

The Anti Nuclear & Safe Energy Journal

SCRAM



53

50p



Dumping Worries

p10

Trawsfynydd

p12

Sellafield Saga

p14

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Comment

The report of the Environment Committee couldn't have come at a better time: it criticises waste dumping policy as the dump sites are announced; it recommends revising the certificates of authorisation to reduce discharges at Sellafield as the plant is subjected to intensive media scrutiny following the series of incidents in January and February; and it recommends prohibiting the carriage of nuclear material by air just as a public inquiry is about to open into a proposal which includes flying plutonium across Europe.

Should the Government and nuclear industry sit back and rethink their strategy? Of course it should! Will they? Of course not. . . but we've got to make sure they do. We cannot allow this report, however flawed, to sink without trace into nuclear mythology like the Flowers report.

This issue of SCRAM includes major feature stories on the important areas of nuclear power policy. We look at the secret negotiations which led to the choice of Dounreay for the fast reactor research centre and the present secrecy surrounding the transport of plutonium nitrate from Dounreay to Sellafield. We also catalogue the recent spate of incidents at Sellafield and suggest that the plant's days are numbered. We report on the campaign against the dumping of nuclear waste and how it is gathering support and momentum. In the middle pages we describe what went wrong at Trawsfynydd and ask whether it could happen again.

We also look on the bright side. A Renewable Energy Bill has been published and received its First Reading. While not expecting it to change the world, we feel that this Bill is a good sign that Energy issues have finally reached Parliament.

Renewable energy is already a reality in mid Wales; the Centre for Alternative Technology was founded over 10 years ago and attracts over 50,000 visitors a year, but now the Centre urgently needs a cash injection of £20,000 to keep going - dig deep into your pockets and help them out (and don't forget that SCRAM is always short of funds too).

SCRAM

Rethinking Waste

The report of the House of Commons Environment Committee's inquiry into waste management marks another important stage in the nuclear debate. Steve Martin picks out some of the more important recommendations.

The Committee's report is critical of the Government's policy of relying on advice from the nuclear industry alone, and recommends that environmental organisations should be represented on the advisory bodies. It also recommends that the industry should be "more open and forthright in all its affairs" and should release all technical papers to the public unless there are overriding defence or commercial reasons for not doing so.

WASTE MANAGEMENT

The bulk of the report examines waste management which the Committee feels is so important that the UK's slowly evolving strategy is "regrettably inadequate"; and they were struck by the progress being made in the other countries visited - France, Germany, Canada, Sweden and the United States - and how far behind the UK has fallen.

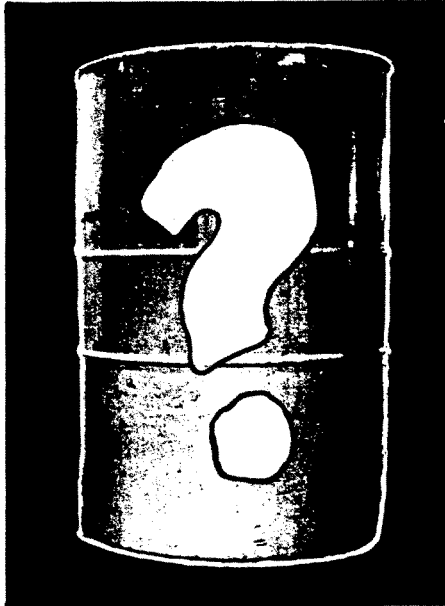
The main recommendations centre on classification; the current practice of defining low, intermediate and high level wastes by their radioactivity alone is "frequently misleading" and should be extended to include other criteria: physical state; activity; radiation type; longevity; biochemical properties. The new scheme should have five categories: Very Low Level, Low Level, short-lived and long-lived Intermediate Level and High Level which will ensure that long-lived wastes cannot be dumped in near surface facilities.

The operation of the low level dump at Drigg is described as "haphazard" and "wholly unsatisfactory" and "is not an acceptable model for any future disposal site". Much of the material dumped at Drigg is not contaminated and dealing with it elsewhere could significantly extend Drigg's operating life, subject to very stringent rules.

