities for conflict. As US Defence Secretary Caspar Weinberger hinted in another context, US policy in West Asia seems in danger of becoming hostage to Israel. It may suit neither Israel nor USA to trigger a conflict in the Gulf region. Hence it would seem, that the present uneasy peace would continue unless unpredictable revolutionary changes in Iran, Iraq, Jordan or any other major West Asian state occur.

(*e*) *Iran-Iraq War*

Outbreak of hostilities between Iraq and Iran is perhaps the most disheartening development in the region in recent years. It is a grievous tragedy for the people of Iraq as well of Iran. Production and infrastructural facilities have been damaged in both countries which amount to loss of capital assets and reduction in revenue earning capacity. Further, because of damage to transportation systems, flow of goods and services would be interrupted and cost of transporting goods and therefore the costs of goods and services would rise which would be compounded by fall in export earnings, inflation and above all on the continuing import of arms and other incidental costs of waging a no-win war.

In the case of Iran, a frank assessment of the economic implications of the war made by former President Bani Sadr as early as March 1981. He had pointed out that the contribution of oil to the country's GNP had fallen from 36% in 1977 to 26% in 1979. By the end of 1980 Iran's exports of oil had not only shrunk to less than 1 mbd (million barrels of oil per day) but Iran had to import refined oil products to keep her war machine going. It was not until mid 1981 that Iran attained a production level of 1.4 mbd. As of now she has plans to step up production to about 2.5 mbd, but consequent on the steady fall in oil prices during the past one year, and the reported under selling of her oil products, Iran's increased production would just about off set the effect of the fall in prices.

Iraq too has suffered, but managed to keep up its economic activity, especially her construction projects by drawing on her reserves

and credits extended to her by other Arab States. However as the war has been continuing for almost two years, Iraq has had to borrow extensively from Gulf Arab States and has become vulnerable militarily as well as economically.

Although there are strong political and strategic reasons from the points of view of both Iraq & Iran, for ending the fratricidal war, economic compulsions have brought home to the belligerents more forcefully, the futility of continuing a war in which the only beneficiaries would be an external powers principally USA interested in weakening both countries and in securing control over the entire region. Armament suppliers and the regional surrogates of a Great Power, in that order, would be the other beneficiaries.

President Saddam Hussein of Iraq abrogated the Shatt-al-Arab agreement between Iraq and Iran on 18 September, 1980 and as some observers had predicted, war between the two countries broke out on September 20, 1980. The war aims of Iraq were :

(a) To restore the sovereignty of Iraq over the entire Shatt-al-Arab. (The 1975 agreement between Iraq and Iran concluded at the Islamic summit conference at Algiers, adopted the Thalweg Linc on the river i.e., the median line at low water as the international boundary between two countries);

(b) Restoration of Arab sovereignty over the three islands at the entrance to the Gulf which were seized by Iranian forces under the Shah when British forces withdrew from the Gulf region.

The other, unstated, objective was perhaps to 'liberate' the oil rich province of Kuzestan which though part of Iran has a predominantly Arab population.

Iran's war aims on the other hand, are to get Iraqi forces vacate Iran, accept its guilt in invading Iran and pay reparations to the tune of $150 Bn. President Saddam Hussein has accepted, in principle, these conditions although the amount to be paid as reparation may be decided later.

Iraq apparently found it difficult to obtain replacement weapons ammunition and spares for Soviet supplied equipment. Spares and ammunition of Soviet origin were being obtained from the Egypt and possibly from China to a limited extent. France and West Europe and USA to a lesser extent also seemed to have supplied some armaments. Clearly, these were not be sufficient to enable Iraqi forces to mount massive and sustained attacks on Iran. This is one and an important reason for Iraq's reverses. The other and perhaps more important reasons were the zeal and revolutionary fervour of Iranian soldiers in

defence of their homeland. Ayatollah Khomeini's Shiite ideology reinforced this zeal. The efforts of USA, as evidenced by the Teheran Papers to destabilise Iran and its plans for setting up an Iranian administration which would tow USA's line, predictably gained for Ayatollah Khomeini the support of moderate and uncommitted Iranians as well. This in turn generated popular enthusiasm for continuing the war with Iraq till Iraqi troops vacated Iranian soil, since Iranians seem to be convinced that Iraq launched its attack on Iran after obtaining tacit support from USA. Circumstantial evidence may support this conclusion since President Saddam Hussein reportedly met Saudi Arabian leaders as well as American agents shortly before he launched his attack. USA's support to Iraq was in any case perhaps minimal since its objective is to reduce the power potential of Iraq as well as of Iran. Exhaustion of both countries rather than a decisive victory of either country must have been USA's objective. The hopeful feature now is that the two countries seem to be close, to finding a formula for ending the two years pointless war.

Within the broad framework of USA's policy, Israel has its own policy and means of executing that policy in West Asia/Gulf region. It has judged that Iraq, being Arab very much more radical than its neighbours with an intelligentsia and potentially a strong industrial and technological infrastructure, presents the greater threat to Israel. Hence it destroyed a nuclear research reactor which was under International safeguards, being installed at Baghdad by French engineers declaring that Iraq at some future date may make the bomb and threaten Israel. Additionally Israel seems also to be supplying Iran with spares for American supplied equipment which has enabled Iranian forces to continue the war.

The moral is that third world countries attempting to acquire technological self reliance could be targets for expansionist regional powers who may act with or without the approval and encouragement of a great power.

(*f*) *Effects of the Iran-Iraq War on India-Pakistan relations and on India's security*

Effects of the war on India are easily stated. India has had cordial relations with Iraq ever since the Iraqi revolution of the mid Fifties. Till the early Seventies India's relations with Iran were correct but close contacts were not possible since the Shah probably felt that India would move closer and closer to the Soviet Union and further away from the West, and probably pose a threat to Pakistan. By 1973 the Shah realised that Pakistan had attacked India in 1965 as well as in 1971 leaving

India with no option but to defend herself; that India was not subservient to the Soviet Union or any other Power and was genuinely interested in fostering regional co-operation between Iran, Afghanistan and the countries of the sub-continent and that Pakistan was opposed to such broad based regional cooperation. This idea can be revived only when the Iran-Iraq war ends and Afghanistan reverts to normalcy. India was hitherto been obtaining a good part of its oil from Iran and Iraq. Although Iran would continue to provide oil to India, continuation of the war could affect these supplies, as they already have in the case of Iraq. Because of the present glut in the oil market, India would be able to obtain its oil requirements from other oil exporters of the Gulf region, but this situation is unlikely to last indefinitely, especially if Iran/Iraq intensify the war and try to destroy each other's oil wells and refineries. Further India in a modest way, was assisting the two countries in their industrial development, by the provision of skilled and semi-skilled personnel, services and materials. Thus India's interest in these countries, apart from its desire to foster mutual cooperation and unity among developing countries, is to obtain its requirements of oil and pay for that oil by exporting goods and services. Pakistan obtains its oil at concessional rates from Saudi Arabia but would be interested in exporting its man power to the two countries. However, in the case of Iran, given the lull in construction and developmental work, there may not be much need for imported skilled labour. Further because of its closeness to Saudi Arabia, Pakistan may be viewed with some suspicion by those in power in Iran now. This suspicion would be heightened if USA gets base facilities and moves RDF units and/or logistic units to support RDF into Pakistan, since one of the first tasks for such RDF units would be intervention in southern Iran, or Gulf Arab states. Alternatively USA may persuade Gulf States to have sizeable contingents of Pakistani troops as a precaution against a hypothetical move by Iranian (Shiite) fundamentalists to over-run one of the smaller Arab States on the Gulf. This move also would arouse suspicions.

Pakistan has already provided Saudi Arabia with the equivalent of about two divisions besides about one division to the Gulf States. It would suit her to supply more troops to rulers in the Gulf region since that would mean raising, training and equipping these additional troops at other's expense and having for Pakistan an excellent trained reserve available to it at short notice. It would also provide Gen. Zia-ul-Haq additional opportunities to suitably reward and/or punish powerful members of his constituency, the Army. However, with his shrewedness and political acumen General Zia-ul-Haq may reason that it would not pay Pakistan to appear as USA's henchman in the Gulf region and

hence may not actually send additional troops to Gulf states, if American RDF units too are close by.

If US troops, whatever their pretext, actually enter Iran, it might place Pakistan in a dilemma since she cannot support such intervention without risking turmoil at home. If she opposes US action she would run the risk of not only not getting F-16 aircraft, other weapons and military and economic aid but also of destabilisation by Covert action on the part of an external power. Despite its declared intention of positioning RDF units close by, USA too may not rashly move into Iran since that may result in the Soviets moving into northern Iran, intensify Baluchi irredentist movements and draw Pakistan closer to the Soviet Union.

Hence USA's endeavours may be to resume covert operations in Iran in order to dislodge the clerics in power and instal conservative elements headed perhaps by a senior Iranian armed forces officer or a civilian now in exile. In such an event, Pakistan could further build up its armed forces with new American equipment and endeavour to speak to India from a position of strength.

There is little India can do except maintain vigilance, fill up gaps in its defences and be prepared to ward off attacks while continuing its efforts in co-operation with other non-aligned countries to foster regional co-operation and secure the withdrawal of great powers military presence from the region.

The Farakka Barrage Dispute : A Study in India-Bangladesh Relations

DR. V. K. TYAGI*

THE emergence of Bangladesh as an independent country changed the balance of power in the Indian subcontinent. After dismemberment of Pakistan in 1971 India emerged as a dominant power in South Asia. India played a major role in the liberation, emergence and survival of Bangladesh as an independent nation. Under the leadership of Sheikh Mujibur Rehman, Bangladesh maintained friendly political, economic and cultural relations with India. But after his assassination, the whole complexion of the Indo-Bangladesh relation changed and the Farakka Barrage dispute became the major bone of contention between two neighbouring countries. Because of successive coups in Bangladesh by pro-Pakistani military officers, the Bangladesh Press indulged in unchecked virulent propaganda against India which further led to deterioration of relations between the two countries.

The controversial issue involves the sharing of the Ganges waters during the months of February, March, April and May. As 70 per cent of water flows from Nepalese territories through the Kosi river, Bangladesh Government has been suggesting involvement of Nepal also. India's stand has been to solve the problem bilaterally and not involve any third country. India had an ambitious plan of bringing the Brahmaputra waters to Farakka.

GENESIS OF THE DISPUTE

The dispute had its origin in the unpragmatic partition of the country in 1947. The Indian Government constructed the barrage on the Ganges. The Ganges runs through the Indian states of Uttar Pradesh, Bihar and West Bengal. At the end of its downstreams one of its tributaries enters Bangladesh. The problematic barrage had been constructed in West Bengal, 17 km. from the Indo-Bangladesh border and is 22.8 metre high and 2,120 metre long. The main objective of constructing the barrage has been to remove the difficulties faced by

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navigators in the Calcutta port because of the silting of sediments in the Hooghly river. The barrage diverts a large quantum of water during the winter season through a 40 km. long feeder canal to flush the silting sediments out of the port. Besides, it is also designed to improve communication, drainage, sanitation and water supply facilities in Calcutta, as well as to provide inland transport throughout West Bangal, with a rail and road bridge over the Farakka.

The Bangladesh Government raised objections to construction of the barrage. These objections could be traced back to the times when Bangladesh was a part of Pakistan. Pakistan felt that about 25 per cent of the cultivable land of East Pakistan would be deprived of historical share of water because of the barrage.[1] Legally, India was under no obligation to sacrifice its interests in the utilisation of the Ganges waters in favour of Pakistan. India's case was fully justified on the basis of International Law and Helsinki Rules (1966)[2] as the Farakka barrage does not disturb any existing conditions.

In 1951, the Indian Government opted to work on the Farakka project as planned by the British Government before independence. Pakistan Government suggested that it should be consulted by Indian Government before implementation of the proposed plan. But neither the Government of Pakistan took up this matter very seriously, nor the Indian Government attempted to allay the hypothetical fears of Pakistan as the project was at a preliminary stage. In the meantime India had repeatedly assured Pakistan that Farakka would not disturb the irrigation schemes of East Pakistan because the meteorological conditions of East Pakistan were such that there was generally an excess of water and their problem was how to drain it away. East Pakistan was served by the Brahmaputra, which carried copious supplies of water throughout the year with an annual rainfall varying from 455 to 100 inches and large areas were inundated for a good part of the year. The problem of the region was essentially one of drainage and flood control and not of scarcity of water as was made out by Pakistan.

India rejected the Pakistani proposal of taking the issue to the United Nations as it felt that the problem could be sorted out through bilateral discussions between engineers and hydrographic experts of both sides. But Pakistan insisted on having such talks on a ministerial level as it wanted to project the barrage issue as a serious dispute in which East Pakistan was also involved.[3] India accepted the principle of supplying an agreed quantity of water at Farakka to East Pakistan, but

1. *Dawn* (Karachi), March 28, 1970.
2. *Indian Journal of International Law*, vol. IX, 1969, pp. 217-19.
3. Razvi Mujtaba, *The Frontiers of Pakistan*, Karachi, 1971, P. 60.

it did not recognise the rights asked for by Pakistan as the lower riparian state. Pakistan wanted to settle the Farakka dispute along the lines of the Indus Water Treaty of 1960. But the two problems were altogether different. In the former one India was only an upper riparian state to utilise the waters of the Indus while in this case, India was not only an upper riparian state but a major utiliser of its water also. While the Ganges covered 1,275 miles in the Indian region, she covered less than 100 miles of East Bengal. India regarded this issue as an entirely domestic one and did not consider the Ganges as an international river in true sense.

During this period the Pakistan Government's policy had been motivated by its desire to show to the people of East Pakistan, where a movement had been launched to gain autonomy, that it was worried about the interests of the East Pakistan people on this issue. The policy was dictated by a calculated attempt to counter the autonomy movement and to divert the attention of the political parties of East Pakistan.

Dispute During the Mujib Period 1971-75

After the emergence of Bangladesh the two sides got down to tackle the issue in an altogether different perspective. It was felt that the Farakka issue could be settled amicably in view of the cordial relations between the two countries. The most significant achievement was the creation of a Joint Rivers Commission during the visit of the Prime Minister, Mrs. Indira Gandhi, to Dacca in 1972. Dr. K.L. Rao, the then Indian Minister for Irrigation and Power held talks with the Bangladesh Government in April 1972 and the two countries agreed to share equitably the waters of all the rivers—the Ganges, Teesta, Brahmaputra and other rivers common to the two countries. In spite of differences over the sharing of the waters of river Ganges, a political patch-up agreement was signed on April 18, 1975 in Dacca and an interim accord was reached. Under the agreement the major portion of the water was given to Bangladesh. Both the countries agreed to run the feeder canal and India was allowed to withdraw her share in the following manner :[4]

Month	*Ten day period (dates)*	*Withdrawal (Cusecs)*
April 1975	21-30	11,000
May 1975	1-10	12,000
	11-20	15,000
	21-31	16,000

4. *Indian and Foreign Review*, Vol. XII, No. 141, May 1975, P. 12.

According to the agreement, India was allowed to draw up to a specific volume of water for its feeder canal for the benefit of the Calcutta port during the lean period.

Under the agreement, joint teams, consisting of experts of the two Governments, would observe at the appropriate place in both the countries the effects of the agreed withdrawals at Farakka for the benefit of the Calcutta port. The English daily *Bangladesh Observer* said it was a big step towards a final settlement. The Bengali daily *Bangla Bani* said the bitter feelings between the two countries inherited from the Pakistan regime had been removed.

Issue in the Post-Mujib Period

After the assassination of Sheikh Mujibur Rehman on August 15, 1975, the dispute assumed serious proportions. In January 1976, Dacca complained to New Delhi that the withdrawals of the Ganges water had adversely affected the economy of Bangladesh. On January 15, 1976, Bangladesh demanded that India should stop withdrawal of the water at Farakka. On June 19, 1976, Mr. G. Parthasarthi, leader of the Indian delegation which visited Dacca, admitted that Farakka was a major problem, blocking good neighbourly relations between Bangladesh and India and he said that the two countries would keep in touch with each other in a bid to resolve the differences. But Bangladesh's bid to internationalise the Farakka issue was deplored by India and she charged it of interrupting the process of bilateral negotiations. In a bid to divert the attention of its people, the Bangladesh Government wanted to internationalise the dispute and defame Mujib's Government by projecting the agreements signed by his Government as anti-Badgladesh.

On August 28, 1976, the Bangladesh representative at the U.N. said in a memorandum to the world body that India was unilaterally diverting the Ganges water and that the failure to resolve the issue expeditiously and satisfactorily carried with it the potential threat of a conflict affecting the peace and the stability in the area and the region as a whole. The Bangladesh representative said his country had brought this issue to the General Assembly in consonance with Article 14 of the U.N. Charter. The two sides agreed to meet urgently in Dacca for negotiations at the ministerial level. The U.N. General Assembly on November 26, 1976 adopted by consensus a statement noting their decision under the terms of the statement.

When the issue was raised at the U.N. the Indian delegation headed by the then Foreign Minister, Mr. Y.B. Chavan, made it clear

that neither internationalisation of the issue nor any third party pressure would bring any solution to the problem. The only solution lay in mutual discussions in an atmosphere of goodwill and friendliness. India had striven hard to normalise its relations with Bangladesh's new Government.

JANATA GOVERNMENT

After the Janata Party formed the Government in India in March 1977, the Janata rulers made efforts to improve the relations with the neighbouring countries. The talks between the two countries on the Farakka issue were held on April 14, 1977 at Dacca. An Indian official spokesman said on May 11 that the talks covered considerable ground on various aspects for a long-term solution. A steady flow of sufficient quantity of water during the lean summer months to the Hooghly was considered by India to be vital for saving the ports of Calcutta and Haldia from silting. After having four-day discussions, India and Bangladesh reached an understanding on sharing of the Ganges water during the lean season that normally lasts for three months from mid-March to mid-June. India and Bangladesh agreed on a permanent solution to the problem in augmenting the water resources during the lean months.[5]

In May, at a meeting in Delhi the Indo-Bangladesh River Commission decided to set up a committee to study the question of approaching Nepal to co-operate in the development of river water resources. This was the first public indication that the Joint Rivers Commission had made some progress.

Although details of the agreement at the Indo-Bangladesh River Commission meeting at Dacca had not been divulged, information pouring in from various knowledgeable sources suggested "that India has agreed to cut down during the lean months the upland flow from the Ganga, caused serious concern in Calcutta."[6]

The main aim for which the Farakka project was drawn up and implemented was to save the Calcutta port which is a principal point on the international commercial routes. For India, the Calcutta port, which lately celebrated the centenary of its birth, is a vital installation for handling its eastern sea-borne trade. If this port vanishes, it will not only be a great calamity for this country but also a great loss to world shipping.

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5. *Hindustan Times* (New Delhi), April 19, 1977.
6. *Amrita Bazar Patrika* (Calcutta) April 22, 1977.

Finally on September 29, 1977, India and Bangladesh reached an agreement on the sharing of the Ganges water during the lean season. The agreement provided for withdrawal by India and Bangladesh during the leanest period from April 21 to April 30—at the rate of 20,800 cusecs and 34,700 cusecs, working out to 37.5 per cent and 62.5 per cent respectively of the minimum flow of the Ganges at Farakka in the lean season of 55,500 cusecs. After the leanest ten-day period India's share was to increase at a much faster rate to get as close to 40,000 cusecs as quickly as possible within the lean season.[7] The rate of withdrawal by India during these periods was to increase roughly from two to 2.5 per cent. The important feature of the agreement was that it provided short-term and long-term solutions of the complex problem. The short-term solution was that India could draw small quantities of water for local use below Farakka. The long-term solution was that the two Governments committed themselves to augment the flow of the Ganges. The Joint River Commission, set up in 1972, was to examine proposals made by either side whether these were economic and feasible. These recommendations were to be submitted to the two countries for their consideration within a time frame, believed to have been five years. The agreement was completely bilateral in nature. The differences that might arise in the interpretation of the agreement were also to be resolved bilaterally.

