The Anti Nuclear & Safe Energy Journal

SCRAM

NUCLEAR POWER? NO THANKS

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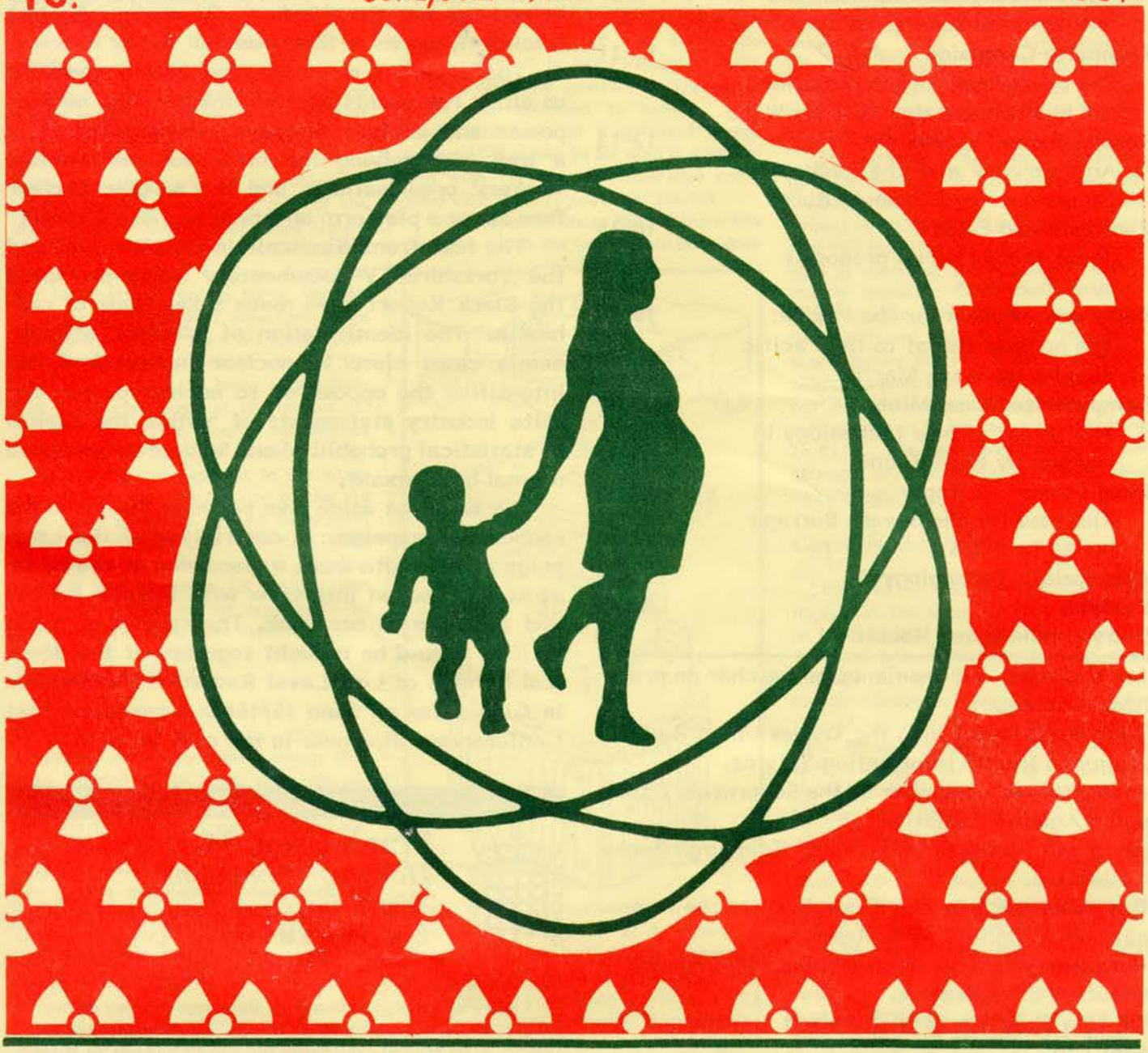

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Comment

With the completion of Rosalie Bertell's speaking tour to promote her book NO IMMEDIATE DANGER, it is perhaps time to review the campaign on the health effects of low level radiation. The interest generated by Rosalie Bertell was reminiscent of that which followed the tour by Helen Caldicott in October 1980 – the Caldicott tour helped spawn the Medical Campaign Against Nuclear Weapons in this country.

The issue of radiation and health concerns us all; it represents another link between nuclear power and nuclear weapons campaigning; it is a way of involving the industrial and medical workers' organisations; and it can give nuclear free zones a platform on which to make a stand.

The leak from Windscale in October 1983 and the Yorkshire TV documentary which prompted the Black Report have made a key issue of radhealth. The identification of 'clusters' of leukaemia cases close to nuclear installations has intensified the opposition to nuclear power, despite industry statements of 'within the realms of statistical probability' and 'undetectable above normal background'.

We have set aside five pages in this issue for radhealth campaigns: a description of the campaign in the south west; a discussion of the issues at stake; and an interview with Rosalie Bertell and a review of her book. The strands of these articles should be brought together at the 'Medical Effects of Low Level Radiation' Conference in Gloucester on June 15/16th. A report of that Conference will appear in the next SCRAM.

Frank Cook M.P.
House of Commons
Westminster
London SW1A 0AA

Dear Campaigners,

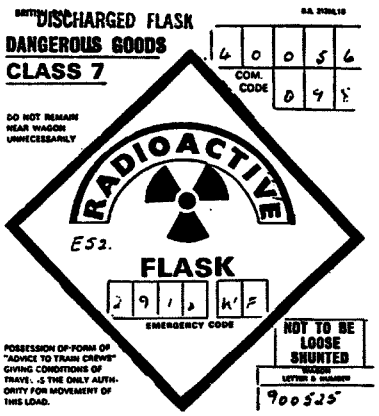
I write belatedly to record my deep appreciation of the support and encouragement offered to the community of Billingham in its struggle to oppose the NIREX suggestion that radio active waste should be stored in the disused anhydrite mine below the town.

The community campaign was a long and arduous one, but the hardship experienced merely made the eventual victory so much more magnificent. This sustained effort, crowned by final triumph, would not have been possible had it not been for the backing offered so willingly by you and people like you. Billingham will be eternallly grateful.

Frank Cook

Yours sincerely,
Frank Cook
House of Commons

Torness ~ The Waste Remains



The first part of the Report of last year's Torness spent fuel transport Inquiry has been published. (An earlier draft was released for comment by the Scottish Office Inquiry Reporters Unit in March.) The draft contained a large number of errors, but many of the comments received by George Maycock, the Principal Reporter who presided over the Inquiry at Dunbar in October, referred to omissions. Most of the complaints have been ignored as 'outside the scope of the inquiry'.

One of the main objections of the Report is that of procedure - a complaint which arose several times during the Inquiry and the period running up to it. It appears that some of the objecting parties failed to receive a copy of the draft report: the Fire Brigades Union, the National Union of Public Employees, the Tyneside Anti Nuclear Campaign and the Scottish Ecology party (as well as numerous individual objectors) were therefore excluded from the initial consultation process. SCRAM's copy of the draft was sent to the home of the individual representative at the Inquiry instead of the office, despite our address being on all our proofs of evidence.

It could be argued that in the interests of economy, distribution of the 150 page draft should be limited, but a short letter to all objectors informing them that the draft was lodged in a public building and available for consultation and comment before the deadline is the least that one could have expected.

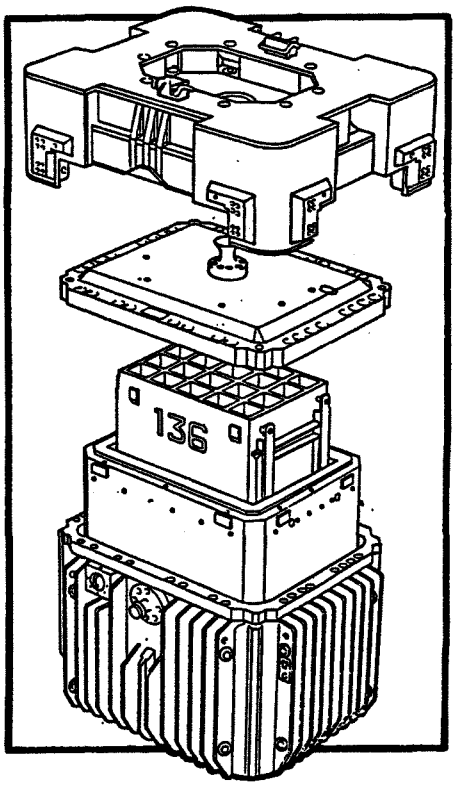
Serious Criticism

The Report itself raises many important questions. Of more than 20 comments raised by East Lothian District Council (ELDC), the principal objector, only 4 have been incorporated into the final form of part 1 of the Report's so-called Findings of Fact. Mr Maycock will now consider the evidence and submit his Report, along with his reasonings and conclusions (part 2), to George Younger, the Secretary of State for Scotland, for his decision. The decision is not expected for some months yet.

In his Findings of Fact Mr Maycock seemed to be mesmerised by the International Atomic Energy Agency (IAEA) Regulations and included no mention of experts' fears that these are inadequate, or that US regulations are more strict. Whilst admitting that 'slight surface contamination of fuel flasks is commonplace' (14.33) the Reporter ignored that, even within IAEA limits, contamination may reach a significant level over a long period. Nowhere does the Findings of Fact note that objectors feels that more stringent limits should be applied.

Of the serious criticisms on flask safety and radiological risk brought to the Reporter's attention by ELDC, very few were eventually included in the amended Report. The Sandia Laboratory experimental work on flask integrity performed in the US and presented to the Sizewell Inquiry was cited in the draft as if to prove the Torness spent fuel transport would be safe. This work concerned a more robust flask, of a different shape and casing and for carriage of a different type of fuel, and hence reference to it in the Findings of Fact is irrelevant and misleading. The paragraph was amended to include: 'The flasks used were of a different design to the AGR flasks to be used in connection with Torness, but otherwise complied with IAEA regulations.' (14.46)

The Reporter chose to illustrate the period in which the fatal whole body dose



would be received from a totally-collapsed flask as 80 hours by referring to only one distance from the source - 50m. He was compelled to add, 'reducing at a distance of 3.3m to 18 minutes' (14.48) following strong representation by ELDC and the Fire Brigades Union (after it was brought to their attention by the Council).

These adjustments are what the consultation period was for, it is true, but what about those objectors who did not receive the draft report and hence were unable to make any comment? Moreover, what about the comments which the Reporter chose to ignore?

Paragraph 14.41 states: 'To date no CEGB or SSEB nuclear fuel flask has received damage in a rail accident'. It was shown at the Inquiry that flasks were damaged whilst in transit despite no *rail accident* occurring. Nevertheless, the Reporter saw no reason to amend the paragraph. Such a vital omission prompted ELDC to note: 'Such a statement does not fill the District Council with confidence with regard to the impartiality of the Report'.

Much emphasis was placed at the Inquiry on earlier discussion of spent fuel transport. Mr Justice Parker's Windscale Report of 1977 was cited: 'spent nuclear fuel (transport to Windscale) was examined in course of the Windscale Inquiry' and the Inspector 'found that he was satisfied on the evidence that it created "no significant risk" '. (14.9) The Windscale Inquiry did not examine in detail the consequence of a flask accident and not a single calculation of consequence was presented to the Inquiry. According to ELDC, this represents finding on the strength of 'incomplete or ill-considered knowledge'.

Government Policy

Because of the on-going Sizewell B Inquiry at the time, Mr Maycock wrote in his preamble that it would be 'pointless and presumptive' to 'examine and analyse that being undertaken' at that Inquiry despite the difference in the design of the fuel flasks under consideration. He does point out to Mr Younger that 'consideration of any adjustment to adopted national policy' will be founded on evidence heard at Sizewell.

So, the Sizewell Report may be useful to the Scottish Secretary in making his decision. But Mr Maycock's recommendations to him will probably be formulated before the Sizewell Report is published.

Also, Mr Maycock describes Central Government policy as being one of reprocessing commercial reactor spent fuel at Windscale, despite the fact that the facility to perform this work - THORP (Thermal Oxide Reprocessing Plant) - is at least seven years from completion, and the commercial treatment of Torness-type spent fuel has yet to be successfully demonstrated. Moreover, the murmurings from the House of Commons Environment Select Committee's investigation into nuclear waste management are expressing real doubts about the whole issue of reprocessing and waste disposal. Is it possible that Mr Younger's decision on Torness can be taken in a vacuum?

Steve Martin

The House of Commons Select Committee on the Environment has been taking evidence from interested parties on radioactive waste policy. The nuclear industry's representatives have given evidence, as have some environmental groups.

The following are extracts from the Friends of the Earth and Greenpeace submissions.

FoE's summary

1 The current proposals for land disposal are lacking in scientific and technical justification and are based more on political decisions.
2 Large volumes of additional radioactive waste are being created at Windscale. The reprocessing of thermal-oxide spent fuel has no justification on economic or waste management grounds, and is merely compounding the nuclear waste problem.
3 The storage of spent fuel is an important and viable alternative to reprocessing and the disposal of radioactive wastes.
4 A number of important categories of radioactive waste have received insufficient attention from the nuclear industry. These include wastes arising from the decommissioning of nuclear plant.
5 The Institutions which currently administer and control the production and management of radioactive wastes do not command public respect at present. Changes will be required in these if public acceptability towards radioactive waste is to improve.

The Department of Energy (DoEn) are singled out for heavy criticism over the policy of reprocessing: 'In terms of justifying this [policy] the DoEn have been notable for their absence,' says the submission. FoE research has indicated that in the past six years, the price of uranium has *fallen* by over 50%, and during the last ten, the unit reprocessing price has *increased* by a factor of ten. There is now general consensus that a switch to a breeder reactor on fuel-supply grounds is unlikely to be necessary before 2025 AD. This has been confirmed by recent comments from Sir Walter Marshall, chairman of CEGB for the Select Committee.

FoE energy Campaigner, Stewart Boyle, stated at a public meeting in Exeter where local people are concerned over the Lyme Bay area being used as a dumping ground, 'No further nuclear power stations should be built unless it can be shown beyond doubt that radioactive wastes can be stored, transported and disposed of in a safe and publicly acceptable manner. This is not the position at present.'

Greenpeace's recommendations

1 The reprocessing of spent nuclear fuel should be terminated. (Greenpeace is already preparing a report on alternative job structures in Cumbria to show that reliance on Windscale as the major employer in the area is not feasible in the long-term and that a diversion of capital into more labour-intensive industries is feasible and desirable.)
2 Spent Magnox fuel destined for reprocessing at Windscale should be long-term, dry-stored at the site of origin.
3 In the short term, in order to comply with the Paris Commission undertaking, reprocessing should be suspended at Windscale until technology which can ensure 'technically zero' discharges is installed by the end of 1986. Emergency dry-storage facilities for Magnox fuel should be constructed pending such installation. The inventory of Magnox fuel currently wet-stored at Windscale should be reprocessed at best pending a complete halt to reprocessing.
4 Current inventories of LLW and ILW should be stored at nuclear facilities for an indefinite period.
5 Contracts for the reprocessing of foreign spent nuclear fuel should be terminated.
6 Radiation exposure limits for the population should be reduced from 500 mrems to 25 mrems.
7 The UK should adopt a position at the upcoming Consultative meeting of the London Dumping Convention of support for a continued ban on the sea-dumping of nuclear wastes.
8 The Government should announce an abandoning of any plans to dispose of nuclear waste in favour of storage in a monitorable and retrievable condition.
9 The UK should withdraw from the activities of the Seabed Working Group.
10 In order to facilitate the long-term consequences of such steps as outlined above, the Government should plan now for a non-nuclear energy strategy for the UK and should begin phasing out nuclear plants in favour of a more decentralised system based on low-sulphur coal burning together with other fossil fuels coupled with a stringent energy conservation programme. The long-term goal should be to develop a mixed energy strategy based on renewable sources augmented by fossil fuel burning.

The Committee, chaired by Sir Hugh Rossi, has also taken evidence at Windscale, Oldbury Magnox power station, and Dounreay. Members of the Committee are to visit France, Germany, the US and Canada.