Apart from the French other countries concentrate their efforts on geological disposal, and the Committee believes that "if any disposal system is acceptable to public opinion then the Swedes seem to have found it". It must be remembered that the Swedish people voted to phase out nuclear power by about 2010 so they have a very good idea of exactly what amount of waste they have to deal with.

Deep geological research is urgently needed in this country and the Committee recommended that the research site should be explicitly

excluded from becoming the final facility. The large-scale public opposition to test drilling in Galloway was partly due to the belief that the site would eventually be chosen for the dump.



REPROCESSING

Reprocessing is central to waste management doctrine in this country although all other countries except the French do not reprocess but directly dispose of spent fuel. The Committee examined the industry's justification of reprocessing and could not accept most of the arguments.

BNFL "overstated (the waste management) aspect of their case" in the opinion of the Committee and "that at the very least the economic case is doubtful" when reprocessing costs are greater than those for the raw material. The strategic supply case is too bound up with energy policy for the Environment Committee to comment but they do suggest that stockpiling uranium at its current low cost could be a viable economic alternative.

The Committee could not examine military plutonium requirements so their conclusions had to be based on civil uses (such as the fast reactor) and so they feel that "the size of existing stocks of plutonium in comparison with the current need is so large as to render plutonium valueless in monetary terms."

The Committee therefore recommended that THORP should be abandoned unless the employment and

financial costs of such a decision are too great, and they called upon the Government and BNFL to publish a detailed analysis of THORP. The reluctance of the electricity boards to sign a contract with THORP was seen as significant, but the boards have since announced that they do intend to sign: a case of the industry closing ranks to protect itself!

Magnox reprocessing was also examined but the Committee accepts industry advice that fuel rod corrosion during prolonged water storage necessitates reprocessing. Evidence to the contrary from Greenpeace arrived too late for consideration but the Committee exceptionally appended the evidence to their report because it seems to "challenge what we have been given previously and our acceptance of the need to continue to reprocess magnox."

DISCHARGES

The "dilute and disperse" philosophy of waste management comes under attack in the report and is regarded as highly unsatisfactory. The concept is central to Sellafield's operations and involves discharging radioactive material into the environment in the hope that it will disperse into supposedly safe concentrations. This element of waste management should be reduced to as small as technically achievable according to the report.

Discharge authorisations should be revised and should include "levels of particulate matter and plutonium and other actinides" as low as technically achievable with constant efforts to reduce these to as near zero as possible.

Apart from being much lower than at present the new authorisations should be fixed limits and should not include any "reasonableness" qualification. The discrepancy between permitted and actual discharges also worried the Committee. In most cases less than 10% of the limit is discharged so it too easily accommodates unusual events or accidents and leads BNFL to claim that a large accidental discharge is within permitted limits.

This report does not question nuclear power as such but its recommendations are aimed at increasing the public accountability of the industry. If accepted the report will have far reaching effects on the industry and could show the true cost of nuclear power. Needless to say the report is likely to be ignored just as the Flowers report was, but it provides useful ammunition for the campaign and could affect the Dounreay inquiry - or am I being too hopeful? ■

A leak of sodium/potassium coolant in the PFR building at Dounreay caused a small fire at the plant on March 19. The leak was from one of three cooling loops which are designed to remove decay heat from the core in "special circumstances" and required the loop to be drained and subsequently a "controlled shutdown" of the reactor.

No radiation was involved and no-one was injured according to Dounreay management, but it demonstrates how careful the plant operators have to be when dealing with a material as dangerous as liquid sodium which spontaneously combusts on contact with air: any slight leak could have serious consequences.

Yugoslavia

Yugoslav plans to expand the nuclear energy programme are falling foul of the country's federal structure.

Opposition is strong amongst the six constituent Republics although the federal Government, which controls major foreign currency contracts, is accepting tenders for the construction of two new nuclear power stations by the end of the century. They are seeking an 85% countertrade agreement on all technology, equipment and service imports.