It appeared that the differences were on the time frame for the implementation of the long-term component of the agreement. Bangladesh wanted a longer period while India preferred a shorter period and finally this was resolved by fixing the period as five years. The Irrigation Minister claimed that the Farakka barrage dispute, which had been lingering on since 1962, thus was resolved partially.[8]

The Bangladesh spokesman described the agreement as "historic and a meaningful step of far reaching significance" which cleared the way for the lasting solution of an outstanding problem which was lingering on for over a quarter of the century. Indian spokesman who expressed India's hope that the two Gavernments would maintain cordial relations described this agreement as a "harbinger of the ever widening co-operation between the two countries".

The Farakka agreement had a mixed reaction from the public and the press in India. The agreement was criticized on the ground that the recommendations of the experts had been disregarded by the Govern-

7. *Asian Recorder*, Vol. XXIII, No. 45, November 5-11, 1977, pp. 14012-13,
8. *Lok Sabha Debates*, Vol. VII, no. 1, November 14, 1977, col. 298,

ment of India and it had not cared to inform the public of any valid reasons. The division of water even in the leanest days came under sharp attack. India was to receive 40,000 cusecs and Bangladesh 58,500 cusecs during this period.[9] India's approach to this issue was regarded as one of illusion rather than of realism. It was described as a "sell-out" because it would effect on U.P. and Bihar in the long run and also the Calcutta port and certain smaller towns along the banks of the river.[10] On November 2, 1977, Mr Atal Bihari Vajpayee, the then Foreign Minister, justified the agreement on the grounds of honouring the following commitments made by the previous Government. First, in 1974 the Government of India had agreed not to commission the Farakka barrage without the consent of Bangladesh. Secondly, during the lean season of 1975 India would confine the withdrawal of water between 11,000 and 16,000 cusecs. He further said that 40,000 cusecs was India's maximum demand in the leanest season. When the flow came down to 55,000 cusecs withdrawal of 40,000 cusecs would leave only 15,000 cusecs for Bangladesh and nobody in the world would possibly appreciate this.

The West Bengal Government was very critical about this agreement. Criticizing the agreement, Chief Minister Jyoti Basu referred to Indian as well as foreign experts, including Mr. D.V. Joglekar, Director, Central Water and Power Commission, Mr. Mensem, an authority on field hydraulics from Avert, Germany, and J.J. Dronkers, Chief of Hydraulics Research, Government of Netherlands, and Consultant to the Rand Corporation of the U.S., who were of the opinion that 40,000 cusecs was the minimum requirement for the port of Calcutta. He further charged that the agreement was not in the interests of the country.[11]

Nepal's Inclusion in Ganges' Study Sought

On January 12, 1978 King Birendra and Queen Aishwarya of Nepal paid four days visit to Dacca. After the talks a communique was issued. It made a pointed reference to the scope for joint river water development in which countries of this region could co-operate closely so that benefits accruing from such co-operation in irrigation, power, river navigation and flood control could be shared by all the partners.[12]

9. J.K. Ray "The Farakka Agreement", *International Studies*, Vol. XVII, no. 2, April-June 1978, p. 240.

10. Margret Alva, "Janta's Foreign Policy: A Critique", in K.P. Misra, ed., *Janta Foreign Policy* (New Delhi, 1978), p. 14.

11. *Amrit Bazar Patrika* (Calcutta), April 21, 1977.

12. *Rising Nepal* (Kathmandu), February 2, 1978.

The communique assumed significance in the light of offers made by President Carter and the British Prime Minister, Mr. Callaghan, for their support to any proposal for joint water development in the eastern part of the sub-continent.

The meeting of the India-Bangladesh joint river committee was adjourned on February 28, 1977, as both sides failed to draft an agreement report relating to the differences. The main point of discord which led to the failure of the talks was understood to be Bangladesh's insistence on associating Nepal in the discussions on the scheme proposed. While Bangladesh demanded that Nepal should be invited to participate in all its meetings, the Indian side refused to accept this demand. India's stand on this point was that the Government of Nepal should be approached if and when required. But Bangladesh insisted that Nepal should be associated with the joint river commission's deliberations as a pre-condition for taking up the study of the schemes.

Again Bangladesh sent a Note to India on August 2, 1978 suggesting inclusion of Nepal in the study for augmentation of water resources of the Ganges. The suggestion was made following the ministerial level meeting in July between Bangladesh and India in New Delhi on the augmentation of river water to the Ganges above the Farakka barrage for the limited discharge for Bangladesh during the dry season. Bangladesh alternatively suggested storage of the Ganges water during the monsoon so that it could be released during the dry season of March, April and May.

India however rejected the suggestion but agreed to study the Bangladesh request for inclusion of Nepal in further study of water resources. Instead of cooperating with India in coming to an agreement in right earnest Bangladesh persisted in maintaining a negative and dilatory attitude. Bangladesh's strategy was self-defeating because of its insistence on involving a third country, Nepal, in an essentially bilateral problem.

When Mrs. Indira Gandhi Government returned to power in January 1980, it wanted review of the agreement of 1977 as it was not in the interests and needs of the country. It was of the opinion that it should be reviewed and India should adopt a firm attitude towards the problem. The 19th meeting of the Indo-Bangladesh Rivers Commission ended in Dacca on July 11, 1980 without making any tangible progress towards the solution to the problem of the diminishing dry season flows of the Ganges. The two sides failed to agree on setting up a study team to examine the alternative proposals that India and Bangladesh

had made for increasing the availability of water in the Ganges at Farakka. A press release issued by the two sides on July 22, said it had been agreed to redouble efforts to find a mutually acceptable solution to augment the dry season flow of the Ganges and also to share the water of the Teesta river.

A review of the agreement had become necessary because the quantum of water available to India in terms of the agreement was far too little to maintain the navigability of the Hooghly during the dry season. It was hoped that a solution would be found in a spirit of mutual friendship and India will not have to review the agreement unilaterally. Already the activity of the Calcutta port has been adversely affected despite the constant use of silt dredgers to keep the navigation channels open. If water has to be divested to Bangladesh, it will totally ruin this merchandise port.

In 1980 India's withdrawals of the Ganges water from Farakka were down barely 10,000 cusecs to 12,000 cusecs during the lean period, caused an understandable uproar in the West Bengal Assembly and heightened the tensions in the country over the future of Calcutta port. According to experts of the Poona Hydrological Research Institute, a minimum flow of 22,500 cusecs is required in the Ganges to prevent any damage to the Calcutta port through silting. Delhi, therefore, wanted Dacca at least to look at its proposal for linking the Brahmaputra with the Ganges through a canal to augment the water supply in the Ganges by one lakh cusecs during the lean period. Incredibly enough, Bangladesh has insisted on its own scheme and has so far refused to study India's proposal for the link canal despite the fact that the Farakka agreement of 1977 carried a specific provision about it.

Dacca appears to labour under the apprehension that India might exploit as the proposed link canal would "divide" Bangladesh. The fears however are unfounded, as Bangladesh is criss-crossed by several rivers and is therefore already divided in many ways. One-third of the canal will flow through Bangladesh and would be at Dacca's mercy. But the arguments, however, logical, have failed to carry conviction with Dacca which instead insists on its own scheme. Under this scheme storage tanks are proposed to be built in Nepal on the tributaries of the Ganges and the water used for augmenting the river's flow.

But in Delhi's view the scheme overlooks two points. First, even if all the feasible dams are built in Nepal, the Ganges flow will be augmented only by 50,000 cusecs as against one lakh by the link canal.

Secondly, a bilateral issue is needlessly being complicated by inviting participation of the third country. Bangladesh experts seem to think that water storage arrangements in Nepal are the better method, even though it would bring a third party into the discussions. But Nepal has been judicious in making its diplomatic stance clear that it will participate in any scheme to harness the Ganges only if New Delhi and Dacca jointly approach Kathmandu.

Constructive collaboration between India and Bangladesh could lead to positive results and add a tangible dimension to existing relations. India attaches great importance to maintaining and promoting a climate of trust and friendship with neighbouring countries. India has constantly strived for broadening the areas of bilateral co-operation with neighbouring countries with full regard for their sovereignty.

It is in the interest of both India and Bangladesh that the two countries should live in peace and co-operation and solve their problems bilaterally. With the political climate hotting up in the subcontinent because of Super Power intervention, it is imperative on the part of the South Asian countries to resolve their problems peacefully so that these can face the threat to their sovereignty and integrity arising out of outside intervention.

How can the Best Educated and Most Physically Fit be Attracted to the Services*

FLT LT RM NAIR, IAF

The Problems Examined. The questions that come to mind immediately are :

(a) Do the services in fact require the best educated and the best in body ?

(b) Would it be in the national interest for the services to monopolize the best educated ?

To answer the (a) above, one must examine the role of the services including future roles and the human inputs required to fulfil these roles. To answer the (b) above, one must take the position of the services vis-a-vis civil administration.

EDUCATION KNOWLEDGE WORKERS, AND THE SERVICES

Notwithstanding all the noble things said as a definition for education, in actual fact it is the mental and physical equipping for a career or a job. It is through education (more so specialized education) that one gains the capacity to perform certain tasks which enables him to fulfil the following needs :

(a) A comfortable life;

(b) A challenge to personal talents (real or imaginary) and the chance to see the talent blossom.

It is through education that a nation expects to meet its requirements of doctors, engineers, administrators, clerks, mechanics and the other myriad skills required for a modern society. To this end most nations, specially developing nations, have an education policy. Some of course, leave it to be determined by the demand and supply rule of a free market. It is by education that a society can ensure an adequate supply of these knowledge workers.

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*USI Gold Medal Prize Essay 1974 (awarded Cash Prize).

Peter Drucker in his book *the age of Discountinuity* points out three types of workers :

(a) Unskilled worker;

(b) Skilled worker;

(c) Knowledge worker.

Industrial society has developed a large number of unskilled, skilled and finally knowledge workers. Today's industrial society is knowledge intensive rather than skill or labour intensive Modern weapons being a product of the industrial society, the armed forces policy today is also knowledge intensive.

The characteristic of a knowledge workers are :

(a) Unlike skilled workers there is no period of apprenticeship to a master.

(b) The training of knowledge workers is a continuing process and has in most cases to carry on along with his normal duties.

(c) While under training and while performing his job he deals with printed matter whether in the form of manuals, instructions, blue prints, flow charts, temperature charts, balance sheets or masses of rules and regulations in finance administrative and technical matters, on the proper comprehension of which depends his effectiveness.

(d) The management of the knowledge worker; that is the setting of objective and the measurements of output is vastly more complicated than computing man-hours and finished articles.

(e) Knowledge workers have to be a part of the decision making machinery.

The modern armed force, being a part of the modern industrial society, must ensure a supply of suitable knowledge workers and people able to command such knowledge workers. The accent therefore will have to be on the education of the officer corps.

But does the officers corps have to be the best educated in the land ? Certainly not. Will not such people feel that they are being under-employed or misemployed ? Will not they always feel that their talents would be better rewarded elsewhere ? Even if the services are able to provide the best material rewards they will in most cases not be able to satisfy the second desire i.e., to accept challenge and the chance to see the talent blossom. However the best do not always go for the highest material benefit.

One must remember in this context that nothing is so dangerous to an organization as an under employed specialist. He will always

be under a compulsion to play up his specialist importance or he will become completely apathetic. Both states are equally bad.

The argument may always be advanced that the horizons are narrow because of the available raw material. That wider horizons and higher goals can be set if better quality is available. That the goals may be tailored according to the material available. One must cut ones coat according to ones cloth. It does not however in any way mean that just because there is an excess of cloth one must make an over-coat when all that one requires is a coat. Goals are set not from within an organization but rather from outside. The organization is created to meet such goals.

It may of course be that goals had to be trimmed. In this case of course the compromises may be removed by improving the quality. But is it so ?

Let us now examine the demands made on the officer corps. These demands are examined in the most general terms and being basic to organized armed defence are independent of the time frame.

ROLE OF ARMED FORCES

Historically the armed forces are the means by which a nation hopes to enforce its will on others or thwart the will of others. The members of the armed forces unlike those in other professions (the police force in this case may be regarded as an armed force—it being the means by which a nation enforced its will upon its own members); have :

(a) To be prepared to sacrifice their life or limb.

(b) To be equipped with the offensive weapons, inflict fatal damage to the enemy.

(c) To ensure a quick replenishment of both men and material.

(d) To be proficient in the use of their weapons, and

(e) Finally, the armed forces must have a command and control structure to plan, direct, ensure implementation, monitor results and modify. It must also be able to look outside its own structure and be able to foresee future trends and cater for it.

To meet the (a) above, one does not require good education or exceptional physical qualities. What it does require is proper motivation—a cause.

For the (b) above, and (c) above, also no higher degree of learning or exceptional fitness is required. The weapons are not made by the

armed forces. They are made in the civilian sector. All that is required of the armed forces is the specifications. To the extent that the specifications have to be realistic and commensurate with the current state of the Art as also the state of the finances, a certain appreciation of the problems involved is certainly required. But certainly not the best education in the land.

For the (d) above, again the best educated are not required. Though physical fitness is certainly a requirement it hardly requires athletes. What is required is a sound and properly trained body and mind that is highly motivated. The author of Pappilon, as he himself states, was hardly a physical specimen who could have been selected to undergo rigours, which others physically more suited than him could not. The proficient and effective handling of weapons requires training and drill. It needs training of the body to undergo physical privations of hunger, excessive heat or cold, sleepless night or the discomfort of sleeping in wet fox holes. It means learning of drills and procedures so that reaction is prompt, that proper action is ensured even though the mind may be under stress. The fabric on which these pattern of drills and procedure are woven is discipline. Discipline is the respectful and cheerfull acceptance and implementation of these drills and procedure. Throughout history discipline has been the only thing that keeps an armed force away from becoming an armed mob. These factors of drills, procedure and discipline are what would make the armed forces unattractive to the highly educated. The armed forces because of their basic nature cannot provide the intellectual atmosphere of a university. Intellectual ferment, and independent thinking may be very well on the campus but an armed forces can only encourage such things at peril to itself. A highly educated person spends almost all his intellectually formative years in a university where most systems and practices are open to questioning. Life is freer and a person can exert a lot of individual freedom. Such a person could hardly fit into the restricted life of the armed forces.

The last requirement will certainly require specialized information. For such cases it is best to have outside opinion. It does become necessary to change drills and procedures. This can be done by the organization. If new weapon systems are to be introduced, procedures and drills can be worked out with the help of the R & D Organization or the supplying agency. If a particularly recalcitrant problem exists and does not lend itself to common sense solution it is best to call in specialists rather than keep them permanently on the pay roll. The Pentagon does this in their research projects by employing expertise with American Universities and Rand Corp.

The answer to the first question therefore is that there is no need for the best educated or the best fit.

ARMED FORCES IN THE NATIONAL LIFE

Let us now examine the second question.

What would happen if inspite of what is stated above it was still deemed necessary, that the most highly educated and most physically fit were recruited ?

This would pose a threat to our national development. The Armed Forces play an important part in national life. They however do not contribute any thing towards national development. Unless it is by providing the arms industry with a customer. It would therefore be questionable if the armed forces were to capture for themselves the best of the available man power. It could only work to the detriment of the armed forces. It would be of dubious advantage to have the best machnical engineers employed on the maintenance of tanks and the second rates ones employed on designing them. It would be counter productive to obtain the best managerial talent to run the support services if the railways or administrative services in the country were to be run inefficiently (this is not to say that they are being run efficiently).

Such action will retard the industrial development in the long run and undermine democracy itself. Civilian control over the armed forces is a basic tenent of any democracy. It is the only way that the people, through their elected representatives, can exercise control over this important part of national life. If the best educated were to be taken by the armed forces only the left overs would be available to run the State affairs. Power would by default pass to the hands of the second rate people. The best educated would have forsaken their duty. This would certainly not work to the advantage of the nation.

Therefore before offering the best incentives it would be wise to consider the position the services occupy.

Even if the best service conditions were to be provided, the best would gravitate towards the centre of power where they could be most effective.

Once again one comes to the conclusion that it would not be advisable to obtain the best educated. Of course in this context the most physically fit would cause no harm.

Incentive of Emoluments

In any case to try and hire the best by giving them the best emoluments is self defeating. The best rarely go where the best money is. They go where the best challenges are. In his book, The Edge of the Sword, Charles De Gaulle says that no peace time army can expect to get the best—it has to wait for war. One of the severest missionary orders, the Jesuits, did not have a lack of able recruits. And as records show their achievements were very high. Instead of emphasising the glamour and the emolument it may be much better to stress the rigours and sacrifice of service life. A person who joines up because of the glamour or emolument would hardly deliver the goods when the time for sacrifice comes.

The Problem Restated

Is there then no problem? Do the services have the required man power resources? Is the quality of the resources good enough for meeting the task? The answer to all this cannot be in the affirmative.

The problem therefore has to be restated.

How can the armed forces have a highly trained or educated man power? Trained or educated for the military requirements of today and capable of being trained for future requirements.

Note the question of recruiting has been dropped and replaced with the problem of training. Instead of obtaining the finished product the question is now of "manufacturing". A sort of do it yourself to suit unusual requirements. This problem can be divided into three.

(a) The constant review of requirement procedures and rules with a view to drop the non-essential and to streamline the essential so as to avoid a proliferation of training processes.

(b) The preparation of adequate training processes both initial and in-service.

(c) Obtaining the proper raw material suitable to undergo the training processes and produce an adequate finished product.

Let us deal with each in turn.

Review of Requirements

A constant review has to be done at the policy making level keeping in view the task of the service. Any requirement rule or procedure that does not contribute to the aim must be dealt with ruth-

lessly. Any secondary task (procurement, finance, major repairs) that can be allotted to another agency should be done so. The training processes should then be drawn up to cater for this bare minimum. This will keep the organization task focussed. It would be a sad day if psychologists were considered necessary for commander's to feel the pulse of the unit.

Having obtained the essential requirements the training processes can be formulated for these. By no means an easy task. The important point to be borne in mind is that the raw material should be taken as an average school or college educated person, both in physique as well as in mind.

Training Processes

The training processes will then endeavour to equip such a person with the mental and physical abilities required to perform the tasks assigned to him. With modern training methods this should not be, difficult. This is a process that has to continue throughout the persons career. Either by way of self training or as training courses to acquire new skills or abilities. Today officer being a knowledge worker has to be periodically brought abreast on recent advances in allied fields. It is the means of providing him with new information or skills to use new 'tools' so as to be more effective. For instance a knowledge of PERT and CPM will be indispensable to those who will be associated with any project management. A course on computer programming should be mandatory for any one who has to use a computer. Having a programmer would be just as much a luxury as a chauffer. It is alright if you can afford it.

With the modern tools of work study, cost-benefit analysis, operation research and systems analysis the above should not prove to be an impossible tasks.

Selection of raw material

There remains the problem of selecting the proper raw material. The readjustment of goals and in-service training already exist in a skeletan form. Readjustment of goals will normally run foul of empire building and the vested interests of various branches and service training elicits response depending upon the financial benefit, career prospects or its value in civvy street. Training also has the added disadvantage of lack of proper training aids. The problem therefore is of revitalizing the two spheres. These are traditionally the two main functions of top management. Top management may issue proper directives and enforce them,

but if enforcement is not to occupy the full attention, proper motivation and moral fibre is required in lower echelons.