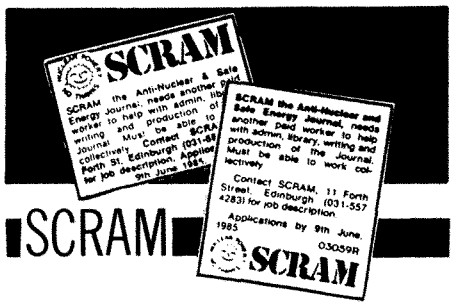
Contacts: FoE 01 837 0731 (Stewart Boyle)
Greenpeace 01 251 3020 (George Pritchard)

An attempted ban by the Panamanian Government on nuclear transports through the Panama Canal could have serious consequences for BNFL. All shipments of nuclear spent/nuclear fuel from Japan to Windscale currently pass through the Canal - 16 transits per year. If Panama can impose its ban, then the ships will have to take the much longer, more expensive, and arguably more hazardous route around the Horn.

Panama has complained to British, French, Japanese and American Governments about the practice, and particularly objected to an alleged passage through the Canal on the night of 19th April by a British ship 'with radio-active materials destined for somewhere in the Western United States'. Britain maintains that the only British ship carrying a nuclear cargo which passed through the Canal recently was the Pacific Swan carrying 20 flasks of depleted uranium from Japan to Windscale on the night of 23rd/24th April.

The 1977 basic treaty on the operation of the Canal protects its neutrality and Panama claims that the nuclear transports through it threatens that neutrality. Although the Treaty does not apparently restrict nuclear cargoes, it is possible that the passage of hazardous cargoes at night may be limited. BNFL denies there is any danger when its shipments pass through the Canal.

Daily Telegraph 2.5.85



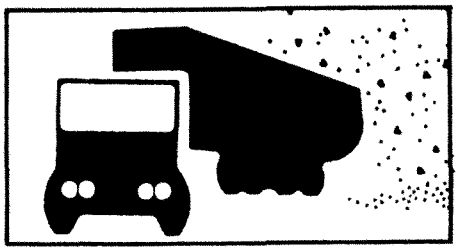
We are stunned by the response we have received to our adverts in the *Guardian* and *Scotsman* looking for a second paid worker for the Journal. Over 150 people contacted us for more information. There is still time before the 8th June deadline to apply.

The job includes general office administration, library work and Journal production (researching, writing, editing etc). The successful applicant must be able to work collectively, and a knowledge of office systems and energy issues is preferred. Apply to SCRAM, 11 Forth Street, Edinburgh (031 557 4283).

The Ministry of Defence's plan to transport 300,000 tons of asbestos from the former ship breaking yard at Faslane to the Lanarkshie village of Glenboig has understandably come up against fierce opposition. The 62 acre site is planned to be used for berthing Trident submarines.

Dumbarton District Council has served a notice on the MoD requiring the area to be covered with crushed stone and topsoil then seeded with grass. The notice was served under the Scottish Public Health Act of 1897 and the Council accepts that it would mean that development of the site would be impossible. A spokesperson said: 'The safest method of dealing with this asbestos is the one we are requiring them to carry out, which would render the land sterile, but would mean it could not be disturbed for construction work.'

Dr Douglas Bell, former medical director of the Health and Safety Executive (Scotland), agrees. Addressing the third annual congress of the Royal Environmental Health Institute on May 22nd, Dr Bell stated that he was against wholesale removal of asbestos but believed that if it was possible to contain



the asbestos by covering it 'then it should be done'. A similar operation has already been successfully performed at Washington New Town in County Durham.

Monklands District Council, the local authority responsible for the licensed tip at Glenboig decided at a meeting on May 22nd to block the dumping. They will ask Shanks McEwen, the company who will be carrying out the dumping, to suspend work until the Scottish Secretary orders a public inquiry. If Shanks refuses they will take steps to invoke the dumping licence. Local people were delighted when they heard the news and cheered enthusiastically.

Both Dumbarton and Monklands District Councils are Nuclear Free Zones. A fuller account of the controversial proposals will appear in the next issue of SCRAM.

Scotsman 23.5.85

Dounreay News

It was announced on 24th May in the House of Commons by Alistair Goodland MP that the UKAEA and BNFL will shortly be lodging a joint application for the demonstration fast reactor reprocessing plant for the European collaboration. This means that the Commercial Demonstration Fast Reactor will almost certainly not be coming to Dounreay. Highly radioactive spent plutonium fuel will have to be shipped to Dounreay for France and Germany (the only two CDFR's presently part of the collaboration) with the associated hazards of accident and sabotage.

Because Caithness is dominated by Dounreay, the local economy will collapse if they can't get the contract. It is thus hardly surprising that in the run up to the decision lobbying has intensified: a deputation from the Highland Regional Council visited the Dept. of Energy on 17.4.85., the SDP MP for Caithness and Sutherland, Robert Maclennan has written to the PM urging that the future of the nuclear industry be assured at Dounreay.

A flood of letters to the press from Mr Blumfield the Director of Dounreay to reassure the public of the safety of the plant, hardly corresponds to the deteriorating safety standards which saw a threefold increase in radiation accidents between 1977 and 1982. This led the Scottish Office to regard the discovery of radioactivity on nearby beaches between Nov. 1983 and March 1984 as revealing a 'lack of control'.

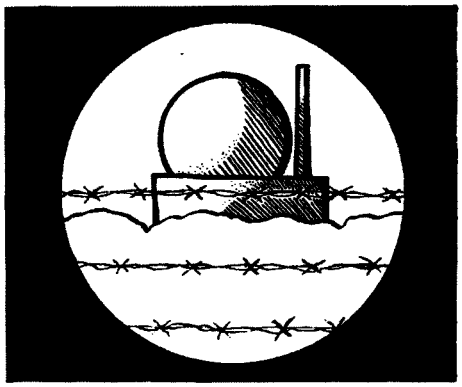
For the first time, opposition to Dounreay has grown in Caithness itself. An action group has been set up after a recent public meeting in Wick, to press for a public inquiry into the extension of the reprocessing facility. Some 100 letters expressing concern at possible radioactive discharges have been sent to the Government, and it is hoped to enlist support of local politicians. The Alliance between the Liberals and the SDP has already broken in the area with Robert Maclennan refusing to sign a parliamentary early day motion of opposition to the Dounreay reprocessing plant tabled by the Liberal MP for Orkney and Shetland, Jim Wallace.

The Department of the Environment has commissioned a survey, on the behalf of the Scottish Development Department, to provide further information on the levels of artificial radionuclides in the environment and on the transfer of radioactivity from sea to land. The study will be carried out by staff of the UKAEA Harwell laboratory along the Dumfries and Galloway coast, and is expected to last for a year initially.

The results will be compared with models for predicting radionuclide transfer and the findings will be compared with the 'internationally accepted limits for radionuclides in the environment, and with internationally recommended standards of radiological safety' according to the Scottish Office Press Release.

Seems OK? Well, it would be if the parameters of the survey were not what they are. Michael Ancram MP, Minister for Home Affairs and the Environment at the Scottish Office, commented when the survey was announced, 'We already know from our routine monitoring programme that levels of radioactivity are low and radiologically insignificant but the Harwell study will help to provide even more precise radiological assessments and predictions and the results will be published in due course.'

Druridge



The Druridge Bay Campaign (DBC), the federation of local organisations opposed to the building of a nuclear power station on the Northumberland coast, is launching its own 'deterrent'. It will take the form of a two part study. The first section entails measuring the existing background radiation in the earth, water and atmosphere around Druridge Bay to create a 'base line' against which any changes can be compared. The second phase of the study is the assessment of existing health statistics with particular reference to radiation-linked diseases. The study is based on the work of Rosalie Bertell, who met with the scientists involved in the study whilst she was in the area during her recent speaking tour.

Bridget Gubbins, the DBC Press Officer, explained that 'the main purpose of this study is as a deterrent. If the CEGB know that their every radioactive emission is going to be watched and checked, there is a distinct possibility they will decide against developing nuclear Druridge.' However, if they go ahead despite public opposition, the study will produce figures which will show who is responsible for an increase in verifiable illnesses. 'Only too frequently, nuclear industries avoid blame by claiming there is no proof the illnesses were caused by their activities', Bridget added.

As a gesture of goodwill, it was suggested that the CEGB contribute something towards the cost of the study. The DBC feel that this is unlikely, although it would be cheaper than offering recreational facilities as they have done at Sizewell, NIREX has done at Elstow and BNFL has done at Windscale.

As a point of information no other nuclear facility has ever had an independent base line study carried out in this country - the industry usually does its own, and declines to release the results. However, an independent study is underway at Torness. The study is only looking at background radiation levels and involves monthly readings of water, soil and air samples. It prompted the SSEB to increase their own monitoring to fortnightly in an attempt to discredit the independent study.

Auction

The 629Mw Boiling Water Reactor at Zwentendorf in Austria may be auctioned off. Hopes for a second referendum were dashed when the required two thirds majority in parliament was not achieved. Austria's federal electricity authority, which is responsible for the plant and is spending £2 million per year maintaining it, decided at its annual meeting on 27th March to offer the plant to the highest bidder in the summer.

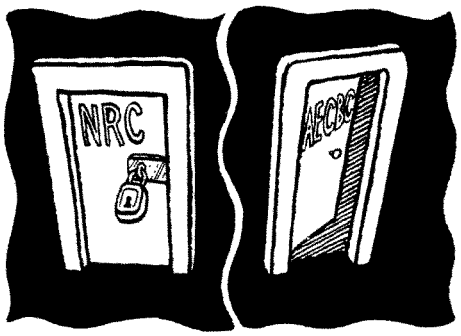
The BWR cost about £350m to build and was completed in 1978. According to Dr Stiegelmeyer, a spokesperson for the utility, there has been a lot of interest shown in the plant. He estimated the present day value of the station at about £900m, but expects to lose nearly £40m on the sale, as the proceeds will not cover the dismantling and transportation costs. He admits that 'we shall be entering unchartered territory. . . a brand new fully built nuclear plant has (never) been offered for sale'.

Cynics see the sale threat as a ploy to pressurise the politicians to compromise and agree on such things as waste disposal. The Soviet Union has offered to take spent fuel from Zwentendorf but not to return radwaste and other materials produced in the reprocessing operation. The resulting materials will be put to peaceful uses subject to IAEA safeguards!

Nuclear Engineering International May 1985

Secrecy

There's some good news and some bad news about approaches to public relations: one from Canada, the other from the US. First the bad news. The US Nuclear Regulatory Commission (NRC) has decided by three votes to two to reduce public access to meetings and transcripts from closed meetings. The rule changes were implemented immediately without holding public meetings - the first victim of the new policy!



Now the good news. The Atomic Energy Control Board of Canada has announced that minutes of its meetiings held under the Atomic Energy Control Act will be public documents from now on. These minutes have never been released on an unrestricted basis before. Minutes of the previous 39 years will be reviewed with the intention of releasing them for public scrutiny also.

Science 10.5.85
Nuclear Engineering International May '85

Uranium

Nine women who were ordered to pay £550 in compensation to BNFL by Chester Magistrates Court, in a case arising from a demonstration at the uranium enrichment plant at Capenhurst, have instead paid the money to SWAPO (South West Africa Peoples Organisation). In doing this they will inevitably face prison sentences.

The women were protesting about the use by BNFL of Namibian uranium, its role in the manufacture of nuclear weapons and, by implication, the British Government's economic support to and recognition of the racist South African regime. Sixty women took part in the demonstration, 19 were arrested and convicted. Total fines, court cases and compensation amounted to £2780 - much of which remains unpaid.

Following the demonstration and convictions, the women received commendation from the Acting President of the United Nations Council for Namibia, Ambassador Noel G Sinclair of Guyana. The statement runs: 'The United Nations Council for Namibia has learned with great satisfaction of the actions taken by a group of women activists to ensure respect for Decree No 1 for the Protection of the Natural Resources of Namibia, enacted . . .in 1974.

'The Council commends this demonstration of concern for the natural resources of Namibia and for the interests of the rightful owners of those resources. The Council hopes that such actions would increase the awareness of international public opinion, especially in countries whose corporations are involved in the illegal exploitation of Namibia's natural resources on the need for Decree No 1 to be universally respected.'

Receipts for the money and a letter of thanks and support from SWAPO have been sent by the women to the courts and to BNFL. The letter states: 'Your willingness to risk imprisonment. . .for the sake of the important principles involved, is a worthy tribute to those of our people who have experienced the detentions without trial, beatings, torture and political murders of the apartheid regime in Namibia.'

The money will be used towards vital literacy kits and sanitary goods for the Namibian people through the SWAPO Women's Solidarity Campaign and also to help with SWAPO's campaign in Britain.

The Campaign Against Namibian Uranium Contracts (CANUC) held a two day conference over the weekend of 27th/28th April. The conference was very lively and generated lots of enthusiasm and positive energy. The focus for discussion was how best we here in Britain could : - show effective solidarity with the Namibian people's struggle for social justice; actively oppose apartheid; and stop the British nuclear machine. The conference's structure was as informal as possible. We resolved to:

1 Decentralise the campaign away from the London office and so encourage local groups to act autonomously.

2 Encourage anti-nuclear, wimmin's and anti-apartheid groups, and peace organisations to work together.

3 CANUC resolved to offer unconditional support for SWAPO, the liberation movement. (Some non-violent activists expressed concern about SWAPO's armed struggle, but we resolved to campaign by a multi-pronged approach i.e. any literacy or medical aid that we can offer is most welcome.)

Interest was expressed in organising more non-violent direct action. We want to have a wimmin's action at Faslane sometime in the near future.

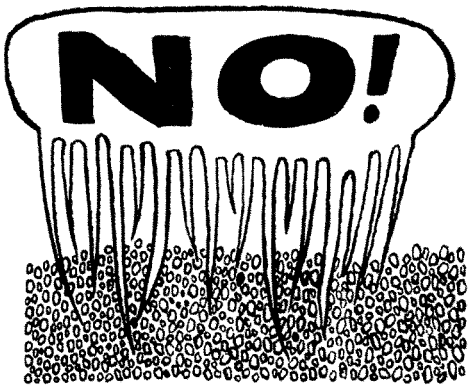
For more information about the uranium contracts and action against them contact: Gill Durber, at CANUC c/o Namibia Support Committee, 53 Leverton Street, Kentish Town, London. Tel 01 267 1941

Opinion

How should we estimate public opinion on controversial issues? This is a question which was asked by Frank C Duckworth of the CEGB Berkeley Nuclear Laboratories in an article he wrote for *Political Studies* (1983 pp463-478), entitled 'On the Influence of Debate on Public Opinion'.

He suggested that an 'experiment whereby opinions are assessed both before and after comprehensive debates on a variety of issues' is what is required. He cited the BBC Radio 4 series *You the Jury* as being 'almost exactly' the sort of situation best suited for correct analysis. After analysing the voting patterns in the programme he concluded that the Jury, when presented with plain facts by establishment bodies (such as the nuclear industry) the Jury swung to the establishment view.

Unfortunately for Mr Duckworth, things don't always work out as planned! *You the Jury* debated the motion 'Britain needs Nuclear Energy' on Sunday 5th May. Voting before the debate was: FOR 39%, AGAINST 26%, UNDECIDED 35%. After hearing the plain facts from both the CEGB and FoE the Jury voted FOR 42%, AGAINST 50%, UNDECIDED 8%.



Jonathon Porritt, Director of FoE, has since written to John Baker of the CEGB (who put the CEGB case to the Jury) calling upon the CEGB to abandon the nuclear option in the light of public opinion.

Crisis

During the severe cold spell this winter in Eastern Europe,Romania had two consecutive energy crises. Televisions,heating and lighting were restricted in their use. One citizen had his electricity cut off for 75 days after being caught using a 150W bulb in his hall.

Electrical Review 22.2.85

NPT ~ No Peace Tomorrow

In this, the fourth installment of our series on the Non-Proliferation Treaty (NPT) in preparation for the NPT Review Conference in September, Jos Gallacher examines the contradictory attitudes to nuclear power in the NPT system and discusses Article IV in particular.