Opposition is on both economic and safety grounds. At a meeting of the Communist Party central committee in February, a leading light of the anti nuclear movement, Dr. Dragisa Ivanovic, described the decision to build the plants as "a noose around Yugoslavia's neck," in terms of both cost in scarce foreign exchange and of the health risk in storing nuclear waste.

Yugoslavia has a hundred years worth of coal reserves and opponents are seeking a 25 year moratorium similar to the Swedish referendum decision. They are worried that once the country's domestic uranium deposits run out, it would be dependent on a major foreign power for imports which would affect its non-aligned status.

Yugoslavia already has a 664 Mw reactor at Krsko in the western part of the country. Prevlak, the only site so far proposed for the new plants, is in the same area. Since the completion of the present reactor they have had to increase their electricity imports from Austria.

Croatia, which has considerable energy problems, is the only Republic seriously backing nuclear power, although they can not afford it. They are, however, reported to be seeking long term credit deals from the Italians to finance just such a project.

The French electricity utility's design and construction programme director, M. Remy Carle, has told a Lords Select Committee that the safety measures for the Sizewell B PWR could be too strict. This is the only way he can account for the high cost the CEBG expects to pay for the station.

Penalty clauses in the contracts are allegedly costing £3.4m a month according to Lord Gray because of the delay in making a decision on the plant. About £10m could also be paid out to contractors if the PWR design is not selected.

The Inquiry Report is not now expected to be published until the autumn. Because of the continuing delay the Government is preparing to make a quick decision after the Energy Secretary receives the Report. The plan is to pave the way for an announcement of a programme of up to 6,000MW of PWR's early in 1987. The Government hopes that further inquiries will be site-specific and will not reiterate the arguments of the Sizewell Inquiry.

Electrical Review, 14.3.86

ETSU

Who killed off wave power research in this country? Who is in charge of the EDRP inquiry case for the UKAEA? The answer to both questions is Mr Peter Davies.

Mr Davies was previously programme manager for the Wave Energy Steering Committee based at Harwell, and was in charge of wave power research from 1975. The Energy Technology Support Unit, which supervised alternatives research, was established under the auspices of the UK Atomic Energy Authority and was mostly staffed by people from the nuclear industry.

China

Western plans to exploit the Chinese nuclear energy market are running awry, as orders for nuclear power stations are cancelled. Officials are now describing the Chinese government's proposals to build 10 nuclear plants by the end of the century as a vague target, not a set plan.

The first victim of China's shortage of ready cash is the Sunan reactor near Shanghai, which has been dropped from China's next Five Year Plan. The Chinese pulled out of a deal with the French Company Framatome in 1979 after a year's discussions. The latest loser is the German Kraftwerk Union (KWU) which had already signed a co-operation agreement in Bonn last June.

KWU have been involved in nego-

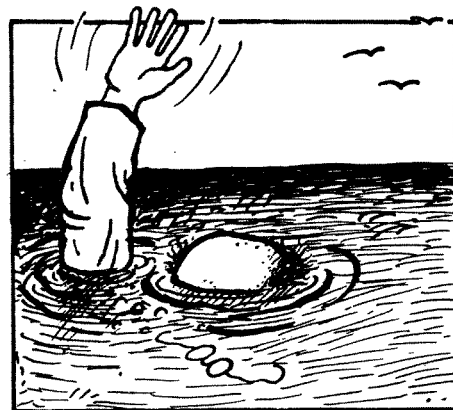
Shadow environment spokesman Dr. John Cunningham's favourite employer: British Nuclear Fuels, have placed a £10 million shipbuilding contract with a Japanese firm.

British Shipbuilders, who have completed five successful contracts with BNFL, claim that the Japanese price is subsidised to the extent that it would not even cover the cost of materials. It is believed that there are no shipbuilding yards in Dr. John's Copeland constituency.

UKAEA

Alastair Goodlad, Under Secretary of State for Energy, has assured the Commons that placing the UKAEA on a trading basis is not a prelude for privatisation. Concern was felt that the CEBG may have undue influence over the Authority, but Mr Goodlad said that the CEBG's contribution to the UKAEA will amount to only 15% even after the shifts in funding announced last year.

