



ANUMUKTI

A JOURNAL DEVOTED TO NON-NUCLEAR INDIA

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"Through the release of atomic energy, our generation has brought into the world the most revolutionary force since the prehistoric discovery of fire. This basic power of the universe cannot be fitted into the outmoded concept of narrow nationalisms. For there is no secret and there is no defence; there is no possibility of control except through the aroused understanding and insistence of the peoples of the world.

We scientists recognize our inescapable responsibility to carry to our fellow citizens an understanding of the simple facts of atomic energy and its implications for society. In this lies our only security and our only hope. We believe that an informed citizenry will act for life and not death."

Albert Einstein

"You ought to focus your journal on the nuclear arms issue. That way, you will get more support. Nuclear energy is still a debatable issue," so said a friend last year during a discussion on the contents and emphasis of *Anumukti*

I disagreed. Precisely because nuclear energy was 'still' a debatable question, it required a journal to air views contrary to the dominant paradigm. Does anybody need an argument to be convinced of the sinful horror, the utter futility and the terrible wastefulness of nuclear weapons, I wondered ?

A year wiser, I find myself devoting at least this number to the weapons issue. With my background in physics, I find the clamour for the Bomb among influential sections, extremely strange. Search the physics departments of any of our prestigious centres of learning with a fine comb and it would be difficult to find a genuine 'damn the consequences' probomber. But a casual glance at the 'humanities' departments or at that esoteric breed, the think tankers, reveals an embarrassing profusion of such mis-(sile)guided enthusiasts. A few honourable exceptions apart, politicians, (as usual), take the cake. Ruling party rubber-stampers to oppose everything opposition disunionists, lily-white secularists to dyed in the wool communalists, Akhand Bharat centralists to 'Sons of the Soil' state rightists, the 'Aya Rams' as well as the 'Gaya Rams', horror of horrors even some 'Gandhians', all proclaim their love

for the Bomb. Mixed with their righteous horror at nuclear devastation, is the perpetual refrain, "But what are we to do if Pakistan builds the Bomb ?" The best they suggest is continuation of the present sterile and dangerous policies of nuclear ambiguity. One begins to wonder if all the contestants for the pilot's seat are Dr. Strangelove's clones

Tough-talking realists who occupy the corridors of power, have put us on a treadmill; making us run for all we are worth in an unending quest for arms (commissions). The weapons become obsolete with increasing rapidity and need to be replaced by ever more deadlier weapons. Instead of options remaining open, they are foreclosed. The Bomb is the only option-our ticket to the 'Big' league.

Peace is a positive value. It is more than the mere absence of strife. Only in genuine peace can we work out the real problems : of hunger and poverty and disease and ignorance; of sustainable and equitable development; of finding the root causes of violence within our society and without; of substituting cooperation instead of competition as the basis of existence. A world view which envisages no greater role for India than that of an emerging regional bully, just will not do.

Nuclear energy and nuclear weapons are a package deal. Have one and the arguments for having the other slowly become irresistible. After all making the bomb is just a small step when the long road of collecting material and know how has already been traversed. Inevitably it is also a step on the road marked not security but assured destruction. *Anumukti* as the name itself indicates stands for the unilateral rejection of both.

From being known as the land of the Buddha to achieving notoriety as the land, on whose bomb Buddha smiled is indeed a great fall. All the King's men and all the King's horsepower are not going to put us on that pedestal again. It will need all of us 'common' folk to accomplish this task.

Surendra Gadekar

LETTER BOX

I suggest that *Anumukti* may cover the whole Indian subcontinent and you may like to make such an announcement in your sub-title : A JOURNAL DEVOTED TO NON-NUCLEAR SOUTH ASIA, and perhaps ask for a few activists from neighbouring states to be associated with the publication.

A request : Please avoid fundamentalistic assertions e.g., in your editorial, p.2. "Hope lies in the vision of Gandhi,..... and Emerson - a world in which all creation can live together in peace and respect." In principle I agree with you and I have empathy with these views. But the opposition to nuclear technology is based on scientific findings, reasons, and calculations, -not merely on the emotive appeals of moral and/or humanistic arguments. Our task is to provide

technoscientific basis for the moral reasoning of Gandhi, Tolstoy, Thoreau and Emerson.

Dhirendra Sharma, Delhi

I have just received the latest (June'88) issue of *Anumukti*. I must say that I am not always able to read it carefully. But I do glance through. I feel it is a very good effort and the standard of the journal is always good. You must never give up. I am sure it will improve further. The notices of future issues that you have given are quite exciting.

What I mainly wanted to write through this letter is that I liked your editorial '*Fire and Ice*' immensely. It is brief, precise and conveys the important point of orienting the young.

Natwar Thakkar, Nagaland

Daughter of the A-Bomb

Yuriko Hatanaka, 42, is a daughter of the Hiroshima atomic bomb. She was in the womb when the bomb dropped.

Yuriko has the mental capacity of a child of two. She can neither dress nor go to the bathroom by herself.

Her vocabulary consists of a very few and simple words. She spends her day looking at the picture magazines in her father's barber shop. "She loves to look at the pictures, but she cannot understand that these magazines only come out once a week," said her father, Kunizo. "She throws a tantrum when she has been through them all. She thinks that I do not want to fetch her some more."

Yuriko was a three-month foetus when the atomic bomb "Little Boy" devastated Hiroshima on August 6, 1945.

"My wife was pregnant, she was on her way to work when the bomb exploded," Kunizo Hatanaka said in an interview. She carried our little boy on her back. They were nearly three miles (4 km) from the hypocenter, and they only suffered superficial cuts from flying pieces of glass. Within two weeks both of them became ill from radiation, and my son was dead by the time I got back from army duty in early September.'

'My wife was an appalling sight. She had lost all her beautiful long hair, and her gums would not stop, bleeding. But she was a strong woman. She went through with her pregnancy, and on February 14, 1946, Yuriko was born," Hatanaka said.

"As Yuriko grew up, we become aware that something was wrong. At three she could neither walk nor speak, We went to the American experts of the Atomic Bomb Casualty Commission in Hiroshima. They told us that Yuriko was an ordinary case of malnutrition."

"We went to a Japanese professor at the medical faculty of Hiroshima University. He was very nervous because at the time Japanese scientists were not allowed to conduct independent research into the effects of the atomic bomb. But finally he agreed to check Yuriko's condition. His diagnosis was 'microcephali-born with an abnormally small brain. Then we knew she would never be able to take care of herself."

In 1965 Japanese journalist Ohmuta Minora,

now deputy editor of the Hiroshima newspaper Chugoku Shimbun, got hold of the classified reports from the Atomic Bomb Casualty Commission.

He disclosed that the commission had found 44 other cases exactly like Yuriko's. The children were all born within a few months of the blast,

"We joined other parents and formed the Mushroom Club", Hatanaka said. "With the assistance of the journalist, we started campaigning for compensation."

In 1968, when she was 22, Yuriko and 23 other children were officially recognised as

"Hibakusha"—atomic bomb victims.

Yuriko

now receives a monthly allowance of 104,000 Yen (about \$400), less than half

the average wage in Japan.

"Ten years later my wife started complaining about pains in her hipbones. Gradually the pain spread up her back and down her legs. A local doctor took some tests. A few weeks later we received the results: she was suffering from bone marrow cancer.

"I could not afford the expensive medicine and care, so I applied to have my wife registered as an atomic bomb victim in order to get free medical treatment."

"But my application was returned. The authorities needed more information. On December 23, 1978, my wife was finally recognised as a victim. She died the next morning, at the age of 57."

With tears in his eyes. Kunizo Hatanaka shows visitors a video recording of his wife's funeral.

"Every Sunday we visit the cemetery. Yuriko puts her head at the tombstone and says, Ear, ear. It means: I can hear my mother,

Thomas Bo Petersen is a Danish freelance journalist who specialises in Asian affairs.

Courtesy : Asia-Pacific Environment Volsno 2

Notice

We have received complaints from some readers that they did not receive issue no 5 (April '88). This is the result of some postal foul up. Any subscriber who has not received this issue should write to the Varanasi address of the Editor and we will send

a copy immediately. We regret the inconvenience caused.

A Call For Sanity

Adequate words are lacking to express the full seriousness of our present situation. For over 30 years wise and far-seeing people have been warning us about the futility of any war fought with nuclear weapons and about the dangers involved in their cultivation. Some of the first of these voices to be raised were those of great scientists. They have tried to remind us that there could be no such thing as victory in a war fought with such weapons. So have a great many other eminent persons.