In drafting the NPT the superpowers included a provision encouraging nuclear power development which has caused problems for the non-proliferation regime ever since. Under Article IV, countries are obliged to 'facilitate' the fullest possible exchange of nuclear technology. (This provision had been beefed up by the US and USSR at the last minute to encourage waverers to sign.) Thus, countries which support non-proliferation are faced with a contradiction. Either they uphold the Treaty and spread the means of producing fissile material, or they withold nuclear technology and undermine the NPT.

The paradox emerges at the five yearly NPT Review Conferences when non-aligned developing countries have criticised restrictions placed on nuclear exports. However, these restrictions have been inspired by the desire to prevent proliferation.

Safeguards

The earliest attempt to square this circle appears in Article III of the Treaty itself. Article III requires that all Non Nuclear Weapon States (NNWS) accept International Atomic Energy Agency (IAEA) 'safeguards' on all their peaceful nuclear activities, and that exporters demand 'safeguards' on any facility exported. The term 'safeguards' is wrongly reassuring for a number of reasons.

Firstly, safeguards represent the verification system for the NPT and so aim only to detect violations. They cannot, and are not intended to, prevent the diversion of material to nuclear weapons. Like any arms control verification system they are not 100% effective. The best they can offer is reasonable reassurance that the Treaty has not been broken.

Secondly, the verification system did not exist when the NPT came into force in April 1970. Only afterwards were negotiations held to draw up a model safeguards agreement which were completed in early 1971. These negotiations comprised a relatively weak system in order to encourage European nations to ratify the Treaty. Individual countries then negotiated with the IAEA their own specific agreements. There was therefore a further delay in implementing safeguards.

Thirdly, this weak system depends on a country's own accounts of fissile material and uses international inspectors to audit the accounts. Such accounts can be wildly inaccurate, especially where large quantities of material are present, as in reprocessing plants. For example, at Windscale in 1982 the difference between the accounts and the material physically present - known as Material Unaccounted For (MUF) - included a missing 10.5kg of plutonium, enough for two bombs

Material Unaccounted For (MUF)
Plutonium at Windscale (kilogrammes)

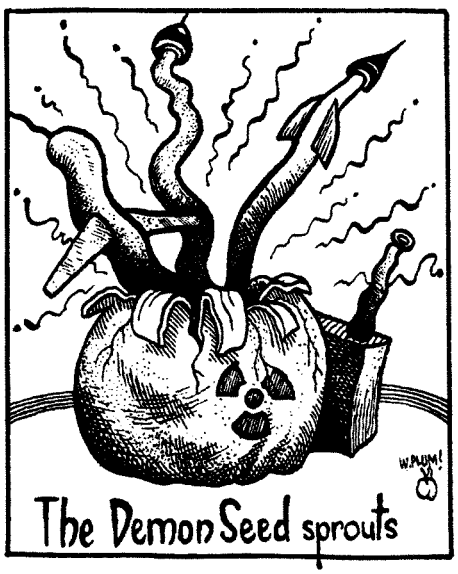
1971	-56.0	1978	+24.1
1972	-32.5	1979	+20.2
1973	-14.4	1980	-1.4
1974	+2.4	1981	-9.9
1975	+6.6	1982	-10.5
1976	+13.3	1983	-0.5
1977	-16.1	1984	+4.2

Source: Atom

The gradual realisation in the US and elsewhere of the inadequacy of safeguards has prompted other attempts to reconcile Article IV with non-proliferation.

In 1975 the nuclear exporting countries began a series of secret meetings intended to strengthen the non-proliferation regime. Britain wanted the nuclear suppliers to refuse exports to countries unless they accepted safeguards on all their nuclear activities - known as 'full scope safeguards'. The US was more interested in a ban on the export of reprocessing and enrichment plants. Although neither position was accepted by the nuclear suppliers group, developing countries criticised the secret meetings for introducing restrictions on nuclear trade in contravention of Article IV.

The suppliers group also failed in its intention to remove safeguards from competition. In 1979 Canada and West Germany were competing to supply Argentina with a nuclear reactor and heavy water plant. Canada included a demand for full scope safeguards in its bid in the belief that West Germany would too. West Germany did not, and so won the contract.



The American government pursued its opposition to reprocessing by unilaterally renouncing the technology and putting pressure on its allies not to export reprocessing plants. (As a result since 1977 Britain has had the logically absurd policy of refusing to export reprocessing plants but providing reprocessing at Windscale and exporting the plutonium produced!) American policy caused so much friction between suppliers and importers and among suppliers that the Americans changed tack and proposed an International Nuclear Fuel Cycle Evaluation (INFCE).

The INFCE was a two year diplomatic exercise in which the US attempted to persuade the world that plutonium was not necessary as nuclear fuel, that it would be cheaper to burn only uranium and that the proliferation risks of this route were far lower than for plutonium fuel cycles. The INFCE report was a compromise which meant all things to all participants. Although hailed as a 'new consensus' the report could not save the nuclear suppliers from criticism at the 1980 NPT Review Conference only six months later.

Conflict

The conflict between nuclear trade and non-proliferation has been muted in recent years due to the recession in nuclear ordering. However there are signs that the recession is coming to an end. Led by overseas orders and with the prospect of new orders to replace the ageing Magnox reactors in this country, the nuclear salesmen are again peddling their wares.

Another worrying development is the emergence of new supplier countries outside the non-proliferation regime. Non-signatories to the NPT, in particular Argentina, India and Pakistan have already established a network of agreements with other developing countries. These countries have developed the forbidden technologies of reprocessing and enrichment and, not being NPT signatories, will be less scrupulous about exporting them.

The inclusion of Article IV has promoted the belief that proliferation could be halted while nuclear power spread unchecked. It has hindered attempts to control proliferation by restraining nuclear technology. In 1985 the contradiction must be faced and resolved in favour of non-proliferation *and* against the nuclear trade.

Campaigning Against Clusters

There are nine known leukaemia clusters in Britain: - at Windscale, Dounreay, Leiston (near Sizewell), Lytham St Anne's (near Springfields), Winfrith, Hunterston, Lydney, Slough and Dane End. All but the last two are close to nuclear plants. In the following article Jo Worsnip of the Severnside Campaign Against Radiation (SCAR) reports on the Lydney cluster and the campaign which has developed to try to prove a link between leukaemias and their proximity to nuclear plants.

The Severn estuary has the highest concentration of nuclear power stations in Europe. The small town of Lydney is on the west bank of the Severn, opposite the Oldbury and Berkeley Magnox power stations; Hinkley Point A and B stations are further downstream. Four cases of Lymphatic Leukaemia and two of Hodgkin's disease make up the Lydney cluster and they were all diagnosed between 1979 and 1983.

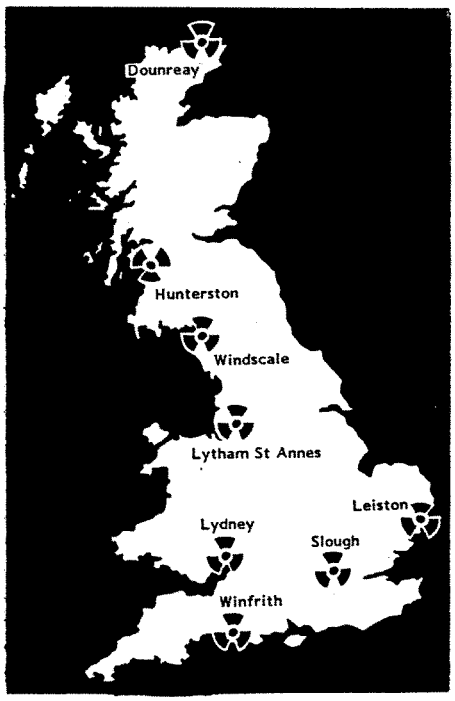
Official Assurances

In March 1983 a mother whose child attended the same village school as three children with leukaemia wrote to the Area Health Authority asking whether the Berkeley power station could be responsible. Dr Mary Seacombe, the Authority's Registrar in Community Medicine, replied that 'features like [apparent childhood leukaemia clusters] always warrant investigation to determine if it is due to coincidence or to search for a cause.' Despite a promise to write again with more detailed information, Dr Seacombe did not, and ten months later she had left her job.

Following a meeting with a local farmer who was unable to obtain results of routine Strontium-90 tests on his herd's milk, the Lydney Town Council wrote to Gloucestershire's Environmental Health Officer (EHO) raising the issue of the number of leukaemia cases in the area. Mr Davis, the EHO, wrote in reply that the cluster seemed to be 'within the realms of statistical probability' and that the radiation level was 'undetectable above normal background.' The contents of the letter were discussed at the Council meeting on 9th January 1984 and the Mayor commented to the *Gloucester Citizen*, the local evening paper, that the report 'must allay our fears.' People were not reassured, and the prevailing wind from Berkeley to Lydney didn't help.

The media took up the issue. The *Observer* pointed out that the Lydney cluster was the fourth of its kind, and three more were added to the list in less than a year - all close to nuclear plants. There were calls for an inquiry, among others from the Labour Mayor of Lydney, the Tory MP for West Gloucestershire and the SDP Parliamentary candidate. Paul Marland MP and John Watkinson (SDP) later backpedalled, not knowing which side of the argument would bring most political capital.

By this time Black was preparing his report on the Seascale cluster and the Forest of Dean CND Secretary Barbara French called for the release of monitoring data from 1976-80 (the crucial years which may prove the link) and for the Lydney figures to be referred to Black. Following Barbara French's talks to a number of groups, the Severnside Campaign Against Radiation (SCAR) was set up by concerned local people. SCAR lobbied for an inquiry at the Lydney Town Council and the Forest of Dean District Council and requested funding for the inquiry.



Report Criticised

Avon Friends of the Earth were asked to prepare a critique of the Forest of Dean District Council EHO's report on the cluster. The report looked at the levels of discharges from the stations and the statistical evidence of the relationship of nuclear power stations to the incidence of leukaemia. It gave scant information on monitoring techniques and made a number of inaccurate statements on leukaemia and, although it conceded the local incidence did not conform to the national average, it included the suggestion that averaging the cases over the preceding ten years as well would reduce the high incidence of the disease!

The FoE critique queried the report at each paragraph. It stated that it is 'erroneous to say that Lymphatic Leukaemia is not related to radiation. . .the chronic form is the only type of leukaemia unrelated to radiation', and 'considering that most people do not work or live near nuclear installations the man-made dose is disproportionately borne by a small number of people and will outweigh the natural dose.' Demonstrating that medical opinion of safe radiation levels had consistently been adjusted downwards, the critique pointed out that the US safe level is one twentieth of ours. It concluded that the scale of marine monitoring was so cursory as to permit a leak to escape detection.

A simplified version of the critique was sent to every District Councillor with the recommendation that a thorough independent inquiry should investigate:

1) cancers in children and adults (the number of adult leukaemias is also thought to be excessive);
2) thyroid diseases (there are unconfirmed reports of excessive cases locally); and
3) birth defects, miscarriages and still births.

Public Meeting

A leaflet was distributed throughout the Lydney area and a petition collected over 2000 signatures in support of an inquiry. The petition was presented to the Forest of Dean District Council with a request for an estimated £4500 to be set aside for the inquiry. Only two councillors voted for the full amount, so only £1000 was made available. A month later the CEGB announced that the 22 year old Berkeley power station was to have its operating life extended by five years.

A well-attended public meeting was organised by SCAR in September which included on the platform Hugh Richards (Avon FoE), Dr Michael Braddick (the Bristol medical officer who did much of the work on the critique), Dr Gareth Leyshon (the District Medical Officer) and Dr John Bishton (the manager of Berkeley). Dr Bishton said that there had never been an accident and he didn't believe an inquiry was justified. Dr Leyshon said he hoped there would be no more cases of childhood leukaemia and claimed there were clusters nowhere near nuclear facilities - he knew of a dozen or so in Yorkshire - but he was not opposed to an inquiry; Dr Braddick described the effect of the disease and argued cogently for an inquiry; and Hugh Richards explained that nuclear expansion was unnecessary on economic grounds and the health risks made it totally unjustifiable.

It became clear that both the CEGB and the Health Authority were losing credibility and, summing up, the Chair-

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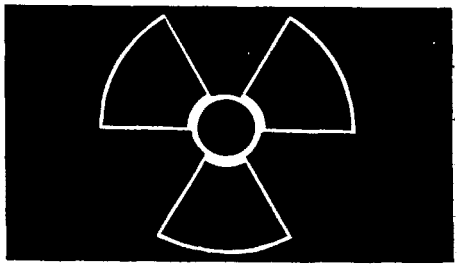


man indicated that many questions remained unanswered. Most questions remained unanswered during the subsequent correspondence: Dr Bishton referred queries to the NRPR for clarification; Dr Leyshon passed letters to his Registrar of Community Medicine, failed to provide the promised information on other radiation-linked diseases and became less enthusiastic about a local inquiry. And the number of clusters in Yorkshire dropped to 5, but were still unplaced.

The democratic approach was a little more successful. Paul Marlan was unsympathetic and even aggressive at his surgery. He was given the EHO report and Dr Braddick's critique of it and a series of questions. He was more approachable on the second visit and agreed to ask a question in Parliament about the cluster.

Following the publicity the Winfrith cluster received, and the formation of the SCREAM (South Coast Radiation Elimination Action Movement) group in the area, it was decided to organise a weekend conference on low level radiation. Through collaboration and pooling of information we may be able to demonstrate links which may not be apparent from a study of one cluster viewed in isolation.

The conference is planned for the weekend of June 15th and 16th in Gloucester. Contact: Sue Haverley, Hillside Cottage, Viney Woodside, Lydney, Glos.

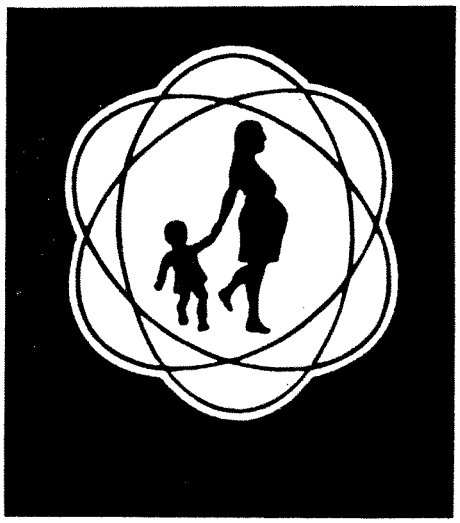
Radhealth Campaign

In the last six years we have seen a dramatic turn around in anti-nuclear effort from the focus on weapons proliferation, accident risks, civil liberties and economic and employment issues, to concern about radiation and health. The possibility of a link between radiation and cancers is now established in the minds of many people. And trades unions worldwide are concerned about radiation as a health and safety issue - low-level is no longer seen as low risk. In this, the first of three articles, Tony Webb of the Trade Union Radiation and Health Information Service sets out the background to the campaign.

