

ANUMUKTI

A Journal Devoted to Non—Nuclear India

Volume 8 Number 2

October / November 1994

A Tale off Two Cities

Take two twinned European cities, Freiburg, on the edge of the Black Forest in south-west Germany, and Guildford in Surrey, England, both prosperous regional centres on the edge of fine countryside. Each has a medieval core, and expanding university, a cathedral, theatre, and castle. Heavy industry has hardly touched either city.

Guildford - how to put this kindly - throbs. Its city centre has been brutalised for twenty years by massive developments, and is a chaos for cars, one-way systems, and thunderous traffic. Pedestrians queue for minutes to be given nine seconds to cross the road. There are cyclists in Surrey but they have no human form in Guildford. The only "pedestrianised" street is open to rush-hour traffic. Car culture rules.

Where Guildford hurries and bustles in its chaotic way, Freiburg purrs like a smug BMW. The perfectly preserved medieval city centre is spooky. Where are all the cars? One whole square kilometre of the city has been pedestrianised (this

will be increased soon) and only orderly trams, bicyclists, and walkers glide over the cobbles. A vast open-air market offers a cornucopia of local produce. It is as packed as Guildford's many supermarkets.

To go from most British cities to Freiburg is to be shocked. You can walk all day around this city and talk and think quietly. You need never see or smell a car, or hear much more than cathedral bells. And Freiburg is twice Guildford's size.

Behind this superficial impression of the two cities lie two approaches to local government. As a local officer in Guildford points out, British cities are legally and financially constrained, confined to a narrow range of tasks allocated them by central government. Guildford cannot run its own buses or its own electricity company. It cannot ban heavy traffic, but it can commission traffic reports.

German cities can raise their own taxes, control their own utility companies, run their own transport networks. Ironically, it was the British

occupation authorities after the war who allowed German cities these freedoms.

Freiburg was once an ordinary city of 200,000 inhabitants and really congested traffic. Then a few streets were made car-free. Some of the shopkeepers complained but most of them found that their trade increased, and soon people wanted to ban cars from still more streets. And so it started. Freiburg has since advanced step by step to becoming a model of environmental development, a city that is attracting study visits from practically all over the world.

German cities enjoy considerable autonomy. Freiburg has been able for instance to use its profits from the sale of energy and water to subsidise public transport by as much as 40 per cent. In 1966 it also allowed the municipal tram and railway company to reduce the price of season tickets by 30 per cent in order to provide an incentive for people to use such transport. A year later 23 per cent of the car users had gone over to

travelling publicly and using an "environmental pass," valid for ninety tram, bus, and train lines run by 14 authorities. There was no loss of revenue.

In 1991 the pass was made applicable for all public transportation companies in the region - which meant for 2,600 kilometres of track -as well as German federal railway, and more people switched to public transport. Simultaneously with an extension of pedestrianisation, 400 kilometres of cycle paths were being laid parallel to 65 per cent of the city's roads. Now 26 per cent of all journeys are made by public transport, and 27 per cent by bicycle. It is hoped, too, that private car travel will fall to 33 per cent.

Stiff parking charges, reduced parking spaces, a 30 kph speed limit in the suburbs, and traffic calming on the edge of all residential areas, combined with further investment in the tramway system, have over the past fifteen years cut down car traffic within the city boundaries by almost 20 per cent, as well as reducing accidents by 25 per cent.

Frieburg has done more than deal with traffic. Time-variable charges have helped reduce electricity consumption, and a new heat-and-power scheme, scheduled for completion in 1996, is expected to reduce emissions of carbon dioxide by 20,000 tonnes. Frieburg seems well on its way to fulfilling its aim of becoming the most attractive city in Europe. It has in fact become so popular that it is already having to build a suburb for 10,000 people - naturally an environmentally advanced one, too.

*John Vidal in The Guardian
taken from a condensation in
Acid News.*

From The

Beating the Retreat

I remember in my childhood being taken nearly every year without fail to witness "beating the retreat". There, we would all be seated on durries in front of the Central Secretariat with V.L.P.s seated on chairs at our backs and army bands marching in front. Jawaharlal Nehru would be there and if he had time, he would be playing with us children in 'our' enclosure. And then as the Sun went down behind the towers and ramparts of Luyten's Delhi, the buglers and the drummers would play and the flags would be lowered. The inheritors of British India had inherited not only the raj but the trappings of the raj as well.

The technocrats who adorn the corridors of power in Delhi today probably have no use for such ceremonies to commemorate real events. They prefer to be businesslike and use press briefings. But the drums and bugles which sound the retreat have an unmistakable sound and that sound is discernible even in the dry surroundings of a press note. It is a sweet sound.

Dainik Navjyoti—a Hindi daily from Kota, carried the confirmation:

"The Central Government has given up the idea of building a nuclear complex at Rawatbhata. In addition to the two "working" reactors and two under construction, four units of 500 MW each was planned at the site.

"A spokesperson of the PM's Office, Mr. Bhuvanesh Chaturvedi, told the UNI that Units 3 and 4 of 235 MW each, are expected to be completed one year before the scheduled dated. But the Centre will refuse clearance for Units 5 to 8. Nuclear Power Corporation had asked for permission from the concerned central ministries for its plans to construct four units of 500 MW each.

Is Anumukti and the dream for a non-nuclear India round the corner? Unfortunately no. This is a strategic retreat. Not a change of heart. The reasons which have prompted the power brokers of Delhi to go slower down the path of atomic doom have to do more with inefficiency and unreliability of the atomic enterprise. They are sick of the fact that despite huge infusions of money and talent, nuclear facilities in the country have remained 'sick' units with brand new plants like Kakrapar and Narora having a worse production record in the last two years than twenty-five year old plants like Tarapur. But the disillusionment with the nuclear dream is not with the vision itself. A revival of nuclear fortunes in India is certainly possible especially if foreign nuclear manufacturing firms make a concerted bid in a changed political climate. The task for antinuclear groups is to educate the public regarding nuclear reality, so that the price of any revival becomes unacceptably high for any domestic or foreign dream merchant.

Some Impressions of Surat During the Plague

Surat is the fastest growing city in India. Diamonds and textiles are the two pillars of its prosperity. Out of a population of 2.2 million a majority are outsiders. Half a million from Orissa alone and a larger number from Saurashtra, with substantial contribution from Maharashtra, Rajasthan, Andhra Pradesh, Madhya Pradesh and Uttar Pradesh. The old Surtis have prospered and spread all over, from Bombay and Ahmedabad to New Jersey and California. Since the growth of Surat is a very recent phenomena, most of the old town residents retain small town character: everybody knows everybody else, people are helpful and share each others joys and sorrows.

The demolition of the Babari Masjid in Ayodhya led to a prolonged bout of communal violence in Surat. Many ran away and the industry in Surat took months to recover from that shock. But even that disaster pales in comparison with what has happened this year. In July, three lakh people especially from Saurashtra left because some tantric said that the Ukai dam on the river Tapti would collapse on the seventh day of the seventh month at seven O'clock. Transporters made windfall profits with seats which normally cost Rs. 100 selling for four times the amount. While those who stayed were still laughing at the gullibility of those who left, it seemed that the tantrik would have the last laugh with floods in the river and the Ukai dam tethering on the edge. Although a number of areas of the city were under water, nobody left Surat on account of floods. Those effected moved to higher ground and were helped by voluntary and government efforts. And then within just 15 days, there was (is) the plague. On hindsight the first indications were reports of stray deaths of unknown causes.