When one looks back today over the history of these warnings, one has the impression that something has now been lost of the sense of urgency, the hopes, and the excitement that initially inspired them, so many years ago. One senses, even on the part of those who today most acutely perceive the problem and are inwardly most exercised about it, a certain discouragement, resignation, perhaps even despair, when it comes to the question of raising the subject again. The danger is so obvious. So much has already been said..What is to be gained by reiteration »What good would it do now

Look at the record. Over all these years the competition in the development of nuclear weaponry has proceeded steadily, relentlessly, without the faintest regard for all these warning voices. We have gone on piling weapon upon weapon, missile upon missile, new levels of destructiveness upon old ones. We have done this helplessly, almost involuntarily: like the victims of some sort of hypnotism, like men in a dream, like lemmings heading for the sea, like the children of Hamelin marching blindly along behind their Pied Piper. And the result is that today we have achieved, in the creation of these devices and their means of delivery, levels of redundancy of such grotesque dimensions as to defy rational understanding.

I say redundancy. I know of no better way to describe it. But actually, the word is too mild. It implies that

there could be levels of these weapons that would not be redundant. Personally, I doubt that there could. I question whether these devices are really weapons at all. A true weapon is at best something with which you endeavor to affect the behavior of another society by influencing the minds, the calculations, the intentions, of the men that control it; it is not something with which you destroy indiscriminately the lives, the substance, the hopes, the culture, the civilization, of another people.

What a confession of intellectual poverty it would be—what a bankruptcy of intelligent statesmanship—if we had to admit that such blind, senseless acts of destruction were the best use we could make of what we have come to view as the leading elements of our military strength !

To my mind, the nuclear bomb is the most useless weapon ever invented. It can be employed to no rational purpose. It is not even an effective defense against itself. It is only something with which, in a moment of petulance or panic, you commit such fearful acts of destruction as no sane person would ever wish to have upon his conscience.

There are those who will agree, with a sigh, to much of what I have just said, but will point to the need for something called deterrence. This is, of course, a concept which attributes to others—to others who, like ourselves, were born of women, walk on two legs, and love their children, to human beings, in short—the most fiendish and inhuman of tendencies.

But all right : accepting for the sake of argument the profound iniquity of these adversaries, no one could deny, I think, that the present Soviet and American arsenals, presenting over a million times the destructive power of the Hiroshima bomb, are simply fantastically redundant to the purpose in question. If the same relative proportions were to be preserved, something well less than 20 per cent of those stocks **would**

surely suffice for the most sanguine concepts of deterrence, whether as between the two nuclear superpowers or with relation to any of those other governments that have been so ill-advised as to enter upon the nuclear path. Whatever their suspicions of each other, there can be no excuse on the part of these two governments for holding, poised against each other and poised in a sense against the whole northern hemisphere, quantities of these weapons so vastly in excess of any rational and demonstrable requirements.

How have we got ourselves into this dangerous mess

Let us not confuse the question by blaming it all on our Soviet adversaries. They have, of course, their share of the blame, and not least in their cavalier dismissal of the Baruch Plan so many years ago. They too have made their mistakes; and I should be the last to deny it.

But we must remember that it has been we Americans who, at almost every step of the road, have taken the lead in the development of this sort of weaponry. It was we who first produced and tested such a device; we who were the first to raise its destructiveness to a new level with the hydrogen bomb; we who introduced the multiple warhead; we who have declined every proposal for the renunciation of the principle of "first use"; and we alone, so help us God, who have used the weapon in anger against others, and against tens of thousands of helpless non-combatants at that.

I know that reasons were offered for some of these things. I know that others might have taken this sort of a lead, had we not done so. But let us not, in the face of this record, so lose ourselves in self-righteousness and hypocrisy as to forget our own measure of complicity in creating the situation we face today.

What is it then, if not our own will, and if not the supposed wickedness of our opponents, that has brought us to this pass

The answer, I think, is clear. It is primarily the inner momentum, the independent momentum, of the weapons race itself—the compulsions that arise and take charge of great powers when they enter upon a competition with each other in the building up of major armaments of any sort.

This is nothing new. I am a diplomatic historian. I see this same phenomenon playing its fateful part in the relations among the great European powers as much as a century ago. I see this competitive buildup of armaments conceived initially as a means to an end but soon becoming the end itself. I see it taking Possession of men's imagination and behavior, becoming a force in its own right, detaching itself from the political differences that initially inspired it, and then leading both parties, invariably and inexorably, to the war they no longer know how to avoid.

This is a species of fixation, brewed out of many components. There are fears, resentments, national pride, personal pride. There are misreadings of the adversary's intentions—sometimes even the refusal to consider them at all. There is the tendency of national communities to idealize themselves and to dehumanize the opponent. There is the blinkered, narrow vision of the professional military planner, and his tendency to make war inevitable by assuming its inevitability.

Tossed together, these components form a powerful brew. They guide the fears and the ambitions of men. They seize the policies of governments and whip them around like trees before the tempest.

Is it possible to break out of this charmed and vicious circle? It is sobering to recognize that no one, at least to my knowledge, has yet done so. But no one, for that matter, has ever been faced with such great catastrophe, such inalterable catastrophe, at the end of the line. Others, in earlier decades, could befuddle themselves with dreams of something called "victory." We,' perhaps fortu-

nately, are denied this seductive prospect. We have to break out of the circle. We have no other choice.

How are we to do it *

I have, no illusion that negotiations on the SALT pattern—negotiations, that is, in which each side is obsessed with the chimera of relative advantage and strives only to retain a maximum of the weaponry for itself while putting its opponent to the maximum disadvantage— I have no illusion that such negotiations could ever be adequate to get us out of this hole. They are not a way of escape from the weapons race; they are an integral part of it.

Whoever does not understand that when it comes to nuclear weapons the whole concept of relative advantage is illusory—whoever does not understand that when you are talking about absurd and preposterous quantities of overkill the relative sizes of arsenals have no serious meaning—whoever does not understand that the danger lies not in the possibility that someone else might have more missiles and warheads than we do but in the very existence of these unconscionable quantities of highly poisonous explosives, and their existence, above all, in hands as weak and shaky and undependable as those of ourselves or our adversaries or any other mere human beings: whoever does not understand these things is never going to guide us out of this increasingly dark and menacing forest of bewilderments into which we have all wandered.

I can see no way out of this dilemma other than by a bold and sweeping departure—a departure that would cut surgically through the exaggerated anxieties, the self-engendered nightmares, and the sophisticated mathematics of destruction, in which we have all been entangled over these recent years, and would permit us to move, with courage and decision, to the heart of the problem.

Any path to peace, it will be argued would have risks involved. Possibly so. I

do not see them. I do not deny the possibility. But if there are, so what Is it possible to conceive of any dangers greater than those that lie at the end of the collision course on which we are now embarked And if not, why choose the greater—why choose, in fact, the greatest—of all risks, in the hopes.of avoiding the lesser ones

We are confronted here, my friends, with two courses. At the end of the one lies hope—faint hope, if you will—uncertain hope, hope surrounded with dangers, if you insist. At the end of the other lies, so far as I am able to see, no hope at all.

Can there be—in the light of our duty not just to ourselves (for we are all going to die sooner or later) but of our duty to our own kind, our duty to the continuity of the generations, our duty to the great experiment of civilized life on this rare and rich and marvelous planet—can there be, in the light of these claims on our loyalty, any question as to which- course we should adopt

In the final week of his life, Albert Einstein signed the last of the collective appeals against the development of nuclear weapons that he was ever to sign. He was dead before it appeared. It was an appeal drafted. I gather, by Bertrand Russell. I would like to quote one sentence from the final paragraph of that statement, not only because it was the last one Einstein ever signed, but because it sums up, I think, all that I have to say on the subject. It reads as follows:

We appeal, as human beings to human beings: Remember your humanity, and forget the rest.

George. F. Kennan

George. F. Kennan was for a long time the U.S. ambassador to Moscow. He made this Speech on May 19, 1981 while accepting the Albert Einstein Peace Prize. Portions of the speech have been edited for space considerations. The original is available from THE INSTITUTE FOR WORD ORDER 777 United Nations Plaza New York, NY 10017.U.S.A.

Safeguards or Safethefts ?

It doesn't take much to make an atomic bomb. A few kilogrammes of Plutonium or enriched uranium and a little knowhow are the only requirements. With even graduate students making plausible bomb designs with publically available information, knowhow is no longer a problem. As the following two articles illustrate, plutonium too is no longer a problem. Today, nations have been clandestinely making the bomb. How long do we wait before terrorist organizations jump into the 'game'.

Recently, the Vienna-based International Atomic Energy Agency (IAEA) announced that during 1987 it "did not detect any anomaly" which would indicate the diversion of a significant amount of safeguarded nuclear material anywhere for military purposes. The statement is part of an annual ritual that the IAEA performs, in order to assure the world that there is no "misuse of facilities, equipment or non-nuclear material..."; in other words, that the non-proliferation regime it presides over is working smoothly and no civilian nuclear material under safeguards is being clandestinely diverted to weapons programmes.