The lines are drawn for what may be the most significant struggle yet: convincing the public that we are damaging health in workplaces and communities as a result of our nuclear activities. This process of death and damage affects not only those living close to nuclear facitlities, it also affects the rest of us through the widespread promotion of nuclear technology in industry and medicine, and the long term accumulation of radioactive wastes. Finally, perhaps all too finally, we threaten our own immortality. Exposure to radiation makes successive generations more susceptible to disease at the same time as the levels of radiation and other pollutants increase. There are, as Rosalie Bertell so eloquently puts it, no future generations that are not already alive in the sperm and ova of people living today. To damage these is to irreparably damage the future. (1)

ICRP's Role

It is an amazing accomplishment of the nuclear industry that we have been persuaded that the risks from low level radiation are slight; the only legitimate health effects are a few cases of cancer and genetic defects. Aspects of radiation and health which were known and studied before 1950 have been buried from public consciousness and kept out of scientific debate. Other life-threatening problems such as heart disease, and the reduction of the quality of life from common illnesses and allergies, are just not counted. (2)

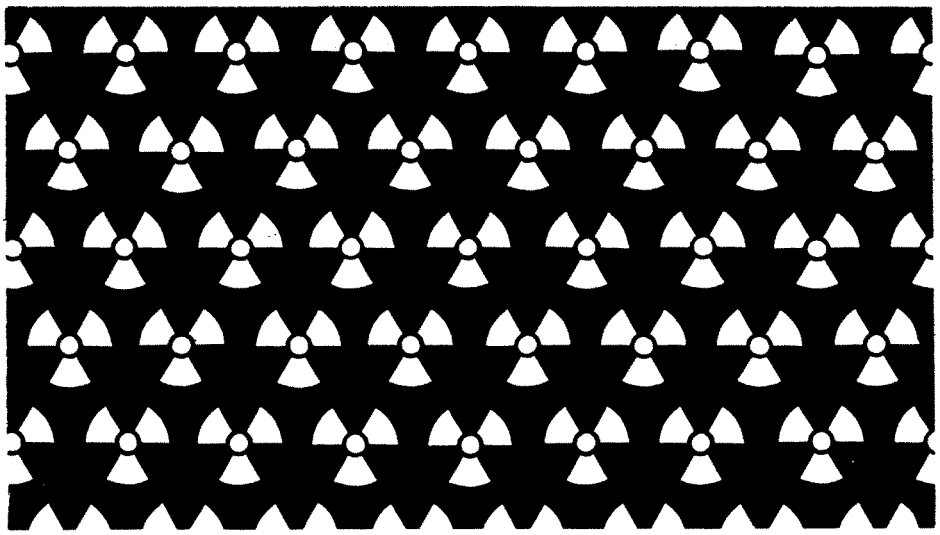


The key to understanding this psychological coup by proponents of nuclear power is the role played by the International Commission on Radiological Protection, a body wholly unworthy of its name. The ICRP

- *is self appointed and self selecting;
- *is biased towards the physical rather than life sciences
- *has consistently failed to speak out on such vital issues as fallout from nuclear weapons testing, abuses of medical X-rays, 'burnout' practices involving nuclear workers, (4)
- *has consistently selected data from the available studies most favourable to the nuclear industry and least favourable to protection of health of workers and the public.

All this could simply be ignored were it not that ICRP recommendations are used as the basis for national protection standards all over the world.

These standards were last revised in 1957. Since then considerable effort has gone into maintaining the view that they represent an international scientific consensus on what is, if not absolutely safe, an acceptable level for workers and the public. In reality, the 5 rem a year limit for workers represents a risk at least 17 times greater than would be considered acceptable for a safe industry. (5) 'Safe' in this context means a life time risk of one worker in 200 dying from an accident on the job. The ICRP estimates of risk are already 2 to 10 times lower than those of other international bodies. (6 & 7) On top of this, the estimated doses for Hiroshima bomb survivors have been shown to be

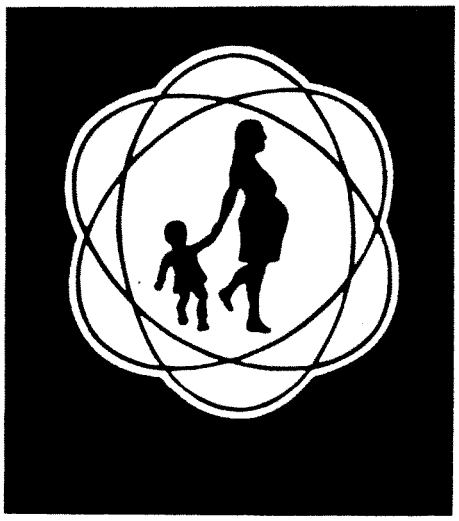


drastically wrong (8) and that all the above risks may have to be doubled. (9) Clearly the internationally accepted standards offer no real protection for workers and even the limit for doses to the public represents an unacceptable level of risk.

Despite this mounting evidence, in 1977 the ICRP proposed a new system for calculating doses from exposures to various organs of the body. (10) These changes will dramatically *increase* the permissible doses to critical organs by between two and eight times the current levels. (11) For workers in the dirty sectors of the industry such as uranium mining, isotope fabrication, or reprocessing, this will give management greater freedom to contaminate workers within the 'legal' limits.

Canadian Demands

A few examples may help to illustrate the point. Uranium miners already face a one in ten risk of dying of radiation-induced lung cancer from as little as 20 years work underground and lung cancers have already reached epidemic proportions. (11) The accumulating evidence forced the ICRP to recognise that exposure to radon 'daughters' is twice as dangerous as previously believed. At the same time the new system permits lung doses to be increased by a factor of three. These combined means a net increase of 40%, more than wiping out any benefit and inevitably condemning many more uranium miners to die. Similarly isotope production and nuclear medicine workers could absorb up to 400% more radioiodines. Workers in the CANDU plants or British H-bomb facilities can absorb up to 34% more tritium. (12)



It was these proposals to relax the standards that produced the turn around among the unions. Already concerned over compensation cases, the British G&MBATU and T&GWU together with ASTMS and a variety of anti-nuclear unions voiced such opposition in 1980 that even this Thatcher government has held off bringing in the ICRP system for 5 years. In the process some concessions have been won. These do not, however, fundamentally challenge the international consensus, and may prove to bring little change in practice. (13)

In the USA, considerable work has been done within the unions. By taking the issue to the membership in California and the mid-west it has been possible to stimulate a debate on radiation and health as a health and safety issue separate from the nuclear power debate. There are in fact many more workers exposed to radiation in medicine and industry than in the nuclear power industries. By winning over first the service unions and then the industrial unions and producing relevant education material for union health and safety courses, it was eventually possible to raise voices of opposition to the ICRP even from the very conservative building trades unions by 1982. Japanese unions and the European Trades Union Congress have also criticised the ICRP proposals.

Union Opposition

In Canada a coalition of 7 unions led by the Canadian Labour Congress (covering workers in nuclear power plants, uranium mines, isotope production and health care) submitted coordinated briefs to the Atomic Energy Control Board (AECB) in 1984. These all opposed the new regulations and called for an immediate five-fold reduction in worker doses with a target of ten-fold reduction and reductions in permitted doses to the public. The Canadian unions went further by recognising that cutting individual doses (and then spreading the dose over more people) is not enough. They called for collective dose limits to be set for all existing and new facilities, and insisted that these should be used to force real reductions in overall radiation exposures. (12) The AECB is still trying to deflect these demands which hit at the very heart of the teetering edifice of 'scientific' consensus built by the nuclear industry and the ICRP.

The very success of the nuclear industry in using the ICRP to create unity at the international level, both in terms of regulations and the underlying way of perceiving and quantifying radiation and its health risks, may yet be its downfall. It only takes one significant breach in this consensus and the whole edifice is seen to be a highly questionable series of value judgments masquerading as science. In subsequent articles I hope to develop this theme and suggest strategies for the future campaign on radiation and health.

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Rosalie Bertell Speaks

Rosalie Bertell, a Canadian nun and scientist, whose book *No Immediate Danger - Prognosis for a Radioactive Earth* has just been published, has recently been travelling and talking in the UK. In Edinburgh she spoke to Elizabeth Burns about the issues raised by the book and about how she came to write it.

After following a career which has included both the hard physical work of the Order of Grey Nuns and doing a PhD in maths, in 1976 Rosalie Bertell suddenly found herself involved in confronting the American nuclear industry. She was then working in a cancer research unit, and although she was studying the effects of low level radiation found in X-rays, she had few doubts about nuclear power. 'I accepted all the statements made by the industry,' she says. But by chance she got involved in an inquiry about a proposed nuclear power station, and became aware of the lies which the public were being told to convince them that nuclear power was 'safe'. 'That was my first experience of propaganda.' The power station was stopped, largely because of the evidence Rosalie Bertell had given on the medical effects of radiation. It was the beginning of a crusade for her: she was contacted by groups all over the country asking her to speak out against nuclear power stations, and at the same time the Government and the industry's continued suppression of the facts made her carry her research further.

Smear Campaign

She's now familiar with the cover-ups which go on in the industry, and with the way scientists like her are treated. Her work is constantly being attacked and discredited, and her attempts to respond to criticism are silenced. She tells the story of how she spoke on an Australian radio programme, which was immediately followed by a pro-nuclear spokesman's personal attack on her. 'I later challenged him to a TV debate which he agreed to, but then when I got to Melbourne he bowed out, and said he wouldn't do it.' In a respected American science magazine, 'there was a whole article criticizing me, paid for by the US Department of Energy, and they wouldn't allow me to respond in the same issue, which was really unscrupulous. Finally a year and a half after the article had come out they published a letter to the editor from me. They've now said it's not their policy to allow a scientist to respond to criticism.' But, she adds, laughing, there's nothing like this kind of dishonesty and criticism to push you further in a situation.

The evidence which Rosalie Bertell has collected and which forms the basis of her book, is about the effects of radiation on the population and on the environment. The book and the slides she shows give a glimpse of the horrifying situation which has developed in the world since nuclear testing began, and prove conclusively that nuclear power, far from being 'clean and safe' as the industry claims, has already done enormous damage to the earth and to the health of those who come into contact with radiation.

Medical Effects

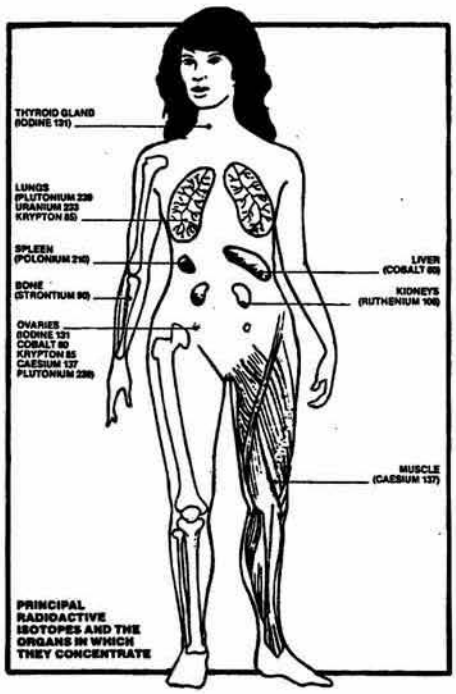
The wide-ranging and often undetected effects of radiation are perhaps the most worrying. Dr Bertell points out that it isn't necessary to be directly involved in the production of nuclear weapons or power to experience harmful effects. She tells, for example, how women living downwind of the Nevada test sites drank contaminated milk and as a result gave birth to deformed and retarded children. She gives a frighteningly long list of the medical effects of radiation: miscarriage, stillbirth, infant deaths, asthmas, severe allergies, depressed immune systems, leukaemia, tumours, birth defects, mental and physical retardation, and the results of premature aging. These are occurring not only in extremely contaminated areas, but also in ones of low-level radiation. World War III has already begun, Rosalie Bertell believes, and its casualties are the 16 million people who have so far suffered as a result of radiation.

There are the obvious examples of the victims of Hiroshima and Nagasaki, where people are still ill and dying as a result of the bombs dropped 40 years ago, and the people of the Marshall Islands in the Pacific, where nuclear tests have been carried out since 1946. A high percentage of Marshallese children are born deformed and mentally retarded, and the sea around the islands is so contaminated that the population has to live off tinned fish imported from the USA.

But even with the stark medical evidence of these extremely contaminated areas, the industry refuses to make the connection between radiation and illness. For example: out of over a thousand claims for compensation by American veterans involved with nuclear weapons, only one has ever been granted.

Health Alert!

Similar situations are occurring all over the world as increasing numbers of power stations are built and weapons developed. At Windscale, the evidence of disproportionately high cancer levels in the area was brought to public attention by a TV documentary, and Rosalie Bertell sees 'private' investigations like



this as the only solution in the face of the nuclear industry's bland denial of the dangers. She believes that once the public are alerted to the health risks of radiation, they will organise their own opposition, because as she says, 'everyone's concerned about their health'. She hopes that *No Immediate Danger* will be useful: 'Hopefully, the book will provide a framework so people can write their own stories. I've provided a lot of references so people can follow them up.'

Despite the damage already done and the evidence of the statistics which she has uncovered, Rosalie Bertell remains optimistic. 'We can maximise what health is left,' she says. 'But I don't expect people who are in top military or

Out

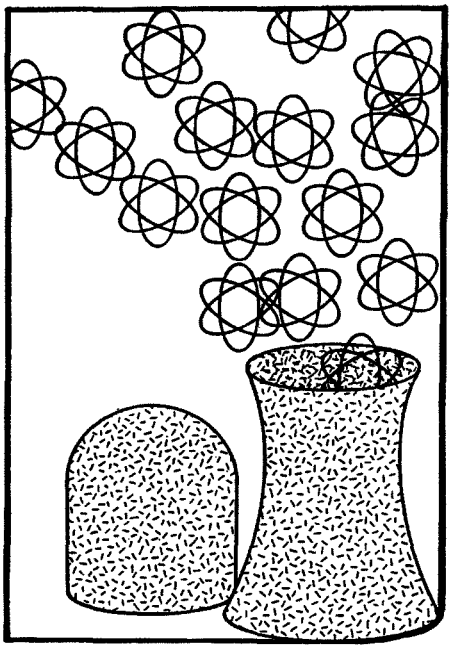
top political positions to give up power or think of changing. So what we see is that outside the mainstream, people are finding other ways to live, and usually what happens is that the fringe becomes the centre. . . new leaders are found who are acceptable to the majority of people, and as the crisis builds up it helps the change. There's an extreme crisis before a change. It's very frightening, given the precariousness of the crisis.'

Forces for Change

As well as the anti-nuclear movement, Rosalie Bertell sees other forces for change, such as the United Nations, 'because our problems are now international'; the Church, which she sees as 'the only international network which competes with the military and the multinationals'; and the women's movement. Women internationally form a 'very strong network', she believes. 'They don't respond to the usual silencing, like threats to their reputation. Women don't respond to the same social pressures, they have less to lose.' They are also more aware of the dangers: - 'Women look at things in a different way from men. Men, if they build a nuclear power plant, and if they stay within the law and are cost effective, then they don't see any problem. Women are more concerned with birth and dying.' For example, she explains in her book how still births and miscarriages caused by radiation have not been considered significant. 'When a foetus is aborted prior to 16 weeks the event may not need to be reported and included in vital statistics. It becomes a non-happening and the nation appears to be in good health. . . '

Rosalie Bertell has a particular respect for the Greenham Common women 'or uncommon women, I should say'. She gives them as examples of women who, realising the dangers we are faced with, have totally commited themselves to changing things. 'They are not afraid of the truth,' she says, and believes that this is a state which many people will have to reach.

Having reached that level of commitment herself, Rosalie Bertell says modestly that she's in a privileged position and that her book voices the opinions of many people with the same ideas as her. *No Immediate Danger*, carefully researched as it is, will no doubt spark off controversies and distortions of the facts by governments and the nuclear industry. But it will also inspire people to discover the truth and to oppose what's going on in their names. Rosalie Bertell, travelling around the world to talk about what she's discovered and written about, is a brave and prophetic woman.



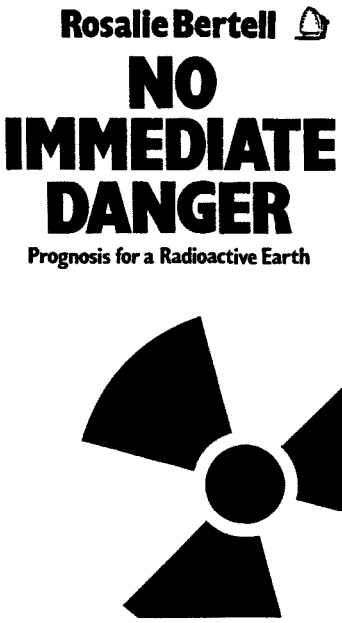
No Immediate Danger: Prognosis for a Radioactive Earth by Rosalie Bertell. (The Women's Press, £5.95, 435pp)

Already it's been said that *No Immediate Danger* will become a 'bible' for the anti-nuclear movement, and Rosalie Bertell herself says that she sees it being used as a framework and a reference book by campaigners. She also hopes that the book, which will be published worldwide and which tells the stories of anti-nuclear groups throughout the world, will help people to realise that they're not working in isolation.

No Immediate Danger is full of information, from an explanation of how radiation occurs to the personal and tragic stories and well researched statistics on the medical effects of radiation. There are also extensive references which will help make the book invaluable as a source of facts on the nuclear age.