Electrical Review, 21/28.2.86



tations for the last two years to supply two 1000 MW reactors in a deal reported to be worth £1.2 billion. The cancelling of the Sunan project has ended plans for the West Germans to send 150 tonnes of spent fuel to China for storage.

Despite the dropping of the Sunan project, China's Premier Zhao Ziyang is reported to have told US Energy Secretary John Herrington that China's policy on building nuclear power station is unchanged. Indeed the Daya Bay project near Hong Kong seems likely to go ahead, with heavily subsidised reactors from Framatome. GEC have already signed a memorandum of agreement with China to supply two turbine generators at a cost of £250M which is 20% lower than hoped.

BNFL are dumping liquid nuclear waste into Rivacre Brook, Ellesmere Port, from their Capenhurst enrichment plant. The brook passes through a densely populated area, including a children's play area and two schools, before spilling into the Manchester ship canal.

Compared with the discharges from Sellafield, the contamination at Rivacre brook appears very minor, at least on paper. However the figures released by BNFL appear rather suspect, as they make no mention of Uranium or its decay

products, when Capenhurst is a Uranium enrichment plant.

The people of Ellesmere port, which has the second highest cancer rate in the country, are frightened that the new Trident Fuel enrichment plant will greatly increase the danger of accidental release. They have formed a new pressure group, known as CURB (Clean Up Rivacre Brook).

CURB is particularly concerned that there are open grilles leading directly into the brook from the plant and that there does not ap-

pear to be any means of stopping flow in case of an accident.

CURB, who can be contacted on 051 722 1512, are making 4 demands:

- * the installation of automatic monitoring at the outlet, with a system to shut off the flow if ANY radiation release occurs;
- * independent monitoring of Rivacre brook;
- * immediate withdrawal of permission to dump waste into the brook;
- * diversion of the brook away from the uranium enrichment plant.

Torness

A nuclear fuel flask was transported by road from the Hunterston nuclear power station to Torness last October. According to the SSEB press release, "The flask will contain no fuel. In fact, it is a new flask which has not been used previously."

SCRAM wrote to the SSEB to clarify whether the flask was indeed empty as we had heard that fuel was expected to arrive at the plant in October. The reply from the public relations officer was restricted to a copy of the press release. In February we heard that the fuel was in store at the plant but the Board

refused to tell us exactly when it arrived or when it would be loaded into the reactor.

During a phone call to the Board's press office we discovered that queries from SCRAM are dealt with "in a special way" and that answers will not be given over the phone; we have to write instead.

This lack of co-operation is not a very good sign. What is worse is the SSEB's constant refusal to appear with SCRAM either at debates or on the radio. A two-sided debate which SCRAM was due to take part in at an Edinburgh school became a one-sided talk; and one of the main

worries of the students was the lack of independent information on nuclear power.

Finally, an alarm sounded at Torness in early February. It was described as a "false alarm" by the SSEB, yet they chose not to reply to a written request from SCRAM for information on it. Fortunately we discovered the facts after a chat with the station manager following a radio programme he took part in (and we couldn't because he did!): a construction worker accidentally leant against a fire alarm! Surely the Board could have told us that in their letter?

Storage

The Department of the Environment is funding a research programme into the reactions of local objectors to NIREX's radioactive waste dumping proposals. A university researcher who is questioning people at public meetings at Fulbeck on their reactions, admitted when challenged that her paymasters are the DoE. The objectors believe that the research is to gauge the best way of releasing future unpopular plans to the public.

Radwaste

Models for predicting the migration and biological transfer of radionuclides from shallow land burial sites are inadequate, according to the International Atomic Energy Agency (IAEA). 12 countries were represented at a meeting in Vienna last November to instigate a four year research programme into such movement of radionuclides.

The meeting decided that the so-called environmental transport aspects of the problem should be emphasised in research. Other topics will include measurement studies to improve the data base and also model development and validation studies.

Unless these models are improved, it will be impossible to predict adequately the effect of any form of dump on the environment.

'Bribes'

Allerdale District Council Chairman Tom Tweddle has described BNFL's contribution to the local tourist industry as a "shot in the arm". It is uncertain whether this was a literal or figurative reference.