The agency puts out such a public statement as the conclusion of its annual safeguards implementation report (SIR), itself a classified document. However, it now emerges that such statements are a misrepresentation of the SIRs. The Green Alternative European Link in the European Parliament has for the first time made public the SIR for 1986 and a Dutch ecology group has quoted extensively from the SIR for 1976.

Summarised by the World Information Service on Energy (WISE) in its news communique of June 10, the SIRs show that large quantities of nuclear material under the IAEA safeguards could in fact have been diverted for military purposes in a number of countries, that the IAEA has no reliable way of determining that they were not so diverted and that the problems of policing nuclear

installations are so complex as to be virtually insurmountable within the present framework of surveillance

Thus we cannot be reasonably certain that the existing system of safeguards is worthy of our confidence. Nation-states bent upon diverting and using "civilian" nuclear material to build nuclear weapons or "peaceful nuclear explosive devices" cannot be effectively prevented from doing so under the existing safeguard regime.

A Question Mark

This puts a big question mark over the nuclear Non-Proliferation Treaty of 1970. The NPT has been criticised as an unequal and discriminatory treaty. It is undoubtedly that. Equally significantly, however, the NPT must be seen as a treaty that could not have prevented vertical or horizontal proliferation.

Indeed, the very premises on which the NPT was based are questionable. Of the three premises, the first held that it would be possible to achieve a "cessation of the nuclear arms race at an early date only if the nuclear powers "pursue negotiations in good faith". As should be clear from experience at least until the INF treaty, the nuclear arms race has only intensified over the past 18 years; even the INF treaty has been signed outside the NPT framework.

The second premise maintained that there is a clear technical divide between the peaceful and military uses of atomic energy, which can be defended by a regime of safeguards. In reality such a divide was the invention of the nuclear industry which has been involved in both nuclear power generation and weapons production. It is therefore more appropriate to see the peaceful and military atoms as Siamese twins. A separation between the two is a function not of technology, but of political intentions.

The final premise was that the non-nuclear weapons states could be prevented from going nuclear only if the nuclear weapons states agreed to make civilian

nucleic technology available to them under IAEA safeguards. The last 18 years should shatter that illusion: more than half, a dozen countries have become threshold or de facto nuclear-weapons states. The IAEA safeguards regime with all its inadequacies is part of this development. It is as inseparable from it as the clandestine transfer of nuclear-military technology and material by certain states to favoured clients.

Timely Detection

To return to the IAEA's SIRs, what emerges is the following. In 1986, the agency's objective of "timely detection of diversion of significant quantities of nuclear material" could not be achieved in as many as 37 per cent of all facilities under safeguards. The "timely detection" interval is estimated by the IAEA to vary between ten days and six months. A "significant quantity" (SQ) is enough to make at least one bomb of the Hiroshima or Nagasaki type—estimated by the agency as 25 kg of highly (90 to 95 per cent) enriched uranium or eight kg of plutonium (with 95 per cent Pu-239 in it), but said by other experts to be as little as 10 to 15 kg of highly enriched uranium or 2 to 8 kg of plutonium.

The limitation of the detection process should be clear from the fact that IAEA bases itself on a 95 per cent confidence interval. This when it is dealing with facilities that may contain 1,000 SQs or even 10,000 SQs. A five per cent gap could represent up to 500 nuclear bombs—a veritable arsenal.

Year after year, the SIRs state that the inspection goal could not be attained. Thus, the 1976 SIR concluded that the safeguards objective could not be realised in 16 out of 34 light water reactors. In 1986, the numbers were 77 out of 134 LWRs. The report also admits that the procedure followed to measure "normal operating losses" in nuclear plants leads "to artificially low values for material unaccounted for (MUF) and makes it difficult to draw valid figures from the MUF figures

regarding the possibility that diversion has occurred. It is known that the MUF tends to run cumulatively into hundreds of SQs.

The 1986 SIR is even more disturbing. It says that "of the 147 installations where surveillance equipment was used... surveillance failed to provide conclusive results... at 82". This is a high (86 per cent) failure rate. The number included 15 installations out of the 18 where television cameras were used. In other words, the failure rate tends to be even higher (at 83 per cent) where the surveillance is particularly close. "The inadequacies... are particularly manifest in those situations where shipments or receipts take place, or where spent fuel is handled" (e.g. in re-processing plants which can generate weapons-grade plutonium) in certain forms.

These are technical problems of surveillance. But there are plenty of "man-made" or "political" problems too, related to the unwillingness of governments or private companies to provide information or access in time. Yet others derive from a shortage of skilled manpower. Thus, "in seven states, the safeguarded national inventory was between 1,000 SQ and 10,000 SQ..." (i.e. very large)... "The inspection goal for agency safeguards is evaluated as attained in four of these states" (i.e. not in the other three)... The main reasons for the failure are: "incomplete verification... and the fact that the material reported as shipped but not confirmed by the receiving state as received exceeded one SQ."

A SIPRI study speaks of the "customary practice of refusing IAEA inspection access to the cascade area of the ultracentrifuge enrichment facility, a restriction rationalised by the desire to protect industrial secrets and recognised as legitimate in IAEA statutes." There have been instances of operators refusing to remove seals on nuclear containers for warranty reasons. Without removing the seals,

it Is not possible, to analyse the material.

The SIR also states: "The cooperation of states is needed in ensuring adequate and uninterrupted illumination in areas covered by agency surveillance devices." This resulted in "inconclusive surveillance results" in six installations in 1986. In other words, the operator can switch, off the power supply at a critical juncture and make sure that the IAEA cameras record nothing.

There are "problems in the deployment of manpower, largely due to insufficient flexibility of inspector designation restrictions." This made it 'necessary to concentrate efforts on the verification of quantities of nuclear material', giving the timeliness requirement the "secondary priority". This cannot possibly promote the inspection goal. Also 'there were seven states whose major problems arose mainly because they accepted fewer than the number of inspectors judged to be the minimum necessary'.

Anomalies Explained

The report says that about
270

'discrepancies or anomalies were found in 1986 (160 in 1985) and most were "satisfactorily explained.." However, "in some of these cases, the inventory cannot be re-verified." Among the states that figures prominently in the IAEA report but is not named is West Germany where the inspection goal was not attained in 22 out of 38 facilities.- West Germany is incidentally the home of Nukem, which has recently figured in major scandals.

Examples like these can be multiplied. What they show is that even an agency committed to the promotion of nuclear technology and closely allied with the nuclear industry has found it impossible to implement effective safeguards against proliferation. The divide between the peaceful and military uses of the technology is so fragile that a government bent upon diverting nuclear material cannot be physically stopped from doing so. The sooner the NPT and the IAEA regime are replaced by another arrangement the better it would be for the world.

Courtsey-Prafula Bidwai : Times of India.

"A Very Exciting Business"

'Eric' is a plump middle-aged man who at first glance appears quite unthreatening. But until three years ago, this man was a high tech arms dealer, illegally supplying both South Africa and Argentina with sophisticated military technology. He was also involved in an even deadlier trade, the sale of plutonium. He, and others like himself, are middlemen in the worldwide trade in plutonium, where the raw material for nuclear bombs is sold to anyone who wants, and can afford, to buy it. For Eric, it was a "very exciting business".

The story of Eric, a Belgian wanted by the police in three countries, is told in a remarkable documentary which was shown on BBC's Channel 4 television's "Dispatches" programme in late 1987 in the UK. It made public the first insider evidence of the existence

of a nuclear blackmarket in weapons grade materials, a market whose existence has always been denied by the nuclear industry as well as the International Atomic Energy Agency.

Eric, who asked the makers of the documentary not to use his last name, dealt regularly throughout the late 1970's and early 1980's in smuggled nuclear technology, later entering the market for weapons grade material itself-both plutonium and enriched uranium. As a dealer, he supplied much of the hardware used in Argentina's nuclear programme. In late 1983 he was told proudly by a retired admiral responsible for one of Argentina's high-tech research labs that Argentina has its first nuclear device. Since, then, lie's heard that they have had a second one since 1986. Argentina, needed

to use black-market plutonium to develop its first device given the estimated output of its nuclear power programme at that time. Eric acknowledges! this, saying Argentina bought not only black market technology, but was buying mostly plutonium at the beginning of its involvement in the nuclear black market.

It was Israel, says Eric, which originally set up the black market. As long ago as 1965, 250 kilos of enriched uranium were diverted to Israel from an American plant. Israel has also long been suspected of several other diversions including, according to the documentary, the 1968 hijacking of a ship carrying uranium.