Attempts at researching the connections between radiation levels and health have been consistently thwarted by the nuclear industry. Rosalie Bertell quotes examples of medical records mysteriously 'lost', grants withdrawn and papers unpublished. Research which has been completed has been discredited and trivialised. This book, giving conclusive evidence of that research and at the same time exposing the nuclear industry's hypocrisy and complete disregard for human life, will presumably be similarly attacked.

The power of *No Immediate Danger* is that it is more than simply a list of statistics, important though these are.



It is also a testament to the horrors inflicted on people in the name of science and progress. As such, it makes depressing reading, ~~yet~~ Dr Bertell believes that there is also cause for hope. She calls the book's final section 'A Time to Bloom' (the original title of the book) because, she says, we have reached a limit to growth in our society, and must now concentrate on 'blooming'. This is the most positive part of the book, moving away from the actions of governments and industry to those of ordinary people. Rosalie Bertell gives examples of the ways in which things are changing, from Greenham Common to the United Nations, from solar powered villages in Algeria to the successful halting of nuclear power stations.

Such a mass of information is obviously difficult to categorize, but one criticism of the book is that it needs more careful editing, and perhaps a stronger authorial voice to link it more coherently together. And the reference tables, un-numbered and placed apparently randomly in the text, would be of more use if they were better organised.

But this is a unique book - scientific, yet moving, an expose and a prophecy, a catalogue of disasters and a hopeful prescription for the future. One of Rosalie Bertell's hopes is that her book will act as a catalyst. This it is bound to be, forcing the nuclear industry and those who oppose it into some kind of action.

No Immediate Danger is not a book which can be easily, or safely, ignored.

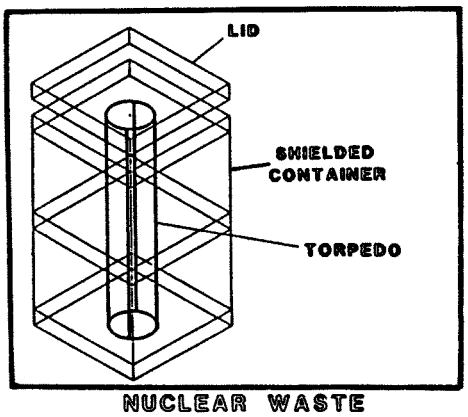
Elizabeth Burns

A. ~~Also~~ Yet ~~Not~~

Radwaste & ENSEC

Continuing his short series on radioactive waste management policy, Don Arnott this issue looks at ENSEC and their proposals for disposing of Intermediate Level Waste in deep boreholes in the seabed off the Orkneys. All the information about the plan is derived from ENSEC documents.

ENSEC (Environmental Securities) propose to use standard oil production techniques to drill deep boreholes in suitable submarine strata which would then be lined (with steel and concrete), filled with encapsulated Intermediate Level Waste (ILW) and the top 500 feet sealed with concrete. Whilst the containers are being emplaced the lining of the borehole will be extended upwards to align with the rig itself. Containers will thus be able to be released one by one and, guided beyond possibility of error, will fall by gravity into the borehole itself.



NUCLEAR WASTE TORPEDO AND SHIELDED CONTAINER

The provisional timetable is startling. ENSEC propose to drill, line, fill and seal each borehole in approximately one month. Operating two rigs will give an annual disposal capacity of 10,000 cubic metres in 20 holes.

The latest ENSEC (April 1984) document proposes boreholes of 3000 feet deep, i.e. 2500 feet effective allowing for the concrete sealing plug, (earlier papers describe 10,000 feet holes). The 1984 document describes the containers as being 3 feet diameter cylinders, 5 metres long and one inch thick (presumably of steel, although this is not stated).

Assuming each container has a loaded weight of 5 tons, the bottom one will have a load of 760 tons resting on it. Furthermore it is obvious that the backfill material, designed to provide a further barrier against leakage, will be sea water - hardly a good choice for corrosion resistance.

It is such details, and many others, rather than the fundamental proposition, that raise doubts. For, if the oil industry claims that holes can be drilled and accurately loaded in this fashion, it is hardly likely to be wrong, and if not ENSEC then someone else will try it. We should therefore be wise to treat the technique seriously - so far as that goes. There are, however, two fundamental objections which arise: geological considerations in general, and those specifically relating to the ENSEC plan.

Geological Considerations

I deferred consideration of the ICSU (International Council of Scientific Unions) findings on seabed disposal in my previous article (SCRAM 47) because they fitted more relevantly into this discussion. Their main criticism of the ENSEC borehole would be that it is not nearly deep enough - *Appropriate mining technology for depths up to 4km exists, and the 500 to 1000m depths commonly considered adequate require careful justification* because *stress levels are more predictable and more regular at great depths. Near the surface unusual or unexpected results are not uncommon* (Atom 338, p7).

Various sea dumping proposals.

(a) Unsealed discharge into the sea (Windscale).
(b) 'Dumping' sealed containers at designated sites on the seabed. (Subject to moratorium at present).
(c) Dumping sealed containers and unsealed contaminated debris, such as metalwork, in deep ocean trenches.
(d) Deposition of sealed containers in boreholes driven into the seabed in deep water.
(e) Driving self-propelled waste containers, 'torpedoes', a few hundred feet into sediments resting on the seabed.
(f) Under the seabed but close inshore, the repositories being loaded by access from land.
(g) Deposition of sealed containers into boreholes driven into the seabed in relatively shallow water. This is the ENSEC proposal.

Rock at great depths under such enormous pressure has less freedom of movement and thus less opportunity to fracture, thus requiring space for expansion. ICSU warned that drilling or excavation significantly disturbs surrounding rock, and also that fracture systematics, and most other relevant phenomena, are not well understood and that long-term research is needed: considerations as important for seabed as for land repositories.

Further than that I am not qualified to go except to point out that we have a problem for geologists to study and it might be wise to lose no time in starting.

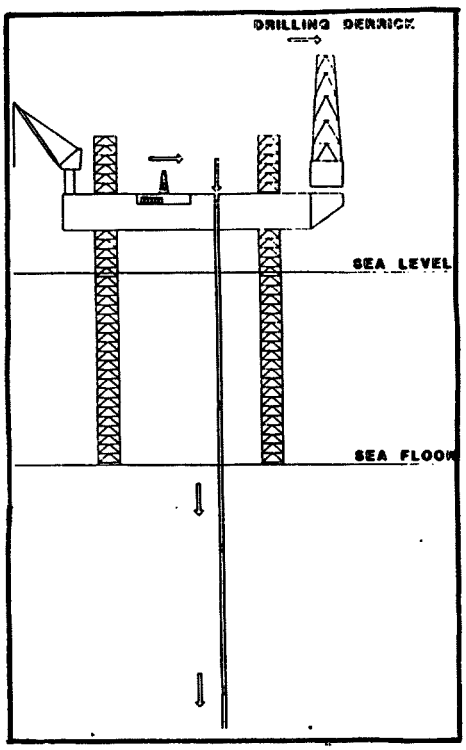
The ENSEC Proposal

The proposal under discussion might almost have been calculated to maximise the transport of radioactive waste. ENSEC have clearly located their operation with respect to Dounreay. Sixteen miles due west of the Orkneys they claim to have located a rock formation in which geological and marine conditions are alike suitable. In selecting Stormy Bank they have been influenced by local acceptance of the Fast Reactor project, also by the fact - to which we have become distastefully accustomed in Thatcher's Britain - that the area is impoverished and the natives will do anything for jobs. They do not put it this crudely, but they claim that employment will be created; I am bound to say that, on the documentation available to me, I can see no reason to suppose that the project will create any significant employment at all.

It is proposed to transport the whole of the ILW generated in Britain by rail (they say) to Wick or Thurso, via Carstairs, Stirling, Perth and Inverness (if the shorter of the only two routes is chosen), and thence by ship to Stormy Bank for disposal. Three ships and 80 storage transporters for the containers figure in the proposal. If road transport is used, the waste will pass through the busy Forth-Clyde neck with its complex of roadways.

How much, and how often? It is not clear from ENSEC's data, but the NIREX 2nd Annual Report estimates that six trainloads or 70 lorries *per week* will be required for the two sorts of ILW for disposal either in a shallow or a deep repository (p23). ENSEC transportation volume must be similar. Therefore, Scotland, with three nuclear establishments (excluding Torness) will have nuclear waste from England and Wales 20+ facilities moving north on its railways or roads at a rate of 1 trainload or 10 lorries per day.

I shall be losing no sleep over this prospect because I think I can recognise a non-starter when I see one. But this may serve to illustrate the futility of



WASTE EMPLACEMENT

the policy of insisting, as the DoE still does, that all ILW arisings must be deposited in two centralised repositories.

However, Sir Walter Marshall has twice recently hinted that thermal reactor reprocessing, which is responsible for almost all of the radioactive wastes which trouble us, may be phased out. But the Fast Reactor project is designed to breed more plutonium than it uses - a procedure involving reprocessing, a facility without which the whole project is nonsense - so the Dounreay-Stormy Bank proposal would involve no overland transport and only a short sea journey from an establishment situated on the coast provided with its own shipping facilities. An ideal solution, from the industry's point of view.

I therefore provisionally conclude that the ENSEC proposal is aiming at the Fast Reactor programme, at least in the first instance. It must be noted that ENSEC's ambitions may extend to more than nuclear waste disposal: there are several references in their documents to '*toxic and* radioactive waste', but the notion of transporting a variety of toxic waste the length of Britain is too preposterous to be entertained, so I think not at Stormy Bank. However, it seems the Dounreay-Stormy Bank link seems to have too much going for it for us to ignore.

That being so we have to ask: are the wastes retrievable, and what is the time scale of the proposed development?

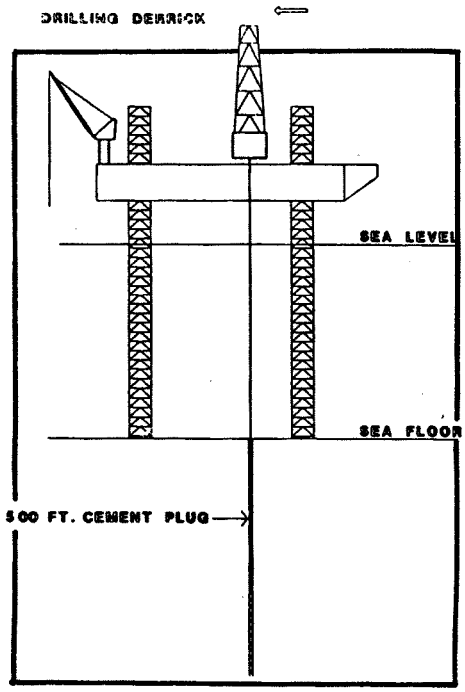
Retrievable?

Storage is the term frequently used in ENSEC literature, implying retrievability. Indeed, Dr Clarke MP for South Shields said in the House of Commons regarding ENSEC, 'I have had brief discussions with the company, which assured me that it would be posssible to retrieve these containers easily' (*Hansard* 8.3.85). I must say categorically that these wastes are *not* retrievable from a 3000 foot borehole sealed with 500 feet of concrete on the top. ENSEC mentions no monitoring procedure which might indicate the need for retrieval.

Time-scale

Jim Wallace MP for Orkney and Shetland, during the same debate, complained he had been assured by junior Ministers that under-seabed disposal is 'highly futuristic' yet when the Secretary of State made his statement in January, he replied, 'under-seabed disposal was many years away'. William Waldegrave MP, indulging in admirable political figure-skating, replied that he did not know much about it himself; it was tentative; and the Government had referred it to RWMAC as one option to be studied following the Holliday Report.

However, ENSEC's own time-scale lists:



FINAL ENCAPSULATION

Phase 1 - the announcement of the original project (now concluded);
Phase 2 - obtaining Government approval, obtaining contracts for disposal, carrying out technical design work, carrying out geological and oceanographic surveys, identifying suitable on-shore base, promotional public relations work, consulting with owners of the waste and Government on the use of the site, and detailed costings under way);
Phase 3 - after simulation studies, waste will be deposited.

For the whole of Phase 2 'up to four years' is being allowed. Nothing has been learned of the time-scale of such work, so this is of course nonsense. But the fact that a scheme is nonsense doesn't mean it won't be put into effect, especially when, in their promotional documents, ENSEC claim that it will do away with the need for a public inquiry and evade the sad nuisance of objections by environmentalists, local authorities and human beings in general.

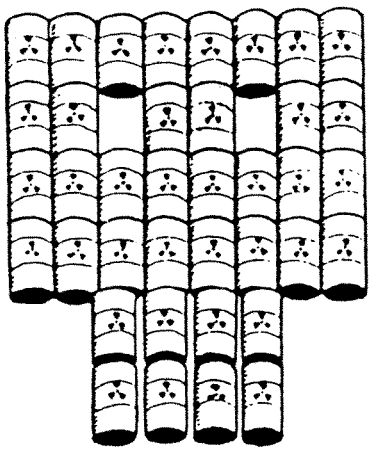
Mr Waldegrave (evidently not at his best on the 8th March) made a remarkable statement: 'The trouble is that the more open one is about every tentative investigation, the more the rumours spread and the easier it is for people to get up scares and make rational discussion difficult.' Who starts the damned rumours anyway? When one thing is said in the House of Commons and the polar opposite by the company concerned what is to be expected but rumours? And what are we supposed to do - other than hope for the best and prepare for the worst?

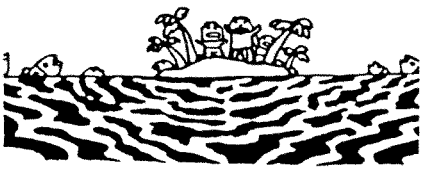
ENSEC (Environmental Securities) Ltd was formed about two years ago and appears to be a subsidiary of Rig Design Services, 4 Great Portland Street, London W1N 5AA (01 - 637 8544). Sealion Shipping Ltd (7 St Helen's Place London EC3A 6BL) appears to be responsible for the construction and operation of the ships which would form an essential part of the scheme.

Radwaste ~ Poison for the Pacific

March was a month of action for a Nuclear-Free and Independent Pacific. During that month two women from the Pacific - Chailang Palacios from Saipan in the Mariana Islands and Titewhai Harawira from Aotearoa (New Zealand) - travelled around Britain on a speaking tour, informing people of what is happening in the Pacific. On top of the appalling health effects suffered by the peoples of the Pacific as a consequence of the atomic testing by the US, France and Britain, Japan is now planning to dump nuclear waste in the Marianas trench. The following article is taken from a leaflet produced by the Campaign Against Nuclear Waste Dumping in the Pacific which is based in Japan.

We, the people of the Pacific Islands, have long been controlled by powerful countries under policies of colonisation and nuclearisation in spite of our struggle for a Nuclear-Free and Independent Pacific. Recently we have been subjected to a new threat: our ocean may be contaminated by nuclear waste dumping.





The Japanese Government in 1980 announced a plan to dump nuclear waste from their nuclear power plants into the Pacific Ocean about 600 miles north of the Mariana Islands and has been trying to implement its plan through a variety of means despite intensified opposition from the Pacific Island nations, the Japanese people themselves, and against the international trend. Other countries are halting their ocean dumping plans.

We now face the increasing prospect

that Japan and other countries will force us to accept the dumping. This threat comes from the fact that:

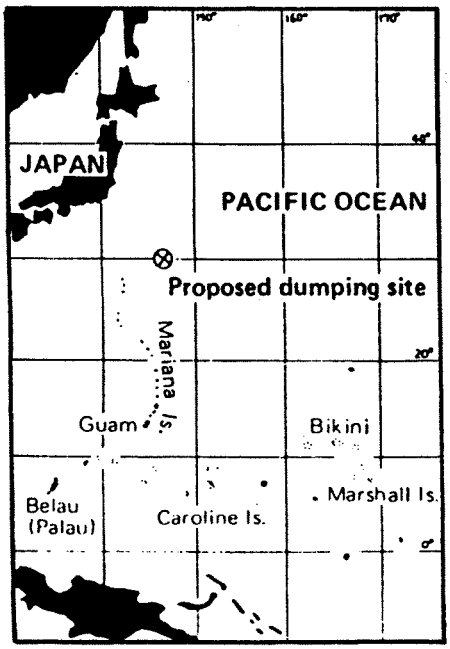
*The Japanese Government intends to vigorously promote their nuclear power policy and will produce millions of drums of nuclear waste. They do not want to store these on land in Japan because of the opposition of the Japanese people, but especially because they consider ocean dumping to be the most convenient and profitable method for promoting their nuclear power policy.