Dead Body Found Near Chowk Bazaar State Bank

Surat 20th September, 1994

An unknown young male was found dead at 5.30 P.M. from the footpath in front of the State Bank of India in Chowk Bazaar. It is worth recalling here another dead body of a young man with blood on the face was found near the octroi checkpoint on Palanpur Road. Although more than 48 hours have passed since that happened, the Rander police have yet not been able to identify the victim. However, the new discovery of another bleeding body of a youth have stirred the Athwa Lines police.

Blood was dripping from the nose and mouth of the dead man. P.S.I. Mr. Veerpur examined the body. According to police sources Rupees 1745 was found from the pocket of the youth. A diary belonging to Mukesh Vinubhai was also found. There was a prescription issued by Dr. Manubhai M, Vaghasia of Jai Bhavani Society, Varacha Road.

Dr. Vaghasia on being contacted said that on 18.9.'94, a vegetable vendor who gave his name as Jagdish Dharma had come to his clinic. He had a cold and cough and was suffering from a little fever. After taking medicine this person had not returned for a second visit. The police confirmed that the prescription found in the youths pocket was in the name of Jagdish.

There is a tattoo of the 'love' sign on the chest of the dead man. The police are still in two minds regarding the name of the youth. The body has been sent to New Civil Hospital for post mortem examination.

New Gujarat Times 21.9.1994

Lone Ranger Rides Again

We (Sanghamitra and I) decided to go to Surat on the spur of the moment. There had been number of phone calk from friends here and abroad, worried about our safety and we had reassured them that Vedchhi was far away from Surat. Shri Narendra Zhaveri, a prominent Sarvodaya activist had phoned and asked for three hundred volunteers to undertake cleaning activity in Surat. Sanghamitra had tried to organise this team but the dread of the word 'plague' was such that less than ten people volunteered. But then the collector of Surat had saved us from the embarrassment of having to admit to our inability to help by prohibiting outsiders from coming.

The Center for Disease Control in Atlanta and World Health Organisation together have developed a computer programme called EPI-INFO 6 for analysis of epidemiological data. We had used a previous version of this programme for analysing the Rawatbhata survey data. During the plague crisis, our mail was badly disrupted. But, as luck would have it, we got mail just one day and in it was the new version of the programme. I took it as an omen.

Sanghamitra was reading aloud a strong editorial in Gujarat Mitra which condemned the attitude of doctors who had run away during the crises. Suddenly I felt that we ought to go ourselves and see what help we could render. The rains have made the Vedchhi - Surat road an ideal track for all who wish to take up cross-country motorcycle rallying as a profession, Though not part of this fraternity, we took off on our motorcycle so that we could have extra mobility in case of need in Surat.

The ride was adventurous to say the least. Potholes were large enough for elephants to disappear without trace. But what made the ride most memorable, was the site of masked men on motorcycles. They revived long forgotten images of the 'Wild West' I had formed in childhood by assiduous reading of illustrated comics. But it wasn't all just a kerchief around one's face. Far from it. Plague has led to a flowering of a whole range of fashion in masks. The artistic creativity and the innate business sense of Surtis has found combined expression in mask design. Politicians both local and national, who have come in plenty to get themselves photographed have favoured the sombre 'medical' mask while bureaucrats have preferred a multicoloured contraption which looks as if there was an old microphone taped permanently to their mouth in which they can bark orders. Some have gone in for the 'atomic' look—a mask with a long snout like one seen in advertisement pictures of nuclear workers working in contaminated environments while others have preferred the space walkers helmet. As we were nearing Surat, a car crossed us with all the windows drawn shut and four occupants all wearing blue coloured velvet masks. Even while running away with one's tail firmly tucked in, the jet-set does it in style.

Rumours Galore

We went to Narendrabhai Zhaveri's house. Friends in Bombay had sent a huge stock of tetracycline packed in large bags and the whole family was engaged in making small packets containing 40 tablets each so that they could be distributed easily. They had already been to the worst affected area—the slums around Ved Road—and had talked to residents, identified suspected patients and persuaded them to go to the civil hospital, and distributed drugs to the relatives who needed to

both go to the hospital and take care of the family at home.

Everyone we met in Surat was eager to talk about the night it all began. "The telephone was ringing the whole night." There was a rumour that the water supply had been poisoned and everybody was telling friends and relatives not to drink the water from the municipal supply. Dr. Minoobhai Parabia had the funniest experience. At three O'clock in the morning he was awakened by the phone which turned out to be a wrong number. But the caller hadn't hung up. "The water is poisoned. Don't drink it." "But I and also my children have been drinking the water from the tap during the night and nothing has happened to any one of us." "Never mind, just listen to what I say. DON'T DRINK THE WATER."

Their Finest Hour

The South Gujarat Chamber of Commerce had set up a control room which would gather the latest information regarding hospital admission figures, deaths etc. and help disseminate this to the public. Manned entirely by enthusiastic volunteers, it provided a fine example of what voluntary effort can achieve in contrast to the fear stricken immobility of official bodies. Quite often, Nikunjhai Desai and Nikhil Madrasi, the control room volunteers had to deal with unexpected situations.

A woman's voice: "Hello is that the control centre? Could you please tell me how many patients from Udhana have died since yesterday.?" "Well, nobody from Udhana in today's list, Till now a total of 42 people have died. Mostly they are from Ved Road and Katargam areas. A total of 436 patients have been admitted till now but I don't have an area-wise break-up for those." "I live in this society building and I am all alone. Everybody else from

our society has run away. I am feeling afraid. What will happen to me?"

"There is a dead pig lying on the street in front of our house. How to getridofitr
"Why don't you try burning it. Just pour a bit of petrol or kerosene and light it. Once it catches fire it would burn because it has a lot of fat in it." "It is a pig. Who knows there might be a communal riot if one burns it. Can't you get some corporation guy to come and get rid of it." "Hold on a minute, I will try them on the other phone. Hello, is that the Solid Waste Management Department? There is a dead pig at... "What can I do if there is a dead pig? There is nobody here." "Well, the first thing you can do is to note down the address. And the next thing would be to send somebody down there whenever available. Now tell me when can your person go there?" "Hello, are you still there? A person will come around 10.30 tomorrow morning for the pig." "Tomorrow morning ! Man it is a dead pig and it is stinking. Can't you do something right now?" "No, I can't do anything better from here. But you can do something. Burn it."

The Best of Times The Worst of Times

Estimates vary of the number of people who migrated out from Surat during the scare. Some say 3 lakhs, others 8 lakhs. Doctors were universally condemned for their lack of 'courage'. However, amongst this group of deserters were a lot of quacks who masquerade as doctors. But it wasn't only the doctors who made a bee-line out of Surat. Government officials were no less fleet-footed. The District Information Centre is a fully computerised set-up meant to provide up-to-the-minute data. We went there to get census information regarding Surat, that

would help us in our statistical analysis regarding the spread of the disease. The door was open and lights and fan were on and on a desk by the side of the wall were a set of computers, but there was nobody in. We waited for a few minutes for somebody to turn up and then went to an adjoining office, where one person was working. 'Dh, nobody has come to that office for the last three days. The officer, Mr Chavda, is from Saurashtra and has probably gone there. Come next week or may be the one after that and you might get what you seek.'