In fact that case, known as the "Plumbat Affair", involves more than mere "suspicions". It is now generally acknowledged that the highjacking, in which 200 tonnes of concentrated uranium were stolen, was carried out by the Mossad, the Israeli Secret Service (see WISE NG 281.2833). By the time the Israelis had obtained enough material to carry out their own weapons programme, and their own technology was advanced enough not to need the black market anymore, there was a well developed network in place which was not going to just disappear because the Israelis no longer needed it. The people in the middle were not going to simply give up what Eric calls "such a nice operation."

The black market is based in Khartoum, the capital of Sudan, where a quantity of enriched uranium was seized by police last August. The documentary includes an interview Captain Assem Kabashi, a former officer of the Sudan State Security Organisation which provides details of how it operates. Indications are that in addition to Israel, Argentina and South Africa, countries involved in the black market include Libya, Brazil, Iraq, Iran, Syria, *Pakistan and India*. Following the August seizure by the police, Sudanese Prime Minister Sadiq al Mahdi admitted the existence of a nuclear black market and the involve-

ment of prominent Sudanese businessmen - an admission which led to a growing political scandal implicating the Prime Minister's own family; Kabashi, who wrote a series of articles on the Khartoum connection which appeared in the Sudanese Press after the Prime Minister's admission, was arrested, but later secured release through former colleagues in State Security and went into hiding.

Kabashi's articles revealed that the Sudanese dealers involved in these sales, some of whom were his former colleagues at State Security, had contacted a number of foreign countries, including Israel, through a syndicate in Italy. Eric, who says middle-men exist in France, England and Belgium, also confirms the existence of the Italian group. He says the Italians closed a deal for the sale of plutonium some 12 months before the documentary was made. The Italian group also had enriched uranium which they sold later on, as well as the batch of enriched uranium that was on sale in Khartoum in mid-August. In addition to Israel (which bought 2 kgs), buyers in the mid-August sale included, Iran (1 kg) and Iraq (2 kgs). With the Iraq/Iran war now in its eighth year, those countries are locked in a race for the bomb. The technology of weapons manufacture is well known and available to both countries. What they are now concerned with is the acquisition of weapons-grade material.

The documentary says that all together, at least six consignments of black market nuclear materials have passed through the Sudan since 1980. They include 12 kgs plutonium tested by South African experts and supplied to Iraq and a consignment of plutonium sent to an unknown destination in 1982.

According to former US Central Intelligence Agency (CIA) Director, Admiral Stansfield Turner, who was interviewed in the course of the documentary, the [source](#) of the material for the black market is civilian nuclear plants. The documentary further pointed

out that, the most likely area where diversion- could occur is in the commercial reprocessing, and shipment of plutonium, (The danger posed by shipment has been substantially illustrated by the Transnukler scandal in Germany, see *WISENC* 286,2897. *Anumukti* vol. 1 no 4)

Most of the commercial sources for plutonium are now in Europe. Although there has been strong urging from the US for European plants to cut production of weapons grade material, the British, Germans and French have instead made plans for a huge expansion of production, resulting in large consignments of plutonium being transported around Europe, vulnerable to attack or theft. • (Despite its urgings, the US has potentially increased the problem with its pact with Japan which will allow reprocessing of US-controlled spent fuel in France, the UK or Japan, see *WISE NC* 278.2388 and 278.2387.)

Already, at the Dounreay Reprocessing Plant in Scotland, there has been an accumulated loss of more than six kilos of plutonium since 1980. During the same period there was an accumulated loss of over 20 kilograms of high enriched uranium. At the Sellafield reprocessing plant in Cumbria, UK, there have also been regular

shortfalls in plutonium stocks over the years. To compound the problem, the material accounting system- in these plants has a margin of error, which would allow a skilful diverter to remove material so that it would not even be missed. International safeguards to prevent civil plutonium from being diverted are, to say the least, flimsy. The IAEA, responsible for verification that countries have not acquired nuclear weapons, claim so far not to have found any case of diversion of fissionable material. Clearly, their 'safeguards' are incapable of handling the present situation. So how are they going to handle the new situation posed by the projected increase in plutonium production in Europe which will likely mean that there will soon be a surplus on the nuclear black market, increasing the risks even more. As if that wasn't problem enough, what is IAEA or anybody else going to do about an even more frightening new development in the nuclear black market t According to Eric, the "supplying side", as he calls it, is trying to establish a new approach which would be to manufacture kits with everything you need to assemble your own bomb. You could buy it "lego", he says. *Couttsev : WISE News Communiqué*

Nuclear Policy Thy Name is Hypocrisy

For about two decades after Hiroshima and Nagasaki, countries which wanted to become nuclear weapon powers were frank and honest about their intentions. The United States, the Soviet Union, Britain, France and China assertively developed their nuclear weapons programmes. Even Sweden declared its intention to become a nuclear weapons power but it gave up the programme under US pressure as well as because of the rising anti-nuclear popular sentiments in Sweden.

The US pressure on Sweden to desist from making nuclear weapons illustrates the beginning of the non-proliferation regime and its exact opposite; namely clandestine nuclear

weapon programmes by various countries. The cause of the horizontal non-proliferation was espoused by the super Powers and their allies because, by the late 1950's, they came to realize that nuclear deterrence was a "two person game"; the entry of a "third 'person'" completely destabilized deterrence even for the two primary players. Britain and France could somehow be accommodated in the US "person" but China, having split from the Soviet Union, could not be. Hence strenuous attempts were made to prevent China from developing its nuclear weapons but they were not successful. Both the super powers reluctantly accepted China's entry into the "nuclear club" but they

redoubled their efforts to prevent any further 'proliferation. That left clandestine development as the only way out for nuclear ambitious countries.

The ambitions of such countries are difficult to check despite the best efforts. The first attempt came in the form of the Nuclear Nonproliferation Treaty; non-nuclear countries were induced to join it through a mixture of inducements and threats. But several refused to sign the Treaty giving highminded reasons. This was followed by the imposition of International Atomic Energy Authority (IAEA) safeguards on countries which wanted to build nuclear power stations. This regime was further reinforced by a group of 12 countries coming together (informally called the "Club of London") which prevents the sale of nuclear materials outside the IAEA safeguards regime. All such efforts have registered only a limited success.

The most difficult problem about preventing proliferation is that the technologies for nuclear power generation and for producing weapon-grade fissile material are almost identical. While nuclear weapons have generally evoked feelings of horror, the generation of electric power based on the heat generated by a nuclear reactor has been largely accepted as benign and desirable. In countries such as ' India where the potential for developing coal or oil based thermal power or even hydro-electric power is limited, nuclear power generation .is considered by some as the only way out if the growing energy needs of the country are to be met.

In recent years, nuclear power generation has been subjected to a great deal of criticism. The per kilowatt hour capital costs of nuclear plants are escalating rapidly. Safety has always been a problem but since the Three Mile Island near-disaster and the Chernobyl actual disaster, public anxiety about nuclear power plants has grown tremendously. The storage and disposal of nuclear wastes from the plants is

becoming a pressing problem as nuclear power stations grow in number and run for longer periods. Above all, some plants are now approaching the end of their useful life and the problem of decommissioning them have yet to be solved; even after entombment", they may have to be guarded for the next 2000-3000 years For all these reasons, ambitious plans for nuclear power (generation are being cut down drastically in the industrialised countries. In 1974, the plans envisaged the production of 4.45 million megawatts of nuclear power generation by the year 2000. But now the projection has been cut down to 0.4 million megawatts or less than 10 % of the original target. Some countries are cancelling all the new plants on order.

But the turning of the nuclear energy tide is taking place only in the highly industrialized countries. In the Third World, the expansion plans remain unaltered. In India, for example, the Atomic Energy Department is determined to go ahead with its plans despite horrendous cost-escalations, very serious time-lags, enhanced doubts about safety and the mounting problems of nuclear waste management.

If power generation were the sole objective, it can be achieved relatively quickly and efficiently by building the plants with foreign technology under IAEA safeguards* This the Government of India has ruled out for future plants. The high-minded principle behind this is self-reliance and rejection of discriminatory treatment. These are laudable principles but they are evidently not applied to other sensitive areas. For instance, the high technology weapon systems in the armed forces are almost wholly imported. High-speed computers are imported despite discriminatory conditions.

If power generation is the only aim, why the tremendous secrecy surrounding the operations of the nuclear plants In fact, except for the locations of the plants and their generating capacities, no other important detail is made known. The size of the uranium stockpile, the

quantity of plutonium generated and of Pu-239 separated from the burnt fuel, even the total quantity of heavy water available and their sources are matters of speculation. The government- has also resisted the establishment of an independent regulatory authority. Power generation should be at least minimally a commercially viable activity but in India it is treated like a military undertaking where money and other resources are sunk for such intangible benefits as technological self-reliance, national prestige, etc.