Motivation is provided by offering satisfaction of a desire. It may be satisfaction of a desire for increased riches or power over others, or popularity or applause or amourous conquest or of revenge or security or pleasure of a job well done. The exploitation of these desire constitutes motivation and the strength of a desire increases the scope of exploitation and therefore the strength of motivation. Obviously for job not all desires are appropriate. For instance a strong desire for presonal security cannot be considered an attribute for a test pilot. Similarly a love for riches should not be a motivating factor for those entrusted with operation of vast funds. A job by its very nature can afford only some rewards and deny others. Those who aspire to the latter can never be adequately motivated. Needless to say that desires that are beneficient have to be disciplined and properly channelised. These desires and their relative strengths are formed over a number of years. These desires or goal and their priorities makes every member of the organization very important. The goal of the organization must be linked to the goals of the individuals. Absence from duty deviate the goal of the organization, which may result in detention—a loss of personal freedom and separation from one's family. Excellence of performance may lead to a satisfaction of a desire for power. There is however the case when the performance of the job is its own reward. In this case the goal of the individual and the organization are co-incident. This leads to the most beneficial motivation Kamikaze pilots could not have been motivated by double accident benefit insurance policies. Thus it is very important to have persons of the correct psychological makeup. Interlinked with the proper motivation is the question of moral fibre or integrity. Integrity is something that an officer has to bring to the service. Skills or knowledge can be imported but moral fibre like motivation is something that is the result of all training right from childhood. Integrity may be defined here as a faithfullness to the responsibilities entrusted to one. It means the adherence to rules even at pain to one-self or to ones friends. It means the meticulous execution of procedure.

The proper motivation and the proper moral fibre is what one must look for together with an average mind and an average physique. These then are the attributes that the raw material must possess. As has been said above the military profession makes a different demand both on mind and body. Therefore it would be best that the raw material is obtained fresh instead of having to be recast. Therefore the best principle will be to catch them young. Boys fresh from school

would be ideal. They are still in their formative years and can be appropriately trained in mind and body for a service career. This training could start even earlier by way of NCC and Sainik Schools. The broad outlines of such measures are :—

The first is to capture the minds of the young. An NCC programme on a volunteer basis is invaluable for this. Instead of only marching and drilling endlessly on the parade square, drills more valid for today's warfare should be practised. Field craft should be given preference over parades. Toughening courses should be given priority rather than the proper way of coming to attention. Such facilities would attract potential material suitable for the armed forces. Film shows and stories in school books about the rugged service life and about deeds of heroism would serve to attract the right type. Ruggedness would arouse the basic desire in a boy to prove himself a man. This desire which drives some to premature experiment with drugs or alcohol or juvenile delinquency can, if channelized, be of great benefit. Machismo, as the Americans call it, is what makes a man to undertake difficult task, undergo hardship and rejoice in the fact that he can take it. This is an important constituent of the military makeup. Camps and trekking expeditions, mountaineering, flying and yacht clubs for school boys can nurture this spirit. In the process the youngsters will learn service discipline and rudiments of service administration.

Sainik Schools will of course have all this as part of their normal curriculum. High moral standard must be insisted on throughout and any one found lacking should be weeded out.

Whilst the young are being so influenced the parents should not be ignored. The decision for a choice of career will to a large extent depend on them. It is unlikely that any youngster would be permitted to commit himself to a military career against the prejudices of his parents. Therefore the armed forces life should be sold to the parents.

The fact that the armed forces were not a part of national life till 1947 and because of the policies of the British, recruitment was confined to certain parts and to certain classes, the armed forces till then, at least as for as the officer class is concerned, did not provide a career opportunity to most Indians, not at least till World War II. The generation that grew up after Independence had their career influenced by these prejudices. It is only slowly that such prejudices will wear out. A campaign to speed it up in the minds of parents of deserving children would yield beneficial results. Then normal middle class parents would recognize a career in the armed forces as worth while and possibly even as a betterment.

It would be a grevious mistake to confine such a campaign only to a certain class of society. Imperial armed forces being instruments of monarchy had to have their officers drawn from the nobility or land-holders. For a democratic republic to have its officers class drawn from any particular section of society would spell danger. Such a campaign must therefore be aimed at all levels.

There is nothing new in what has been said above. If any of it has been tried and results have not been satisfactory it is because of lack of imaginative application. Such a programme would require money but would pay better dividends than spending the same amount on emoluments.

It would be best to recruit the youngster at this stage. The NDA already provides such an institution. Here, in addition to military training the educational training should lead to a graduate degree in science or arts. The American Air Academy encourages its cadets to try for Rhodes scholarships. Similar facilities should be made available to armed forces cadets also Cadets who qualify should undergo specialization in engineering, medicines, law, accounting, science at service or reputed colleges and institutions. Subsequent higher courses could be undergone at later stages.

The prestige of the service will be totally dependent on the basic qualities of its members. If properly selected and trained these stirling qualities can be nurtured. If instead of flamboyance and an ability to hold ones liquor well, the service officer took with him on leaving service, qualities like, diligence, impartiality, initiative, ability to live a spartan life, attention to details, and a systematic approach to problems, he would be a more valued person. A life time, of cultivation of such qualities would bring more prestige to the services.

Attack By Vertical Envelopment

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INTRODUCTION

THE devastating fire power now available with the modern armies and their ability to concentrate that at a selected point poses enormous problems for the forces conducting offensive operations. Besides, concentration of forces particularly armour, mechanised infantry and artillery prior to attack, would present lucrative targets not only to enemy air and long range artillery, but also to his tactical nuclear strikes. Surprise has therefore assumed added importance. There would obviously be requirement of concentration in terms of time and not space. Unless defenders are tackled from unknow directions, attackers may suffer prohibitive losses. The attack by infiltration, single or double envelopment have been successfully tried out in the operations in the past with good results. The vertical envelopment is another outstanding concept in the same direction and has provided effective means in the hands of the bold and imaginative commander for reducing enemy defences from the rear, thus causing confusion and jeopardising his operational plans with unimaginable speed.

The presentation of worthwhile targets in the future wars where modern armies may use nuclear weapons, may invite disaster. The best defence against nuclear weapons lies either in dispersion or getting too close or behind the enemy, whereby he does not consider it worthwhile or cannot use the nuclear strike without jeopardising the safety of his own troops. Without concentration of forces, however, it would not be militarily feasible to achieve the desired results. That would, therefore, logically imply that force commander must possess great mobility to concentrate troops for envisaged tasks and disperse them immediately thereafter. In this context if the vertical envelopment of the enemy defences is carried out, and the enemy tackled from the rear, it would be considerable time before enemy would be able to use the nuclear strikes. Also it offers an effective means for going deep inside enemy held territory and seizing his nuclear delivery means alongwith other fire support and surveillance means in conjunction with main conven-

tional thrusts. The concept of vertical envelopment has vast potentialities.

In our context, we are now faced with innumerable obstacles which need to be breached or crossed, should operations ever develop against our potential enemies. There does not yet seem to be an effective answer to cross these ditches, canals and bunds and build up sufficient forces before enemy can muster his reserves to throw the assaulting troops back. The vertical envelopment may offer great advantages and if correctly integrated with the main assault may make our job easier. Attempt has been made in this paper to explain the concept as visualised and practised by other modern armies. The aspects thus highlighted, with a view to familiarising our officers with the tactical concept of far reaching significance, are given below :—

(a) The concept of attack by vertical envelopment.

(b) Capabilities and limitations of the forces employed in attack by vertical envelopment.

(c) Means of delivering troops in the objective area.

(d) Selection of objective area and airhead and their security.

(e) Considerations and techniques of planning the attack by vertical envelopment.

Concept of Attack by Vertical Envelopment

Attack by vertical envelopment is an offensive operation, usually undertaken against lightly defended objectives, in which troops are launched at a preselected point in the enemy rear in order to seize or reduce by surprise the critical objectives, the loss of which will seriously jeopardise the enemys defensive/offensive plans. The forces earmarked for the operations are landed directly on or adjacent to their objectives either with helicopters and/or dropped by parachute and/or air-landed on landing strips. Depending upon the situation and resources, either any or all the means of delivery may be used together. Obviously these forces can conduct operations in otherwise inaccessible areas and can overfly natural or artificial obstacles. However only limited heavy equipment can be carried in the initial stages and hence these forces are vulnerable not only while landing and assembly but also to enemy armour even later, due to limited mobility and fire power. Favourable air situation and good weather are pre-requisites for launching such operations. Continued close air support is vital too, for their success.

The attack by vertical envelopment is employed for the furtherance of the commanders plan and for facilitating the accomplishment of his task. The speed and flexibility inherent in these operations enable a commander to fully exploit a situation. The capability for conducting these operations enable the commander to :—

(a) pose a constant threat to the enemy rear areas, thereby force him to guard his vital installations and hold key terrain features and also keep a strong mobile reserve for immediate reaction;

(b) force the enemy to guard with equal strength all axes of attack, especially from the rear, to his vital ground and increase his problems for protection of command and control, fire support and logistic support means;

(c) extend radically the area over which a commander can exert direct pressure;

(d) deploy his forces more effectively by holding highly mobile reserves in dispersed areas;

(e) overcome distances, bypass obstacles and enemy defences; and

(f) gain tactical mobility over his adversary.

Capabilities and Limitations of Forces Employed in Attack By Vertical Envelopment

The capabilities of forces employed for vertical envelopment are enumerated as under :—

(a) Tactical surprise involving sudden, unexpected and mass delivery of forces into an objective area.

(b) Land on or near an objective.

(c) Overfly or bypass major terrain barriers and natural or artificial obstacles.

(d) Rapid redeployment of forces.

(e) Attack enemy rear areas which are not easily accessible to other ground forces.

(f) Provide enhanced reaction capability especially in the use of reserves.

(g) Decrease nuclear vulnerability.

The successful accomplishment of the missions must in all cases be weighed against the possible losses, that may be incurred. The limitations of these operations are given below :—

(a) Sensitivity to weather conditions during employment.

(b) Limited heavy equipment as airborne units are not equipped for sustained ground operations. If situation so demands, they must be suitably augmented with additional fire power and logistic support.

(c) Limited ground mobility.

(d) Requirement of air superiority or at least favourable air situation.

(e) Vulnerability during landing.

(f) The requirements of considerable initial and continuing air support when employed in an airborne role.

(g) The lack of protection against enemy air, armour and artillery.

The effects of these limitations can be minimised to an extent by prior planning and training. A few considerations are enumerated below :—

(a) With the improvement of helicopter instruments, the navigational aids, weather has become less of a limiting factor. Operations have been conducted with ceilings as low as 200 feet, with visibility of 440 yards and in winds upto 35k nots. Modern transport and fighter aircrafts have been designed to operate in poor visibility and rough weather. Limited visibility may, on the other hand offer an advantage in concealing the operations of the forces employed in vertical envelopment. Terminal guidance systems if available further ease the problem for conducting operations in marginal weather.

(b) Terrain and physical conditioning of the troops will determine the speed of troops after landing. The limited number of organic transport available in the airhead area, will restrict the movement of ground forces to foot. Though troops will be landed very near their assault objectives, depending upon other tactical and administrative considerations, they should be able to close in at best speed and overwhelm the defenders before they can react. Intensive prior training in physical conditioning is essential.

(c) Until the airhead can be secured and sufficient forces built up, troops are extremely vulnerable to enemy air, armour and artillery. By planned friendly air support, the effects of enemy air and armour can be greatly reduced. The modern weapons particularly missiles which can be carried with ease with the initial assaulting troops, also provide sufficient protection. In case launching airfields or helipads are within range of enemy's long artillery, rockets and missiles, to reduce the vulnerability to enemy weapons prior to and during movement a commander must :—

(i) move rapidly under cover of darkness, at the latest practical time to dispersed marshalling areas in the vicinity of air facilities;

(ii) make all possible preparations for loading prior to the arrival of troops at the departure airfields;

(iii) control the sequence of movement to launching sites, so that the bulk of the troops arrive, after equipment and supplies have been loaded;

(iv) utilise multiple flight corridors to separate the serials in time and distance. The air movement in this way will be protected enroute, but will still arrive in the objective area in the planned sequence ;

(v) land or drop troops in the airhead during poor visibility or darkness, assemble rapidly, seize assault objectives and dig in at the best speed.

(d) The close air support and transport support are obviously essential. The transport support must be adequate to carry sufficient troops to the objective area, not only to seize initial objectives but also to sustain themselves until link up or arrival of reinforcements. Close air support must protect the air column against enemy fighter intercepters enroute to the objectives and engage enemy armour in the objective area until anti tank weapons are delivered. All re-supply must be delivered by air until link up is accomplished. As a consequence, if air support is inadequate or not continuous, success of the operation will hang in the air.

Means of Delivering Troops in Objective Area

Parachute Drops

Parachute drops were initially conceived as small scale operations. With the advent of transport aircraft with considerable pay-loads and ability of the armies to sustain sizeable forces from the air, Second World War, saw sizeable employment of parachute forces for achieving decisive results. For example in operation ARNHEM undertaken by the Allied Forces in Sep. 1944, stores and equipment dropped with considerable precision and success are tabulated below :

(a) (i) 20,190 personnel dropped by parachute.

(ii) 13,780 personnel landed in gliders.

(iii) 905 personnel were airlanded in a strip made ready by the preceding airdropped personnel.

(b) 5230 tons of equipment and supplies.

(c) 1927 vehicles.

(d) 568 artillery pieces.

Parachute drops for developing operations by vertical envelopment have inherent disadvantages. Staging areas along with airfields in the forward areas need to be developed. The concentration of men and material and other activities likely to take place at these places could give away own intentions and result in loss of surprise, a vital factor for its success. The modern sophisticated surveillance devices are not likely to miss such large scale activities. This may also result in dislocation of the operations due to enemy air action. In the nuclear warfare, these may also present suitable targets for nuclear strikes.

Parachute drops are inefficient means of delivering men and material in the battle as casualties occur during drops and dead weight used in packing has also to be dropped. The training is long and men must be young and fit. The parachutes are heavy, cumbersome and costly to procure. The 'sticks' are vulnerable to enemy ground fire while in the air. The troops land well dispersed, requiring time for regrouping and are thus not ready for immediate action on landing. The landing of large forces behind the enemy lines require a very high degree of coordination and skill on the part of the air crew. Unless air borne operations are well conceived, adequate preparations, training and coordination between the services is carried out, these may result in disaster. A disastrous airborne assault was attempted in SICILY as part of Operation HUSKY during the Second World War. One brigade group was given the task of capturing the PRIMSOLE Brigade by airborne assault. As the aircrafts approached the island, these were engaged by mistake by anti aircraft guns of the Allied Ships. In order to avoid fire, many aircraft altered their courses. As the leading aircraft in 'V' formation carried a trained navigator only, many aircraft lost their direction and could not regain it. Less than one third of the brigade group was dropped near the objective while more than one third was taken back to NORTH AFRICA without being dropped. The remainder of the brigade was dropped in other parts of SICILY. Obviously the operation resulted in complete fiasco.

Analysing the advantages and disadvantages of vertical envelopment by parachute drops, it stands out that though there are inherent disadvantages, it has stood the test of time and vast potentialities. We have come a long way since Second World War as far as resources are concerned. We can fly faster and farther, with more troops, tonnage of supplies, and heavier supporting equipment, and deliver a balanced and powerful fighting force in lesser time. The improved navigational and guidance systems enable us to deliver the force with greater accuracy. The second major improvement is the aerial delivery techniques. Armoured reconnaissance vehicles, airborne

assault vehicles, artillery pieces and bull dozers can be air dropped. Yet the full development of the concept of vertical envelopment will be within our reach only when men and material are landed in the objective area in required numbers without suffering disadvantages of a parachute drops, perhaps with the help of better and bigger VTOL/STOL aircrafts.

Helicopter as Conveyance Vehicles

Before discussing the pros and con of helicopters as conveyance vehicles in vertical envelopment, it is perhaps best to examine the attributes and limitations of a helicopter, for it is at present the primary vehicles for the employment of the vertical envelopment concept. The most important consideration in favour of a helicopter is its freedom to operate away from airfields and airstrips due to its vertical take off and landing capability. It enables it to land or take off almost anywhere with little or no preparations. Engineer effort is thus saved and commanders are not burdened with the task of defending airfields. It is also easier to conceal the helicopter and the operating sites. Its ability to hover enables visual reconnaissance, lifting or landing of troops even without landing and hooking of stores. These advantages get multiplied when viewed in difficult and inhospitable terrain. Helicopter has good all weather performance and can fly below the cloud base. The adverse effects of bad weather are thereby reduced.

Helicopters too have limitations like limited load carrying capacity, slow speed and limited range. These are vulnerable to enemy ground and air action. The reliability and stability also leaves much to be desired. They are also not economical in terms of per ton cost for carrying of stores when compared to fixed wing aircraft and have high fuel consumption. They require good maintenance cover.

Notwithstanding the disadvantages discussed above comparing to parachute drops, heliborne forces land in compact areas and can commence action immediately. Medium and heavy class of helicopters developed so far can carry 10 to 12 tons of pay-loads which would increase to 30 to 40 tons. Lifting 40 men with equipment into the battle locations in a single lift is now a common practice. BOEING CHINOOK and SIKORSKY CH-53 fall in this category. US S-64F and the Russian M1-10 lift upto 13 to 18 tons respectively.

As means of delivering adequate men and material at the required place at the selected time is one of the serious hindrances in the full development of vertical envelopment concept, it has been surmounted

to considerable extent by use of helicopters. However as at present, it does not permit that rapid a build up as commander would like to have. Also medium tanks cannot yet be carried in a helicopter. The selection of routes over the enemy defences to avoid detection due to sound and visual reconnaissance and ground fire will pose considerable problems. Thorough reconnaissance will have to be carried out before operations can be successfully launched. Favourable air situation is also a pre-requisite before helicopters in large scale can be employed. Administrative and maintenance problems of operating from forward airfields would also have to be overcome.

Armed Helicopters

Armed helicopter is an aircraft designed to carry fixed or traversible forward firing weapons in addition perhaps to sideways firing defensive armaments, and is equipped for an offensive job. The present armaments of the armed helicopters include various types of rockets, machine guns, mini guns, cannons, grenade launchers and anti tank guided missiles.

The armed helicopters attacks augment the ground commanders capability to deliver, responsive, selective and accurate fire on to a ground target. The primary mission of the armed helicopter attack is to destroy or suppress the enemy through the concentrated delivery of the aerial firepower against targets, which, when neutralised will assist the ground commander in the completion of his mission. Armed helicopters are normally employed in teams.

Armed helicopters have been successfully employed at night. No doubt weather and poor visibility impose restrictions. The pilots must have high standard of instrument flying because of danger of disorientation, the loss of natural horizon due to glare, flashes and reflections and perhaps because of inadvertent entry into low cloud.

The effectiveness of an armed helicopter is yet to be proved in normal combat conditions when both sides will possess devastating fire power which could be directed against a helicopter. They have, no doubt been extremely effective against the VIETCONGS. In the concept of vertical envelopment, escorts will have to be provided to troop carrying helicopters. There will also be imperative necessity of neutralising any enemy fire in the landing zones. Enemy may have to be kept at bay till troops have landed in sufficient strength and can commence their operations. Besides, usual requirement of close air support will have to be met. For these tasks armed helicopter will prove ideal as

jet aircraft flying at great speed find it difficult to locate and destroy small targets in close vicinity of own troops. For them it is problematic to recognise own and enemy forces when operations are developing along various axes and in various directions. Though as at present the armed helicopter can only supplement the other available air effort, with improved technology, they will be able to take on increasing loads. It is likely that the requirements of armed helicopter will stabilise around two types, a simple light machine along the lines of COBRA and a heavier and more sophisticated all weather one to be developed later. These will, no doubt provide tremendous fire power, in the hands of the future commanders, which could be applied with great flexibility.

Hovercraft as Conveyance Vehicles

The hovercraft is a new type of vehicle which falls between conventional vehicle and the aircraft. These are already in use in cross channel ferries in UK. These crafts can carry upto 30 passengers or 5 to 10 tons of load. The payload is likely to increase. The craft has obvious limitations that it cannot cross gradients with ease. It is very noisy and kicks up lot of dust and spray. Its control and steering are also difficult and time required for maintenance is twice the time spent in actual use.