Those who did not give way to panic and stayed were usually, full of good cheer and extremely helpful. We wanted access to a computer with a three and a half inch floppy drive. Within an hour, we had a choice of four computers in different parts of the city and Mr Gelani a computer shop owner drove miles at ten O'clock in the night to get us the required floppy drive. But getting a room where one could work undisturbed was a bigger problem. Dr, Girish Shah, whom we just met at the control centre, solved the matter by calling his friends at Arun Printing Press. "Dr. Gadekar has come to help us organise the plague data. You will not only allow him to use the computer but the telephone as well and also feed him." But Kalpeshbhai at the press went far further. "Anything you want printed, just tell me. The press is closed at the moment because my workers are absconding but for you I will operate it myself. I offered the District Commissioner to print any amount of plague related material free of cost on my own paper, but those guys don't want any 'outside' help."

An Attitude off Distrust

The establishment distrust of voluntary efforts was palpable. A number of private doctors told us that, "We have offered the civil medical authorities any help they want, but

the answer is always the same. No, thank you. We dont want you here. We are quite capable of taking care of this problem ourselves." Even efforts by organisations such as the Jaycees to send food for junior doctors and nursing staff who had been put on eight-hour-on eight-hour-off shift, were rebuffed.

There were only three persons who reported for work in the Preventive and Social Medicine Department. Dr. Vikasben Desai was one of them. "If you want we can give you a copy of "the EPI-INFO programme. We can also help with the data entry." "Research is not done by getting emotional. Let this thing die down and then there will be plenty of time for doing research. I have ordered a computer. But it needs copper wiring. This 3 metre portion has not been wired still. And now, with the plague, I don't know when the person who does the wiring will come."

Rule Britannia

Any suspected case of plague was required to report to the New Civil Hospital. During the first few days after the scare, there was absolute anarchy A number of patients some of whom were seriously sick and many who were not, had simply absconded when transferred to the plague wards. The press had reported all this. However, by the time we went to Surat, order had supposedly been restored. There were hefty men in blue and brown camouflaged suits all over the place and the entry of journalists had been 'banned'. The first sight that greeted us at the hospital was that of a foreign photographer bent over her camera and these guards ordering patients seeking admission to stand in a group, so that she could get the 'shot' she wanted.

The Greatest Need

The most vulnerable group were the relatives of patients. They were

not only looking after the patients but were also going back and forth between their homes and the hospital for cooking and taking care of the family there. Most of them had not been told at all of the risks they faced or what they ought and ought not to do. At the time we went, they had received just two tablets of tetracycline which they had not taken themselves but had given them to their young children at home in the hope that the medicine would produce immunity. Just talking with these people and listening to their woes was the first thing that we did. It was by doing this that we realised the need for doing a proper survey so that one could acquire a better understanding of the course and spread of the disease and its response to the various drugs being used.

The 'junior' doctors who were actually looking after the patients were enthusiastic about the survey and helped us prepare a questionnaire. Kalpeshbhai at the press got it printed in a jiffy and by the next day we had also assembled a team of volunteers who would talk individually to the relatives of the patients and fill out the questionnaire. That is when our problems began.

'Senior' doctors were unenthusiastic about the whole project, but nobody wanted to tell us to quit. Finally, we were directed to the head of the medicine department, Dr. Parmar. "I feel this work should be done but my hands are tied. From 12 O'clock today there will be military rule in the hospital and nobody would be allowed inside without the express permission of Shri Bhanujan—the plague commissioner of Surat."

Shri Bhanujan had been posted to Surat after the outbreak of the epidemic and had tried to streamline the administration and take precautionary measures which ought to have been taken much earlier. He was 'out' on rounds most of the day

but we managed to locate him in the evening. His first reaction was negative. 'I cannot allow you to unnecessarily risk your lives by talking to patients.' However, he was quick to grasp the importance of doing what we were trying to do. "I know the administration. As soon as the scare is over all the papers will be filed and the whole thing will be forgotten. No lessons will be learnt. OK I will talk to Dr. Mehta, the hospital superintendent and let him decide on the modalities of allowing you to talk with the relatives of the patients."

However, when we returned to the hospital, Dr. Parmar vehemently opposed the whole idea, with the result that finally Dr. Mehta said to us that the hospital would provide us with the addresses of discharged patients and we could conduct our survey in their homes. This was an ironically funny statement because in most cases, the hospital had not bothered

to collect the detailed address. Also it made no sense to study just the patients who had been 'cured'. Since there was no point in continuing with the exercise, we abandoned the whole project and returned to Vedchhi. We gave a copy of the programme to junior doctors and helped them computerise the woefully inadequate hospital records.

The last two months have been characterised by a controversy as to whether the infection was actually plague. The unscientific approach of the medical authorities and their total lack of concern regarding proper record keeping ensures that the controversy will continue.

Unpreparedness In Disaster Situations

Why have I devoted so much space in *Anumukti*—a journal presumably

devoted to non-nuclear India to recollections about the plague? I feel that preparations for disaster management are non-existent in India and we are not learning any lessons from the disasters that are occurring with increasing frequency. The epidemic in Surat was an opportunity that could have been used to gain information which would have been useful in future disasters. Instead, it was used by many senior doctors merely as an opportunity to buy status-enhancing equipment like computers and intercom. It was a lucky thing that the infection was not very virulent and not many people died. God help us if we ever have a major nuclear accident.

Surendra Gadekar

How Come Tarapur Is Immune to Cracking?

As many as 10 US reactors have developed cracks in steel shrouds surrounding radioactive fuel, a problem the US Nuclear Regulatory Commission says could lead to a meltdown in case of an earthquake.

Cracks were first found last fall in a reactor in North Carolina, but industry officials expressed surprise at the number and the extent of the fractures found in recent inspections.

Seven US reactors have cracks and three showed indications of cracking, according to Boiling Water Reactors' Owners Group, a group of utilities that use the reactors. The Group also found indications of cracking at two reactors in Europe and China.

The cracks could point to problems in other reactor components and

could lead to a meltdown if they shifted during an accident or natural disaster, such as an earthquake, and jammed control rods used to shut-down a reactor, NRC warned.

Anti-nuclear groups say a major disaster could happen at any time, but the NRC and utilities contend that the public is in no immediate danger. "Are they safety problems? Yes, but not of any imminent nature," said Mr. Jan Strasma, an NRC spokesman. "It is difficult to project some force that could cause movement of the shroud." The shrouds are two-inch thick stainless steel cylinders that direct the flow of radioactive water around the fuel core.

Of the 108 working reactors in the US, 37 are of the boiling water type developed by General Electric in the late 1960s.

The two reactors at Tarapur, are the same General Electric made boiling-water reactors. In fact, in the words of an ex-chairman of the Department of Atomic Energy, "they are the oldest functioning reactors of their vintage". DAE officials have categorically said that similar cracks have not been detected in the Tarapur reactors. The question that arises is the following: Is the absence of detection due to the fact that there are no cracks or is it due to faults in the detection process itself? According to the chairman of the Atomic Energy Regulatory Board, Dr. A. Gopalakrishnan, the cameras used for monitoring the surface of the shroud at Tarapur are not able to 'see' over 95% of the area of the shroud.