Obviously, power generation and other peaceful, applications of nuclear energy can not be the sole aim. Our leaders are, of course, perfectly aware of this although they steadfastly maintain the public posture of peaceful uses. Occasionally, we get a glimpse of the truth such as when Rajiv Gandhi declared in Paris in 1985 : "If we decide to become a nuclear power, it would take a few weeks or a few months". Such a switch from peaceful use to warlike applications within "a few weeks or a few months" is possible because "peaceful use" takes a country nearly nine-tenth of the way to acquiring usable nuclear weapons.

There are at present two routes available to operate a "dual purpose" nuclear technology which can yield energy or weapons or both. The first route followed by the US and many other countries uses enriched uranium in a light water reactor. Tarapur is one example of this. In this method, the uranium metal is first "enriched" by separating the fissile isotope U-235 from the non-fissile U-238 and increasing the concentration of U-235 to about 4-5% which is then used as a fuel in the reactor. This is an expensive and difficult technology but if mastered, it enables an enrichment to levels above 90%; this is weapons grade material.

India has taken the second route. This uses natural uranium and the reaction is moderated with heavy water. The two major advantages of

this method are that (a) it yields Pu 239 (U 238 is converted to Pu 239 due to irradiation); and (b) the reactor can be recharged with fresh fuel while in operation. Weapons grade Pu 239 can be produced by separating the Pu-239 chemically from spent fuel. This is a relatively cheaper method than the uranium route. What is more, a lesser amount of Pu-239 is needed than U-235 for making a nuclear weapon. The plutonium route is, therefore, the preferred route for a clandestine weapons programme..

Once fissile material has been obtained in sufficient quantities, the identity between the peaceful and weapon production technology ceases. The production of the weapon itself is an area of explicit military technology; Rajiv Gandhi's reference to "a few weeks or few months" was about this part.

Nuclear power generation, particularly by the natural uranium-heavy water route, allows sincere declarations of "peaceful use" which can not be challenged on technical grounds. Similar declarations about the space programme also can not be challenged on technical grounds because rockets used for peaceful applications and warlike purposes are almost identical. Only the last stage differs in terms of pay load, guidance, re-entry capabilities and so forth. Until the two programmes are demonstrably married, it is possible to maintain with a straight face that both are devoted to peaceful uses.

But it is not all a matter of maintaining peaceful pretenses. The nature of nuclear fission technology is such that nuclear plants, even if they do not produce bombs, are themselves bombs of a deadly nature. This is not only because they may blow up for some non-nuclear reason. They become bombs in the event of an enemy attack on them. Such an attack need not be one with nuclear weapons ;a conventional attack is just as deadly. Almost everything in a nuclear power station is

radioactive. The quantities involved are many orders of magnitude larger, than the radiation released by a bomb, (people have returned to Hiroshima and Nagasaki but decommissioned power stations must be entombed for 2000 years.) Moreover, nuclear power plants are generally built in clusters; in that sense they are like nuclear ammunition dumps.

Modern conventional penetration bombs can break through thick concrete shielding. The Osiraq reactor in Iraq was destroyed by Israel in a conventional attack. Locating the nuclear power stations away from the border with a hostile country will no longer guarantee safety because long-range missiles are being developed or acquired by many countries and there is no real defence against them.

All in all, nuclear power plants, contrary to the pious declarations of "peaceful use", are not only dangerous in themselves but they lend themselves to warlike uses. Moreover, they are attractive targets for attacks, by an enemy who has no nuclear weapons but can convert the plants themselves into nuclear bombs on one's own soil. Why then is the fiction of "peaceful uses" maintained? It does not fool other countries. Perhaps the political leaders and their scientist allies believe that their ignorant fellow-citizens can be more successfully fooled.

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"Usual Occurrences"

According to a report by the British Royal Navy, more than 700 "incidents" took place on British submarines powered by nuclear reactors during their first 16 years of operation (1962-1978). The "incidents" ranged from faulty routine tests and minor errors of seamanship to the kind of accident which nearly crippled HMS Resolution, a Polaris submarine, at the Scottish submarine base of Faslane on the Firth of Clyde. The 'Resolution' incident was described as a "little fault" by the British Defence Ministry, but the Resolution's reactor was actually within minutes of "dis-figuration", the first stage of a core melt-down, before the crew succeeded in reactivating the cooling system. One of the crew members involved had to be scrubbed down for 24 hours after exposure to radiation resulting from the accident.

An analysis of 435 of the 712 incidents, carried out at the nuclear department of the Royal Naval College at Greenwich, found that 205 accidents

were caused by mechanical problems, 107 by operator error, and 123 by primary or secondary electrical faults, presumably not unlike the "minor electrical malfunction" which occurred on the Resolution. Captain Jim Bush, a nuclear veteran now working at the Centre for Defence Information, a private US think-tank frequently critical of Pentagon policies, estimates that perhaps a dozen of these incidents resulted in the release of radioactive material.

A typical submarine reactor can generate 70 million watts, enough power to run a city. However, safety measures for reactors at sea are not as strict as those for nuclear plants because danger to the public is considered to be less. At the British base at Plymouth, for instance, the safety-zone for any reactor accident is only 500 meters wide. To compound problems, safety of the ship itself and the perceived need for speed and endurance leads those in charge of operation to maintain power

at tea in circumstances when a land-based reactor would be shut down.

The dangers caused by these "swimming reactors" have been neglected by the anti-nuclear movement for too long. The leading naval powers now have between them nearly 400 nuclear-powered warships. Canada, India and Brazil also have plans for nuclear powered vessels. In fact, in addition to the third of all nuclear weapons that are sea-based, more than half of the nine hundred reactors on earth are somewhere on the seas.

The US Navy has already lost one nuclear-powered vessel and according to the Guardian (the British newspaper which released news of the Navy's report), the Soviet fleet has "almost certainly lost several in addition to an accident when missile fuel blew up

Inside a nuclear submarine off Bermuda in 1986." Meanwhile, the Pentagon claims that "in over 3,100. reactor years of US naval reactor operations there has never been a reactor accident or a problem resulting in fuel damage." (The loss of a reactor along with a ship doesn't seem to count as a "reactor accident"...) But according to William Arkin, a defence analyst at the Washington-based Institute for Policy Studies, sources within the US navy admit to serious incidents in nuclear submarines, where crew members have been hospitalised and submarines required to surface to deal with reactor problems. In relation to the Soviet fleet, Arkin estimates the rate of significant incidents at 200 over 10 years.

*Source : WISE News
Communique :
289.2940.*

NUCLEAR DUMPING

The Irish environmental organisation, Earthwatch, has called on the Irish government to use the London Dumping Convention to prevent Britain from dumping obsolete nuclear submarines off the south-west coast of Ireland. According to the Sunday Press (Ireland, 24 Jan. 1988), the British government is considering filling the submarines with concrete and dumping them, complete with their 850-ton reactor units, on the seabed.

The problem of what to do with old, nuclear-powered submarines is becoming ever more pressing. Britain's two Valiant Class submarines will have to be scrapped in the next four to five years and the four Polaris "R." class vessels are due to be phased out in the next ten years. The most urgent, however, is the already obsolete 3,000 ton HMS Dreadnought, currently lying in a "secure berth" at Rosyth, on the east coast of Scotland. - The 40-year old vessel was formerly powered

by an American-built pressurised water reactor, which is still on board. The alternative to establishing a radioactive cemetery conveniently distant from Britain is to store it on land in Britain, a strategy which would also meet a lot of opposition. It has been estimated that the cost just to remove the reactor would be in the region of 15 million Pounds and this takes no account of the huge expense that would be involved in transferring it to a safe burial site-if such a thing could ever be constructed.

Under the London Dumping Convention, a moratorium on all dumping of radioactive wastes at sea was introduced in 1983. However, the British government argued that the moratorium was non-binding and intended to go ahead with its dumping plans for that year. At that time, the British National Union of Seamen refused to handle the waste. However, a union embargo would not prevent the proposed dumping of nuclear submarines, which

Would be carried out by British Navy.

Earthwatch is calling on the Irish government to seek international support before the next meeting of the London Dumping Convention (3-7 October 1988) for a fully binding moratorium on nuclear dumping. Already a proposal has been put forward by Nauru, a tiny Pacific island nation, calling for all radioactive substances to be placed on Annex I of the Convention. This is the so-called "black" list of substances, dumping of which is banned in all circumstances. As this would involve an amendment to the Convention itself, it would require a two-thirds majority of the countries represented.