In the context of the vertical envelopment terrain permitting the hovercraft could be used with advantage for carrying men and material. During amphibious or operations in deserts or open and rolling plains hovercrafts could supplement the lift provided by the helicopters for building up strong forces in the enemy rear. Obviously the chosen routes will have to be well away from the enemy's ground defences. This would be a serious limitation. However its best advantage lies in the fact that even when hit, men and material are not completely lost as is the case with helicopters or transport aircrafts. With careful planning hovercrafts could thus be put to good use.

Selection of Objective Area and Airhead and Their Security

Selection of Airhead and Assault Objectives

The careful selection of the airhead or objective area for vertical envelopment merits detailed considerations. The factor like own mission, enemy resources and his capabilities, own resources in terms of time and space and terrain must be thoroughly evaluated. The airhead or objective area contains the assault objectives and must provide

space for manoeuvre and defence in depth. The airhead should also contain sufficient dropping/landing zones and if possible, landing strips to permit airdrop and/or air landing of troops, supplies and equipment. The airhead is delineated by a line called an airhead line which includes the area to be secured, cleared of all the enemy and denied to him. The airhead line should whenever possible, be anchored on natural obstacles to facilitate its defence. The airhead concept is based generally on the requirement to secure and hold terrain so that a firm base can be established in the enemy territory while the airborne force is being built up along with its combat and logistic support for further development of the operations.

The assault objectives are selected to include key terrain features such as crossing sites and high speed approaches, the prompt seizure of which is critical to the establishment of the airhead. As the enemy reaction would be most immediate and violent, it is imperative that we stop him at the intersection of high speed approach with the airhead line. He would thus be forced to deploy thereby allowing more time, badly needed for the build up, reorganisation and consolidation. Other common assault objectives are those which because of the mission, may have to be secured early in the operation. For an example a bridge which is required for link up or further development of operations may have to be secured before enemy has an opportunity to damage or destroy it. Logically it will be designated as an assault objective. Another possibility could be an airfield/landing strip needed immediately for the purpose of landing follow up units. Also enemy forces that represent a threat to the accomplishment of the mission and are positively located within the airhead may be designated as assault objectives. Though assault objectives and the airhead line are selected concurrently, the assault objectives are secured prior to the establishment of the defences. The objectives and sectors of responsibility are designated to facilitate transmission from the assault phase to the defence phase and must be within the capability of the unit to which they are assigned.

Battalions are tailored for the assault by the grouping of other arms and services. To determine how each battalion is to be organised, consideration must be given to the terrain analysis, the number and type of tasks to be performed by each battalion, the number and relative importance of assault objectives and the most dangerous or major enemy threat that may develop before link up.

Units are dropped as close as possible to their assigned objectives as terrain and enemy dispositions permit in order to facilitate rapid

seizure of each objective. Alternative plans are developed in the event heavy resistance is encountered on any landing/dropping zone. These plans should include designation of alternate dropping/landing zone, assembly area, plan of attack and if necessary more compact or extended airhead. The decision to execute alternative plans will be made by the ground commander, based on the last minute air reconnaissance and other information.

Security of Airhead

At the initial stages accurate and detailed information of the enemy located within the designated air head is essential. But while analysing the threat to the airhead enemy mobile forces particularly armour and other mechanised units, located within the striking distance, must also be known. It is these forces which will jeopardise the success of the operations and must be kept as far away as possible from the airhead before own troops are organised and prepared to receive them.

During such operations advantage must be taken of the confusion prevailing in the enemy headquarters as they will be getting conflicting reports. His most pressing requirement at that time is to locate the extent of the airhead and strength and dispositions of the forces located therein for carrying out a reasonable assessment of his task. Usually mobile and hard hitting forces are employed for such tasks. If the situation is favourable these forces may also attack the airhead before own troops had sufficient time to assemble, reorganise and consolidate their positions. The necessity for security elements to operate ahead of the airhead, as soon as possible, is therefore evident.

Unlike conventional operations, where threat is limited along a few and known directions, threat in this case may develop along all or any conceivable direction. Security elements in the form of outposts, ambushes, protective patrols, observation posts and road blocks may have to be established covering all likely axes of approach especially high speed approaches. Factors like dominating terrain, features affording long range observation and field of fire, likely avenues of approach, the enemy threat and capabilities, obstacles and means of communications, and means of fire support must be considered while siting the security elements. Their missions would be to give early warning, prevent enemy direct fire and close observation of the airhead and within their capability to delay, disorganise and deceive enemy forces without being decisively engaged. Beside these security elements if mobile troops are available, these may be given tasks, ahead of their positions, to operate along most likely approaches. Aim must always be to hit the enemy

hard as far away as possible within the limits of own resources and terrain and cause casualty, attrition and delay thus gain time for own preparations and reactions.

Considerations and Techniques of Planning

Unlike other operations, the technique of planning for vertical envelopment operations is called 'Reverse Planning Technique'. In the ground operations because of two dimentional restrictions on mobility, Plans are drafted in the order of execution. However, in vertical envelopment operations, because of unlimited dimensions of mobility, the reverse planning technique is utilised for operational planning. The reverse planning technique assumes that the envelopment forces will be relatively unaffected by the enemy forces enroute. As a sequence to this assumption, the reverse planning technique starts in the objective area and then considers each preceding step, in turn, to put that force in the objective area. The reverse planning technique consists of the following :—

(a) Ground tactical plan.

(b) Landing plan.

(c) Air movement plan.

(d) Marshalling plan.

Ground Tactical Plan

The ground tactical plan covers the conduct of operations in the objective area. In the first phase it involves, seizing the assault objective, sending security elements ahead and organising the defence of airhead. In the subsequent phases it embraces widening the airhead, building up powerful forces and carrying out ground operations against the enemy, as part of an overall plan either independently or in conjunction with other forces. The vertical envelopment forces may be employed for severing enemy's routes of maintenance, hindering the move and operations of his reserves and for annihilating the enemy from the rear.

The ground tactical plan is based on the normal considerations governing the conduct of ground operations. Some modifications are however necessary because of decentralisation of the control. Special considerations must be given to the timings and places at which troops are to be dropped/landed and to the assembly and reorganisation of the assaulting units. The plans must specify the tasks, objectives and other missions of the subordinate units, grouping, extent of the airhead to be

defended, location and strength of the security elements. It also must cover in sufficient details the subsequent phase of the operations. The plans must be flexible and all contingencies catered for so that troops can react and fully exploit the favourable situations. The overriding factor which must always be borne in mind is that any delay in executing the plans would expose own troops to increasingly staffening resistance.

Landing Plan

The landing plan prescribes the sequence, place and method of entry into the objective area. It must ensure that right units get to the right place in the correct order at the correct time to execute the ground tactical plan. After having determined the sequence of entry, based on the priority of the assault objectives, the method of delivery of troops must be carefully worked out. Troops may either be landed by helicopters or other aircrafts or may have to be dropped. Dropping zones and landing zones will have to be determined.

Adequate size of the dropping/landing zone must be ensured keeping in view the size of the forces taking part. There should be no obstacles in their vicinity and they should be easily identifiable from the air. Their location should favourably dispose off the troops for seizing the initial objectives. Alternative dropping/landing zones should invariably be selected.

Air Movement Plan

The air movement plan is a joint effort and is designed to ensure that troops and supplies are delivered into the airhead and in the proper sequence to support the landing plan. The airforce commander lays down the procedures for expediting take off and landing. He also designates rendezvous departure points, prescribes flight formations, assembly pattern, flight routes, emergency procedure and similar details covering airfield operations and air movement. Though the air force commander is fully responsible for executing the movement plan, he must jointly decide the following :—

(a) Flight route to the landing/dropping zones and alternate direction of approach. Flight routes to and from the landing/dropping zones are selected to avoid known or suspected enemy positions. It is desirable that flight routes follow terrain features which facilitate navigation.

(b) Security of the airlift formation.

(c) Designation of the flight formation and corridors.

(d) Provision of dispersed departure areas and in flight assembly areas.

(e) Provision of navigational aids enroute to landing zone/dropping zone and landing strips.

Marshalling Plan

The marshalling plan as the name suggests is that phase of the operation when army and air force units, complete their final preparations before taking off. It involves move to the staging airfields and helipads and loading of the aircrafts. These preparations should be orderly and must ensure launching of the operations in maximum security. Any laxity will not only jeopardise success in the objective area but may also invite disaster by getting exposed to enemy air, missiles and long range artillery. A second organisation for executing the plan may have to be developed.

The units taking part in the operations should prepare their load and personnel manifests very carefully. Composite loading will reduce the risk of losing a major part of the unit should an aircraft be lost enroute. Heavy drops as far as possible should be delivered on the same landing zone/dropping zone immediately after the troops. It may also work out to be an advantage if equipment drops and supplies are marked for ease of visual unit identification from a distance.

Conclusion

It would not be wrong to say that the concept of attack by vertical envelopment is yet to make great strides. Perhaps, by the end of the seventies we can expect to see a medium tank being taken to a position dangling from a helicopter. When such weights can be taken to the battlefield the concept would have come of age. Helicopters would become the soil delivery vehicles unless spectacular results are achieved in the development of other VTOL/STOL aircrafts and the unexpected problems which had cropped up in the weight to thrust ratio are solved.

In our context, though due to paucity of resources we cannot extensively practice the concept, yet we cannot afford to ignore it. This perhaps may offer a less costly method of reducing the enemy defences based on ditches, canals and bunds.

Again in the nuclear environment, no force can survive without excellent mobility. It would thus be natural corollary to utilise that mobility in introducing three dimensional warfare and force enemy to look skywards as well as rearwards for his defence. Future has lot in store for the concept of attack by vertical envelopment. No doubt in due course of time as resources are made available to field commanders it will become a routine manoeuvre like single or double envelopment.

Towards A Better Understanding of the ATGMs

MAJ R. K. KUKREJA

PART I

"The anti tank guided missile has given the infantry soldier what he never had before, the high probability of killing an attacking tank with one shot before its own armament can be brought to bear.

—Ian Smart

HISTORICAL BACKGROUND

ON 20 November 1917 tanks entered the pages of history near the little French town of Cambrai. Ths story of that epic battle is well known but one lesser known facet of it is that—out of the 389 tanks participating in the attack, the British suffered 180 tank casualties, many of them from German artillery firing direct (perhaps in desperation ?) at the advancing British armour. The birth of the tank had also simultaneously brought into existence the earliest generation of anti tank weapons.

The original weapon for use against a tank—the gun was large and unwieldy, not particularly accurate and not an infantry weapon. It soon became evident that what was required was a lighter, more mobile weapon which could be used by soldiers in the forward areas of the battlefield so the rocket was developed. Though an undoubtedly useful weapon because of it having a big hollow charge warhead, being smaller, portable and cheaper it is easily outranged by tank guns and is thus to be used more as a last ditch weapon.

Moreover it was not easy to hit a moving tank with a rocket which once it was launched was committed to one trajectory only. Further there was the sensible requirement for the infantry to outrange the enemy's tank fire. This led to the development of a missile which, because it had a very much longer range had to be guided in flight to take into account the movement of the target. Thus was born a new weapon—the anti tank guided missile (ATGM). In fact it was a com-

bination of three scientific and technical achievements—shaped charge, rocket engine and remote control guidance which brought into being the ATGM—that could pierce the armour of any tank at a maximum range of direct vision and in 80 percent cases with the first shot. A great qualitative leap in the development of anti tank weapons and thus in anti tank warfare.

The first ATGM was a small wire guided ATGM with purely optical means of guidance, a small maximum range and a rather large minimum range. The ATGMs have come a long way since then. They have become much more sophisticated using improved means of guidance and recently "fire and forget" type of ATGMs have also been developed.

Modern all arms combat is unthinkable without the provision for struggle against enemy armour. The tank today possesses increased fire power, better mobility and protection. Its importance accounts for the continuous increase in the number of tanks and a distinctive feature of future battles is likely to be the considerably greater use of armour. Anti tank warfare has thus become the key element in any combat operation and a vital part of all arms combat. In fact the race for supremacy between armour and anti tank weapons continues with the scientific and technological resources of both the super powers also brought to bear on this problem. One manifestation in the anti tank genealogy is the anti tank guided missile (ATGM).

Trends in Tank Development

It would be pertinent, indeed important to review the trends in tank development for a correct appraisal of the anti tank weapon which would be required to defeat this tank.

Fire Power. To increase the fire power the calibre of the tank gun has been increased generally to 105 mm and in some cases even 120 mm, while simultaneously its muzzle velocity has been increased to 1500 m/sec and in some cases nearly 2000 m/sec. Greater armour piercing capability has been achieved by using the APDS (Armour piercing discarding sabot) and now the APFSDS (Armour piercing fin stabilised discarding sabot). The introduction of laser range finders, gun stabilisation systems and ballistic computers increases the speed of engagement and accuracy particularly while moving at high speed over irregular terrain.

Mobility. To increase mobility as well as manoeuvrability of tanks a high power to weight ratio is desirable. While our present tanks have a power to weight ratio of 13 to 16 modern tanks such as AMX 63 and "Leopard" are approaching 25 to 30. Lower ground pressures are being aimed at. Resistance of tracks to damage by splinter and fire is being increased.

Protection. Introduction of laminated armour, use of high strength alloys and development of Chobham type of armour have increased protection. However further stress on armour protection is not desirable because present ATGMs can penetrate a thickness four to five times the diameter of its warhead. Thus conventional protection is of little use and a better method of protection would now lie in having greater mobility. In fact protection is of little use if mobility is lost, and a tank loses most of its advantage the moment it is immobilised. Future tanks may thus have less armour protection and more mobility.

Other Developments

(a) Night navigation and night fighting capabilities are being increased considerably so that tanks can move and fight at night without the fear of ATGMs.

(b) Smoke emission devices are being installed in tanks to screen them from anti tank fire. This would make it desirable to reduce the time of the ATGM.

(c) The Swedish S tank and the T 72 have an automatic loading system. This can lead to a major change in the configuration of the tank. It would be desirable to separate the ammunition/compartment completely from the crew and the rest of the vehicle. (In the Yom Kippur war the most common cause of destruction of tanks was the anti tank projectiles penetrating tank armour and exploding its ammunition).

(d) Modern tanks are becoming so expensive that even advanced countries may have to think of reducing the capability of individual tanks to achieve a proper balance between their capability and their numbers.

CHARACTERISTIC OF ATGMS

General

One advantage of a tank over an anti tank weapon is that the tank does not need a direct hit to put the anti tank gun out of action, but can do it with the fragments of its shells exploding near the gun, *i.e.* by killing the gun crew or damaging the gun itself. To do this the tank needs to fire just 1-3 rounds. Hence there was a need for an anti

tank weapon which could hit the tank as soon as it was detected, at the maximum range and with the firs shot *i.e.* before the tank has a chance to open effective return fire. Since other anti tank weapons could not achieve this the ATGM was developed.

Another important motive for the development of ATGMs was the constraint of size placed on the Western Armies particularly on the American Army. After the second world war the size of the US Army and other Western bloc armies was rapidly reduced for various reasons. The Russians on the other hand continued to maintain a very large standing army. The Western bloc was thus left to face a very large number of Russian tanks in Europe. The Western bloc therefore wanted a weapon system which would have a high kill probability and which was more equipment intensive instead of manpower intensive. The ATGMs filled the bill and thus full attention was paid to their development.

Major Assets

Long Range. The principal advantage of the ATGM over the tank is its much longer range of 3000 to 4000 metres at present. It may however be noted that :

(a) Acquisition of target is difficult at the extreme ranges.

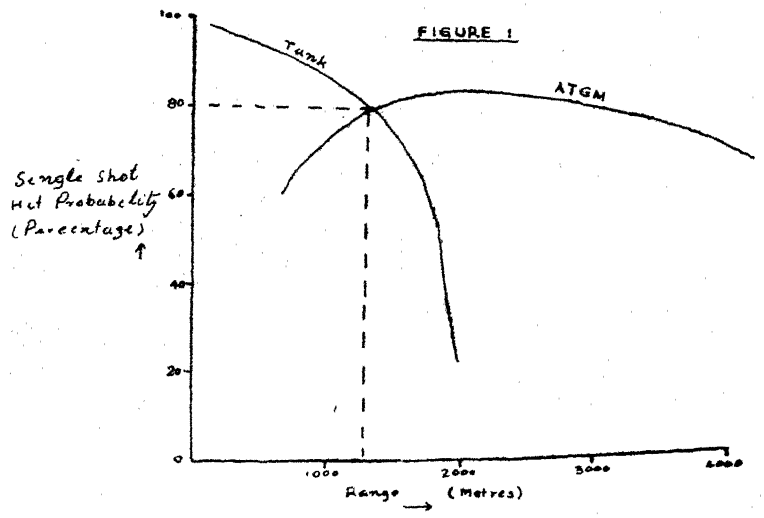
(b) Target identification at long range is also difficult.

(c) Target gets obscured by smoke, dust, haze or vegetation. Most ATGMs however require the target to be continuously tracked by the operator.

(d) Except in the deserts such long field of fire may not be available. And even in the desert visibility at such ranges may be restricted due to haze, mirage, undulating ground etc.

Accuracy. The ATGMs particularly of the second and third generation type have a very high first shot hit probability of almost 80 percent. What is particularly advantageous is that this accuracy is not a function of range as in all other type of anti tank weapons but is maintained even at long ranges. Even the accuracy of the tank gun decreases rapidly as is shown in Figure 1.

Easy to conceal. It is much easier to conceal compared to other anti tank weapons, which is further facilitated as it is deployed at long ranges. This permits greater survivability.



Simple Training. Training of pilots is simple. It is facilitated by the use of simulators *e.g.* the SS 11 Bl missiles now being produced in India have two type of simulators :—

(a) One for indoor use for general familiarisation and to develop coordination between the eyes and hands.

(b) One for actual simulation of firing on outdoor target.

Training of pilots for use of second generation ATGMs is even more easy. The Israelis were using TOW missiles successfully within 72 hours of their arrival from USA during the Yom Kippur war.

Low Cost. Though the cost of an ATGM has also gone up considerably and it is costly compared to other anti tank weapon systems yet the present SS II Bl costs approx Rs. 62,000/- per piece. As against this the tank it destroys may cost as much as Rs. 70 lacs. In this connection Nikita Kruschev witnessing a firing demonstration of ATGMs 1964 said "It hurt, after all we are spending a lot of money to make tanks, and if a war breaks out, these tanks will be burnt into flames even before they reach the battle line".

Robustness and Maintenance. It is quite robust and relatively simple to maintain. The special conditions of storage that are prescribed are more of an economy measure to increase its shelf life.

Major Limitations

Long time of flight. Ordinarily this is of the order of 15—20 seconds. This itself results in several disadvantages such as :—

(a) Slow rate of fire. Therefore many more launchers are required to obtain the same anti tank density.

(b) The target must be visible to the pilot for a considerable period of time (launch to hit).

(c) Evasive action can be taken by the target e.g. creating a smoke screen.

(d) Human factor—Missile performance depends on the pilot who must control and guide it for twenty seconds under battle conditions. Accuracy will thus depend on the pilot's training, fighting efficiency and morale.

In second and third generation ATGMs this is being reduced by increasing the speed of missile. There is however a limit to which this time to flight can be reduced as :—

(a) In case of wire guided missiles (and most ATGMs are wire guided) the wires have got to be reeled off "bobbins". Greater speed would require thicker and stronger wire. There is a limit to this.

(b) Increase in speed would increase the "dead ground" or minimum range of the ATGM.

(c) Increase in speed beyond a certain limit would reduce the time available to the pilot to guide his missile and as such may reduce the hit probability.

Minimum Range

(a) Every ATGM has a minimum range because the pilot takes some time to gain control of the missile which has a high velocity and sharp climb at take off. Missile manufactures had quoted this to be around 600 metres for the SS II Bl but in practice it was found to be much more. To an extent better training can reduce this. In second and third generation ATGMs this has been reduced considerably.