Rawatbhata Reactors Cause Worry

Atomic Energy of Canada Ltd. says it is worried that two Candu reactors at Rawatbhata could suffer serious accidents, but the agency's hands are tied because of a 20-year stand-off in nuclear relations between Ottawa and New Delhi.

In a letter to International Atomic Energy Agency in Vienna, AECL's president of the Candu division, Donald Lawson, said the reactors could suffer a loss of coolant accident, the same type of problem that beset the Three Mile Island reactor in March 1979 in the US.

Pressure tubes at the Indian reactors, according to data provided by

Indian scientists, appear to be suffering from a condition known as hydride blisters," which could lead to a rupture and massive leaks of heavy water coolant. "The condition in these reactors are such that there is a real potential for a pressure tube rupture to occur at any time," Lawson wrote.

The Candu reactor at Pickering in Ontario, Canada suffered such a burst in 1983 and was shut down for repairs that cost several hundred million dollars. Rawatbhata-1 has had the worst performance of all Candus and both the reactors have been rife with problems including reported radiation leaks. Canadian

expertise was withdrawn from India since 1974, following India's explosion of a nuclear device.

India has expanded its nuclear programme by building clones of Candus. AECL spokesman Mac Keillor said Canadian experts would like to offer more assistance to India, but they are prevented by doing so because of the ban imposed by Ottawa on such aid unless India signs the NPT. The Indian government has denied any problems exist at the reactors, he said.

WISE News Communique 419

The State Electricity Boards Do Their Bit to Keep India Healthy

The Nuclear Power Corporation (NPC), the sole supplier of atomic power to state electricity boards (SEB) all over India, would have been richer by over Rs. 513 crores if the SEBs had all paid their dues on time. As it happens, they haven't for the past several years, bringing the total outstanding to Rs. 513.03 crores till April 30 this year, against a total power sales of Rs. 477.44 crores in 1992-93. (The figures for this year are not yet available.)

Confirming this, Mihir Mitra, director Environment and Public Awareness of NPC said that while most states were behind in their payments, the largest single defaulter was Rajasthan State Electricity Board with unpaid bills of Rs. 198.62 crores, though the state plays host to the Rajasthan Atomic Power Station.

Maharashtra too owes NPC a modest Rs 6.26 crores for electricity sup-

plied partly by Tarapur Atomic Power Station and partly by Kakrapar Atomic Power Station. Mr Mitra said that some of the northern states appeared most reluctant to pay their dues, because of which the worst sufferer is Narora Atomic Power Station with outstanding dues of Rs 286.14 crores. It supplies eight states including Uttar Pradesh, Punjab, Haryana, Himachal Pradesh and Jammu & Kashmir.

To make matters worse, the NPC as a whole is generating only half the amount of electricity it is capable of. According to an internal memo, all the NPC units put together are producing only 860 megawatts, though they have a capacity of 1620 megawatts.

NPC sources said this was because several major generating units are not working. Thus, NAPS-1 and KAPS-1 each having a capacity of 220 megawatts, have been shut

down. The Narora unit has been inoperative for the past 15 months ever since a fire broke out in March 1993, while KAPS-1 is shut down for its annual maintenance needs. Also, unit-1 of RAPS of 200 megawatts capacity had to be closed down two months ago because of repeated leakage of heavy water from the overpressure release device which is supposed to prevent a dangerous build up of pressure inside the reactor vessel. Though there was no leakage of radioactivity from the unit, the Atomic Energy Regulatory Board (AERB) ordered it closed.

"Even if we were to restart it now, the AERB would allow us to operate it at 50 percent capacity. It may not be economically viable for us," Mitra said.

*Sumit Ghoshal Indian Express
June 29, 1994*

Protest at Watts Bar

In 1925 in a small courtroom in rural Tennessee, USA, a teacher named John Scopes went on trial for the crime of teaching the theory of evolution in school. Local and state authorities felt that teaching of evolution was an insult to the biblical account of creation.

Now nearly seventy years after the event, the same courtroom is again in the news with the biocentrist meeting the nuclear 'creator'.

The only nuclear plant still under construction in the US, the Watts Bar reactor in Eastern Tennessee has been under construction for the last 22 years. Those years have been pockmarked with delays, huge cost overruns, safety problems, and controversy. The Tennessee Valley Authority (TVA), owner of the plant now claims it will be operation sometime next year.

Not far from Watts Bar, in the Cherokee National Forest, Earth First's week long annual meeting, the Round River Rendezvous, was held in early July. Several hours before dawn on July 11, about 150 Earth First! campers travelled to Spring City, Tennessee, equipped

with 35-foot long poles and six concrete-filled 55-gallon barrels, to erect a blockade in the main thoroughfare into the nuclear plant before 4,000 workers arrived. The crew raised the poles into a tripod putting a sitter 25 feet up in the middle of the four lane road, flanked by three barrels on each side. Blockaders plunged their arms elbow deep into a tube running through the middle of the barrels and lashed their arms to a center point.

It was a classic blockade, and one that had the TVA security and local police scratching their heads when they arrived. For a few hours demonstrators danced, sang drummed and talked to the media. As dawn broke with a light rain, a 14-mile traffic jam snaked down the road.

Immediately after informing demonstrators they could leave the site and avoid arrest, police charged the crowd and began making random arrests. When the dust settled, 54 people had been arrested for trespass, including a legal observer who had express permission to be present, musicians, and photographers, as well as the blockade group. When supporters followed those arrested to the town of Dayton, the entire

group was threatened with arrest for "inciting a riot" unless they left town immediately. Four activists were arrested as they approached the jail seeking information. A cop told an activist who asked about her civil rights, 'You left your civil rights at the county line.' Welcome to Tennessee.

Most of those arrested were released within 48 hours, on \$ 1,000 bail each. Fifteen persons did not post bail and were held eight days until the first preliminary hearing on July 19. After four hours of trying to make a case against the group, the prosecutor offered a plea bargain of \$ 25 fine for no contest pleas. 30 people accepted the deal while 24 others pleaded not guilty and they will face trial in December.

All those who participated in the action feel that it was a target well chosen. The plant is not yet licensed or loaded with fuel, and the action a classic non-violent blockade has put Watts Bar on the map at a crucial time.

*Contact; Ka titah Earth First!
P. O. Box 281, Chattanooga, TN
37401 U.S.A.*

"Well Within Internationally Accepted Levels"

Tritium is a radioactive form of hydrogen. It has both a natural origin as well as a man-made origin. Naturally occurring tritium is regularly formed in the upper atmosphere because of cosmic rays. In that case, the level in underground water is about 0.1 Bq/l.

Atmospheric nuclear tests from 1945 onwards have released large quantities of tritium in the atmosphere. The concentration of tritium in underground water due to this source is found to be between 1 to 5 Bq/l.

Besides tritium is created as an unwanted by-product in heavy water reactors. It is released to air and

water during normal reactor operations, and can be detected in the local environment around nuclear facilities at levels above what would otherwise be found.