According to Earthwatch, over 150,000 tonnes of radioactive waste has already been dumped at the North Atlantic dump site approximately 400 nautical miles to the south-west of Ireland. The most conservative estimates suggest that over 1,000 deaths, cancers or major genetic deformities among present and future generations will result from this waste, peaking in about 80 years.

John O'Halloran of the Irish National Cooperative Council, which has also urged the Irish government to protest about the plan, believes that the dumping plan has been prompted by a recent medical survey of 60,000 Scottish children. Of 43 cases of Fife, twelve were in Rosyth, where HMS Dreadnought is berthed. Fifteen cases were found in the neighbouring village of Levenmouth.

An Earthwatch spokesperson said, "Dumping of nuclear waste in the oceans causes cancers and genetic defects among populations who receive none of the benefits of nuclear technology. Earthwatch believes that all radioactive waste should be stored on land in the country in which it was produced. The nuclear industry must face the reality of what it has created. The British proposal...is based on domestic political consideration rather than environmental or radiological criteria. Instead of reconsidering the ocean option, the British government should respond to the inevitable public opposition to land-based disposal by scrapping its nuclear programme.

Source : WISE News Communiqué.

•Half-Life'

The Marshall Islands are a part of a complex of 2000 islands in the Pacific that collectively comprise Micronesia, inhabited by 160,000 indigenous 'native' (Adivasi) people. During the second world war, these islands were occupied by the Japanese. After the war, they were taken over by the U.S. as U.N. mandate territories. Today, strategically they are important bases for the U.S. domination of the entire Pacific region. In addition since the first 'human testing' of the atomic bombs on Hiroshima and Nagasaki, the U.S. has used Marshall Islands in particular as a site to test its latest weapons of mass destruction. The same

is true of the French who first began nuclear testing in North Africa in early 1960 s. After Saharan independence the French just shifted their testing site to their possessions in the Pacific-Moruroa for example, where they continue their business as usual even to this day. The Americans justify their actions by pointing to the fact these islands are inhabited by only a 'few' people. As Henry Kissinger said, "There are only a hundred thousand people out there. Who gives a damn "

Editor's Note : The same attitude is characteristic of all nuclear weapon's powers. It is also shared by exploders of 'peaceful nuclear devices'.
Due

a the feat of 'fall-out' nuclear testing can only be done in very sparsely populated regions. These places are populated by Adivasis who anyway have very little political voice - who don't count a damn. In fact, not only nuclear weapon's testing but the whole nuclear fuel cycle, from uranium mining to nuclear waste disposal is an assault on Adivasi existence. We shall document this in future issues of *Anumukti*.

Dennis O'Rourke, an independent Australian film maker has made a powerful film titled *Half-life*. It deals with the effects on the Marshall Islanders of the first U.S. open air hydrogen bomb test in 1954, code named "Bravo". He has used declassified U.S. documents and direct interviews with the personnel involved in monitoring weather conditions for the test, to show that the indigenous population was deliberately experimented upon and used as radiation guinea pigs.

For forty-eight hours the people on Rongelap island were told nothing about the radiation effects of this first 'dirty' hydrogen bomb. The children,, who had never seen snow, played in and with the white radioactive fall-out-snowflakes. Soon after this first exposure men, women and children started becoming sick. The U.S. medical and military authorities deliberately kept people in the dark, reassuring them that their land, waters, fishing and food were not contaminated. This, despite the evident symptoms of radiation sickness.

For three years, from 1954 to 1957, U.S. forcibly exiled the Rongelap Islanders to other islands in the region. They were permitted to return and 'live' on their island thereafter. Over the next years, the awful consequences of radiation contamination were passed on through the biological chain. Numerous women either aborted or had malformed children. Even after their return in 1957, the Rongelap women still experienced a stillbirth and miscarriage

rate twice that of other Marshallese women who had not been exposed to the fallout. Of the twenty-two Rongelap children exposed to the fall-out, nineteen have had to remove thyroid nodules surgically. All the while the authorities were pretending that this was nothing abnormal.

The title of O'Rourke's film aims to capture the fact that radiation effects last forever in nature. In physics and biology, a 'half-life' is a unit of calculation for the period of time required for a quantity of radionuclides to break down by half. In reality however, calculating 'half-lives' is a way of institutionalizing permanently damaging effects. The film captures very well the destruction of the indigenous Marshall Island's culture by technological totalitarianism. It brings out the contradiction between two incompatible ways of life. One based on imperial arrogance-your land is ours and that we have a right to dominate, manipulate and even destroy you, your resources, your relation to land and nature in our God-given interest, as we conceive that interest. The other based on a radically different, harmonious relationship with nature.

After suffering the irreversible physical and social effects of this radioactive 'half-life', the Marshall Islands' culture is no longer viable. Just as the natural soil, sea and water systems are in decay,so is their culture of integrated harmony with nature. In addition to the physical and biological effects of the 1950's tests which continue to this day, there are also equally traumatic psycho-social effects : the region's suicide rates, for example, are among the highest in the world. The people have no sense of meaning in their lives because they have literally been dispossessed, uprooted from the natural condition of existence. In particular, far from being able to sustain any form of natural economy, the people remain dependent-for their very existence on imported U.S. Junk - literally Coca-Cola and McDonald's hamburgers. One of the

things to moving about 'Half-Life*' is the portrayal of how, from defensive necessity, in order to survive, the indigenous victims have to adapt to these antinatural conditions.

In the United Nations trusteeship agreement under which the administration of the Marshall Islands was handed over to them, the U.S. government had pledged: "To promote the social advancement of the inhabitants and to

this end shall protect the rights of and fundamental freedoms of all elements of the population without discrimination; protect the health of the inhabitants''

Sources : Interview of Patrick Flanagan by Jenny Dowell for the Barcelona periodical *Integral*. (*The Monthly Review* January '88)

H. Wasserman & N. Solomon : *Killing Our Own* Dell Publishers '82

The Spirit of Belau

Belau is a group of about two hundred islands 800Km. east of the Philippines in the Pacific Ocean. Belau with a population of just 15,000 people has become famous for being the world's first nation with nuclear free provisions written expressly into its constitution. But this is exactly the reason why this small Pacific island is no longer pacific.

Belau was a Japanese base during world war II. In 1947 it was placed under U.S. administration as a United Nations trust territory. It became a republic in 1979. It was the first country to have a nuclear - free status written in the constitution. The constitution was adopted by a 92% vote in a referendum. The clause guaranteeing the nuclear-free status could only be overturned by a majority of not less than 75 % in a referendum.

The Pacific Ocean has become a testing ground for nuclear explosions and missile tests in the last few decades. With the 'fall' of Indochina, the Philippines and Guam remain the only U.S. strongholds in East Asia. Among these, the fate of the bases in the Philippines whose status is being renegotiated is uncertain. There has been a rise in antinuclear sentiment in the Philippines and its senate has voted strongly in favour of a nuclear-free status. Thus, Belau-a tiny island with a small population, which can be pressurized easily, has assumed importance to U.S. military planners.

Unfortunately for them, the nuclear-free provisions in Belau's constitution

prevent the development of a base at which nuclear powered and armed ships can berth. However, such niceties have never prevented the military anywhere and especially the U.S. military from getting what it wants. To them, the Pacific Ocean has always been an American lake.

Hence, since 1979, economic and political 'screws have been tightened' by the US. President Haruo Remeliik, who was a strong supporter of the constitution was murdered in March 86. The new president, Lazarus Sali declared a state of financial emergency and fired two thirds of the government employees without pay with the promise that they would be reinstated with back pay after the amendment of the constitution. Other pressure has included cuts in electricity, water and hospital services. The homes of several pro-constitutionalists have been fire-bombed. The referendums to amend the constitution have been held repeatedly (8 so far), Extreme right-wing organisations like the Unification Church and the World Anti-Communist League have extended their activities to Belau.

The latest referendum was held on August 4, 1987. in an atmosphere of mob violence. In it 71% voted for a constitutional amendment to eliminate the provision which said that a majority of 75% was needed to amend the constitution. So on 21st August 1987, a simple majority was sufficient to overturn the nuclear-free provision in the constitution,

The legality of this referendum was challenged in the courts by a group of women elders under the leadership of Gabriela Ngirmang. This suit was, however withdrawn shortly due to intimidation of the plaintiffs and witnesses. Only after receiving assurances of protection from the U.S. congress, the suit was refiled in March '88. On April 23rd Judge Robert Hefner ruled in favour of the women elders and held the constitutional amendment invalid.

It is not known what happens next. As an American television commentator said, "if Belau is allowed to retain it's nuclear free status, it could spread like a virus throughout the Pacific and that would be against the U.S. national interest." The fight shall go on. The spirit of Belau lives on.