(b) Thus in effect a tank cannot be engaged in the "dead ground" of the ATGM. It follows that if a tank suddenly appears at a distance a little more than its minimum range distance then the missile pilot may not always be able to aim the missile accurately at the target. Thus the ATGM is not suited for short ranges because of a much lower hit probability and it would be preferable to use other Anti tank weapons at those ranges.

Night Capability. The night capability of ATGMs is very little unless the target can be clearly and continuously illuminated for the the entire duration of the flight plus the additional time which will elapse before the pilot will get accustomed to the illumination, acquire the target and then fire the ATGM. This would mean practically atleast 30 seconds. This may be difficult to arrange with the present illumination devices we have in that their time of illumination is less and more than one is required which must be fired in tandem with an overlap such that continuous uninterrupted illumination is provided at the target. However with proper coordination and good training this can be achieved and during trails upto 50 percent hits have been achieved. Even this level of attrition may be useful to impose caution on enemy armour and to deter him. Indeed during the 1973 Arab Israeli war the Arabs used ATGMs to beat back the Israeli counter attacks on the Sinai Front even at night.

Fire on Move. Firing on the move is not possible. The pilot has to remain stationary during the entire flight time of the missile. This is in fact one major reason why mounting of ATGMs on a tank has not proved very popular for a tank which has to come to a stop and remain stationary for atleast 20 to 30 seconds to fire just one missile, itself becomes an attractive target.

Vulnerability. Launching sites cannot be provided overhead protection because of the steep climb rate of the ATGM. To a large extent separation from the missile site can help the pilot in this regard.

Cost of Training. Each missile costing just under a lac rupees the cost of training a pilot becomes quite a bit, specially for a poor country like ours. Simulators do help to a large extent but to develop confidence the pilot will have to fire actual missiles also.

Appraisal

The advantage of greater range and greater accuracy at longer ranges provided by the ATGM is very valuable in increasing the range and depth of anti tank defence. Some present limitations *e.g.* slow rate of fire and difficulty in engaging fleeting targets are likely to continue. The ATGM though the strongest anti tank weapon at long and medium ranges cannot therefore replace all other anti tank weapons as some of its protagonists would have us believe. In fact it would be worthwhile analysing the often debated ATGMs versus tanks issue briefly but impartially.

ATGMs Versus Tanks

The tank has been the primary anti tank weapon since the second world war but ever since the development of ATGMs the future of the tanks has been questioned particularly in the aftermath of the 1973 Arab Israeli war. It would be partinent to remember here that ATGMs were used with only moderate success in the Yom Kippur war. One may quote the Jane's Infantry weapons on this point "Although first reports created a contrary impression, however to set the record straight the majority of tank casualties in the 1973 war were caused by the guns of other tanks". Also the initial success of ATGMs can be attributed to faulty employment of armour by Israelis initially. Once this was rectified the tank casualties reduced considerably.

Range. It has been analysed that the majority of tank engagements takes place at ranges between 800 metres and 1500 metres. At ranges below 1000 metres the tank gun being quicker and more accurate would appear to be decidedly superior to the ATGM. For longer ranges the missile is more accurate and effective. However the mean range of tank engagements being 1200 metres or so the ATGMs higher hit probability at long ranges is less valuable than it seems at first sight, except under favourable conditions of terrain and weather (which might occur only occasionally). Moreover hit probability is not the ultimate measure of the relative effectiveness of missile and gun systems. What is required is not only to hit an enemy tank but to hit it in the shortest possible time. This makes time to hit a better measure, and when this is considered the balance shifts in the favour of the tank gun.

Mobility. ATGMs have limited battlefield mobility because of the usual difficulty of moving man handled weapons, particularly under fire. They are also vulnerable to supressive fire unless sited in specially prepared positions, which inevitably immobilizes them. The inability of ATGMs to be fired on the move is a severe handicap in offensive operations.

Speed of Engagement. While the tank can engage fleeting targets even while itself on the move, the speed of engagement of ATGMs is slow. Fleeting targets at shorter ranges therefore cannot be engaged by ATGMs.

Role. The tank gun can be used in various roles including anti tank role and fire support role. The ATGM on the other hand can only be used in the anti tank role. The ATGM is a defensive weapon while

the tanks can use their fire power, mobility, protection and check action for offensive operations.

Night Fighting Capability. While the tank also cannot function very efficiently at night, the capabilities of the ATGM are severely limited.

Ammunition. The ATGM carries only hollow charge warhead which can be defeated by spaced armour. The tank on the other hand to fulfil its various roles can fire a variety warheads including the Kinetic Energy projectile which is very effective.

(a) NBC protection is available to a tank while the ATGM operator is vulnerable.

(b) The tank has a 360 degree traverse as compared to the 90 degree maximum arc of fire of an ATGM.

However the tanks are very costly, make a conspicuous target, require extensive training and extensive maintenance. Besides it has several other limitations such as fatigue of crews, heavy administrative requirements etc.

Mounting of ATGMs on Tanks: It is ironic that to make them more effective ATGMs are being mounted on vehicles not very different in principle from the tanks they were supposed to make obsolete. Such a turn of events was only to be expected, since tanks, being basically weapon platforms, can increase the mobility of missile systems just as they increased the mobility of guns. ATGMs have never really challenged the existence of tanks, what they have done is to challenge the position of guns as the principal anti tank weapon.

The clearest illustration of this challenge has been the development of two MBTs with ATGMs as their main armament instead of guns. These were the US—German MBT 70 armed with the 152 mm "Shillelagh" gun/missile launcher and the French AMX 30 tank armed with the 142 mm ACRA gun/launcher. Both have now been abandoned because in the final analysis high velocity guns were judged to be superior to missile systems as the main armament of tanks.

ATGMs are primarily suited to defence. Mounted on a tank, they would not be cost effective in relation to the expense of installation, maintenance and replacement, to say nothing of the fact that the tank guns ammunition is cheaper and more versatile.

To conclude, the tank itself is a very good anti tank weapon at short ranges of upto 1200 metres or so after which the ATGM with its

longer range is decidedly better. It is also relevant to note that though the tank is the best anti tank weapon at short ranges it is poor economy to use it so. As such other short range anti tank weapons such as the RPG 7, 84 mm RL, 106 mm RCL gun should be used for short range engagements and ATGMs for long range engagements releasing the tanks for offensive and other more fruitful operations.

PART II

Missile Guidance

A missile is useful only when it can be successfully guided to the desired target. The primary function of any guidance and navigation system is to ensure that the missile follows this desired path. In the case of ATGMs the target is a moving target. The guidance system must therefore continually "Sight" the target. In other words the guidance system establishes the motion of the missile relative to the target whilst the navigation system computes the missile course necessary to intercept the target. The cycle is completed when the information obtained by the guidance and navigation systems is passed to the control system which causes the missile to manoeuvre as required.

Missile Classification

Several generation tables have been attached to various ATGMs. However a better method of classification which is becoming increasingly popular and which is technically a better method is MCLOS, SACLOS ACLOS—*i.e.* Manual, Semi Automatic and Automatic command to line of sight systems.

In any ATGM system the guidance process necessarily comprises of three elements :—

(a) A method of determining the direction of the target from the missile control post.

(b) A method of assessing the nature and extent of the departure of the missile in flight from the path determined by (a).

(c) A method of influencing the flight of the missile so as to eliminate any departure detected at (b).

MCLOS System. In the MCLOS system the elements (a) and (b) mentioned above are provided by the operator who observes the target and the missile and the deviation of the latter from the sight line to the former. He also provides the calculating functions of the element (c). Using his joy strick he corrects the flight path till the missile is on course. Examples of the MCLOS system ATGMs are the

Swedish "Bantam", French "SS 11" and "ENTAC", German "Cobra" and "Mamba", British "Suringfire", Japanese "KAM 3'D" and the Russian "Sagger" and Swatter "missiles".

SACLOS System. In a SACLOS (Semi automatic command to line of sight) system element (a) of the basic tried (mentioned in Para 3 above) is again provided by the operator, but whereas the MCLOS operator merely informs his own brain of the direction of the target, the SACLOS operator designates it as precisely as he can to the remainder of the guidance system by aligning an optical sight on the target and maintaining that alignment throughout the engagement. Elements (b) and (c) of the basic tried are provided automatically by an apparatus located at the control site, and it is this automatic operation that distinguishes the SACLOS from the MCLOS system. The tracking apparatus generally based on Infra Red measures the deviation of the missile from the desired path (which is determined by the operator's optical sight) and generates the appropriate correction signals till the missile follows the desired path. Examples of the SACLOS system ATGMS are the French "HOT" and "Milan", the American "Dragon", "TOW" and "Shillelagh" and the Italian "Sparviero".

Comparison Between MCLOS and SACLOS Systems

MCLOS ATGMs particularly of the first generation type were slow and thus the tanks could spot the missiles in flight and take evasive measures. The MCLOS operators required intensive judgement and training. The ATGMs were also bulky and had a rather large minimum range. Thus second generation missiles came in which were faster and in which the missiles was gathered on the line of sight rather speedily giving it a good short range performance. But guidance method was still manual and training was difficult. Thus the more sophisticated SACLOS with improved guidance systems was developed which was very easy to train on. However the SACLOS ATGMs have their own disadvantages and the choice depends on the requirements—tactical, technical, financial constraints etc. In fact any country which is today looking for a new Anti tank weapon system has an extensive array of sophisticated second generation equipment from which to make a choice. The majority of these being SACLOS it has been widely thought that this mode of operation is much better in all respects. Let us briefly analyse this.

Training. SACLOS requires much lesser training for it requires virtually no skill on the part of the operator.

Time Into Action. SACLOS having integral aiming and launching can be brought into action more quickly.

Accuracy. SACLOS systems are not necessarily more accurate as one might assume unless a full servo controlled system and a fully automatic collimation process is employed. But then it becomes more complicated and expensive and would require extensive maintenance—a difficult thing on the battle field.

Distraction. The use of infra red beams in the guidance loop of semi automatic systems means that any heat source such as flares or a burning vehicle, can seriously affect the guidance capability in SACLOS unless a modulated source of Infra Red emission is used which increases its cost and complexity. In the manual system the operator remains in the guidance loop and can overcome such distractions. Similarly if the ATGM enters a smokey area or is temporarily lost to view the operator can pick it up upon returning to sight. No automatic system is capable of this and once the operator's concentration is broken the missile may be lost. Nor do conditions of light affect the manual system. As long as the target can be seen it can be engaged.

Reliability. Both are reliable and rugged but the SACLOS has an "Achilles heel" in the collimated sight.

Survivability. Every anti tank gunner knows that, for the one enemy tank he can see, there is always at least one other which is hidden and looking for anti tank weapons. At the first flash or puff of smoke the anti tank system could expect return fire even before its missile reaches its target. The separation of the operator from the ATGM increases the survivability of MCLOS considerably. SACLOS does not have this facility.

ACLOS

While most ATGMs developed recently have been designed for SACLOS guidance France and USA are now developing a fully ACLOS type of ATGM which could be laser guided and gun launched. Examples are "ACRA" and "Hellfire". However the ACLOS system has not proved very popular for ATGMs as they are much more complex and costly besides being more vulnerable to ECM. Yet as an ASM (air to surface missile) they have a bright future for it permits the aircraft/helicopter to take evasive measures after the launching of the ATGM.

Future Trends

Even while efforts were still being made to develop truly "fire and forget" type of guidance for ATGMs also, meanwhile influence of the operator on the missile was already being reduced with the aid of IR-

with this as the ATGM approaches the target the IR-homing system will switch on and the operator's control eliminated. This however brings in a slight vulnerability to enemy's ECM. Modulated IR source can (and recently has been used to) overcome this.

Impact on Warfare

The ATGMs should be viewed as a new and valuable addition to the family of the anti tank weapons which has made an impact on warfare in general and anti tank warfare in particular.

Forced Dispersion. As a result of greater range and accuracy of ATGMs the tanks would be employed dispersed to some extent in the future and concentrated for short periods only when necessary.

Night Operations. Night operations will be the norm for major offensives by armour as ATGMs are not very effective at night. Similarly such operations will pay handsome dividends in rain, smoke and fog when conducted by day.

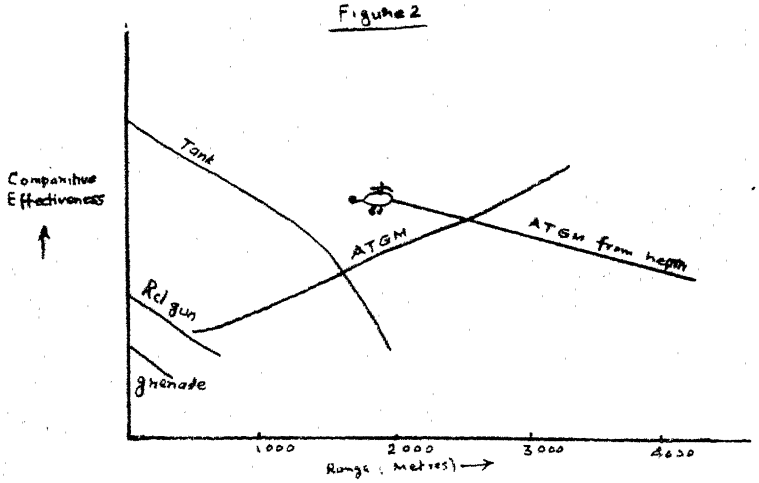
Close Air Support. The greater effectiveness of ATGMs against tanks may reduce the need for close air support in the future.

Logistics and Cost Effectiveness. These projectiles having very sophisticated guidance mechanisms cost more than ten times the cost of a similiar projectile of conventional type. However due to their much higher kill probability a far lesser number of rounds would be needed. Also the cost of carriage and storage of lesser number of rounds would be less. Thus contrary to common belief the overall cost will not be very high and these weapons are cost effective.

Increase in Effective Range of Anti Tank Defence. Effective range is a vital characteristic of the anti tank weapon because a tank must be put out of action before it can neutralise the anti tank weapon by return fire. So far this had been difficult as the tank had a larger effective range. With the introduction of ATGMs however, this problem has been solved as they have longer ranges than the tanks, besides being quite accurate at these long ranges.

Shown in the diagram (Figure 2) is the change in the ability of different anti tank weapons to destroy attacking enemy medium tanks depending on the distance. In this diagram it has been assumed that the anti tank weapons have taken up fire positions and first aimed shot is made by them with tanks delivering return fire.

Figure 2



This increase in effective range of anti tank defence would result in the infantry being able to meet a tank threat on their own with greater confidence, releasing tanks from the anti tank role for other offensive tasks.

Modification to Anti Warfare Techniques. Some techniques have been modified slightly due to ATGMs *e.g.* previously it was advocated that anti tank weapons should not open fire even when they were within effective range of the tank gun as the effective range of anti tank weapons was lesser so premature opening of fire achieved no specific advantage while revealing the whole anti tank layout and resulting often in heavy losses. With the advent of ATGMs possessing longer effective ranges it is now advocated that ATGMs should open fire at maximum range before the tank can return effective fire.

Minefields may be covered by ATGMs and hence their depth could be increased due to their longer range. Or in the case of DCB more attrition can be caused forward of it and contact with the minefield by enemy armour may be denied altogether.

Psychological and Moral Training. Victory in combat requires not only modern weapons and skilful organisation of their use but also psychological training and high morale on the part of the men who use them. Cases of "tanks phobia" do occur in troops particularly in the opening stages of a war. To prevent such occurrences proper moral and psychological training of ATGM pilots is necessary.

Employment of ATGMs

The employment and tactics of a weapon system are a derivative of its capabilities and limitations. Principles of employment of ATGMs are not being discussed. It is however important to mention the need for an initial and continuous exploitation of the absolute range advantage over the tank gun. Thus the ATGMs must conditionally move to ensure that they remain outside the effective range of their targets. The mode of operation of the ATGM becomes important and it should be evident that the jeep mount is quite inadequate to match a tracked capability.

Tasks in Offensive Operations. Though the ATGM is a defensive weapon it can be given some tasks in offensive operations also *e.g.*

(a) Relieve armour from static protective roles so that maximum strength can be concentrated at the point of decision. However it would be incorrect to totally denude an area of tanks particularly as there is a paucity of ATGMs in our context and in any case the ATGM is only a defensive weapon while the tank is an ideal offensive weapon.

(b) Protection of the bridge head during the crucial stage when armour is yet to be inducted.

ATGM for Infantry Role. The Arab Israeli war of 1973 has established the importance of the ATGM in the hands of infantry in preventing armour from overwhelming it. In this role the minimum range of the ATGM assumes greater importance particularly in our context where due to standing crops and obstacles a large percentage of the battles have been fought at very short ranges. In this role therefore need exists for a very light, portable type of second generation ATGM such as the French "Milan".

To meet contingencies such as a possible Chinese threat of armour in Ladakh in 1962 operations where we had to airlift AMX 13 tanks such ATGMs can come in very handy.

ATGM on Mounts. ATGMs can be mounted on vehicles, APCs, tanks and on helicopters. Though fitting a missile on an existing tank with normal tank gun on it has not been very successful as discussed earlier, fitting ATGMs on 'A' vehicles does solve the problem of crew protection besides giving it cross country mobility. Yet constraints on the line of sight in terms of obscurity and terrain shielding still affect the acquisition of targets at the FEBA (forward edge of the battle area). This leads to the mounting of ATGMs on helicopters. The line of

sight range inereases rapidly with the height of the hovering helicopter. The helicopter mounting also overcomes the terrain obscuration thus increasing target exposure. This increased target availability is the main advantage that accrues from mounting ATGMs on helicopters.

Night Fighting Ability. The present generation of ATGMs does not have much night fighting aids. They are all dependent on visible and to some extent on the infra red band of spectrum. Night illuminating devices become easy targets for guns while active Infra red aids have a limited range for any worthwhile tank hunting at night. Passive head detecting devices are promising and should be developed rapidly for operational use.

Recommendation. A second generation SACLOS type of light man portable ATGM should be introduced for the infantry role in the army. A similar but heavier and longer range ATGM should be used for mounting on tracked vehicles, as well as for mounting on a gyro stabilised platform on helicopters. Such a system can blunt effectively enemy armour assaults at the maximum range before our own tanks get involved.

Future Trends

The ATGM has revolutionised anti tank warfare. However it has its limitations. Efforts have been in progress all along to overcome these limitations. Some of the methods adopted seem quite far reaching and revolutionary in that a new weapon system has been evolved out of it e.g. the cannon launched guided projectile (CLGP). The future trends are discussed in subsequent paragraphs.

Detection of Tanks

This is the first step in defeating the tanks. A plethora of electronic, heat seeking, seismic, photographic and reconnaissance means are being developed to facilitate detection and acquisition of hostile tanks for the anti tank weapon systems to destroy. Some of these are satellite photographs, ground surveillance radars, electronic listening devices, seismic and infra red detectors, image intensifiers, thermal imagers and low level light television.

Extension of Range

The range of ATGMs has already been increased from less than 2000 metres to 4000 metres. Any further increase in this would achieve

little purpose unless longer field of fire can be obtained as the ATGM is a line of sight weapon.

To engage enemy armour at longer ranges area weapons like medium artillery and cluster bombs etc are available. However such area weapons do not have very much effect and their kill probability against individual tanks is rather low. On the other hand usefulness of close air support aircraft still depends on availability, weather, local air superiority and enemy AD.

With the application of terminal homing techniques, to the projectile, the notion of converting every gun and howitzer into a long range point target weapon becomes a reality—and at a reasonable cost. The CLGP was therefore developed.

CLGP. In essence it is a conventional artillery projectile with HEAT warhead and a laser seeker with its associated electronics. Its fins and wings extend out of the body after launching. The projectile becomes approx 35% heavier than the conventional round of same calibre. Only special requirement is for a laser target designator with a Foo or with an Arty Air OP who can designate the target during the last few seconds of its otherwise ballistic flight. A range of 20,000 metres has been achieved with a 155 mm calibre CLGP. The system has proved quite successful.