The present "allowable" level of tritium in drinking water in Canada is 40,000 becquerels (Bq) per litre. An expert committee appointed by the Minister for Environment and

Energy Mr Bud Wild man, has recommended that this level be immediately reduced 400 times to 100 Bq/litre and efforts be made to achieve a target of 20 Bq / litre within five years.

Drinking water contaminated with tritium levels greater than 20 Bq/1 is common in communities downstream from the Chalk River Nuclear Laboratories on the Ottawa River, and downstream from Pickering and Bruce Nuclear Power Stations. The 100 Bq/1 level is often exceeded when accidents involving spills of heavy water occur at these nuclear facilities. In August 1992, a spill at Pickering resulted in tritium levels in Ajax area drinking water peaking at over 1,300 Bq/1.

The Advisory Committee on Environmental Standards (ACES) was given the task of reviewing the drinking water standard for Ontario. This happened because of concerns about a plan to build a new water supply facility in Ajax, a few kilometres downstream of the Pickering Nuclear Generating Station. Many local residents and groups requested a full environmental assessment of this facility because of concerns about water quality and other outstanding issues.

The ACES report has clearly described the double standard that is being applied to radioactive contaminants, compared to other toxic materials. Most contaminants have standards set that are based on a lifetime of exposure, whereas radioactive pollutants have had exposure standards calculated based on one year of exposure. The standards branch of the Ministry of Environment and Energy prepared a proposal for revising the drinking water standard to 7,000 Bq/1, but failed to recognise the double standard. ACES took the 7,000 level and divided by 70 years, the average lifetime, to arrive at the 100 Bq/1 proposal.

ACES has also acknowledged that tritium is more hazardous than is presently accepted, and has proposed that the allowable level in drinking water be reduced to 20 Bq/1 in five years.

Tritium Contamination of Water Near French Military Installation

The military nuclear complex at Marcoule in South of France is authorized to discharge significant quantities of tritium in the river Rhone and in the atmosphere. The yearly quantities are 2,500 billion becquerels in liquid form and 10,000 billion becquerels in gas form.

An independent French nuclear monitoring laboratory CRII-RAD has analysed 22 samples of underground water in the Rhone Valley to determine the level of contamination by tritium due to the discharges of Marcoule. Analysis were also made in a nearby valley Durance. The nuclear research center of Cadarache is located in this valley. In absence of any contamination from nuclear installation, underground water can contain a few becquerels of tritium per litre.

In the Durance's valley the levels of tritium found in underground water are between 1.9 and 2.4 Bq/1 downstream of Cadarache center, compared to 2.2 Bq/1 upstream. The impact of Cadarache discharges are thus not detectable.

However, in the Rhone Valley, the analysis clearly show contamination by discharges from Marcoule. Samples were taken from 17 places from the center up to about 100 km down the river. The contamination is significant near the center where several samples show more than 50 Bq/1 with a maximum of 288 Bq/1. All samples show levels of contamina-

tion well above those from the nuclear tests origins, except a deep forage (450 m below ground) which shows less than 1.2 Bq/1. For the samples from farther down, contamination could also come from other industries and hospitals.

Cogema, the state-owned French company that operates Marcoule says that the discharges are much below the levels authorized by the law. The pollution is thus legal!

A lot of questions are still unanswered. Who gives the authorization ? How are the 'acceptable' levels of discharges decided ? How are the risks associated with these discharges evaluated ? How are the doses calculated ? Was specific attention is given to the risks for children?

As Marcoule is a military installation all the information are classified. Therefore all the files related to those questions are not accessible.

Most contaminants have standards set that are based on a lifetime of exposure, whereas radioactive pollutants have had exposure standards calculated based on one year of exposure.

The experts' committee has also acknowledged that tritium is more hazardous than is presently accepted.

Tritium Activity of liquid Effluent Released to the Aquatic Environment

What About Us ?

The mainstay of the Indian nuclear programme is the CANDU reactor which produces much larger amounts of tritium than other reactor types. Thus tritium contamination is a severe threat to the health of the people living in the vicinity of Indian nuclear installations. Below we present two tables from official sources which detail the tritium contamination near Raj as than Atomic Power Station at Rawatbhata.

| Year | Daily Average in billion becquerrels/day | Concentration at Discharge Point bequerrela / litre |
|-------------|--|---|
| 1986 | 42.55 | 93 |
| 1987 | 13.70 | 38 |
| 1988 | 78.44 | 106 |
| 1989 | 64.38 | 91 |
| 1990 | 64.75 | 48 |

The Central Water Commission has also made measurements of tritium concentration in water samples from different locations around RAPS. Their data is given below.

Source: I.S.Bhat, MA.Iyengar, R.P.Garg, S.Krishnamony and K.C.Pillay "Environmental Impact of PHWR type power stations — Indian Experience" Conference Proceedings on Small and Medium Scale Nuclear Reactors Delhi 1991

Annual Mean Tritium Concentration in RAPS Water Samples

| Year | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|------|------|------|------|------|------|------|------|------|------|
|------|------|------|------|------|------|------|------|------|------|

Sampling Locations

Up to 1 km from RAPS

| | | | | | | | | | |
|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------------|
| Discharge Canal | 220 | 417 | 160 | 80 | 100 | 50 | 90 | 140 | 170 |
| RAPS Jetty | 325 | 437 | 141 | 110 | 250 | 60 | 110 | 70 | 130 |
| Heavy Water Plant Nala | — | 912 | 398 | 740 | 210 | 140 | 180 | 130 | 220 |
| Reactor Coolant Forebay | 110 | 70 | 100 | 60 | 60 | 30 | 40 | 20 | — |

From 1 to 5 km from RAPS

| | | | | | | | | | |
|------------------------------------|-----|-----|-----|----|----|----|----|----|-----------|
| Rana Pratap Sagar Dam Bhabha Nagar | 90 | 148 | 80 | 70 | 50 | 50 | 60 | 30 | 40 |
| Rana Pratap Sagar Dam Vikram Nagar | 105 | 158 | 100 | 80 | 50 | 50 | 50 | 40 | 40 |
| Saddle Dam | 115 | 148 | 76 | 50 | 70 | 50 | 40 | 40 | 40 |

From 6 to 15 km from RAPS

| | | | | | | | | | |
|----------|-----|-----|-----|-----|-----|------------|-----|-----|------------|
| Barkheda | BDL | 130 | BDL | BDL | BDL | BDL | BDL | BDL | BDL |
|----------|-----|-----|-----|-----|-----|------------|-----|-----|------------|

Source: Central Water Commission Conference Data 1989

BDL: Below Detectable Levels

The first thing one notices on seeing these two tables is the fact that they do not correlate with each other. Thus, for instance, while the amount of tritium released to water in 1987 was three times less than that in 1986 according to DAE sources, the Central Water Commission finds the amount of tritium in the water at different locations to be greater in 1987 ! The credibility of the government is called into question because of such discrepancies in data collected by different government agencies.