*Despite the international resolution, adopted at the London Dumping Convention (LDC) in February 1983, calling for a moratorium, the Japanese Government is trying to prove the safety of their plan by participating in a review of ocean dumping by an international scientific committee under the LDC.

*Despite the moratorium, the Japanese Government is trying to persuade Pacific Island nations to accept ocean dumping by offering them economic aid.

*Other countries, especially the US, are waiting to follow Japan's lead. Media reports indicate that the US wants to dump low and high level nuclear waste in the same area as Japan. Japan and the US also have a joint programme to store their high level waste on some islands in the Pacific.

If we allow such plans, the Pacific Ocean will become a garbage dump for all the nuclear products of the super powers. If we allow this, it will open the gates for the super powers to develop

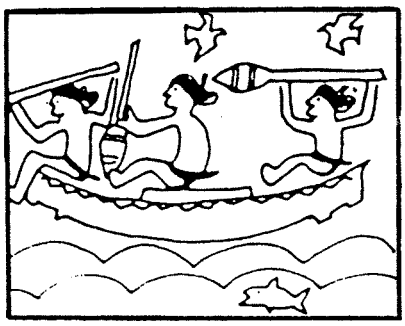


their nuclear power systems which could destroy everything including our future. We therefore need to unite again more strongly to urge the Japanese Government to abandon the dumping plan immediately and unconditionally. We believe that nuclear waste dumping in the ocean is neither safe, nor right, nor just.

> 'If it is safe, dump it in Tokyo, test it in Paris, store it in Washington, but keep my Pacific nuclear-free.'
>
> **Pacific Conference of Churches Poster**

Not Safe

Nuclear wastes are extremely harmful products and a safe method has not yet been found for their disposal. We



insist that ocean dumping is the most harmful method to the environment and an irresponsible way to solve the problem. Scientific data and other evidence continue to accumulate, which show that such dumping is not safe. This evidence comes from: -

*Accidents and pollution resulting from nuclear waste dumping in the Atlantic Ocean;

*Investigations in California Bay which revealed that dumping has caused serious pollution from broken drums, which were corroded and damaged in the ocean, spreading radioactive pollution, with no way to retrieve them.

The deadly effect of this radioactive waste will remain for millions of years, causing serious pollution by means of ocean currents and especially through the food chains where radioactive contamination concentrates and eventually enters our bodies through the food we eat.

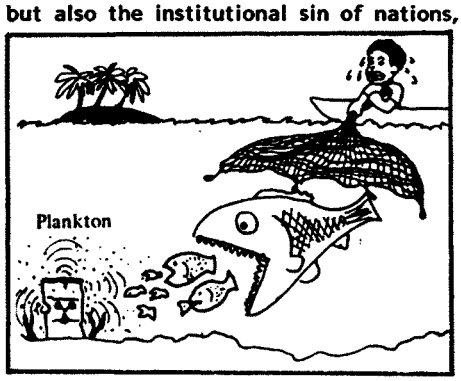
Not Right or Just

Neither Japan, the US, nor any other country has the right to dump their nuclear waste in oceans which belong to all humankind. It is especially unjust to pollute the waters of the Pacific Islands where people totally depend on the ocean. We have a great responsibility to keep the ocean clean for all human beings and for future generations. We also have a responsibility not to harm the living creatures that share the earth with us.

We, the people of the Pacific Islands, have no obligation to accept the nuclear waste dumping in our ocean nor on our islands, but we do have the right and responsiblity to oppose such activities. Each country should follow the basic moral imperative of not forcing others to suffer the harmful consequences of its nuclear power policy.

The Japanese Government is ignoring widespread opposition and disregarding the facts and evidence that indicate the dangers of ocean dumping. **It has no right to do this and we accuse it of a serious injustice towards the world community and a blatant irresponsibility towards the global environment.**

The unwelcome testing of nuclear weapons, the construction of nuclear power plants, the dumping of radioactive wastes and all other forms of continued colonisation of the Pacific represent injustice, not only the arrogance, greed and broken relationships of individuals, but also the institutional sin of nations,



groups and companies which puts the narrow national or corporate self-interest ahead of all other considerations:

> *Some of you are not satisfied with eating the best grass; you even trample down what you do not eat. You drink the clean water and muddy what you do not drink. My other sheep have to eat the grass you trample down and drink the water you muddy.*
>
> (Ezekiel 24: 18; 19)

We believe that our struggle against the nuclear waste dumping plan is a prophetic and symbolic act of solidarity with all the concerned people who are striving for a Nuclear-Free Pacific and Nuclear-Free World. We believe that if we stop the plans, it will be a major step towards abandoning the nuclear power system. We hope that all people will therefore stand firmly with the concerned opponents of these plans.

Steve Martin

For more information and messages of support contact: Campaign Against Nuclear Waste Dumping in the Pacific, Japanese Catholic Council for Justice and Peace. 10-1 Rokubancho, Chiyoda-ku Tokyo 102, Japan.

Computerised Coal Mines

Following the two national mining strikes of the 1970's, the National Coal Board (NCB) decided to introduce equipment which would take power away from the workers in the industry. They developed MINOS (Mine Operating System) – a highly centralised, hierarchically organised computer monitoring and control system. In this article Pete Roche points out that the aim of the system is to reduce manpower, deskill and to increase managerial control. In the light of present policy in the coal industry, Union recognition of the implications of MINOS is essential. The article proposes an alternative strategy for coal.

There are four subsystems of MINOS, each of which deserves particular consideration.

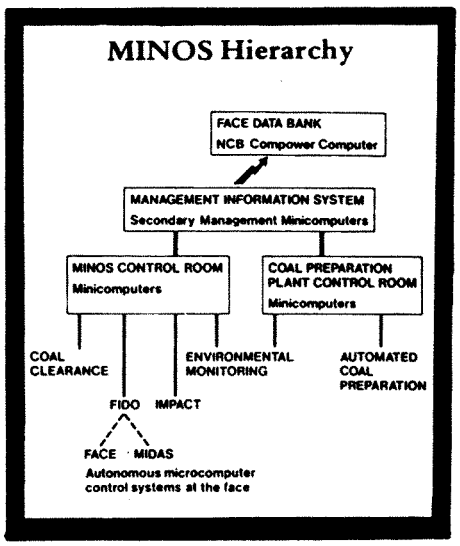
FIDO (Face Information Digester Online) is designed to remove the so-called 'avoidable man-made delays'. If successful it can double production per shift, and in a static market this implies that the number of working faces will be reduced. Moreover FIDO operates like a tachograph subjecting face workers to management surveillance that was formerly impossible.

IMPACT (In-built Machine Performance and Condition Testing) is aimed at removing the operational and ancillary delays by monitoring 'machine health'. This will reduce the number of craftsmen required and simplify the task of machine maintenance.

MIDAS (Machine Information Display and Automation System) has both a monitoring and control function. It monitors the condition of the coal shearer and passes the information to the MINOS control computer. As with IMPACT, deskilling is the objective. Face workers will be exposed to more dust as machine running time is increased.

MIS (Management Information System) links the subsystems together into the overall system; the colliery MIS feeds its information into a national computer that will allow the NCB to compare performance over time, between collieries, between shifts, between faces and between areas. Planning and control can thus be exercised rapidly. So-called 'uneconomic pits' can be identified according to the criteria in force at any particular time.

The present exercise is aimed at eliminating 'high cost' pits and concentrating production on the 'super pits'. As more pit complexes are opened with their enormous productive capacity, more pits are defined as uneconomic and as surplus capacity.



Job Losses

The plans will entail massive job losses. The NCB has achieved a rate of implementation of new technology unparalleled in any other industry. Between 74% and 83% of jobs are at risk. Taking the mid point of the two estimates suggests that the restructuring programme will enable present output to be maintained with only 49,000 jobs. Assuming the present rate of progress is maintained, the programme to reduce employment from the present 180,000 will be achieved by 1989.

There are two major technical weaknesses of the concentration of production into pit-complexes. The first is that all highly centralised operations are more vulnerable to disruption than decentralised ones. The second stems from the nature of the industry itself. Automated manufacturing systems require a consistency and uniformity of inputs, particularly raw materials. The working conditions in mines are notoriously unpredictable, and it is only through the skills and experience of the workforce that production continues unhindered. An industry with a reduced and unskilled workforce and automated machinery is likely to run into serious problems in maintaining production.

Coal Strategy

There are currently reserves of about 300 years supply of coal through all of the coalfields. Once mining operations have ceased and the so-called 'uneconomic pits' have been closed, the reserves have effectively been 'sterilised' because it is impossible to return to areas where the geology has been affected by the collapse of workings. Thus the reserves of coal may be reduced by giving precedence to short term profitability.

A Miners' Plan for Coal must confront the restructuring programme and recognise the central role of technology. The NUM's policy on new technology now centres on the draft New Technology Agreement, which the NCB has so far refused to discuss. The agreement seeks to substitute shorter working time and earlier retirement for the job losses that will otherwise result from increased labour productivity. It also seeks to prevent worker surveillance, maintain autonomy and improve working conditions. In countries like Norway and Sweden which have Work Environment Acts, worker surveillance through computer monitoring systems is illegal, because it is an infringement of personal liberty and damaging to workers' health.

Present policies being pursued by the NCB and the Government represent a denial of our reponsibility to future generations that cannot be justified on moral or economic grounds. An alternative strategy for coal should entail four elements: –

1) Harbour coal resources through limiting the rate of introduction and exploitation of new capacity to the rate of exhaustion of high cost pits.
2) A new technology agreement to reduce working time and eliminate computer-based work monitoring.
3) Consolidation of incentive pay into basic rate to eradicate inequities between effort and reward.
4) Expansion of coal demand through Combined Heat and Power (CHP) and substitution of coal for imported fuels.

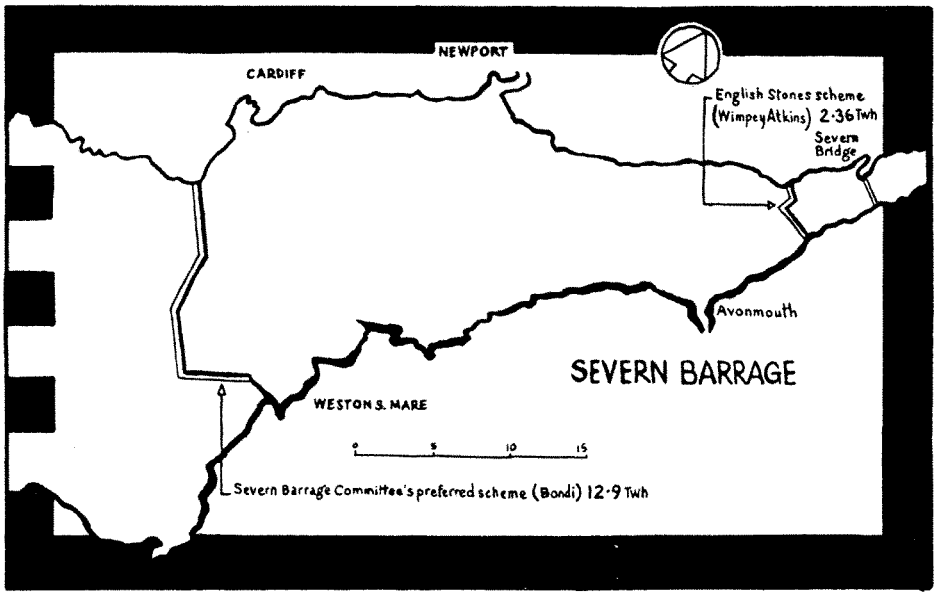
Energy Strategy

An alternative energy strategy could provide district heating for 80-90% of households through coal-fired CHP stations. If the CHP systems were built in such a way that they could eventually be converted to solar energy, as they are now doing in Sweden, we could begin to phase out coal during the middle of next century. Provided that this is done in the context of shorter working weeks and a greater distribution of wealth, it could gain the support of the NUM. After all, many miners say they would prefer it if their sons didn't have to go down the pits. However, this has to be done gradually, and with guarantees for the communities involved. Now the main priority is to keep our options open. Sterilising coal reserves, sacking skilled miners and introducing expensive, inappropriate and authoritarian technology is not the way to do it.

The above article we culled from an article by Jonathon Winterton in the Socialist Society Bulletin. You can join the Socialist Society by sending £7 (£2 unwaged) to 9 Poland Street London W1. A similar article by Jonathon Winterton appears in *Digging Deeper* ed. Huw Beynon reviewed in this issue.

Tidal Power - a Reply

In SCRAM 44 (October/November 1984) we carried an article on the Severn barrage by Jane Roberts and Janet Rowe. It provoked a reply from Dr Tom Shaw of McAlpine's, a company 'heavily involved' with the barrage. We offered Dr Shaw space in the Journal to put his case. The following is his reply - the italics are statements from the original article.



The article contained a number of misleading and incorrect statements. The debate on the Severn Barrage is entering a new phase and could be widespread during the next few years. Readers of SCRAM who may wish to contribute to this, or at least keep abreast of it, should know of the facts as others understand them. These are listed below with reference to the original SCRAM article, numbered by paragraph. If any reader is aware of information which either contradicts or adjusts any of my observations I will be pleased to hear from them. There is still plenty of room for learning by everyone, otherwise my reply would not be necessary.

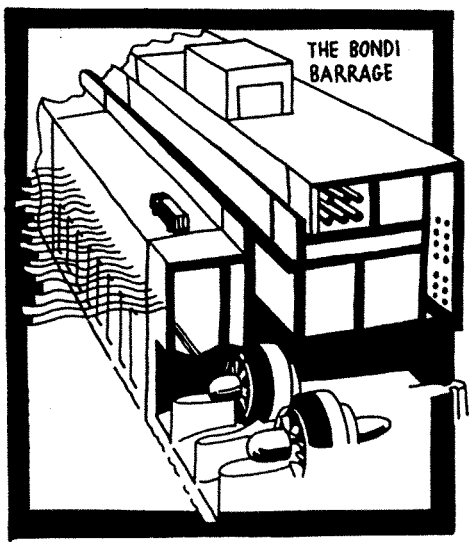
1 The future of the Severn Bridge is unconnected with the viability of any barrage.

2 The tide range in the Severn Estuary can exceed 14m, not 8.8m.

3 *Any changes to [the Bristol Channel's complex habitats] could seriously reduce the bird population.* Why should it follow that the present extraordinarily severe regime encourages maximum bird numbers?

4a . . .*water velocity would be reduced and flow patterns would change, shifting the mud flats up to five metres in depth.* Surely the mud flats will be more stable?

4b *Already highly polluted, a barrage could adversely affect dispersal [of pollutants] creating a serious imbalance in the ecosystem.* Why? The post-barrage situation would resemble that which now occurs in most U.K. estuaries. Is it inferred that they are 'seriously imbalanced'?



5a . . .*enormous amounts of fill and facing will be transported into the area.* My understanding is that most of the structure would be constructed in caisson units formed in dry-docks around the coastline and floated into the Severn Estuary. The only 'fill' which they need is most obviously provided by minestone waste products.

5b The contrast between 21,000 and 15,000 workers (employees?) for schemes which differ in estimated cost by a factor of seven is curious. Do the authors wish to see more or less employment?

5c *Because of the transient nature of such workforces. . .a temporary boom in the local economy will leave the area worse off, as. . .[with other large projects].* The proposed method of construction (by caissons) requires that the workforce will be distributed according to the choice of construction sites. Largely indigenous labour would in present circumstances be possible.

5d *During the construction phase. . .road and sea traffic will greatly increase. . .* Because of this dispersal of the workload, general traffic flows are unlikely to 'greatly increase'. In contrast, sea traffic probably would, but the main reason for that is that in this very large estuary there is little at present.

6 *A motorway. . .will also lead to substantial development changes.* Yes, if the Cardiff-Weston barrage is constructed. Need that be bad?

7 Nothing in the first six paragraphs demonstrates to me that *the environmental impact. . .will be severe.* Agreed that it could be if sensible precaustions are not taken. The many reasons which have encouraged the search for better solutions have not been fruitless. Assessment of the scheme is better based on a critique of them rather than those they displaced.