Protection of Operator and Increasing Mobility of ATGM

SACLOS ATGMs since they do not have the separation facility are more vulnerable. One method of providing protection to them is by mounting them on a tank or an APC. This would also help to impart matching mobility to the ATGM as the tank. Mounting ATGMs on tanks has not proved very useful nor is it cost effective, thus the ATGM should be mounted on an APC.

ATGMs on Helicopters

Where the forces are numerically weaker it is only increased mobility which can ensure that the right man reaches the right place at the right time. Thus the NATO forces were led to mount ATGM on helicopters. This straight way increases the target availability as explained earlier.

Helicopters in anti tank role are best utilised in groups as "Killers" which come up only when a reconnaissance helicopter in the role of a "hunter" has sighted enemy tanks. To further reduce vulnerability

self homing type of ACLOS ATGMs are being developed because in the case of wire guided ATGMs the helicopter has to remain in position during the flight of the ATGM.

The armour plated armed helicopter can thus overcome all the limitations of ATGM discussed in preceding paragraphs. A vastly increased range, greater probability particularly in the third dimension where ground visibility is restricted or where major obstacles exist, are very useful. Increased tactical mobility also permits holding of armed helicopters centrally in reserve and deploying them in threatened areas. Its other advantage include :—

(a) Armour plating of the attack helicopter provides some protection to the ATGM pilot as a tank or APC.

(b) Besides carrying ATGMs it can also carry a large variety of other weapons such as cannons and rockets.

(c) In fact it is ideally suited for close air support in the mountains because of its slower speed, greater manoeuvrability and capability of operating from small helipads nearer to the battle area.

Thus the ATGM itself a defensive weapon, when mounted on an armed helicopter becomes an offensive weapon. However it inherits some of the disadvantages of the helicopter besides increasing the cost considerably. In the ultimate analysis the armed helicopter increases the effectiveness of ATGMs considerably and is the key to off setting quantitative armour disparities on the battle field. Thus most advanced countries have developed armed helicopters while some other countries are adopting existing helicopters for mounting of second generation ATGMs on them.

Night Fighting Capability

While the tank have developed night fighting capability the lack of it with ATGMs was a serious limitation. Night sights for SS ll Bl and Tow have already been developed. Passive Infra Red heat detecting devices are being developed as discussed earlier.

Organisational Trends

In the developed countries ATGMs now form part of both infantry and armoured unit level organisations. Reasons for this lavish scale of authorisation besides purely economic ones are a high tank threat environment and development of SACLOS ATGMs which are easy to train on thus lowering specialisation and facilitating integration. In

addition these countries have a reserve anti-tank unit in this divisional artillery equipped with armed helicopters.

CONCLUSION

The advantage of greater range and greater accuracy at longer ranges provided by the ATGM is very valuable in increasing the range and depth of anti tank defence. Some present limitations e.g. the slow rate of fire and defficulty in engaging fleeting targets are likely to continue for the time being at least. The ATGM though the strongest anti tank weapon at long and medium ranges cannot therefore replace all the other anti tank weapons but must be integrated with these for provision of anti tank defence at short ranges particularly in broken ground and under unfavourable conditions of visibility. Thus the ATCM is a very useful anti tank weapons though perhaps not the ultimate anti tank weapon.

For over quarter of a century the tank gun has out ranged the infantry's counter weapons and made them a prey in defence to tank sniping. Now with the advent of ATGMs, the infantry can take care of themselves in pursuit of their defensive tasks without beingdependent on the protection of their own tanks. Their capacity for enterprise is thereby much enhanced.

Selection of Higher Leadership in the Army

BRIGADIER GURDIAL SINGH

INTRODUCTION

"THIS officer is professionally incompetent. I do not want this officer to serve under me in war". Such a remark was written in the Annual Confidential Report (ACR) of an officer how a few months later, won the highest gallantry award 'Param Vir Chakra' for outstanding leadership in battle. Human beings are the most complex of all living animals and therefore, it is extremely difficult to brand a person as positively 'useless' or a real 'Hero'. It is amazing how differently individuals behave under extreme stress of battle as compared to their usual conduct in peace time.

There is a famous saying in India 'Yatha Raja Tatha Praja' (As the King so are the subjects). Thus in an organisation the performance and deeds of the workers are directly influenced by the quality of its leaders. The Army is a highly structured organisation with strict rules and regulations. Whatever is ordered by the superior, right or wrong, has to be carried out by the subordinates without any objections, representations or variations. Therefore, leadership is a key factor and plays a decisive role in the Army. Higher leadership in the Army (Lt Col and above) is selected, based on the Annual Confidential Reports (ACR) written on an officer. Thus objective assessment of officers is one of the vital issues as it affects the selection of top leadership in the Army. If the assessment of every officer is done properly and the top leadership (Lt Col and above) is selected, based on their professional competence, dedication and integrity, the rest will largely look after itself. It is sacrilegious to promote the 'careerist' type of officers for higher command and staff because this would jeopardise the integrity, safety and honour of the country. There is a certain amount of apprehension among officers that it is the 'Careerist' type of officer who reaches the higher rungs in service rather than the 'professional'.

TYPE OF OFFICERS

BASICALLY there are two types of officers, the 'Careerist' and the 'Professional', each type having various shades. A 'Careerist' officer is one who is keen, hard working, intelligent, self centred and over ambitious. He 'Punches all the cards' which implies that he

has qualified 'on paper' for promotion to the highest rank and all the coveted appointments. He always puts up the best front and gives reports which please his superiors irrespective of their veracity. Every senior rank has his ego and susceptibilities in varying degrees—the careerist gets to know them and learns the art of producing pleasing notes while blowing his own trumpet. His primary aim is to achieve the highest rank by any and every means even at the cost of his troops and colleagues.

The 'professional' officer is also intelligent and hard working but his primary aim is to look after his troops, train them well so that they can achieve the laid down objectives. He does professional courses not with the object of scintillating his dossier and qualifying for coveted oppointments but to acquire knowledge so that he can serve his troops better. He would be in the forefront when his troops are under stress and would share their discomfort, privacies and sacrifices in battle. The country and his troops always come first and his own safety, advancement in career and comfort come last to this dedicated professional. A good officer is one who is perceived by his troops as concerned about their welfare and also willing to share risk and sacrifices in battle. This type of leadership elicits group dedication, sacrifice an esprit de corps which alone can lead to success in war. Success will not be achieved without this spirit & feeling for each other amongst all ranks—a commitment to his colleagues and unit.

Military service specially in combat units which close in with the enemy and bear the burden of killing & being killed, is categorically different in nature and functions from the other Government services and business corporations. No one expects any one to die for Tata's or Birla's cause but the expectation that one will do 'ones duty unto death' is very real in the Military service and becomes even more vivid as one moves closer to combat. A study of successful armies in the world like the Romal legion, British and the German armies reveals that there exists some common threshold where military cohesion is a composite function of the quality and number of leaders. Officers of high calibre have always been scarce and will continue to be so. A diverse society like the Indian democracy is not likely to produce more than a limited number of combat leaders who are expected to lead the men directly and do well in battle. Therefore it is essential to identify and select dedicated 'professionals', and not 'careerists' for higher leadership in the Army.

PRESENT SYSTEM OF ASSESSMENT

The current system of officers assessment has been in existence for nearly 12 years. In this system, traits like adaptability, integrity, loyalty, dependability, courage, expression etc. are tabulated and the Reporting Officers accord marks against each quality varying from 1 to 9. There is no tangible base or laid down standard according to which marks are to be awarded. It all depends upon the perception of the Reporting Officers in the chain of command. At higher levels these impressions are a bit superficial due to limited contact period. Similarly in the demonstrated performance; giving professional knowledge, administration ability, foresight and delegation, man-management and maintenance of morale etc, the marks are awarded according to the perception of the Reporting Officers. The Reporting Officers in the chain of Command also write the pen picture which is generally the repetition of his traits and performance in words instead of figures. Based on these, the officer is recommended for promotion to the next higher rank and this is not shown to him.

WEAKNESS OF THE PRESENT SYSTEM

The major weakness of this system is that the Annual Confidential Report gives basically the impression created by the officer reported upon his initiating and reviewing officers. These reports are invariably based on the performance on various courses of instruction and the appointments held by him and not what he has really contributed to the organisation during the year under report. The officer reported upon does not even get a chance to write down as to what he has done during the year under report. As such the report is merely a figurative expression of the preception of the Reporting Officers keeping their own self esteem as a standard. The awarding of marks in the Annual Confidential Report form is greatly influenced by the personal relationship. In such a system a tall handsome, and amiable officer who is good at showmanship, stage management and has good results in Army Courses would be graded higher than a true and dedicated professional who has primarily concentrated on the development and training of his command. The responsibilities and expected contributions are neither mentioned by the officer reported upon nor by the initiating or reviewing officers. Thus a commanding officer who has raised a new unit, trained it to make it fit for war is equated with another commanding officer who has commanded an old well established unit with set drills and procedures. This is not only unfair on the former but the latter would evidently have a better score when both units are assigned similar tasks.

In the present system, an officer gets into the groove soon after he does the Junior Command Course at a fairly young service. If he gets an 'Above Average' or 'High Average' (Fit for Instructor) grading on this course, he gets into the groove leading to highest rank even though he may not make any contribution in improving his sub-unit/ unit. The Initiating Officer and Reviewing Officer would invariably grade such an officer as High/Above Average after seeing the gradings on the courses and appointments held by him. Therefore, the tendency of ambitious and careerist type of officers is to get good grading on the courses by hook or crook and subsequently so manage their postings that they get good Annual Confidential Reports.

Another fact which prevents dedicated and creative type of officers to go up, is the elaborate qualitative requirements drawn up for numerous appointments. Some of these are unnecessary and not very pertinent, eg, an officer cannot be an instructor in Defence Services Staff College unless he has been recommended for the instructor while doing the course, irrespective his brilliant performance later in the service. Therefore, an ambitious officer gets to know the qualitative requirements and 'punches all the cards' to qualify for all coveted appointments leading to the highest rank. His main concern is his own image and interests. This type of officer can never create the esprit de corps so essential for leadership in battle where each individual 'cares' for his colleague, his seniors and his unit's 'izzat'. Moreover in this system because the figures are so glaring, there is tendency to draw an order of merit in the Military Secretary's Branch. Consequently the important appointments where certain contributions can be made, are given to the officers who stand higher in the order of merit. Nothing can be more harmful to the Army than grading officers on a highly questionable data base.

SUGGESTED ASSESSMENT SYSTEM

To overcome the weakness of the present system, we have to make a major departure and look for measures by which the true worth of an officer can be reflected. We need a system in which a dedicated professional and a true combat leader is selected for higher ranks in the Army. A 'Careerist' must be indentified early and posted to jobs where he is best suited and not permitted to come anywhere near Command appointments. An objective Annual Confidential Report can only be written if the Initiating Officer and Reviewing Officer make a very deliberate effort to observe the officers' traits and performance over a fairly long period. A 90 days report particularly when everyone is so busy would be, more often than not, erratic.

To achieve objectivity in the Annual Confidential Report, it is suggested that the reporting officers should not be given the record of service of the officer, particularly the course results and the appointments held by him. Thus the Reporting Officers would write the report based on their observations during the year under review and not upon the history of the officer. At the beginning of the year, the initiating officer should enumerate the responsibilities and tasks to be achieved by the officer reported upon. Sometimes later there should be a free & frank dialogue between the two regarding the achievement of those tasks. Certain changes could be made in the allotted tasks if considered essential. In the Annual Confidential Report form there should be space in which the officer reported upon can write down as to what he has specifically achieved vis-a-vis the tasks assigned to him during the year under report in operational readiness, training, administration and motivation of his command. In staff appointments, he could mention his contributions towards improving Operational Plans, economy in the use of resources and training and welfare measures to make troops more effective in carrying their tasks in battle. The reporting officers can then mention the tasks assigned to the officer and comment on the contributions made by him. The pen picture should highlight such qualities as 'dedication to service', 'calmness in crisis', 'self discipline' and 'creativity'. Specific events must be mentioned instead of bland reporting, like 'A tall well built officer who has commanded the unit well'. As such it is essential to educate the officers on the technique of evaluating an officer and write objective annual confidential reports. This may be done at the Defence Services Staff College, College of Combat or other Army Schools of instruction.

Based on the objectives assigned and objectives achieved, the Initiating Officer and Reviewing Officer should recommend for promotion and the job he is most suited for. An Officer not recommended for command, should not be automatically rejected for promotion. He may be a second rate commander but a first rate staff officer or an instructor. Therefore if an officer is recommended for staff or Extra Regimental Employment and not command, he should be promoted. The numerical score against each trait should be removed from the Annual Confidential Report form altogether. Final grading in 'figures' may be retained but this should not be used for drawing an order of merit. This system would not only improve the training and discipline of units in the Army but would also enable the Military Secretary's Branch to carryout a more meaningful analysis of appeals and representations.

The Military Secretary's Branch has a difficult task because it is not always possible to keep every one happy. There would always be some who would pick holes perhaps with a certain amount of validity, in the decisions made by this Branch. At the same time they have a very important role to play because this branch have to select the right officer for the right job. This implies that all officers in this branch should be Army Officers and they should stay in the same job for 4 to 5 years. As such there is a case of employing the retired Army Officer with strong sense of patriotism, unimpeachable integrity and without any axe to grind. They would not be seeking any promotions or decorations and would be able to analyse and give their views without any apprehension.

SELECTION BOARDS

Many a cynic have called the selection boards held under the aegis of Military Secretary's Branch as Rejection Boards. This may be partly true because, in the existing system, the military Secretary's Branch puts up a list of officers due for promotion with the summary of their Annual Confidential Reports before the Selection Board. Those who have 'Punched all the Cards' there is no discussion about them. They are automatically selected. Those who have some 'adverse remarks' and are not recommended for promotion by one or more of the Reporting Officers in the chain of command have very limited chances of selection. Thus the selection board as at present is merely an agency to rubber stamp the decision already made by the Military Secretary's Branch from the summary of the officers' Annual Confidential Reports. The board does not have the time to study each dossier and does not recommend the type of the job, an officer is most suited for. If he is selected, he is suitable for all jobs ie, Command, Staff, Instructor. If not, he is fit for nothing and has to mark time till retirement.

Instead it is suggested that the selection board should interview the candidates. The board should have two or more experienced and eminent retired Army Officers well known for their sense of judgement, justice and fair play. They should be highly patriotic with sterling qualities of character and should be free from nepotism, personal interests and idiosyncrasy. They would have adequate time to study each dossier and they can judge the officers' potential by asking questions on professional subjects. The officers may be given a physical proficiency test at this juncture. The recommendations of this Board (though not binding on the Military Secretary or Chief of the Army Staff) alongwith the data produced by Military Secretary's

Branch would be a better method of selecting officers for higher ranks in the Army rather than the inanimate system followed at present.

CONCLUSION

In their book 'Crisis in Command', Paul L Savage and Richard A Gabriel have concluded that one should distrust an officer who has 'all his cards punched', has perfect or near perfect efficiency reports, who has rows of medals and decorations earned while serving on staff. They further say that we should look for an officer who may not very high on tact and had long tenures of command and combat. Though these statements can be debated upon endlessly, there is definitely some truth in it.

It cannot be gain-said that the dedicated 'professional' and not the 'careerist' should be promoted to higher ranks. It is more than evident that the present system is not conducive to identify these 'professionals'. Thus there is a need to give long tenures of Command to officers in the same units, see their contributions and identify the true combat leaders instead of shuttling the officers to and fro to 'punch all the cards'. The Qualitative Requirements need not be very elaborate and should permit plenty of Leeway. An Officers' posting need not depend upon the results of an Army Course done 20 years earlier but on his present ability. Many officers have doubts about the fairness of the present system of assessment and selection. Those who are flying high will naturally defend the present system with trivial arguments.

Nearly eight hundred years ago, the great Mongol, Genghis Khan, appointed officer with infallible procession, to the posts for which they were best suited and that is why he was always victorious. In the next war in this sub-continent, the side with better leadership will carry the day. Let us therefore, revise our reporting and selection systems to get the 'professionals' at the top instead of the 'Careerist'.

Rifle Regiments—Origins, Traditions, Customs

"JOE"

In the Indian Army there are four Rifle Regiments—The Rajputana Rifles, The Garhwal Rifles, The J & K Rifles and The Gorkha Rifles Group. All of them have been modelled on the lines of the Rifle Brigade or the King's Royal Rifle Corps of the British Army. This article is mainly based on a lecture given by my Commanding officer, Col R P T French, MC, way back in 1943 when I was a newly posted subaltern. I have relied on my rusty memory, few notes that I took down then, some books I have read since and practical experience gained serving almost twenty years in a Rifle Regiment.

THE 'Rifles' or "Greenjackets" trace their origin to the famous Light Brigade, raised and trained at Shorncliffe by Sir John Moore, perhaps the finest trainer of infantry in history. This Brigade, later expanded to a Division, was originally composed of 95th Rifles now the Rifle Brigade) and the 43rd and 52nd Light Infantry (now 1st & 2nd Bns of the Oxforshire and Buckingham Light Infantry). Sir John Moore based his training on a new code of discipline and on the realisation that the infantry soldier must be versatile, resourceful and accustomed to use his intelligence and initiative. He laid particular stress on markmanship, reconnaissance and the duties of protectivc detachments. Many of his theories and methods he learnt during his service against the French in North America in the XVIII century, particularly from the time when he served with the British North American Regiment (now the 60th Rifles or the KRRC). This Corps was first formed from the backwoodsmen enrolled to fight the French in Canada. They were composed of trappers, hunters and frontier pioneers.

Dress, arms and accountrements were based on the principle of camoflauge. Their uniform was dyed green or neutral brown (forerunner of Khaki) and not the scarlet of the British troops. They wore black buttons of horn (and not brass so as to avoid the shine) and they were of the same size whether sewen on the pockets or down the tunic. This was both simple and practical, any button could fit into

any button hole. Similarly, the dress of the officers was modelled on the lines of the dress worn by the Hussars and retained "Cap line", "globular buttons" and "straight spurs" on the Mess Dress. Also, the Officer's sword was lighter than the sword of the Officers of the Line Regiments. The men carried a lighter musket than the infantry so as to increase their mobility. This was also shorter in length and to off set this "reach" at close quarter, the bayonet was correspondingly longer and was not only sharpened at the point but also on both sides—for thrust and cut—and had a hand grip and was therefore termed a "sword", the name still used in the Rajputana Rifles, (upto 1963, I do not know now). To enable the Sergeants to control their platoons, they wore a whistle and chain which at one time was the only mark to distinguish them from the rank and file. (I am given to understand that in the KRRC, even now officers do not wear their badges of rank on their Mess Dress). The "Greenjackets" fought in extended order as opposed to the infantry who fought in close order. They were light troops meant for reconnaissance, skirmishes, screens and rapid movements. As order could not be given verbally to men in extended order, the forester's bugle (horn) was adopted to control movements. Hence the "horn" which Rifle Regiments still wear as their cap badge and on the pouch of the Pouch—Belt. Since the "Greenjackets" move and fight ahead of the main body of troops, they have perforce to march fast. Therefore, even now, in ceremonial march past, the "Greenjackets" march at 140 paces to a minute as opposed to 130 paces by Light Infantry, 120 by Line Regiments and 100 by the Brigade of Guards.

As Let Gen Sir Brian Horrocks states in the Special Introduction to the history of The King's Royal Rifle Corps "The quick-step influenced their whole way of thinking—the tempo of their lives was faster than in the ordinary battalion and the tight family circle embraced the Youngest recruit from the moment he arrived at the Regimental Depot in Winchester. This had to be because throughout history they have always been given the most difficult and dangerous job in war, armed reconnaissance in front of the main line of battle which requires quick thinking, mobility, and mutual confidence."