Barkheda is upstream of the plant and thus the finding that tritium was below detectable levels there is not a surprise. The data does not tell the detectable level of the instrument used for detection. What is a

surprise is the reading of 130 becquerels/litre at Barkheda in 1982. Since readings from other samples are also higher for that year, there might have been a large accidental and unannounced release of radioactivity. Most of the other readings especially in 1 to 5 kilometre region, which incidentally is inhabited by large number of people who use this water for drinking and other domestic uses, show that levels of tritium have been hovering around 100 becquerels per litre. This is the limit that the Canadian experts' committee has recommended for drinking water in Ontario and five times the limit that they feel needs to be adopted in five years. The claim of Indian nucleocrats that radiological contamination in India is "well within internationally accepted lim-

its" thus refers to situations where the 'international limit' itself is outdated and not an acceptable guardian of public health.

It is also worth noting that the present contamination is caused by the operation of only two reactors while construction of further two reactors has been proceeding apace at Rawatbhata. When these reactors begin operating, the radioactive contamination of the area would be much larger. If the people of Rawatbhata are not to be further sacrificed on the altar of 'development', there is thus an urgent need for the government to rethink its plans.

Surendra Gadekar

Their True Colours

Antinuclear activists have often been accused of being "anti-national foreign-funded agents". Once in Rawatbhata, I was accosted by a journalist who told me that "RAPS authorities have said that you have received a lot of CIA money for starting an agitation over here." I replied

carrying which said that Dr. P. K. Iyengar—the then chairman of the Department of Atomic Energy was at the time in Paris negotiating for the supply of two nuclear reactors of French design. I pointed out to this journalist the anomaly of accusing antinukes of being foreign agents

gant, certainly; technology and 'development' deluded megalomaniacs, probably; but anti-national, no.

A recent report in Times of India of September 20, 1994 by Vidyadhar Date, has shaken my belief. Mr. Date has interviewed Dr. M. R. Srinivasan who headed the Department of Atomic Energy in its 'glasnost' phase and who is even now acting as a publicist for nuclear energy and writing extensively in newspapers and popular magazines. I have quoted Dr. Srinivasan's very words (see box) and I will let the reader form her/his own judgement on the nationalist credentials of such globalising developmentists. Since Dr. Srinivasan has been such a strong promoter of the French and German nuclear programmes, we present below extracts from two articles which appeared in the Bulletin of Atomic Scientists and the New Scientist. They present a picture quite contrary to Dr. Srinivasan's eulogy.

Indians were brainwashed for almost a hundred years about the virtues of self-reliance and Swarajya, hence it would take some time to change their thinking."

Dr. M. R. Srinivasan

that the only way he could find out for sure would be to visit us in Vechhi and live with us for some length of time and see if our lifestyle was that of people with a lot of available slush funds. However, my eyes fell on a headline in a newspaper he was

while the nuclear establishment was doing its damndest to procure foreign investment. However, even in my most uncharitable moments I never thought that people in the nuclear establishment were anti-national. Conceited, smug and arro-

The French Mess Nucleaire

The last few years have not been kind to French nuclear projects. The French civilian power industry owes bondholders billions of francs and is increasingly regarded as unreliable. The major producers of nuclear waste in France are the French Atomic Energy Commission's (C.E.A.) and Cogema, one of its many subsidiaries. C.E.A. operates five ostensibly civilian research centres. Its Division of Military Applications (DAM) runs six military research and production centres. The public image of the French nuclear establishment has been badly spoiled following several mishaps. A few years ago, nuclear waste turned up in Paris sewers. A severe drought forced power cutbacks because the rivers into which the reactors discharged hot water fell dangerously low. A severe winter had the same effect, since water froze in the lakes. Thus the much touted nuclear electricity was unavailable in times of greatest need. In March, a technician who was engaged in cleaning up at Cadarache was killed in an explosion (Nature April 7, 1994). Cadarache has been built on a well-known fault line that has experienced 40 tremors since December. No one knows if the reactor could survive a major quake (New Scientist May 21, 1994). C.E.A. has also been criticised for spending more than \$ 1 billion a year on 'development' when no new plants are in the offing.

Many Accidents Little Information

Although accidents have been legion, the public has been told of few of them—and almost never hears about their impact. A brief reference to a plutonium fire in a meeting of the DAM's Central Committee of Hygiene and Security illustrates the degree of concealment. "The most seri-

ous accident that we have had in metropolitan France was a plutonium fire in building G," according to a December 1968 meeting of the committee. This accident presumably contaminated at least a portion of a building and possibly spread plutonium outdoors. Despite assidu-

"In France villagers are taken into confidence before projects are launched and the benefits of the projects are passed on to the local people. Nuclear power projects were being efficiently run by the state."

Dr. M. R. Srinivasan

ous searching the authors of the article have not been able to find any other reference to this accident. The only building that they were able to identify as "G" is a plutonium handling facility at Bruyeres-le-Chatel, only 37 kilometres from Paris.

Mixed-oxide fuel containing both uranium and plutonium is produced at Cadarache. In 1974, the plutonium technology workshop received a batch of fuel rods that had been briefly irradiated in the Phenix breeder reactor. The plutonium workshop was to recover the fissile material from the rods containing plutonium and uranium oxides. The uranium workshop was to process the rods that contained uranium ox-

ide enriched to 27 percent. Unknowingly, two uranium rods were treated at the plutonium workshop, and one rod containing plutonium went to the uranium facility. The switch came to light only at the end of 1976, when the uranium workshop cut apart its share of the rods and experienced "completely abnormal" contamination problems. Each of the Phenix rods had been labelled with a small identification number, but otherwise they were indistinguishable. The CEA kept the incident a secret.

One accident that couldn't be entirely concealed was the release of seven tonnes of uranium hexafluoride at the Comurhex facility at the Pierrelatte uranium enrichment site. A visible cloud of hydrofluoric acid drifted beyond the site's boundaries. The accident, one of many chemical spills at Pierrelatte, occurred July 1, 1977.

Disposal by Dilution

Any report of French expertise in waste disposal should be taken with a grain of salt—no independent body is monitoring waste disposal activities. The clean-up measures that the industry is known to be taking—diluting the waste and minimising the amount of waste—are suspect.

The Air Above

The earth's atmosphere has been considered a prime waste-bin by French nucleocrats. Reprocessing of spent fuel to recover plutonium at the Marcoule production site released many radioactive pollutants such as carbon 14, rare gases, tritium, and iodine. Marcoule Tritium Workshop, which removes tritium from irradiated targets and DAM's Valduc Centre, which assembles the

fissile and thermonuclear components of weapons, have each emitted significant quantities of tritium. The Valdue Radiation Protection Service even burned tritiated waste in the open air at a farm on its property from 1968 to 1975. In 1979, when the centre stored solid tritiated wastes, tritium releases from the operations were of the order of 290,000 curies per year. For comparison, the Rajasthan Atomic Power Station released a mere 70,000 curies in 1990.

The Waters Around

The CEA has always taken advantage of rivers for the disposal of liquid waste. Fontenay-aux-Roses released waste through the sewer system into the Seine; Le Bouchet most likely employed the Essonne; and Marcoule, certainly the Rhone. CEA reports state that suspect effluents from Saclay went to a pond that had been created at the time of Louis XIV to collect water for the chateau of Versailles.