8a . . .*a barrage will help increase the coal-burn and accelerate. . .pit closures.* The Bondi Committee convincingly showed that the most economic prospect for tidal power lay in its complementation of coal-fired stations. Capital spent on that would reduce the need for investment in other new plant. Any swing in the balance between coal and nuclear will not hinge on which renewables are utilised and to what extent. That will only determine the total coal plus nuclear requirement.

8b . . .*two-basin scheme could be used as a pump storage system in conjunction with nuclear power.* The two-basin scheme which I proposed in 1966 was intended to make the best use of this valuable and significantly large renewable energy source in the situation in which nuclear power was predominant. As it happens, this was then forecast to occur by 1985, as it has in France.

The fact that tidal power stations remain an attractive option simply underlines their intrinsic flexibility, like conventional hydro plant which they in essence are, in being able to operate efficiently to suit the rest of the system. Their seemingly indefinite lifetime underlines the importance of this characteristic.

9 Tidal power is probably the cheapest of all the renewables available in the U.K. at present and able to supply a meaningful amount of electricity to the national grid. The argument that it would cost less to add desulphurisation equipment to fossil-fuel power stations to overcome an implied deficiency in existing power station practice implies dismissal of the argument for the renew-

ables.

It also suggests that more fossil plant should be constructed to make up for the reduced efficiency of that so-equipped, and that new coal plant must always replace old. It also assumes that sulphur-removal from fossil plant emissions is all that is needed to overcome the 'acid rain problem'; that is not so.

10a *The cost. . .[diverted to energy conservation] could save more energy than the barrage could produce.* The argument as to whether £1 spent in conservation is more cost-effective than on power generation is irrelevant. Both are necessary. If all we ever do is invest in conservation, all will be wasted because nothing will be generated to conserve.

The argument about the barrage, etc., hinges on the most sensible investment option when new stations are needed to replace old. The 30-40 year lifetime of the thermal plant on which, in the absence of substantial hydro, we largely depend at present makes this an on-going commitment in its own right. 'Conservation' only determines how much is needed.

10b Any over-capacity in generating plant which exists now will not be there by the time a significant number of new power stations are constructed. Incidentally, how true is it to infer that investment in conservation reduces the need for electricity?

10c *Research should be concentrated on the real alternatives - wind, wave and. . .solar. . .* The authors should state why, in their view, wind, wave and solar energy are 'real' alternatives, whereas the tides are not. I have worked on all of them for a number of years and have noticed only two primary differences, namely that each is best suited to meeting a particular form of energy demand, and that technically and economically some are much closer to be realised than others.

11 *According to Bondi the (1982) cost. . .will be 3.1p/kw, compared with 2p for nuclear and over 3p for coal.* The authors should read the Bondi report more carefully before quoting the generating cost (in 1980, not 1982) of nuclear, coal and the Severn Barrage. The data given then are, of course, superceded now by changes in fossil and nuclear fuel cycle costs, etc.

12 . . .*industrial action or even incompetence could hold up construction.* . . Construction delays could certainly occur, not only with the barrage but with any station constructed as part of the on-going replacement programme for generating plant. An important feature of the barrage, however, is that it involves essentially repetitive operations. Quantity production encourages efficiency. The relative simplicity of the operations and their dependence on comparatively low technology means a shift in investment towards labour rather than materials.

13 'The Case Against Tidal Power' made in the authors' article does not justify their conclusion that *'The attractions. . .are superficial and far outweighed by the detrimental effects.'* The case in favour is, in fact, relatively strong. It is too soon to say how strong and how significant is the 'case against'. All I know is that the suggestions made by the authors have little relevance to the debate which will take place in the second half of the 1980's.

Energy Policy

The Labour Party has a new energy conservation policy in the process of being drafted. It is expected to include a recommendation to spend £1500 million on conservation and CHP, as well as to set up an independent Conservation Agency. The Agency would have responsibility for: -

*Supervision and provision of the necessary finance for a full programme of council house insulation.
*Increasing the level of grant aid to other households and widening its scope.
*Raising the standard of building insulation regulations.
*Development of a locally based system of home energy audits.
*A new, comprehensive system of fuel allowances.
*Handling the public funding of research into conservation.
*Implementation of recommendations of the 5th Report of the Select Committee on Energy, such as the revision of accounting procedures and the inclusion levels as a condition for mortgages.

Energy Manager May 1985

* * * * * * *

Labour's energy policy may be improving on the conservation front, but it still has a long way to go on other fronts. OK, so Labour disagrees with almost everything the Tories have done, and are committed to stopping the PWR at Sizewell, but they want to stick to AGR's instead!

Labour's energy spokesman, Stan Orme, would like all nine of the best CHP schemes to go ahead. He would also like to see more ordinary coal-fired power stations. But he is not inclined to move too fast on controlling acid rain. With all these power stations being planned by Labour along with their plans for conservation, it's not surprising that he rules out a major programme of new energy sources, but he says: 'Some of these ideas could be worthwhile in the distant future and we are not opposed to experimentation.'

It makes you wonder where Stan Orme thinks that all this energy demand is going to come from. If they are serious about conservation and CHP we wouldn't need to build any more power stations until sometime next century. So when they get into government they'll soon discover that something has to go. Let's hope it's the AGR. Now's the time for all those Labour Party members out there to start thinking about a motion to the national conference in 1986. A low level of AGR ordering is too high! - we want a negative one.

New Technology 20.5.85

Tidal A.T.

A tidal power system based on underwater turbines not unlike wind machines has immense possibilities in the Channel Islands.

The idea has several advantages (apart from being safe, clean, cheap and limitless, i.e. not nuclear). Dr Peter Cave, a mechanical engineer from Plymouth Polytechnic working on the study says that the sea turbines could provide reliable power for about 20 hours out of 24 hours, as the turbines would turn on both the flow and ebb of the strong tidal currents. Where two tidal races are out of sync with each other as in some islands, constant power could be tapped.

Environmentally it is much more attractive than a tidal barrage scheme; also it would do away with the need for big tidal ranges, and capacity could be increased simply by adding turbines.

The technology for this is available now, and has been in the US for a few years. One such turbine, a 30kw prototype, is already being tested, suspended from a bridge in New York's East River.

Dr Cave is trying to form a consortium of interested parties to develop a prototype and locate it 200m off a channel island, moored or built on a structure on the sea bed.

However, the Channel Islands' privately owned electricity company has just signed a 15 year contract with the French Electricity Utility, EdF, to receive 90% of their electricity needs from a newly-laid, 27 km long electricity cable, mainly during the summer months. Jersey Electricity say they will generate most of their own power in the winter from the present oil-fired power stations, or so they say. One of the two power stations is due to shut down this summer.

Electrical Review 17.5.85

CHP Appropriate Technology

The outgoing chairperson of the Combined Heat and Power Association (CHPA), William Orchard, described the recent award of £750,000 for three lead city CHP studies as 'insignificant'. It represents a very meagre Government commitment compared with its commitment to nuclear power. The CHPA suggests that the Government is virtually ignoring the significant potential benefits of CHP for the nation as a whole, and feels that they have a vital role in furthering it.

There is a great deal of ignorance about CHP, despite its success in the rest of Europe. It accounts for about 40% of Denmark's heating needs, 25% of Sweden's and 8% of West Germany's. Some 3,000 schemes exist in Europe including those in Berlin, Paris, Copenhagen, Vienna and Warsaw.

The Government insisted that any proposed scheme would have to demonstrate significant private sector interest. Despite this, consortia comprising private sector companies, local government and regional electricity boards were formed in all nine of the cities studied by Atkins.

The announcement in January that Leicester, Edinburgh and Belfast were to receive £250,000 from the Department of Energy to carry out detailed studies, bitterly disappointed the consortia in Newcastle and Sheffield. Newcastle and Sheffield have both done a considerable amount of groundwork since the Atkins report was published. This led to the suggestion that choosing Leicester had more to do with lobbying by Conservative MP's in marginal Leicester seats than with technical feasibility.

However, since January both Newcastle and Sheffield have announced that they will carry on regardless. The Government have now promised to support Sheffield if they apply for financial help from the EEC, provided that there is substantial private sector participation.

The Leicester consortium is understandably delighted to have been chosen as a lead city. It will study three options: -

1) A 'build-up' scheme involving the extension of existing district heating and the construction of a purpose-built CHP station on the site of a former power station.
2) A 'core-scheme' involving the conversion of the oil-fired Leicester Gas Turbine Power Station, to gas or coalfiring. GEC has proposed a coal conversion using circulating fluidised bed technology, already proven in Germany.
3) Conversion of the Ratcliffe-on-Soar power station situated 22km north of Leicester.

Belfast also has three options: the conversion of Kilroot oil-fired station, conversion of the Belfast West coal-fired station, and the construction of a purpose-built station at Crumlin.

Edinburgh intends to look at a £500m scheme based on Cockenzie coal-fired station, whose future is threatened by Torness. There is also a possibility of a new refuse incinerator being built in the City, which could be incorporated.

When all five studies are completed one major obstacle will remain - the lack of funding. The prospects for raising enough private sector investment are limited. Until we have a change in the complexion of the Government we may have to plump for small scale schemes. Nevertheless, the five studies will hopefully draw all the problems into the open and begin to wear down the institutional barriers.

Electrical Review
26.4 - 3.5.85

ACE

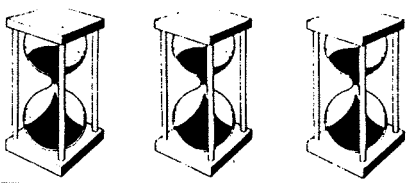
The third in a series of six reports entitled 'Lessons from America' prepared by the Association for the Conservation of Energy, describes a new way of funding the installation of energy-saving measures which makes it much easier for people to afford it without the usual expensive capital costs.

This scheme involves a third party, usually an energy saving service or an electricity board, who put up the initial money. The contractor conducts a free energy audit of the building. If the building offers a scope for savings, the owner of the building is offered a contract under which the energy service company both installs and maintains suitable energy conservation equipment. Then the company and the building owner share the resulting savings at an agreed rate, e.g. 50/50 over 5 years. If the equipment does not perform by saving energy as predicted, the contractors will not be paid.

Andrew Warren, Director of ACE said, 'Under this scheme, the building owner no longer has to find the capital, the expertise to judge which conservations measures are appropriate, and assumes no risk should savings not occur.'

This overcomes the problem, experienced by many people, especially Local Authorities, of finding the finance now in order to cut bills later.

The report was commissioned by the Department of Energy to find out what other countries are doing, so that Britain can be dragged out from the grain of the wood in the bottom of the barrel of would-be energy conservation. Just think, another 10 reports, another 10 years, and we'll have so many PWR's we won't need conservation.



Token gesture

The government's latest token gesture, one in a long line of evasive policy, is the new appointment of a Minister for Waste. Being responsible for co-ordinating efforts to recycle household and industrial waste and identifying problems, and deviations from government policy will of course be an extremely easy job. Anyone could do it, so he has been given no staff of his own to work with and sufficient power to maybe appear on Blue Peter sometime.

Needless to say the Tory MP for Hastings, chairman of the Trade and Industry Select Committee who proposed the idea, said the committee was unanimous in describing the appointment as a 'major advance'.

FT 16.4.85

CHP

According to a local engineer, John Kapp, Brighton power station, if converted into a combined heat and power system, could save £27m a year in fuel bills and create hundreds of jobs. The 300Mw power station apparently loses 500Mw of heat at full steam, enough to heat 50,000 homes, 40% of the entire Brighton area.

Doubtless, the economics of such a scheme are enhanced by the possibility of using rubbish as well as coal, avoiding the need to transport rubbish to the countryside, a necessity in five years time when the local dumps become full.

The conversion would create 1,000 construction jobs for 10 years, costing £200m, half the cost of a new station.

These revelations were made at a CHP Association meeting and it was agreed to set up a local group in Sussex to promote a detailed feasibility study of the scheme.

Electrical Review 10.5.85

Advice

The Energy Advice Unit, run by Newcastle City Council since April 1979, has expanded its services and changed its name. From the end of May, the 'Energy Information Centre' will provide advice for businesses as well as domestic energy users from its new shopfront premises in Grainger Street, Newcastle. The shop is in premises converted to be an example of the energy-efficiency which the Information Centre exists to promote. The Information Centre will continue to provide advice for domestic households on their energy problems: referring them to specialists where necessary. In this it is the only centre of its type in Britain which does not exist to promote one of the energy supply industries.

Being answerable to Newcastle City's Economic Development committee, the Energy Information Centre is justified by the jobs that the committee hopes will be generated in manufacturing and installing insulation, and in small and medium sized businesses which it hopes will reinvest in Newcastle the money saved from their budgets by energy conservation. To achieve this, it will work in conjunction with the organisations which already exist to help smaller businessses: rather as the Energy Advice Unit initially worked through the welfare rights advice centres in Newcastle.

While any organisation which promotes efficient energy use is to be supported, it remains to be seen whether there is a net gain in jobs in Newcastle as a result of the efforts of the Energy Information Centre or whether some of the monetary gains from energy conservation simply line the pockets of the entrepreneurs and landlords owning business premises.

Wind

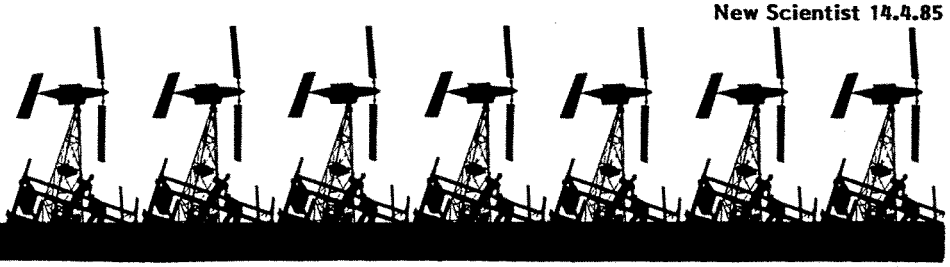
The growth in the wind energy industry is encouraging. New ideas and innovations are cropping up all the time, yet it is beset by that great catch-all problem - economics (don't mention Trident).

Economically speaking the prospects for wind energy lie in its application in remote areas not connected to the national grid. Many remote areas like the Western Isles in Scotland obtain energy from diesel generators, which are very expensive, often six times mainland prices. A combination of wind and diesel doesn't help because diesel generators are inefficient to run at part load. If the proportion of wind energy meets demand then the diesel can be used as a back-up, but fluctuations in wind speed may be frequent and the diesel sets cutting in and out increase wear and tear, reducing efficiency.

The answer to the problem is storage. Energy produced during a time of low demand can be stored in several ways. For example, batteries or pumping water up a hill to drive turbines on its way back down. However, this requires expensive technology, limiting these prospects.

A possible breakthrough by Peter Musgrave from the Department of Engineering at Reading University may change all this. He reckons that excess energy can be used to compress gas in a special chamber with high-pressure oil, creating energy when reversed. He tested the system with a 'wind turbine simulator', and from a computer model estimates that the number of times the diesel set is brought in as a back-up can be reduced as much as 80%. Musgrave plans to test the theory on a 50 kw wind machine.

New Scientist 14.4.85



Solar

Europe's largest solar panel factory has opened in Bridgend, Wales, providing 50-100 jobs immediately. The UK subsidiary of American Chronar Corporation who run the $9.5m plant say they will produce up to 1Mw of solar power annually.

Using a new process of depositing thin film solar cells on plain glass, production will be cheaper and should get cheaper still as the method is developed further.

Electrical Review 26.4.85

Saving

British Steel's engineering works in Cumbria saved £100,000 in the last 12 months in fuel bills. They decided to insulate and weather-proof the roof of the factory at a cost of £235,000.

Energy Manager April 1985

A project aimed at showing the captains of industry that solar power is a viable alternative is proving a great success in a government building in the US.

Solar panels on the roof of Annex No 2 of the House of Representatives, completed in 1982, provide most of the hot water needed by some 3,000 staff. The system, which is claimed to supply 220Mwh/year, generates annual savings of $13,700 and Ellen Nagle, the mechanical engineer who designed it, says it will pay for itself in fifteen years.