Rifle Regiments do not have their "Regimental Colours". When fighting in extended order, the Regimental Colours become exposed and also give away the position of the troops and hence they were discarded. The Rifleman was taught that his Rifle took the place of Colours to be guarded with his life. This is why, recruits in Rifle Regiments when taking the oath on attestation, lay their hand on and salute the piled rifles and not a flag—The Regimental Colours. In the

days of close order fighting, the flanks being the danger and vulnerable points, were guarded by picked troops and were regarded as posts of honour. So, in a battalion, the Grenadier or Light Companies, composed of picked men, fell in on the flanks of a battalion and were known as "Flank Companies". It is for this reason that Rifle Regiments on Review Parades are accorded the honour of falling in on the extreme left of the line, irrespective of their seniority and seniority of other regiments taking part in the parade. In brief : It is the right of Rifle Regiments to hold the left of the line. It was gradually realised that fire power was of major importance and one of the first orders issued after the return of the troops from the American War was to speed up the "Manual Excercise". To provide for the increased expenditure of ammunition entailed by this, orders were issued for men armed with the rifle, to wear a belt over the left shoulder, to provide a second pouch for cartridges. Thus originated the 'Pouch-Belt' worn by the officers. Besides, two shoulder straps not only correspond from a distance with the leather equipment worn by the men in the ranks, but denote that they are ready for immediate action and even in peace do not strip their equipment. The colour of Sam Browne and boots was also black, so as to merge with what the rank and file used and thus the enemy would find it extremely difficult to pick up the officers. Similarly the badges of rank for officers and cheverons for NCOs were black not golden in colour. Also, the Orderly NCO never wre a red sash across his chest as was the custom in ordinary infantry. In short, camouflage.

As for the drill, the "slope" is anathema. It not only gave away location of troops but also in a different sense pointed the way to Heaven to its bearer! In Rifle Regiments there is no "slope" only "order" and "trail". Even "present arms" is done straight from the "order", thus saving time and cutting out one unnecessary movement. On sentry duty the musket (now rifle) is cradeled on the left forearm nestling close to the body in which position it could quickly be grasped for use at the small end of the but by right hand. This is called "carry" on Quarter Guard duties. A Rifle Regiment is never called to "attention". It springs direct into action from "at ease" without first being brought to the alert by the order "atten.....shun." The executive word of command is "eyes front"—for example, "eyes front, C Coy". The reason is obvious, firstly to rest the men for as such time as possible, by avoiding unnecessary periods in a strained rigid position, and secondly to ingrain into them at all times and qualities of alertness and flexibility in mind and body essential for their battle—role of reconnaissance and protective screen. Throughout his

training a Rifleman is taught to live upto the Rifle Regiments motto :

"CELER ET AUDAX"

SWIFT & BOLD

OR

ALERT & AUDACIOUS

Notes

1. Through raised in the XVIII century the Rifle Regiments live upto their training and reputation even in the XX century. Here is what Field Marshal Rommel had to say about Rifle battalions. "British regular formations were, he thought, stubborn and brave in defence but insufficiently trained. He made an exception of 7th Armoured Division, particularly of the two Rifle battalions of the support Group". From, ":Rommel" by Desmond Young & "Rommel Papers" ed Liddell Hart.

2. As for these two battalions, they were : IKRRC & 9 KRRC and 2nd Rifle Brigade & 9th Rifle Brigade. See : "The Desert Rats" by Maj Gen G L Verney DSO, MVO.

China's Global Role*

(A Review Article)

DR B CHAKRAVORTY

THIS book offers an analysis of Peking's national Power Capabilities in the context of an evolving international system. There are two important world views of China—the optimistic one considers China as a near super power with great potentialities to surpass even the two super powers in future, while the pessimistic one believes that due to her internal political weakness and underdevelopment in science and technology China will not be able to attain super power status or capability. The author thinks that the events of the early 1970s—the Sino-Soviet dispute and the Vietnam war—will not be repeated, and China will now have to compete directly with the superpowers for global status. "In some respects China will play a major role in world affairs; in many, it will not," he says. In order to know these areas the author has analysed six commonly accepted ingredients of national power in respect of China, such as (1) geography and population, (2) natural resources—which include food and energy supplies; (3) economic strength based on industrial capacity, (4) military power, (5) political system including government control and stability, the will of the leaders and the nation's diplomacy, and (6) Science and technology with the help of 77 statistical tables. Based on comparisons with other big powers/countries in respect of these ingredients provided by the author, a synthetic table can be constructed as given below :

Analysing the above-mentioned ingredients of national power, J. F. Copper has thus concluded: "Although China possesses important assets that enable it to be a major actor in world politics, it is also handicapped by problems or liabilities in every category of national power". His arguments are the following: Firstly, in terms of relative strengths and weaknesses, China may be considered better endowed in geography and population and natural resources, but in industrial and economic development, science and technology, she is clearly weak. However, on her position in the categories of military

* By J. F. Copper, Hoover Institution Press, Stanford University, Stanford, California, 1980; pages 181, price—not mentioned.

	Area (in million Sq.-Km.)	Population (In millions)	GNP (IN 1976 in billion US$)	Food grains (Rice. wheat, Barley, Corn as in million metric tons)	Farm Cattle (in million)	Important Mineral Resources. (Ranking)	Energy Production (as in 1977, equivalent of thousand barrel per day of oil)	Scientists in R&D in 1973 (% per 10,000 Population)	Defence expenditure (in billion US $ in 1978)	Military Man Power (in millions as in 1977)	Ranking in nuclear missile technology
	1	2	3	4	5	6	7	8	9	10	11
USSR	22.4	256	1047.9	194.6	111.0	1	24,315	18.0	130.0	3.6	1
USA	9.3	215	1890.1	233.5	127.9	2	29,678	26.0	115.2	2.0	2
China	9.5	852	372.8	222.4	64.6	3	8,237	1.0	35.0	4.3	3
India	3.2	610	Not given	93.2	180.3	4	Not given	0.7	Not given	1.0	4

strength, political stability, diplomacy and political will a definitive conclusion is more difficult as the weight of each of these power-ingredients has changed since the concept of ingredients of power was first used.

In the past, geography and population were considered the most important elements of power, and when evaluation was made these two were generally given the heaviest weight or score. The importance of vast manpower in building up large armies and the largeness of space for defence in depth against invaders made this so, but little attention was given to the negative side that bigger the country, the more difficult was to exercise political control, because such a country was either ethnically heterogeneous or undeveloped, and that over-population problem was not known to the power analysts in the past. In case of China, its large size and population are not as important to-day as they once were, because there are corollary liabilities of feeding a large population which hinder the growth of capital investment out of its mainly agricultural economy, and similarly her vast area is not a shield against psychological and economic warfare as well as sophisticated nuclear weapon delivery system. What is more, China does not possess natural or defensible frontiers except for her Himalayan border with India. Its geographical location and lack of nature—defended frontiers are costly in terms of its security. "Furthermore, China's assets in this realm have less application to the current world power balance than they had in the past and will be of decreasing importance in the future."

Although till the end of the Second World War the possession of natural resources was given great weightage in power-evaluation, the growing free market for raw materials, substitution, and recycling have made domestic sources of raw materials less crucial. The example of Japan can be cited in this context. Alternative energy sources and exploitation of the sea-bed resources offer tremendous possibilities for reducing the importance of assured sources of raw materials in future. Moreover, China does not have a good resource base in per capita terms and hence she will not be able to sell large amount of resources at the cost of her own industrial development. Also, she has very limited capabilities to acquire resources from the sea, to substitute, or to control the market on any resource, as, for example, the OPEC has in respect of oil.

Although in the early 1950s China's industrialisation process and economic growth were impressive, they slowed down later so much so that the economic growth "does not look impressive when compared

to India.....certain built-in barriers—such as a low land—to—population ratio, insufficient capital, and ideological impediments—seem to determine that this will remain true in the near, and probably the distant, future."

In the category of Science and technology China is inferior to most other second-ranking countries. "Ideology presents a serious obstacle to progress in science and technology.....China's technological development is not encouraged by close ties to consumer industries; nor is there a spread effect from government—sponsored projects." Economic growth remains an important factor, as trade, aid and investment greatly influence international politics. But of all the ingredients of power, science and technology factor has grown in importance in recent years more than any other, and will grow more and more in future. "Thus, over the short run at least, and probably over the long run, China has a serious handicap to overcome in making gains in world-power status."

In the field of military power, although China's conventional as well as nuclear capabilities are impressive, their overall effectiveness is severely reduced by lack of logistical capabilities, inflexibility in weaponary and tactics. Also, her ability to fight wars by proxy are limited by her inability to offer large amounts of military aid which condition will possibly remain unaltered in the future too. The author thinks that the fear of the stoppage of the supply of US military technology to China has prevented the latter from building ICBMs. "Its large army makes China an Asian power, but in fire power terms, China is far outranked by the two superpowers, even in East and South East Asia, and it is unlikely that this will change in the forseeable future—if ever. Finally, China's military influence in Asia, which at one time was formidable, is now offset by the military presence of India and Japan as well as the Soviet Union and the United States." The author thinks that only USA and USSR have the capacity—scientific and technological base as well as various other resources—to compete in a global arms race, which encompasses military aid, intervention capabilities, and intelligence gathering, hence only these two nations can be called super powers. "Most analysts feel that China should be recognised as a legitimate world power; but few consider China a major diplomatic force in world politics."

The image of China has changed a lot. Contrary to Mao's boasting, China has not regarded atomic bombs as paper tigers. she has not made any serious efforts to regain lost territories. "In the face of threats by the Kremlin, China sought detente with the United

States. And in recent years Chinese leaders have given little real support to wars of national liberation. In the sphere of diplomacy, it was expected of China, especially after her entry into the UNO, to play a major role in international affairs. But, this has been belied by recent experience. "China will also continue to find its views on international law and diplomacy unorthodox, and this will serve as a barrier to greater participation in world affairs." But if China becomes a more open nation in the future, as the present indications show, "outside influences can be expected to cause some disruption to internal cohesion and control."

Thus it is seen that in terms of power-elements as they apply to contemporary world, China's strengths lie primarily in areas that are less relevant to world-power status to-day than in the past. "In the ingredients of power that will be more important in the future, China is weakest."

In strategic power, which is based on the possession of weapons of mass destruction, only USA and USSR hold the monopoly "India is the farthest away since it has yet to build nuclear bombs even though it has tested a nuclear device..... China and France are the closets to becoming strategic powers ..... (but) neither has been able to devote the funds necessary to keep up with the superpowers in the arms race. Neither has made progress in building the next generation of weapons, such as orbital bombs and lasers." "But.....a large number of countries can become nuclear powers early", however, it will "change very little the make up of the global power balance".

Problems of logistics and lack of a powerful navy by which China could use its conventional power distant from its shores, reduce China into a relevant conventional power only in Asia, and in limited areas there too. Its military power is of little value on its northern border because it is more than matched by Soviet power. "Mountains, India's military power, and New Delhi's alliance with the Soviet Union limit China's impact on the south-west border. For a long time the United States countered China's military influence beyond its borders to the south-east. Now a combination of U.S. and Soviet strategic and conventional military power—plus India, Japan, Vietnam and the Association of South East Asian Nations (a regional organisation with mutual defence interests)—offsets what might otherwise be a sphere of influence in terms of conventional military power for China."

In terms of economic influence, "China ranks below ten to fifteen other actors. And it is questionable that China will improve its

position". If political power is taken to mean such things innovation or leadership in political development, diplomacy, culture, academics, religion, and communications – China has little claim to fame. In the realm of political development, the Western democracies and, to a lesser extent, the Soviet Union have the most to offer. The same is true of diplomacy. In culture, the West is again the prime mover in the world, together with the Soviet Union and Japan. As world religious leaders, the United States, Israel, India and several of the Middle Eastern countries have disproportionate influence. In communications and control of the media again the West dominates....."

According to Mr. Copper, the evolution of multipolarity can be expected to produce four major influences on international politics; conflict will increase in frequency but decrease in intensity; the level of international interaction will increase, but the arms race will dampen; and the importance of ideology will diminish. An analysis of these shows that as regards the first major influence mentioned above, as applicable to China, "certainly a high degree of optimism is not warranted." As regards the decline in the arms race, all nuclear powers will be losers, and middle-ranking powers will not be able to become superpowers. The decline of ideology power will weaken the roles of the "ideological" states. "Non ideological powers able to wield other forms of influence will gain. China will be a major loser...the nations with diplomatic, cultural, intellectual and communications capabilities will enhance their world roles...In any case, it cannot be expected that the United States will help China become a superpower". Rather it may be that the U.S. is willing to help China in science and technology because it views China's growth into a superpower as unlikely.

China's strategic weapons are given excessive importance, as is its ability to join the ranks of the superpowers. Her role "has been exaggerated also because of its own claims to greatness, as reflected in the publication of production figures and economic growth rates and the persistent covering up of poor performance or set-backs... Some assistance also was provided by admirers on the left of the political spectrum, who saw Chinese ideology as new and fresh and an alternative to American capitalism and Soviet communism...Once all this is understood, it is clear that China is not destined to be a superpower, a one-half superpower or even a top-ranking or special—ranking second-level power."

In the short term, China is expected to possess considerable disruptive potential in Asia, "but this cannot be translated into much

benefit for China or into lasting influence.....China is, and will continue to be, a unique country with important contributions to make in the realms of global stability and peace...We certainly should not anticipate, hope or fear that China will seriously alter the course or nature of world politics in the future."

This is a well-researched and well-documented study which will be welcomed by Sinologists, scholars of international affairs, political scientists and economists. Its conclusions have been based on cogent premises backed by facts and figures. In 1920s, nobody could expect the USSR to become a global power of its present-day importance. But if it has been possible for that country to become a superpower in half a century inspite of its communist ideology, it cannot be said with certainty that China will not be able to become a first rate global power through modernization, industrialisation, advancement in science and technology in course of the next twenty years or so. Moreover, the present-day global role of China does not depend upon its own direct role or capabilities, but on its collaboration with either of the two superpowers in peace or war. That is the reason why USA wants to ally her and why the Soviet Union wants to change her relations with China for the better. Again as an ally of either superpower China is capable of stabilizing or destabilizing the regional political situation. For the benefit of herself and her neighbours China will do better to remain equidistant from the superpowers and follow a somewhat non-aligned policy.

The treatise contains a good bibliography and an Index.

BOOK REVIEWS

NATIONAL SECURITY IN 1980'S : FROM WEAKNESS TO STRENGTH
Edited By W. Scott Thompson.

(Published by Institute of Contemporary Studies,
San Francisco, 1980 PP 524, Price not given)

THE US perception of the Soviet build up in the 1970s as well as the post Vietnam isolationism led the Institute for Contemporary Studies, San Francisco, to undertake a study of the US foreign and military policy and publish a volume titled "Defending Amercia: Towards a New Role in the Post-DETENTE world" in 1976.

The seizure of American hostages in Iran and the inducation of Soviet troops into Afghanistan towards the end of 1979 were seen as clear indicators of growing threat to US interests. The Institute therefore undertook a second study titled "From Weakness to Strength" to consider reorientation necessary in US foreign and military policy and to recommend policy options : short term quick fixes as well as long term strategy to bridge the perceived gap.

On the issue of military threat, perception has always assumed greater significance than reality. The introduction by the Editor of the second study and the essay titled "Heritage of Weakness" by Admiral Zumwalt, former chief of Naval Operations, US Navy, spell out the perception that the Soviets have not only caught up with but would steal a march over the USA in the 1980s. Thomson states that in strategic nuclear forces, the Soviets would have the ability to destroy virtually all land based American missiles, half of the nuclear weapon submarines that would be in ports at any one time and all the bombers at bases, thus rendering the US defenceless. Admiral Zumwalt expresses the view that the growing Soviet conventional and tactical nuclear forces have the capability to over run NATO and cut sea lanes of communications critical to the "free world". He also feels that the Soviets drew abreast the US in the number of strategic launchers in 1971 and now surpass this number. Thirdly, the emerging capacity of the USSR to project power on a global scale is seen as a threat to stability.

A number of the authors of this volume took part in a conference at SAC (Strategic Air Command) in December 1975. Senior US defence strategists took part and some analysts were cautiously optimistic. None saw disaster in the immediate horizon; reassured that B1 bombers, MX missiles, Trident submarines as well as neutron bombs for Europe would restore parity. Thompson states that there has been backsliding on an enormous scale, policy makers let defensive measures slide, there was a 50% cut back in the development of MX missiles for instance.

Admiral Zumwalt is of the view that in strategic nuclear forces, in medium range nuclear weapons deployed in Euorpe, in conventional forces in Europe, in the strength of Pacific fleets, the Soviets are superior. The US military capabilities have declined during the 1970s while the Soviet power grew.

These two essays are followed by seven "Quick Fixes" (Part II) which suggest among others the following short and long term measures.

—The necessity to close the gap in defence spending and massively to expand defence production.

—The interruption of the flow of oil from the Persian Gulf is considered the most dangerous threat to Western security and the need to raise the RDF airlift, sea lift, logistical infrastructure and basing facilities is stressed. Turkey, Egypt and Israel are considered important allies in this context. The facilities available to Britain and France in the Indian Ocean and along the east coast of Africa are considered invaluable.

—The dangerous vulnerability in major components of the US deterrent forces is brought out and the need for effective, flexible and selective targeting capability against the full range of relevant targets, including hardened military targets, over an extended period of war with warfighting, escalation control and damage-limiting objectives is emphasised.

—The development of follow on missiles (MX) to obtain the necessary throw weight and counter military potential, increased funding for ABMs, restarting the B1 bomber programme and production of SLCM (Sea launched Cruise Missiles) is advocated.

—The differences of perception with the governments of West Europe both in regard to the Soviet threat and commonality of interest outside of Europe, such as in the Persian Gulf region are discussed and it is suggested that NATO must match Moscow both in conventional and nuclear weapons. However,

nuclear weapon deployment decisions must be US dominated; pluralistic decision making would lead the Alliance to immobilism.

It must be satisfying to the authors that many of the above measures have either been implemented or are in the process of being implemented. The proposal to establish the RDF and to raise the Fifth Fleet was considered by the Carter administration in May 1979. The RDF was activated on 1 March 1980. Air lift, pre positioning of ships with equipment and 30 days supplies for three marine brigades have since been planned. The Reagan administration has upped defence spending and has asked for $ 258 billion for the next year and $ 1600 billion over the next 5 years for an arms build up including MX missiles, B-1 bombers, Trident 1 missiles for submarines and Cruise missiles (air, ground or sea launched).

Whether these measures would lead to stability is open to question. In the first place the whole premise of overall Soviet superiority and the doom it spells is either indicative of unwarranted panic or an overstatement to create public opinion for an arms build up. This has in fact come to pass and the USA now has a government which is committed to attaining a position of strength vis a vis the USSR. This can only lead to a certain nuclear weapons arms race. The emergence of the USSR as a world power capable of projecting its presence in most parts of the globe cannot be wished away. The USA has to learn to live with this rivalry and competition. The way to stability lies in detente and not in confrontation. This course the authors of the book under review leave completely out of their consideration. Rather it is mentioned only as one of the problems between the USA and the West European countries. It is accepted that these countries have profited in psychological, economic and human terms by detente and closer ties with the East, but now it is viewed only as a hurdle in the way of the militant strategy towards Moscow which the authors advocate.

Views of one of the authors, Geoffrey TH Kemp on strengthening strategic relations with India would be of particular interest to readers in this country. He observes".....in our support of Pakistan over the years we have backed a country that has lost all the wars that it has fought against India.....is much smaller .....faces the prospect of further instability and possible dismemberment.....and has been governed by a motley group of authoritarian leaders.....India on the other hand, commands a vital strategic position.....has retained a relatively stable political system....." Having said this, the author puts the

onus of rectifying this situation more on India than the United States by saying that India should improve its relations with Pakistan, China and the United States in view of the situation in Afghanistan.

Parts III and IV of the book carry forward the argument for establishing 'The Politics of Strength' and to suggest a strategy for the 1980s, in the same strain as Part II i.e., by overcoming strategic nuclear weakness, revitalising alliances, conventional equivalence on the Central front and elsewhere and increased defence spending in the light of the belief that the Soviet Union is a deliberate and methodical antagonist in world affairs—one requiring to be encountered.