According to a report in the Harwell bulletin and BNFL News, BNFL has already contributed almost £900,000 towards local projects. These gifts have been described by anti-nuclear activists as "bribes". The most expensive of them was £500,000 for a running-track at Whitehaven, near Sellafield. An extra £20,000 was spent on re-siting six pigeon lofts 200 yards away as they were in the way of the track. Not everyone is happy however; as one pigeon fancier said: "We're surprised they haven't got fitted carpets at that price."

A separate "gift" of £350,000 has been given to Maryport in Cumbria for an exhibition and "Museum Facility". SCRAM was unable to ascertain whether the museum is to include the Sellafield site, or if it is just a museum of industrial disasters.

Radwaste

TUC policy on radwaste is that it should be stored above ground in specially constructed repositories, where it can be monitored and re-

trieved whenever necessary.

The Government's plan for a land burial site will run into immediate union opposition, when they attempt to implement it, as the transport unions have given an undertaking to Greenpeace that they will not deliver nuclear waste to any site that does not meet with the above criteria.

Dounreay

In February the Dounreay management announced that, over the previous 9 months, power fed into the grid from PFR had saved the tax payer over £9 million.

Douglas McRoberts, Dounreay's senior information officer, said, "The plant is purely for research and development, funded by the tax payer. So the good news is that over £9,100,000 of taxpayers' money has been saved in terms of electricity exported to the Grid."

But, money allocated to the Dounreay PFR fuel cycle in 1984/85 was £68.9 million. So Dounreay actually wasted nearly £60 million of tax payers' money!

CANCER

The incidence of childhood leukaemia within 12.5km of Dounreay is ten times higher than expected according to a report in the February 1 issue of the Lancet. These figures were discovered during a survey carried out by a team from the Scottish Health Service Common Services Agency.

The team discovered 5 cases of leukaemia registered between 1979 and 1984 in people living within 12.5km of the site. The expected figure, based on the all-Scotland rates, is 0.513. Four patients were under 15 at registration.

The findings are difficult to evaluate, but, "the facts that all the reported cases within 25km occurred within a 5-year period, 5 were in children under 15, and 5 occurred within 12.5km of Dounreay, may increase its potential importance", according to the report.

Penny Boyle of the Nuclear Reprocessing Concern Group, has dis-

covered another three cases of leukaemia within 25km of the site.

A week later the UKAEA published a survey which revealed high levels of leukaemia deaths in Orkney and Shetland in the 25 year period up to 1982. The way the press release was worded caused a great deal of controversy. The Orkney parish of Orphir, in which there is a ten fold excess of acute leukaemia, was described by Dounreay management as being "near Flotta" when it is just as close to Kirkwall and Stromness; and North Mavon, a high incidence area on Shetland, was described as "near Sullom Voe" when it is actually over 6 miles away across the water.

Both Flotta and Sullom Voe are oil terminals and the Dounreay survey was obviously intended to implicate them. Fortunately people are not so stupid and the trick back-fired.

ROAD IMPROVEMENTS

Caithness Chamber of Commerce is attempting to persuade the new Scottish Secretary that the A9 trunk road in the county requires urgent improvements and would like him to drive along the road to see for himself.

The Chamber stressed that it is particularly important if EDRP is to be sited at Dounreay that these improvements should be carried out.

It seems EDRP is being used as an excuse for getting essential improvements done in many areas.

FARMERS

The Caithness area National Union of Farmers executive have decided to retain their joint objection lodged with their Orkney counterparts despite a small majority recorded in favour of the plant in a recent referendum held by the Union.

As the membership was evenly split on the issue - 174 for and 141 against - it was felt important to keep their objection to ensure they were represented at the inquiry. Bill Sinclair, the immediate past president, believed that the National NFU would not support Orkney NFU's objection by itself.

The Union is to continue efforts to try to resolve outstanding environmental concerns.

REPORTER'S MEETING

The Reporter for the EDRP inquiry held an unprecedented meeting with representatives of Orkney CADE and the UKAEA to discuss the release of documentation for the inquiry. The two CADE members were flown down at the Scottish Office's expense.