*Sources : Kalinga Senaviratne in Lanka Guardian X, 20 (15.2. '88)
WISE News Communique no*. 295, 293, 291, 290 & 278.*

Already Off The Brink ?

Little more than a year ago, in March '87, Dr. Abdul Quader Khan comprehensively beat us 'all ends up' with a googly or was it a chinaman. Pakistan's Bomb was announced not with a bang but an interview. The spate of confirmations, denials, counter-denials followed by border belligerence and cricket diplomacy was enough (as intended) to confuse almost everybody.

So, what is the situation with regard to the South Asian bombs Has the starter's gun already blown for the nuclear arms race in the subcontinent Unfortunately, as is the norm in everything about ourselves, one has to turn to foreign sources for information.

According to Mr. Leonard Spector, who has been compiling an annual report on the nuclear scene in the threshold countries, for the Carnegie foundation, the answer is yes.: there are bombs in the basements of both countries. Though neither country according to him has as yet taken any steps to 'operationalize' nuclear weapons.

Dropping a nuclear bomb from an aeroplane calls for special procedure. After zeroing in on the target area, the aircraft must go into a steep climb immediately after releasing the bomb and turn sharply backwards to escape the after effects of the blast. This being the case, any country planning to use bombers for this purpose would have to set apart men and machines for this purpose. Pilots will have to be selected

for skills and political reliability. The earmarked aircraft will have to be segregated and specially protected. A special chain of command will have to be created between the ultimate political authority and the designated unit. Training will require dummy bombs exactly duplicating the size, shape and weight distribution of the nuclear device. It is doubtful if all this can be kept secret from several intelligence agencies which are undoubtedly looking for tell-tale signs. This suggests that neither India nor Pakistan has yet moved to the stage of putting nuclear devices into operational arsenals - unlike Israel which has certainly inducted nuclear weaponry into its armed forces. Mr Spector goes on to assure us that, "I would be surprised to find any Indian or Pakistani military personnel playing at this stage any role in nuclear preparations. The nuclear establishments in both countries are, so far, the only ones involved along with political authorities. My fear is that the current situation of a developed, but not operational nuclear capability wouldn't last". The ambiguity about what each has in mind may compel the other side to assume the worst, and take its own steps accordingly. This might create an unintended chain reaction which relentlessly pushes both beyond the nuclear threshold.

What does having bombs in the basement mean *i*

In India's case it means that work has gone on in refining bomb design - miniaturizing the warhead to permit fitting to a missile. The plutonium needed to make the bombs is already available in plenty and so is the knowhow to convert it into bombs. However, there is no hard evidence of a programme for the production of a nuclear arsenal. Some people though, in the U. S. intelligence community have suspicions that India is building at the rate of 20 bombs per year.

By mid 1986 onwards, weapon's grade enriched uranium first became available to Pakistan from the Kahuta enrichment facility. It is estimated that by early this year enough has been accumulated for four to six bombs.

Along with nuclear energy the other high-tech frontier area with lots of 'peaceful' applications is space

technology. India has already successfully tested its own indigenous surface to surface missile 'Prithvi' with a range of 250 Km. Pakistan has access to Chinese M-9 missiles which have a 600 Km. range. China has sold the missile to Saudi Arabia and has shown it at air shows with the purpose of selling to anyone interested. A marriage of these two 'peaceful' technologies is not difficult to arrange. It would mean that cities like Delhi, Lahore, Bombay and Karachi amongst others would be just a few minutes away from oblivion, with no other defense except the mutual good sense, maturity and the survival instincts of their respective political leadership. Good night and sweet dreams.

Source : "South Asia's N-bombs not yet operational" by Dilip Mukherjee, Times of India July 8,1988.

Anatomy of Nuclear War

The date August 6, 1945. The Place - Hiroshima, Japan.

"No one could understand what had happened. Thousands began to flee the city. Most of them seemed to be hurt or maimed. Eyebrows were burned off, skin was hanging from faces and hands many were vomiting. Almost all had their heads bowed, looking straight ahead, were silent and showed no expression whatsoever. In general, survivors that day assisted only their relatives or immediate neighbours, for they could not comprehend or tolerate a wider circle of misery.

Towards evening the streets became quieter-, "Now not many people walked in the streets but a great number sat and lay on the pavement, vomited, waited for death and died." Even now there was no organised help; masses were dead, masses were dying. "They all felt terribly thirsty and they drank from the river. At once they were nauseated and began vomiting and they notched the whole day" There were a few people who were capable of helping others. Survivors that evening noted that the asphalt on the streets was still too hot to walk on with comfort. Two men noticed "a pumpkin was roasted on the vine", which was eaten. Potatoes under the ground were found to be baked and were gathered for food. Many desperately ill

survivors found their way to the sand pits on the river deltas. The tide was coming in. Many were too weak to move themselves but were helped by exhausted survivors. "He reached down and took a woman by the hands, but her skin slipped off in huge glovelike pieces." Others were moved up the sand pit but the following morning they had gone as the tide had come higher than expected. Hiroshima, by John Hersey.

Today, with the "live" experience of Hiroshima and Nagasaki a great deal is known about the medical consequences of a nuclear attack. A nuclear bomb explosion involves blast effects, heat effects, and the effects of ionising radiation. The proportions of these effects can vary depending on the size and nature of the bomb. For example, in the neutron bomb (the 'capitalist' bomb which kills people but does not damage property) the blast and heat effects are greatly minimised while the radiation effect is greatly enhanced. But in the 'normal' nuclear explosion, some 50 per cent of the energy goes as shock waves or other blast effects, 35 per cent as heat and 15 per cent as radiation. The range of these effects will be different if the bomb bursts in the air (blast and heat range will be greater) than if it bursts on

the ground (radioactive deaths, fall out etc, will be greater) or whether it explodes underground or underwater.

A sufficiently high overpressure (blast effect) on the human body will lead to rupture and haemorrhages in the lungs, air embolism and rupture of the gut and ear drums. In addition blast effects on buildings etc, will indirectly create many more human casualties through flying projectiles and falling debris etc.

The fireball of a nuclear explosion (small one) will look brighter than the sun at noon to anyone within a 50-mile radius of the explosion. To anyone looking at the fireball there is great likelihood of retinal burns leading to permanent blindness. The intense heat of such a fireball will raise flash burns of the skin. A partial thickness burn leads to blistering which can become infected. A full thickness burn is where the skin is completely destroyed. In both cases loss of crucial body fluids through the surface of the burn can lead to death. In addition, the explosion will create fires on the ground leading to flame burns which will cause lung damage through inhalation of smoke from a variety of burning materials especially plastic.

After a nuclear explosion comes the radioactive fallout as radioactive isotopes condense on debris and dust to produce the radioactive dustcloud. In the first 24 hours some 60 per cent of radioactive products fall to the ground. This is the early fallout. The 40 per cent which remains can take much longer to fall and can be dispersed over a wide area depending on weather, winds etc. This is the delayed fallout. This radiation causes damage to rapidly dividing cells such as those of bone marrow and the lining of the gastrointestinal tract. When the whole body is exposed one can get radiation sickness which is often fatal. One unit of dose i.e. energy absorbed per unit mass is called a rad and a dose of 450 rads will kill 50 per cent of young, fit adults. A dose of 150 rads will kill 50 per cent of elderly, already ill and children.

In the first form of radiation sickness/the bone-marrow form requires only an exposure of 150 rads. The first symptoms are lethargy and nausea, then nothing for 10 days. Towards the end of the second week there is maximum depression of the white blood cells and platelets which reduces the blood's capacity to clot and stop bleeding or protect against infection.

Spontaneous haemorrhages often develop.

By fourth week many of the victims will die.

If the radiation exposure is high enough then there will be gastrointestinal damage where the cells of the small intestine are damaged. This leads to massive diarrhoea with loss of body fluids, to greater risk of getting septicaemia from bacteria emerging through the damaged lining. If exposure is higher still, then the central nervous system of the body is damaged leading to convulsions, coma and death in a few hours. If the victim survives, there will be gradual loss of mental and physical faculties which then results in death in a few days.

Where radiation sickness does not lead to death, it can destroy or damage fetuses in pregnant women. Brain damage was found in many children whose mothers were less than 15 weeks pregnant in Japan when the bombs fell. Small skulls (microcephaly) occurred in 44 per cent of surviving children and 16 per cent were severely mentally retarded. The pregnancy of stillbirths and post-natal infant deaths rose dramatically.

The longer term effects of radiation through delayed fallout affect those not directly affected by the explosion. In these cases, radioactive isotopes are ingested through contaminated foodstuffs and fluids, by inhalation and occasionally through the skin. Radiation-induced cancers apart from leukaemia (which occurs more quickly) can emerge after a latent period of 20-25 years. Genetic abnormalities and defects can take a number of generations before emerging since gene mutations are recessive.