The system comprises 224 flat plate collectors, each 2.4m^2 and an existing 33m^3 water tank.

In the autumn of 1983 the building's conventional steam converter was inoperative for five weeks. The solar system worked flat out to provide the extra hot water and no-one in the building even realised there was a problem.

BSEE, May 85

SAAB, the Swedish car company, has revealed an innovation on its new 900 Turbo EV-1 car. It is fitted with a removable glass roof to the underside of which has been fitted 66 solar cells. The 'sun roof' is designed to produce about 60W, enough to drive a small electric fan which will keep the inside of the car down to the ambient air temperature. In extreme conditions the temperature inside a car can be 20°-30° higher than outside.

If trials are successful the company hopes to incorporate the solar cells within the glass of the roof and offer the sun roof as a production option. It will have the advantage of cooling the car without sapping power from the car's battery.

Maybe they could fit a heating system which could be powered by the solar cells on clear winter days?

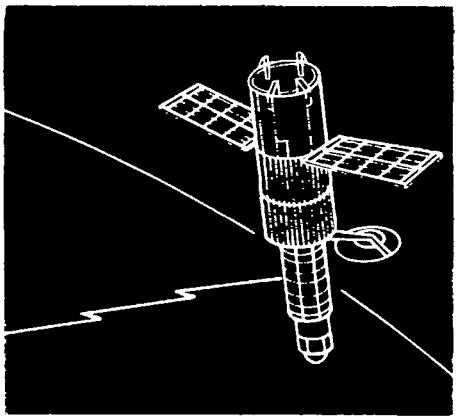
New Technology 13.5.85

Countdown to Space War by Bhupendra Jasani and Christopher Lee (SIPRI, £4.95, 104pp), Space Weapons The Arms Control Dilemma ed. Bhupendra Jasani (SIPRI £18.00, 255pp), The Fallacy of Star Wars by the Union of Concerned Scientists (Vintage $4.95, 293pp), The Reagan Strategic Defense Initiative: A Technical, Political and Arms Control Assessment by Sidney D. Drell, Phillip J. Farley and David Holloway (Stanford University, $8.00, 147pp), Star Wars - Self-Destruct Incorporated by E. P. Thompson and Ben Thompson (Merlin, £1.00, 67pp).

The continuing development of military technology for use in space looks set to usher in a new phase of the arms race, probably more dangerous and certainly more expensive than the last. This technology is geared towards two distinct, but interrelated spheres of military activity. One is the use of satellites, and the corollary development of anti-satellite (ASAT) weapons, the other is the hope of building a system which would afford protection from strategic nuclear weapons - ballistic missile defence (BMD), as it is usually known.

Countdown to Space War is one of SIPRI's 'popular' paperbacks, and provides an historical overview of the increasing militirisation of space over the last quarter of a century. It contains a good general introduction to the military uses of satellites - currently about 75% of all satellites have some military purpose - but unfortunately it is written in a rather breathless, chatty style which makes it less, not more, readable. More importantly, the authors provide only the barest outline of President Reagan's 'Star Wars' BMD programme. The blurb on the back of the book sounds promising: 'President Reagan has offered a vision of new inventions that could stop nuclear missile attack. But will they work? Can lasers make nuclear weapons obsolete? Or would they merely be used to wage Star Wars?' This is not only stupid, but also misleading, as these questions are barely addressed, never mind answered here.

The other SIPRI book, *Space Weapons - The Arms Control Dilemma*, is a collection of papers given in Stockholm in September 1983, prefaced by a substantial introductory overview from Bhupendra Jasani. This is more academic in tone than *Countdown to Space War*, and although the quality of the papers varies, they are generally quite good, despite some rather wordy repitition where contributions overlap. Again, the main focus is on military satellites and ASAT weaponry, and the arms control problems they pose. The dilemma of the title is that not only do many satellites have useful civil functions, but also that military satellites can be both destabilising in that they provide early warning of attack and verification of arms control agreements. The general conclusion, though, is that an agreement to ban the development and possession of ASAT weapons is urgently required. BMD, and its important technical connection with ASAT developments, is covered, though somewhat patchily, and with undue optimism about its technical feasibility and strategic desirablity.



Certainly the very sceptical analysis of Reagan's 'Star Wars' or Strategic Defense Initiative (SDI) presented in *The Fallacy of Star Wars* is more convincing. This really is an excellent book, which presents a devastating critique of the 'Star Wars' idea with great clarity, but without resort to oversimplification. The impression given is that such a defence against nuclear missile attack is probably technically infeasible, will certainly be extraordinarily expensive, could anyway be overcome by relatively cheap countermeasures, and is likely to spur on the arms race and preclude any prospect of successful arms control negotiations. The Stanford University report covers similar ground, and is also convincingly and expertly argue. More academic in style, it not only casts many doubts on the 'Star Wars' concept, but also considers the problem of upholding and strengthening the ABM Treaty, which is now in danger of being either broken or circumvented.

However, the Union of Concerned Scientists book is more readable, and has the bonus of a substantial section on ASAT weapons. They recommend that America should seek to negotiate a Treaty banning ASAT weapons. At present both superpowers have a relatively crude ASAT capability against satellites in low orbits; and so the most crucial US military satellites (early-warning and communications) are still safely out of range. Since America is more dependent on military satellites than the Soviet Union it is a matter of self-interest to maintain space as a sanctuary, as any technological advantages they might gain will surely be short-lived.

Finally *Star Wars - Self-Destruct Incorporated* is the first British spin-off, clearly basing its technical arguments on the analysis done by the UCS and other America sceptics. The technical section is done quite well, though it is surely incorrect to say that: 'All previous ABM systems relied upon. . . physically destroying the attacking ballistic missiles.' In fact, they were designed to disable the warheads with the pulse of radiation produced from their own nuclear warhead, and thus had a much larger 'kill radius' than could be attained by blast and heat destruction alone. The main interest of the booklet, however, lies in the first and last sections where E. P. Thompson seems to be the predominant influence. Suffice to say that if you find his style amusing *and* illuminating, you'll not be disappointed here. Actually he pieces together the arguments very well and provides a better explanation for the origins of Reagan's 'Star Wars' than the other books.

Quite a selection to choose from then, but no doubt which is the best buy. For in-depth information on space weapons, lucidly presented, and especially for a damning analysis of the Star Wars idea, *The Fallacy of Star Wars* is cutstanding value.

Graham Spinardi

Not the Same Cold Story by Scottish Fuel Poverty Action Group. (£2.50 plus 25p p&p from First of May Bookshop, 43 Candlemaker Row, Edinburgh.)

This pamphlet is basically an update on the fuel poverty situation, which is nothing new, but in Scotland it is much more acute. The Scottish climate is significantly different to the rest of the UK. It costs about 20% more to heat a house in Glasgow than it does to heat an identical house in Bristol. Yet DHSS heating additions are the same throughout Britain. Many Scottish post-war peripheral housing schemes were built in exposed locations, with poor quality construction, on the assumption that heating would be cheap. Condensation, dampness, higher unemployment rates and the large number of tenements with high ceilings all combine to make matters worse.

The pamphlet does not dwell only on the bad news. The Convention of Scottish Local Authorities have, at least, recognised fuel poverty as a serious problem. Scottish Neighbourhood Energy Action have helped to set up a dozen community insulation projects and another 19 are in the pipeline, but these can only really scratch at the surface.

A comprehensive national energy conservation programme is needed, along with an increased fuel subsidy which takes account of colder weather in Scotland. The dictatorial power of the Fuel

The Plutonium Business and the Spread of the Bomb by Walter Patterson. (Paladin, £2.95, 245pp)

This is the story that we all know: - the creation of plutonium in 1941, the rapid uptake in the American war machine, the resulting nationalistic competition to develop the technology in Europe and Britain, Atoms for 'Peace', the pursuit of the fast breeder reactor and reprocessing, the Nuclear Proliferation Treaty, all the way to 1982's putative total of 44 tonnes of 'commercial' plutonium. However, in Walt Patterson's usual thorough style, it is detailed and carefully documented so that for me, anyway, many hazy gaps were filled.

The electricity companies have almost always recognised the economic nightmare of FBR's and reprocessing and have rarely supported them financially. Governments, however, have happily funded them at exorbitant rates. 'More taxpayers' money has been devoted to research and development for the use of plutonium fuel than to any other energy research.' Early on he coins the term 'the plutonium people'; those in power or very close to power who consistently push for and get enormous funds for the development of various branches of nuclear energy. This implies a conspiracy almost, but never does he explain how they maintained their grip so powerfully in the face of ever-increasing odds, as reprocessing especially, proved intransigent. It took Carter to break out, and soon he was back safely in the nuclear fold. Under what pressures was he forced to renege his common sense? There is a gap in the long list presented here of failing technology, escalating budgets and yet undimmed enthusiasm for the plutonium age.

Despite the repeated warnings from various sources of the proliferation danger, the steamroller pressed on. The fairy tale that there could be a 'purely civil' nuclear programme that included the separation and use of plutonium held sway. FBRs struggled and failed except in small pilot plants such as Dounreay; these were always funded by government. Finally in the 70's India exploded the bubble that civil and military were separate. The nuclear club, finally forced to come up with an answer to the proliferation problem, came out in 1980 with a classic default - it wasn't their problem, it was definitely the responsibility of the politicians. . .

By 1984, FBR's still look like a distant prospect. Super Phenix in France produces electricity at twice the cost of conventional nuclear plants, Germany is still building one at Kalkar due for completion in '87. International co-operation has become the new life saver. And FBRs' spent fuel, he concludes, provides plutonium in a form ideal for weapons.

He ends with a what you can do section, but as he notes, if plutonium production stopped tomorrow, there would still be a huge problem in tracking it all down, storing it and guaranteeing that it was never reused.

He sticks to a fairly narrow remit; the economic and technological aspects of the plutonium affair. A little detail on the exact dangers of plutonium and the whole fuel cycle, especially waste, would be valuable and help to bring home the reality, for me a little submerged, of all the technology and political dealings. He assumes quite a lot of basic knowledge on this topic. However, this book is definitely a valuable addition to our (non-violent) arsenal!

Carol Youngson

Boards to disconnect still causes great hardship, and must be ended as soon as possible.

It is a sad thing to say, but I think that this pamphlet has dwelt too much on a few of the more promising developments which have occurred over the past year or two. I would have preferred to see more about the huge task facing Scotland in tackling the dampness problems, and a few suggestions as to how best to organise a comprehensive energy conservation programme. It has fewer statistics, and is more anecdotal than previous pamphlets, which might make it appeal to a wider audience, but unfortunately I think the price is likely to put people off.

Pete Roche

Digging Deeper ed. Huw Beynon. (Verso £3.95)

With the miners' strike over, now is the time for writing and analysing this, the most important strike since 1926. *Digging Deeper* makes a good start.

The Tories have been planning this strike meticulously since 1978: - coal stocks built up in Britain and abroad; power stations converted to use oil as well as coal; transport companies encouraged to use non-unionised labour; and Ian McGregor, an industrial hatchet man, brought in to head the NCB.

The book covers many relevant subjects, written by a collection of authors, mostly from universities and Polytechnics: - the rise of the New Right in the Conservative Party, Trade Unions in crisis and how all the various arms of the state were used against the miners, from the Police to the DHSS. On a more optimistic note, one section talks about how Miners' Support Groups have changed the face of left politics in Britain - permanently. The same can be said of the Miners' Wives Support Groups.

Colin Sweet puts the strike into a wider energy perspective, and shows how nuclear power dominates the Energy Establishment. Jonathon Winterton shows how new technology in the mines is being used to restructure the industry, so that a much smaller number of miners, under greater managerial control, can produce the same quantity of coal. Dave Feickert sketches some possibilities for a new 'Plan for Coal', with local authorities spearheading a conversion to coal. Labour councils should join forces with construction, steel, boiler-makers', transport unions and the NUM to develop a wide-ranging movement for CHP as an alternative to the environmental threat posed by nuclear power.

It is both an infuriating and optimistic book. A story of disappearing civil liberties, a powerful and uncaring state stamping on some of the most traditional communities to be found in Britain. Yet it is also a story of the development of new alliances to combat the power of the New Right. The repercussions of the strike are going to continue for a long time yet, and although Thatcher may have won the battle, she may find that she has planted the seeds for her own downfall.

Pete Roche

Diary

June

1 YCND March in Glasgow. Assemble George Square.

1/2 Scottish Peace Festival, Kelvin Hall Glasgow. SCND 041 331 2878.

5 BNFL to appear in Carlisle Crown Court on charges arising from Nov 83's leak.

14 Public meeting on arms conversion. Speaker: Mary Kaldor of the Science Policy Research Unit, University of Sussex. George Square Lecture Theatre, George Square, Edinburgh. 8 p.m.

15 Day school on defence industry in and around Edinburgh. George Square lecture theatre, George Square, Edinburgh.

15 March assembles town square Falkland, Fife, to proceed to US communications base nearby.

15/16 Leamington Festival of International Understanding and Peace. Info: 18 Lillington Road, Leamington Spa, Warks (0926) 27773.

15-16 Severnside campaign against Radiation Conference. Contact: Sue Haverley, Hillside Cottage, Liney Woodside, Lydney, Glos. Tel: Blakney 445.

21-23 RAF Bishopscourt, Ballyhoran, Co. Down. Midsummer Festival. Info: Belfast 647-106.

21-23 CND Midsummer Festival at Glastonbury.

22-23 S.E. London Green Fair, Fordham Park, New Cross. Info: 01 318 6628.

25-27 The future of the electricity supply industry 3 day conference. Contact: Ms Chris Richards, Centre for Energy Studies, Polytechnic of the South Bank, Borough Road, London SE1. Tel: 01 928 8989 ex. 2399.

July

3-6 4th Convention for European Nuclear Disarmament at the Free University, Amsterdam, Netherlands. Contacts: Fiona Weir/Fred Hasson END, Southbank House, Black Prince Road, London SE1 or Stephen Brown, CND, 11 Goodwin Street, London, N4 3HQ.

14 Festival for Life '85. Swords Castle, Co. Dublin. Info: 47 Lesson Park, Dublin 6. Tel: (Dublin) 602427.

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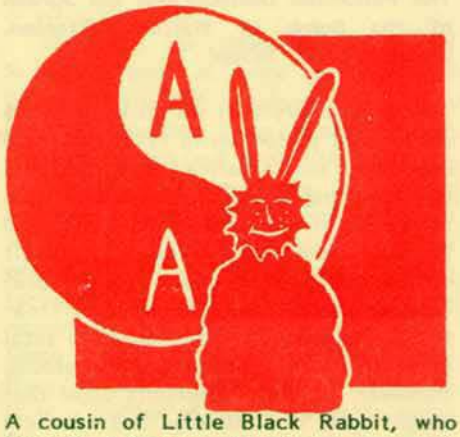

A cousin of Little Black Rabbit, who lives in Cheshire, is rather concerned about the distorted view that the local MP has of the situation in southern Africa, particularly the role of South Africa in Namibia.

As most people must know by now, South Africa is illegally occupying Namibia in contravention of United Nations Decree Number 1, which states: 'No person or entity. . . may. . . extract, mine, process, refine. . . any natural resource. . . situated within the territorial limits of Namibia without consent of the United Nations Council for Namibia. . . .'

However, Mrs Ann Winterton, Conservative MP for Congleton in Cheshire, presumably misunderstands the meaning of the Decree. Whilst corresponding with Mrs Winterton re her signature on an Early Day Motion condemning the over-fishing of Namibian waters by Eastern bloc fishing vessels, Little Black Rabbit's cousin asked if her concern extended to the export of uranium from Namibia. She replied:

> *I cannot at the moment answer the points which you raise in connection with the export of other products from Namibia. . . but since you clearly know so much more about the subject than I, you may consider letting me have any information you possess so I can utilise it to make representations to our Government concerning the excellent way in which South Africa, which is currently giving considerable aid to Namibia, is stimulating Namibian trade, industry and employment.*

Mrs Winterton's Government also claims to be stimulating trade, industry and employment in this country when it clearly is not, so we can't fault her on her trust in South Africa, can we?

SCRAM has sent some information to Little Black Rabbit's cousin so hopefully Mrs Winterton MP will be better informed in future.