At the end of the three hour meeting all the CADE requests were granted, but watered down. The UKAEA agreed to release summaries of the health & safety reports from 1975 to 1979 which would list all the radiological incidents but without the building numbers, instead the function of each building would be described.

A paper on the decommissioning of an earlier reprocessing plant on the site was released despite the fact that CADE had previously been told that the only information available was a four page article in the June 1979 issue of Atom.

Health statistics from the Medical Research Council's survey of UKAEA workers will also be made available but it is not clear over what time-scale the figures will refer.

The final request proved to be more contentious than was expected: CADE wanted details of all non-radioactive discharges from the plant, but the UKAEA seemed unwilling. The reporter finally instructed their release.

A victory for common sense? Well perhaps, but when will the objectors receive these documents? With the inquiry about to start on April 7 an agreement to release vital information on March 6 after nearly four months of asking leaves precious little time to incorporate the information in the objectors' case. In view of this fact the

start of the inquiry should have been delayed by at least a month from the time that CADE receives the new information. But no, the Reporter made it clear that he was not going to entertain the possibility of a delay.



HALL BOOKING

Caithness District Council has set the hire charge for Thurso Town Hall during the inquiry at £800 a week. This covers the main hall and a number of smaller rooms. The figure does not represent the full amount normally charged.

Chief Executive Alistair Beattie

said that the Reporter felt the Council would have been "pushing it" to charge the full rate because the Town Hall is not usually used to maximum extent: the main hall is only used once or twice a year.

The initial booking is for 15 weeks!

EUROPEAN VOTE

The European Parliament motion calling for the closure of Sellafield pending a safety inquiry included an amendment tabled by Alex Falconer (Mid Scotland & Fife, Lab) and Winnie Ewing (Highlands & Islands, SNP) which called for a halt to the Dounreay proposal.

The EDRP plan is part of a European collaboration which includes five member nations of the EEC; and as such is more likely to be affected by European criticism than Sellafield. A Dounreay spokesperson said that the European decision would probably mean "the scaremongers would have a field day on the political front".

Mr Blumfield, the Director of Dounreay, dismissed the cancellation call and said that "it is

entirely up to the British Government ... as far as I am concerned we will continue unless the British government tells us not to".

Malcolm Bruce MP, the Liberal's energy spokesperson, said in a Commons energy debate that "it would be crass foolhardiness to go ahead with the reprocessing facility at Dounreay when there are so many troubles at Sellafield".

NORWAY

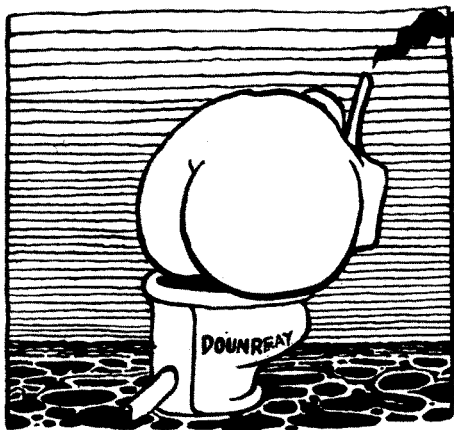
The Norwegian Environment Minister, Rakel Surlein, visited Britain in March to discuss Dounreay and acid rain. She urged that all the possible effects of EDRP should be studied at the public inquiry.

CHURCH

The Caithness Presbytery of the Church of Scotland has backed the EDRP proposals after a lively and at times heated debate. The Presbytery's support was qualified by the proviso that the safety standards should be of the highest possible level.

BNFL's "filthy record of carelessness and lack of safety" was cited by the Rev Ian Stiven as a reason for not supporting the expansion. He also disputed a part of the report to the Special Committee on Dounreay that it was "sure that the technology exists for the safe storage of nuclear waste".

The British Council of Churches is against any significant expansion of the nuclear industry and reprocessing on safety and waste disposal grounds.



SEAWEED

Caithness Divisional Planning Committee unanimously passed a Planning Application by Dounreay for construction of a tidal barrier. The UKAEA hope the barrier will reduce the intake of seaweed into the cooling water intake system by 80-90%.