Even a single bomb of the kind used on Hiroshima and Nagasaki would completely overwhelm medical resources. Quite apart from the psychological damage or the direct/indirect effects of the explosion, there would be a great deterioration in public health standard with sanitation facilities wrecked and incapable of coping with sewage clearance, providing clean drinking water and so on. Thus diseases like dysentery, infectious hepatitis and salmonellosis would be promoted. There would be diseases of overcrowding, meningococcal meningitis, diphtheria and tuberculosis, diseases associated with dirt and vermin such as typhus and in Indian conditions, even plague. Common infections like pneumonia and septicaemia would become killers.

All this would be the *effect* of a few explosions. The effect of a nuclear war is simply unimaginable. The indirect effects would be far greater than the direct effects and impossible to calculate. As far as the environmental damage e.g. to the earth's ozone layer, leading to worldwide and devastating ecological damage e.g. freezing of the temperate regions, submergence of large land masses under water, destruction of a large part of the world's agriculture, excessive ultraviolet radiation as atmospheric protection is eliminated—these are all part of what is now called the "nuclear winter" scenario which could become a reality even if there was a "limited" or "small" nuclear war in a remote part of the world.

In sum for *purely* medical reasons *alone*, nuclear war must never be allowed to occur. No government should contemplate it and it should never be allowed to happen no matter what the circumstances.

Why Nuclear Arsenals ?

Why then do countries go in for building nuclear arsenals ? Why then the insane nuclear arms race between the superpowers ? Why then the attraction that going nuclear has for bomb lobbies in countries like India and Pakistan, which have nuclear weapons capability but have not as yet crossed the nuclear rubicon of openly deploying a nuclear weapons system?

Nuclear war is mind-boggling but precisely because it throws into the dustbin older preconceived notions of war and its possible purposes, so many governments revert back to older forms of thinking in order to cope with the mind-boggling character of nuclear weapons. That is to say, these governments or these nuclear politicians or nuclear strategic experts try to treat nuclear weapons in much the same way as they try to treat and cope with conventional weapons—they try to make nuclear weapons into *viable instruments of a country's foreign policy*. Since the uncontrollable dimension of nuclear weapons means that the use of nuclear weapons for political purposes is not viable (what possible political purpose can be justified by the use of such weapons?) what has become viable is not the use out the threat of its use. This is what is called deterrence. Having nuclear weapons becomes a way of assuring nuclear peace. Despite the universal character of nuclear weapons—its universal effects and the universal

honor at its use—this way of assuring nuclear peace is not the least universal in character or orientation but is strongly nationalist. Deterrence becomes a way in which a nation prevents nuclear war breaking out between itself and another nation having nuclear weapons by *intimidating* it. Thus the foundation of nuclear peace is nationalist intimidation and distrust.

The great importance given to deterrence is ultimately a reflection of the bankruptcy of those who have power in our societies. Nuclear weapons, as Einstein pointed out, should and must lead to a new way of thinking among human kind. Instead, very little has changed in the thinking of power elites. The best way to have nuclear peace say our tough-minded "realists" is to prepare for a nuclear war. What is more, if deterrence is to be credible, the possibility of a nuclear war at least a retaliation of nuclear attack must also be real. Thus, when governments say they do not believe that there can be any circumstances which justify the launching a nuclear weapons, they are either wilfully lying or caught in an insoluble contradiction. If nuclear deterrence for a country's government is to be meaningful and credible, its willingness to launch nuclear weapons must be real in certain circumstances.

Deterrence, then, is a justification for the proliferation of nuclear weapons. There is both horizontal proliferation (more and more countries becoming nuclear weapons powers) and vertical proliferation (the superpower arms race and the other weapons powers adding to their nuclear arsenals). Both kinds of proliferation must be curbed. Such has been the insane logic of deterrence that both superpowers in the name of "national security" and "detering the enemy" have embarked upon such a fast moving escalator of arms development and deployment, that both of them have enormous "overkill" capacities. The end result of this search for nuclear security "has been ever greater insecurity vis a vis each other, and for the world". This is the historical balance sheet of all these years of nuclearly arming in order to keep the nuclear peace.

Finally, with the coming of Gorbachev in the USSR, there seems to be a chance (after three and a half decades of complete barrenness) of the possibility of the superpowers agreeing to a partial and limited disarmament in Europe.

redoubled their efforts to prevent any further proliferation. That left clandestine development as the only way out for nuclear ambitious countries.

The ambitions of such countries are difficult to check despite the best efforts. The first attempt came in the form of the Nuclear Nonproliferation Treaty; non-nuclear countries were induced to join it through a mixture of inducements and threats. But several refused to sign the Treaty giving highminded reasons. This was followed by the imposition of International Atomic Energy Authority (IAEA) safeguards on countries which wanted to build nuclear power stations. This regime was further reinforced by a group of 12 countries coming together (informally called the "Club of London") which prevents the sale of nuclear materials outside the IAEA safeguards regime. All such efforts have registered only a limited success.

The most difficult problem about preventing proliferation is that the technologies for nuclear power generation and for producing weapon-grade fissile material are almost identical. While nuclear weapons have generally evoked feelings of horror, the generation of electric power based on the heat generated by a nuclear reactor has been largely accepted as benign and desirable. In countries such as India where the potential for developing coal or oil based thermal power or even hydro-electric power is limited, nuclear power generation is considered by some as the only way out if the growing energy needs of the country are to be met.

In recent years, nuclear power generation has been subjected to a great deal of criticism. The per kilowatt hour capital costs of nuclear plants are escalating rapidly. Safety has always been a problem but since the Three Mile Island near-disaster and the Chernobyl actual disaster, public anxiety about nuclear power plants has grown tremendously. The storage and disposal of nuclear wastes from the plants

is becoming a pressing problem as nuclear power stations grow in number and run for longer periods. Above all, some plants are now approaching the end of their useful life and the problem of decommissioning them have yet to be solved; even after 'entombment', they may have to be guarded for the next 2000-3000 years ! For all these reasons, ambitious plans for nuclear power generation are being cut down drastically in the industrialised countries. In 1974, the plans envisaged the production of 4.45 million megawatts of nuclear power generation by the year 2000. But now the projection has been cut down to 0.4 million megawatts or less than 10% of the original target. Some countries are cancelling all the new plants on order.

But the turning of the nuclear energy tide is taking place only in the highly industrialized countries. In the Third World, the expansion plans remain unaltered. In India, for example, the Atomic Energy Department is determined to go ahead with its plans despite horrendous cost-escalations, very serious time-lags, enhanced doubts about safety and the mounting problems of nuclear waste management.

If power generation were the sole objective, it can be achieved relatively quickly and efficiently by building the plants with foreign technology under IAEA safeguards.. This the Government of India has ruled out for future plants. The high-minded principle behind this is self-reliance and rejection of discriminatory treatment. These are laudable principles but they are evidently not applied to other sensitive areas. For instance, the high technology weapon systems in the armed forces are almost wholly imported. High-speed computers are imported despite discriminatory conditions.

If power generation is the only aim, why the tremendous secrecy surrounding the operations of the nuclear plants In fact, except for the locations of the plants and their generating capacities, no other important detail is made known. The size of the uranium stockpile, the

any such uncertain process. To establish a "credible deterrent" against China, India would have to embark on a crash programme of nuclear weapons development to make up the 15/20 year technological and deployment gap between the two countries as quickly as possible. Success in such an endeavour is by no means assured. But what can be assured is that such Indian 'efforts would greatly perturb China, and make it more willing to consider nuclear action or the threat of it against India. Such a move would also lead Pakistan to try and nuclearly "match" India and thus enhance the momentum of a regional arms race. There would be greater interaction distrust and hostility and above all, greater nuclear insecurity for the countries in the region—more and more insecurity in the name of the search for security. Nuclear security has to be a *common security* based on the virtues and strengths of disarmament not armament. It is the search for ways to disarm that hold the promise of a safer world not the search for how to use nuclear weapons

in the service of national real politic. The greatest tragedy of the nuclear era is the contradiction between the regionalisation/internationalisation of effects and dangers of nuclear war and nuclear arms races and the nationalised nuclear mind-set of those who are in a position to take crucial decisions concerning nuclear war and the arms races.

While local and regional peace movements can play a vital role in promoting the *process of disarmament and sustaining its momentum, a world completely and permanently safe from the Fear of nuclear weapons cannot be created by movements against nuclear weapons alone. Such a world requires transcending nationalism and national elites in the name of the universal interests of human kind. In short the struggle to create a truly and permanently nuclear free world is an intrinsic part of the struggle for socialism. Without a nuclear free world there will be no socialism. Without socialism there will be no nuclear free world!*

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