This book of over 500 pages essentially expresses a hawkish view point, the politics of strength which in fact what the Reagan administration represents. It would appear that this administration is itself having second thoughts on its strategic concepts. It is somewhat repetitive but nevertheless of considerable interests to the students of world affairs.

AMV

MILITARY POWER AND POLICY IN ASIAN STATES : CHINA, INDIA JAPAN

Ed. by Onkar Marwah and Jonathan D. Pollack.

(Published by Westview Press, Boulder, Colorado 1980 pp 180 price $ 18.50)

THE immediate stimulus for this volume came from a panel, jointly organised by the Editors, for the 18th annual convention of the International Studies Association, held at St. Louis in March 1977. The book under review comprises the following articles :—

(1) Introduction : Asia and the International Strategic System, —by O. Marwah and J. D. Pollack;

(2) Toward a great State in Asia—by S. P. Cohen;

(3) China as a Military Power—by J. D. Pollack;

(4) India's Military Power and Policy—by Onkar Marwah; and

(5) Japan's Security Perceptions and Military Needs,—by Y. Nakada.

Besides, the book contains Statistical Tables on (a) Defence Spending, Population, and Economy, (b) Force Levels, (c) Relative Ranks, (d) Relative Burden of Military Expenditures, (e) Ability to Manufacture Weapons : China and India, 1979 (selected Items), (f) India : Defence Expenditures as a Percentage of GNP, 1950-1978, (g) India : Foreign Arms Purchases, 1965-1975, and (h) Japan's Defence Expenditures and the Strength of the Self-Defense Forces.

In this book the contributors have put across this thesis that in course of time China, India and Japan will emerge as great or near-great powers dominating their regions and following more or less independent policies of their own and ignoring the dictates of the Super powers in managing their respective regional problems. Prof Cohen thinks that a "managing agent" world may emerge in which "such regionally powerful States as India are conceded local dominance, and super powers refrain from supporting regional rivals, let alone engaging in direct confrontation", and "Other States such as China and Japan are accorded a specialized global role (political in the case of the former, economic for the latter) without recognition as a full-fledged super power". This appears to be wishful thinking and a subjective scenario. The fact is that the international relations are always in a flux. The changes in individual States' policies are sometimes brought about when a new ruling group with a new ideology or programme of action replaces the previous regime. Side by side with the perennial internal variable works the super power influence, often as an undercurrent, but sometimes as a tide, which tries to support a potential regional ally and destabilize a possible regional antagonist.

Each of the three middle ranking powers,—China, India and Japan,—has its own external security and internal domestic problems. China has a running feud with USSR and Vietnam and a dormant rivalry with India; India has her problems with China and Pakistan still unsolved and hence she is suspicious of both; Japan has her dispute with USSR over the four northern islands, apprehension about the Communist expansion into South Korea and fear about Russian military build-up in north-western Pacific. In the domestic field, India and China are both developing countries with socio-economic problems which hamper their evolution into great powers; similarly Japan, although industrially developed; is deficient in all kinds of minerals and raw materials which are needed in a protracted war. The running competition and co-existence, rivalry and cooperation that exist and will exist between the two super powers, till one of them starts a nuclear war for any reason, will surely influence the regional powers deeply enough to restrain them from dominating any region substantially. If the authors' thesis that the super powers will gradually lose their power or will to dominate different regions in the course of time has any chance of proving true, then the possibility of the smaller States refusing to be dominated by regional powers in future is not less likely. Even with the possible emergence of twenty or more regional centres of power, as Rajni Kothari has envisaged in his book "Footsteps into the future", the capacity of the two super powers to

fish in troubled waters could not be eroded. Indeed, Indian leaders have asserted time and again that India does not aspire for the role of the regional dominator, nor the Chinese leaders are anxious to see their country develop as a super power. Japan, on her part, is happily basking in the glow of her economic prosperity under the protection of the US defence umbrella. Nobody can predict the unpredictable internal political developments in small and middle-ranking states. The happenings in Egypt, Ethiopia, Iran, Afghanistan, Libya, Pakistan, Bangladesh, Vietnam, Kampuchia and Indonesia, etc. since mid-1960s clearly point to the vulnerability of the political stability in the Third World due to superpower machination and some times despite it.

This book has provided a new line of thinking on international affairs, and from that standpoint it is a welcome addition to the existing literature on the subject.

B C

SUPER POWER RIVALRY IN THE INDIAN OCEAN
By Capt VK Bhasin

(Published by S. Chand and Co. Ltd., New Delhi 1980
pp 229 price Rs. 50/-

SINCE the Indian Ocean started hotting up in mid'-sixties of this century, quite a number of books, official research reports; and articles have been publised throughout the world. Sri Lanka, some years ago, took the lead, amongst many countries, in asking the world community to turn the Indian Ocean into a zone of peace. But, besides passing some pious resolutions in the U.N. and other international forums, nothing tangible has been done so far about its actual implementation.

The book under review has grown out of the Ph. D. thesis of the author, an officer of the Indian Army. It has dealt with :

(a) British hegemony of the Indian Ocean prior to the First World War;

(b) The Super Power rivalry in the Indian Ocean—its evolution and dimensions, the interests of the Super Powers and certain other Powers in this ocean; and

(c) The reaction of the littoral States.

As natural with a Doctoral dissertation, the work is based on a large number of official reports, research studies, books and articles, listed under a fine bibliography placed at the end of the treatise.

The author has rightly drawn our attention to the growing strategic importance of the Indian Ocean and the significance of this to the littoral States, especially India, which is surrounded by the waters of this ocean on its three sides. He has also reminded us of Alfred Mahan's statement: "whoever controls the Indian Ocean dominates Asia. This ocean is the key to the Seven Seas. In the 21st century the destiny of the world will be decided on its waters". There is no doubt that USA, in order to have strategic dominance over every part of the globe, has decided to enter the Indian Ocean in a big way by establishing a military base in Diego Garcia and sending its powerful naval vassels regularly to this ocean. The dominance of the Indian Ocean by the American navy, especially its nuclear submarines, poses a great threat to the USSR, as these U.S. nuclear subs, located in the Indian Ocean, can be used for targetting Russian cities and other strategic points in the USSR with the help of SLBMs. This aggressive U.S. action resulted in the Russian naval response, thus bringing into existence the present Super Power rivalry in the Indian Ocean. What is more, the U.S. has a coordinated offensive-cum-defensive strategy of operation, in which other Western Powers, South Africa and Australia are the main partners, covering the Atlantic, the Indian Ocean and the Pacific Ocean.

The author has rightly pointed out that under the false bogey of "The Russians are coming", raised by the U.S. and her allies, the U.S. Government have made the Indian Ocean militarily active. (p.173). He has also cogently argued that the U.S. military presence in the Indian Ocean is more formidable than the Russian naval presence, and what is more, the Russians have no military base anywhere in the Indian Ocean or in any of the littoral States. About the Russian threat to the transportation of oil through the Persian Gulf, the C.I.A. stated in 1973 that "the Soviet Union cannot play a disruptive and threatening role in the Indian Ocean" and that "The forces which Soviets have deployed in the Indian Ocean have been relatively small and inactive.....Diego Garcia build up would promote a further Soviet response". But in the same breath, Capt. Bhasin has, perhaps in order to prove his academic impartiality, accused USSR also of causing Super Power rivalry in the Indian Ocean by saying that "the Russian presence, however justified, has resulted in the intensification of Super power rivalry in the region." (p.183). But what Russians could do ? Did her national security interests permit her to give a free hand to the U.S. in the Indian Ocean ?

There is no doubt that the protests of the littoral States or pious resolutions passed in the U.N. will be able to remove the Super Power

military rivalry from the Indian Ocean, unless the littoral States can compel the U.S. to retrace her steps by joint, determined action in the form of economic sanction, for example. But that appears to be a far cry. It is hoped that the book will be read with interest by political scientists, strategists, and students of International Relations and Defence.

B C

DOUBLE EDGED SECRETS
By W.J. HOLMES
(Published by NAVAL INSTITUTE Press,
MARYLAND, 1979 pp. 231

"DOUBLED Edged Secrets" by Captain WJ Holmes, US Navy (Retd) deals with US Naval Intelligence Operations in the Pacific during World War II. While the book has been written with consummate skill, and livened with a touch of humour, it may not be every readers cup of tea as it deals with all aspects of naval intelligence : the organisation that collected, analysed and disseminated naval intelligence throughout the Second World War. Captain Holmes gives a first hand account regarding Japanese messages that were intercepted and provides an insight into the planning that these afforded the US Navy.

The significant events that have been vividly convered in the book are the attack on Pearl Harbour, the breaking of the incredibly complex Japanese ciphers, the use of 'Ultra' (super secret information which the US Navy produced from having broken Japanese codes) messages and the famous battle of Midway. The author has rendered a fascinating but at the same time a competent and professional account of other matters such as the targeting of US submarines against Japanese aircraft carriers, American anti-submarine warfare and the traumatic events that lead to the decision to shoot down Admiral Yamamotos (Japans' most outstanding naval officer) aeroplane.

This book is recommended on the 'should read' list of all naval officers who are concerned with decision making. For those associated with the working of intelligence, it brings out the crucial service that Intelligence (in this case U.S) has performed for its people. At the heart of the book is the all prevailing dilemma : the contradiction that secrecy can harm national security as well as the enemy. Holmes graphically describes the predicament faced in deciding whether to use intercepted messages obtained through 'Ultra'. An example of the tragic outcome of deciding not to use information provided by 'Ultra'—

so as not to tip the Japanese hand—was the sinking of the USS Indianapolis with a complement of 833 men when the position of Japanese submarines was known, lest the Japanese realise that their most sophisticated code had been broken. Was the sacrifice worth it ? The author brings home to the reader many such moral and perplexing issues that conrfonted the US naval commanders at that time.

Altogether a rewarding book for any reader of the Armed Forces —it is not only a thrilling story but brings out important lessons when faced with the dilemma regarding dissemination of sensitive and crucial Intelligence at the cost of protection of the source.

R C C

INTRODUCTION TO BATTLEFIELD WEAPONS SYSTEMS & TECHNOLOGY
by R G Lee.
Published by Brassey's Publishers Limited, Oxford, 1981.

THE first remark that any reader after going through this book can pass is! Excellent; Not because there is something sensatiooal in it but on account of the precision and clarity with which much of what though already known on the complex subject of modern military weapons, equipments and systems has been described.

With clear photographs and instructive charts and diagrams, the concise contents of this work should be stimulating equally for the general reader as well as the professional soldier, They can all gain considerably by acquiring the basic knowledge about military hardware and some of the problems which the soldiers in the field or the designers and technologists in the laboratories and workshops face to develop weapons within the given parameters. Not only that, some of the limitations posed on various counts in the way of encompassing everything that the soldier wishes and the new emerging trends in technology have also been dealt with at certain places.

It is remarkable that in just about 200 pages almost every conceivable type of weapon existing in the armoury of the world and which is no small a place today has been well covered. Nothing less should have been expected because the authors of this work which forms a part of and an introduction to the series of volumes on each of the topics covered in the eight chapters of this book are a rare contribution of the technologists and servicemen held on the staff of Britain's prestigious Royal Military College of Science at Shrivenham.

While the first chapter is a simplified discussion on the various design aspects and limiting factors of Armoured Fighting Vehicles, Logistic Vehicles and Bridging, the second chapter covers the complicated topic of Guns, Mortars and Rockets. In chapters three—Ammunition (Including Mines and Grenades), four-Nuclear, Biological and Chemical Warfare and five—Small Arms and Cannons, though dealt with briefly, make an interesting study. The preparations and precautionary measures required by a soldier to adopt when faced with the atomic, biological and chemical agents have also been discussed very clearly though briefly.

The last three chapters dealing with Command, Control and Communications; Surveillance and Target Acquisition; and Guided Weapons (Including Light Anti-Armour Weapons) are illuminating and should be of considerable interest to our armed forces. Because they are being further developed and the Developing Countries have already to cover a considerable leeway, the assimilation of information already given in these chapters by the defence personnel should prove profitable.

However, one wishes that instead of starting the discussion on the various topics from a rather abrupt point in history, the authors had rendered a brief historical evolution of the weapons or systems to give the new recruits to the art of warfare a more comprehensive and comfortable perspective. Also, a bibiliography at the end could have proved useful to the research student or those wanting to delve in the subject deeper. Possibly, it may have been included in the volumes which deal with each topic separately.

VKA

COURT AND CAMP OF RANJEET SINGH
By W.G. OSBORNE

(Published by Vanity Books, Delhi
1979 pp 228 price 45/-)

IN May 1838, the East India Company's Government in India sent an official mission to the Court of Maharaja Ranjeet Singh. The mission consisted of Mr. W.H. McNaghten, Political Secretary to the Govt., Capt. Wade, Political agent at Ludhiana, Hon. Capt. W.G. Osborne, Military Secretary to the Governor General, Lord Auckland, Capt. G. McGregor, ADC to the Governor General, and Dr. Drummond, Surgeon to the Governor General. Capt. W.G.

Osborne published this book after the mission was over on the basis of his first-hand knowledge about the "Court and character of Maharaja Ranjeet Singh. The book under review begins with "An introductory sketch of the origin and rise of the Sikh State". Maharaja Ranjeet Singh (Born 1780; died 1839) was one of the most remarkable Indian rulers of his time. He ascended the throne of his father Maha Singh, an important Sikh chieftain of the Punjab, in 1792 at the age of 12. Although Ranjeet Singh did not know how to read or write, he was a keen military leader who drilled his Battalions on the British model and made his artillery the best in non-British India. Gifted with an intuitive perception of character and a comprehensive knowledge of human nature and with the overruling influence of a superior mind, Maharaja Ranjeet Singh brought a large number of Chieftains under his control and gradually established a sizeable Sikh state. He had "a natural shrewdness, sprightliness and vivacity worthy of a more civilized and intellectual state". But he was also a believer in Omens and charms, witchcraft and superstitions. He had great defects of character which ruined his health and led to his untimely death. He had been painted as avaricious and selfish. He was clever enough to ally himself with the East India Company so that he could reign in peace. That is why he did not help the ruler of Bharatpur when the latter had asked for his aid against the British siege of his fort.

The author has faithfully painted an interesting picture of his Court, his nobles, his dancing girls, his military strength, his inquisitive mind, his friendly disposition towards the British, and the Punjab society at large. About the Maharaja the author says". Ranjeet Singh possesses great personal courage, a quality in which the Sikhs are supposed to be generally deficient; and until the last few years, always led his troops into action himself."

"His character was formerly that of a generous and liberal master, and it was his custom to go into action with his arms covered with golden bracelets, and to reward with a pair of them any act of personal courage on the part of his soldiers which might happen to meet his observation. But the vice of old age, avarice, is fast creeping upon him; and at this moment, two out of three of his regular infantry regiments at Peshawar are in a state of open mutiny for want of their pay, one of them being eighteen, and the other twenty-two months in arrears."

"With six millions sterling in his treasury at Amritsir, such is his love of money, that he will risk the loss of his kingdom rather than

open his hoards, and disgusts his people and army by this ill-timed and cruel parsimony: at a time, too, when his most bitter enemies, Dost Mohommed Khan and the Afghans, are only watching for the first favourable opportunity to attempt his destruction." Perhaps, this was generally the practice with most of the Indian rulers of his time which resulted in their ultimate doom."

"The Akalees have been portrayed in a very bad light as a band of robbers" the most insolent and worthless race of people in all India ..... They are religious fanatics and acknowledge no ruler and no laws but their own; think nothing of robbery or even murder, should they happen to be in the humour for it." Even Maharaja Ranjeet Singh used to chastise them, and often cruel punishments were meted out to them. Undoubtedly, this is a vivid picture of Maharaja Ranjeet Singh and the society of his time-a valuable source of history of the period.

Those who have not already read this book should find it very interesting and educative.

B.C

OIL POLITICS IN 1980's : PATTERNS OF INTERNATIONAL CO-OPERATION
By Oystein Norong.
Published by McGRAW-HILL Book Company,
New York, 1980, pp 170, price $ 9195)

ENOUGH has been written about the crisis faced by Oil-importing nations in the wake of the unprecedented Oil price hike by OPEC. Subsequent to that, the problems of plenty faced by the neo-rich OPEC Countries have also been discussed at great lengths in various forums. This project study by Oystein Norong—a Professor at the Oslo Institute of Business Administration and a Counsellor to Norway's state Oil Company, views these two problems together in their totality. He contends that these two facets of the same coil establish a commonality of interests between major oil exporting and oil importing countries. After analyzing the consensus and dissensions among the two groups be puts forward certain proposals which will be advantageous to both. The study rises above economic and political compartments and adopts a systems approach in which the plethora of complex politico-economic problems of the producing and consuming countries have been tackled in a normative and prescriptive manner.

This study is one of a series of studies financed by the Ford, the Rockefeller and some other American foundations and the German Marshall Fund of the United States. Naturally one would take with a pinch of salt the proclamation of the publishers that the series only aims benevolently at creating a climate of meaningful deliberations for the greater good of the humanity. But going through the book, one does get convinced that the approach is a balanced one.

An indepth study of the politics of the OPEC and OECD (Organization for Economic Cooperation and Development) sides of the market reveals that the OECD countries will not be able to shelve the OPEC demands for linking an energy deal to assistance to the less developed countries (LDCs). In the long run it could only be in the interest of the industrialised countries to associate the LDCs with an energy deal. The recommendations made include compensation to the LDCs for the rising prices of oil. This could come in the form of long term loans at low interest rates so that in practice the LDCs would not pay their full oil import bills. In order not to place an excessive burden on individual oil exporters the credit should be administered by an international financial institution like the IMF. An alternative suggestion by the author is the levy of a development tax on oil exports to industrialized countries. A tax of $ 0.25 per barrel at the present levels of oil trade would generate $ 2.5 billions per year. These proposals do lend authenticity to the publishers claim that it is an effort for making progress towards a more humane, peaceful, productive and just world.

The author has gone into the historical background of the oil market and his facts are based on statistical information neatly presented in numerous tables. He has divided the history of oil market into three phases. The dramatic oil crisis of 1973-74 led from the phase of the First Oil Regime to the phase of the Second Oil Regime. While the First Regime was a period of integrated Organization of Consuming Countries and of low prices, the second Regime saw the Close knit organization of producing countries and of much higher oil prices. The contention in this study is that a gradual transition to the Third Regime is inevitable in which the incremental resource base will be synthetic oil with very high prices. In that scenario two possibilities emerge—one of very high oil production provoking a new recession in the OECD area and the other of exports rationing for political gains and supply only to favourite clients. Both must be avoided by mutal agreement and negotiated settlement between the OPEC and OECD.

At least three basic conditions must be satisfied for such an agreement. Firstly, both the producers and importers must accept that the present market organization is unsatisfactory: Secondly they must take cognisance of mutual dependence. Thirdly the interests of various parties must be harmonized to the maximum extent possible for reaching a practical solution.

In the context of these conditions, the author presents a formula containing four agreements on oil price and supply, energy participation, finance and investment, and trade and technology respectively. The prescription aims at intertwining of interests in a package deal creating a new oil regime that takes into account needs of all sides and thus helps provide a basis for stable economic growth. The author feels that the package solution has a self regulating mechanism because every body's interest is taken care of Amen ?

Very noble aspirations indeed ? Did we bear similar noble sentiments expressed before the league of Nations was created ? When the book was being written the rumble of Iran-Iraq war had not been heard. That Britain and Argentina will fight a war was inconceivable. That the USA will abandon Argentina to let it meet its fate alone was unimaginable. The scenarios in the World politics keep changing very rapidly—but the basic lesson remains the same—genuine international cooperation in solving issues whose monetary repurcussions can change the very face of nations is but a noble dream which gets shattered every time it collides—but softly against even short term interests of any country.

ANV

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