In the 1970s, the navy dumped radioactive liquid effluents from submarine reactors into the ocean off the ile d'Ouessant. Presumably, the effluents had been treated with resins on board the submarines. Workers called a special tank ship that did the dumping the "Minirem." Ocean dumping was the CEA's answer to solid as well as liquid waste. In 1960 the commission intended to dump 6,500 containers of radioactive sludge from Marcoule into the Mediterranean just 80 kilometres off shore. After protest, the CEA backed down and dumped only 20 containers for experimental purposes." In 1967 and 1969, however, the CEA got rid of an additional 46,000 containers from Marcoule by participating in two European Atomic Energy Agency dumping excursions in the Atlantic Ocean.

The Ground Below

Injecting liquids into the soil has been a temptation at sites not near substantial bodies of water. Between April 1958 and May 1959, Saclay injected-as an experimental, 188 cubic metres of water contaminated with strontium, tritium and yttrium into the ground. The centre continued to experiment with injection in the mid-1960s, but whether it was adopted as a regular practice is not known. Valduc, which like Saclay is not near a river began evaporating its liquid effluents in 1971. How it disposed of its effluents between the late 1950s and 1971 is a mystery.

Disposal by Shrinkage

Prance has no permanent disposal site for highly radioactive or alpha contaminated waste. Much of the waste is currently stored where it was generated.

One way of decreasing the volume of waste is simply to put it into public domain. A CEA document reports, for instance, that several hundred tons of metal, some from Valduc that was slightly contaminated with tritium, and some from Marcoule that emitted 'slight' beta and gamma radiation, were "recycled" outside the nuclear industry in 1987.

Another major method of reducing the volume of waste is by applying heat to it. The CEA has operated incinerators off and on since 1963. It has also melted contaminated metal in a furnace at Saclay and Marcoule.

These methods share two major disadvantages. First, heating or otherwise melting radioactive substances volatilises caesium 137 and other radionuclides, which may then escape. Trapping them necessitates complex system of gas purification that are liable to break down if not scrupulously maintained. Incinerating waste produces secondary

wastes that may themselves be difficult to handle. The CEA has not yet learned how to treat the ash from its reprocessing facility UP1 to remove enough of the plutonium to permit its final storage above ground.

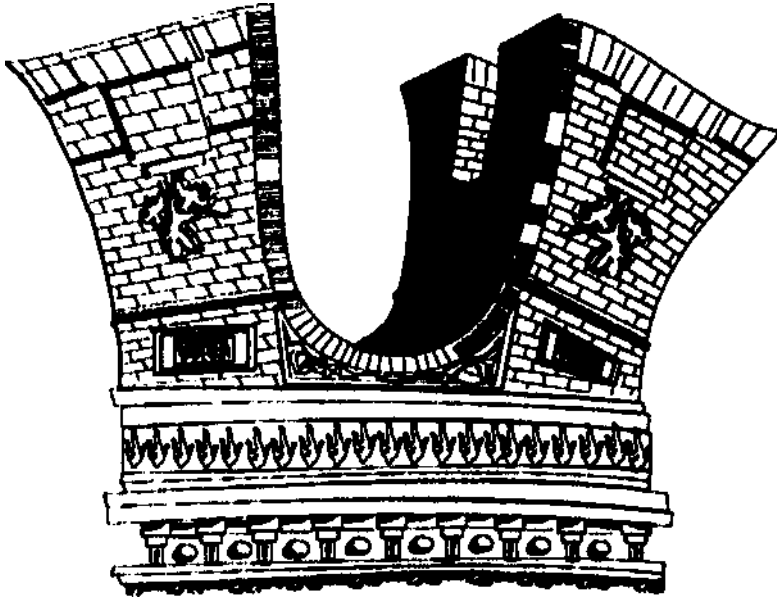
The French have touted vitrification (or glassification) as the perfect means of preparing radioactive waste for storage. Actually, vitrification shares the major problems of heat treatment because fission products are calcined and then melted. Furthermore, the glass blocks produced at Marcoule are suspect. As of 1990, the French did not subject individual glass blocks to quality control, and hadn't sufficiently studied the corrosion-resistance of the glass blocks fabricated at Marcoule. Furthermore, the CEA's current plans for cleaning up Marcoule include the "repackaging of old glass logs" and "the taking back of contaminated glass" stored underground.

Contaminated Groundwater

In siting nuclear centres, the CEA seems to have been drawn like a dowsing rod to places where water lies close to the surface. It has also favoured sites where the ground above the water is permeable. Documents available to us refer to the groundwater contamination at Pierrelatte, Valduc and Marcoule. But water under other sites, particularly those with underground storage of waste and permeable soil, may also have been contaminated.

At Pierrelatte in 1976, an incident in an installation which converted uranium tetrafluoride to uranium hexafluoride contaminated groundwater with uranium and fluorine. At Valduc, metal contaminated with tritium was stored in an old cistern into which water still flowed. As a result groundwater was contaminated with tritium.

This incident may not have been the only source of contamination at



L'Arc de "Defeat

Valduc. Despite an earlier formal

Taken from: David Macaulay; Great Moments in Architecture

Monument to the French Nuclear Programme

complaint, a worker representative complained in 1981 hygiene committee meeting that about 800 containers of tritiated waste were 'still at the mercy of the weather, thus contaminating the groundwater.'

Minutes of a 1975 meeting of the Marcoule hygiene committee refer to the fact that a leaky joint in the pipes in room 48 at the Marcoule Pilot Workshops had slightly contaminated the groundwater. Other accidents that may have contaminated groundwater include a 1970 leak in an old buried pipe that had received radioactive effluents from a metallurgy workshop. The leak seriously contaminated the ground with plutonium and perhaps with other nuclides.

That such incidents have had a lasting impact on groundwater is strongly suggested by a 1990 Cogema document revealing that Cogema had to build a 450-metre wa-

terproof wall underground, to the south of the effluent treatment station, in order to prevent groundwater from flowing south. Behind the wall, Cogema pumps out two to three cubic metres of water per hour.

CEA and Cogema monitor the radioactivity of the water beneath and near their nuclear sites, according to Cogema and CEA reports. However, they don't

make the results public.

No independent body had examined the groundwater around the sites, although radioactivity released into the air, soil and water is likely to end up in the subterranean water.

The Super Failure of Superphenix

The C.E.A. is hoping that the money guzzling fast breeder, Superphenix can be turned into an asset. This one an only commercial scale fast-breeder reactor in the world has been plagued by a series of disasters ever since it began operations in 1986. The reactor which was completely shut down since 1990 has operated a total of only 174 days in eight years—a record which puts even Indian non-functioning reactors to shame. Its most persistent problem has been leaks in the cooling system. The liquid sodium coolant employed at Superphenix can be explosive when exposed to air.

With the global change in attitude about the value of plutonium, C.E.A. would like to see the Superphenix rise from the ashes as a plutonium burner rather than a breeder. The

agency claims the reactor could dispose of 200 kilograms of plutonium a year if it can be made to operate reliably. The government admits that it has abandoned the idea that Superphenix will ever make money.

Calculating Real Costa

Moving towards privatisation, the government no longer guarantees nuclear industry bonds. The nuclear engineering company Framatome is to be privatised. The commission is also looking to other companies to take over other technologies.

An independent study, *'The Costs of Nuclear Power in Western Europe'* by the International Project for Sustainable Energy Paths, points out that the French emphasis on nuclear power has had other negative effects. According to the study, so much money was spent on nuclear power that France neglected to clean up its fossil fuel plants. The result? Its sulphur dioxide emissions are twice as high per kilowatt-hour as neighbouring Germany, which installed scrubbers. The study found that official estimates of operations and maintenance costs had been systematically underestimated. They had been estimated to rise at 1.5 to 2 percent per year while actual increases have been five to six percent. Overall, government nuclear costs have been underestimated by at least 60 percent. Taxpayers usually end up paying the difference. The study also decries the 'fluid boundaries' between civilian nuclear power and French nuclear weapons programmes: the close connection has allowed the government to keep extraordinary silence on aspects of both.

Based on two articles by Mary Byrd Davis and Linda Rothstien in the Bulletin of Atomic Scientists July/August 1994.

On the banks of the river Elbe, in the wooded heart of northern Germany, stands a big yellow building. It is 189 metres long, 40 metres wide, 20 metres high and cost £ 32 million to construct. Around it stands a high security fence and a large earth rampart. For the last 11 years it has stood there, cavernous and empty.

The building has been nursed by nuclear companies, blockaded by antinuclear protesters and bitterly disputed by politicians on primetime television. The building, near the village of Gorleben, is an "interim store", meant to house spent fuel from Germany's nuclear power stations for at least the next forty years. It is also the likely destination for blocks of highly radioactive waste produced by the reprocessing of German spent fuel at Cap de Ia Hague in France and Sellafield in the UK

The interim storage has been licensed to receive up to 1500 tonnes of spent fuel since 1983, but none has yet arrived. The electricity companies are being prevented from opening the store by the local government of Lower Saxony—the state in which Gorleben is situated.

On 19th July 1994, spent fuel from Philippsburg Nuclear Power Plant was loaded into a cast-iron "Castor" flask ready for shipment to Gorleben. But since then the flask has been sitting on a railway wagon under a blue awning outside the power station while thousands protests and the politicians argue.

The massive (up to six metres long) castor flasks are meant to be the main barrier against leakage of radioactivity into the environment during storage. The nuclear industry hopes that the castor would allow it to store radwaste for forty years. This is the first attempt at dry storage of high level waste for such a long period anywhere in the world and naturally the nuclear industry everywhere is very keen that it succeed.

The whole operation has encountered a number of technical problems while loading the flask at Philippsburg. The castor has to be shut airtight. However, the engineering inspector for the state government reported that one of the flask's two stainless steel lids was more than 10 millimetres wide and could only be made to fit after last minute improvisations. If the flask were to leak after arrival at Gorle-

ben, it would have to be transported in the same leaky state back to Philippsburg since there are no remote-handling facilities for repair at Gorleben.

Demonstrators have built a small village of wooden huts named CAS-TORNIX near the entrance of the storage site. Streets have been painted, traffic signs struck over and holes have been dug under the streets leading to the storage site. On November 5, all large streets in Liichow-Dannesberg (the region of Lower Saxony where Gorleben is located) were occupied by demonstrators.

The antinuclear movement knows that if the first castor is stored at Gorleben, many would follow. The people of Liichow-Dannesberg are determined to fight against this assault on their lives and the lives of unborn generations of their children. Good luck to them. Are you listening Dr. M. R. Srinivasan?

Based on an article by Rob Edwards in New Scientist 8.10.94 and a news item in the WISE News Communique 422 18th November, 1994.

Florida Nuked Chicken to Iraq

Vindicator Inc. is the only company running a food irradiation facility in the US First it tried its hand at irradiating fruits and vegetables which were meant for distribution within US That did not work since nobody wanted to stock the stuff. Next, it was irradiated chicken. Still, no go.

The company has been losing more than \$ 100,000 a month for the last nine months.

According to an article in the Associated Press, Vindicator has teamed up with a company called US Harvest Technologies to ship "up to

25,000 tons of cobalt-irradiated chicken to Iraq." Are these nuked birds intended to finish the work started by US marines two years ago?

Safe Food New Winter 1993

Dr. Rosalie Bertell to visit India in December

Dr. Rosalie Bertell needs no introduction to antinuclear activists. Winner of the Right Livelihood Award and the much acclaimed author of *No Immediate Danger*, she has been a source of inspiration and help to many. She is to visit India in December. It is proposed to hold a one-day workshop for activists at Bombay on Wednesday, December 7, 1994. The venue of the workshop has not yet been decided but friends who want to attend should contact Shri R. Ashok Kumar, at Bombay Sarvodaya Mandai, Gandhi Book House, Tardeo, Bombay. Telephone: 561-5916.

Besides Bombay, Rosalie also will be visiting Trivandrum (Dec. 8 -11); Bhopal (Dec. 12); Calcutta (Dec. 14 -18) and Delhi (Dec. 19). We have given her proposed itinerary in detail so that activists and in fact anybody interested in the nuclear issue can get in touch with her and take advantage of this opportunity.

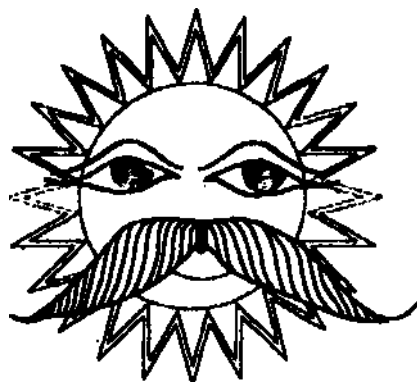
Letter (Box)

Protest Against Kalga Nuclear Plant

About 2,500 people had gathered in Karwar on 2nd October for our rally to protest against Kaiga nuclear power plant. 80 friends from Goa had also come to show solidarity. Even people from Sholapur area have now begun to seriously think about dangers of nuclear power. But even now, people are not yet confident that they can stop this plant with their own efforts. Once the elections to the state assemblies are over, we shall have to restart our programme to raise people's awareness and undertake 'padayatras'. We intend to have a meeting in Sirsi and formulate a decentralised programme from there.

You must come for this awareness programme. We were eagerly waiting for you at the meeting on 2nd October, but then we realised that plague in Surat would be a great obstacle in your coming. But as we saw in the meeting on 2nd October, there is a lot of enthusiasm amongst the people and if three or four people undertake some sustained work, I believe it would not be difficult to get many to oppose the construction of the Kaiga plant.

*Dr Kusuma
Snehakunja, Kasarkod, Honnauar,
Uttara Kannada, Karnataka*



The Only Sets Source of Nuclear Energy

Food Irradiation

Food and health are vital concerns. The very survival of people is at stake. Since the irradiation of food articles impinges upon these critical matters it is imperative upon the government to institute a massive information dissemination programme so that the consequences of this technology could become clear to everybody and the choice of whether to accept or to reject this technology could be an informed one. Instead, the Government of India had decided to go ahead with its food irradiation programme with not even a hint of public debate. Even the queries of concerned citizens like me have elicited no reply from the concerned authorities. This dictatorial step by the so-called servants of the people must be opposed.

*R. Ashok Kumar
Bombay Sarvodaya Mandal*

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garding circulation should be addressed to:*

**Editor Anumukti
Sampoorna Kranti
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*Please do not send personal cheques or
drafts addressed to Surendra Gadekar*

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*Published by S Gadekar for Sampoorna Kranti Vidy-
alay and printed at The Parijat Printrty, Ahmedabad*

PRINTED BOOK