The problem was first discovered in 1974 when commissioning of PFR was delayed for several weeks due to the sea water cooling system being blocked by hundreds of tonnes of seaweed thought to have been torn up during a storm at sea.

REFERENDUM

Fearn, Seaboard, Tarbat and Nigg Community Council has called on Highland Regional Council to organise a referendum in the Region to test public opinion to the EDRP proposals. The Community Council have already objected to the plans.

MONEY

The Orkney and Shetland Island Councils have each set aside £60,000 for representation at the inquiry. The money is coming from the Planning Departments.

ENVIRONMENT COMMITTEE

The Environment Committee Report includes relevant recommendations for the EDRP proposal. If implemented they would mean a major rethink for the applicants.

The Committee makes an important recommendation on nuclear transport. Despite the very small statistical risk of a plane accident they felt that the consequences could be very serious and therefore recommend that: "The carriage by air of all except the very lowest levels of radioactive materials should be prohibited."

The Committee also has plumped for ALATA (As Low As Technically Achievable) for discharges and would like to see this principle adopted at Sellafield. No specific mention is made of the Dounreay proposal and Sir Hugh Rossi, the Committee Chair, expressed some concern that he had not been informed about the proposal on a visit to Dounreay in the course of the investigation.

SDP

Delegates at the Scottish Conference of the Social Democratic Party, held in Paisley in February, defeated a motion from the Young Social Democrats which called on a future Alliance government to set up a royal Commission on the environmental consequences of nuclear power, and opposed any expansion pending the outcome of such an inquiry.

Calum MacKenzie, a technologist at Dounreay, spoke against the motion and claimed that "the nuclear industry has a role to play. It has to be safe and think it is safe".

Another speaker said, "I am well

LABOUR

The Labour Party has also objected to the EDRP plans. A masterly piece of political strategy effectively spiked the guns of the pro-nuclear lobby and paved the way for representation at the inquiry.

The pro-nuclear delegates at the Scottish Conference were narrowly defeated on the first day so set about intense backroom activity to defeat the main Dounreay motion on the final day. The TGWU were forced into a position of having to abstain because the motion included no specific recommendation on alternative employment (and because the 600 TGWU members at Dounreay had threatened to resign and join the electrician's union). The abstention could have meant defeat for the motion.

The delegate moving the motion on Dounreay withdrew it at the last minute because he felt that the

DOCUMENTS

The Reporter has ordered that a full set of all the documents lodged by the Applicants should be available for public inspection in Lerwick. This decision followed a protest by the Shetland branch of CADE.

The complete set of documents are to be on display in Kirkwall, Thurso, Inverness, and Edinburgh. Documents will not, however, be displayed in Wick. The Reporter replied to Pete Riding of NROG: "The arrangements for circulation of productions is already more extensive than for any previous inquiry in Scotland. I do not consider it reasonable to require a further set to be made available at Wick."

The documents arrived at Kirkwall Public Library on February 17, exactly one month late; and then only because SCRAM contacted the Reporter and told him that they were not available the previous week. Mr Bell was "distinctly disappointed"

aware of the need for jobs in the north, but we don't know the truth about so many questions on nuclear power as there is so much propaganda".

The pro-Dounreay stance of many SDP members is thought to worry some Liberal and SDP MP's. It has been suggested that nuclear power is the Alliance's main area of disagreement, and some members would prefer to stifle public debate until the disagreements can be resolved.

However, public debate there has been. The Scottish Liberals passed a motion at their Conference against the Dounreay expansion.

SNP

The news of the leaks at Sellafield "cuts the credibility of the nuclear industry to ribbons", according to Alex Salmond, the Scottish National Party vice chair. "In the light of what is happening in Cumbria no-one in their right mind can now believe a word of their promises about Dounreay."

"Linked to the reports of high cancer rates in Caithness this must totally undermine any public confidence in the UKAEA/BNFL assurances on the safety of their proposed Dounreay plant."

Dounreay~ 30 Years Ago

During 1953 secret negotiations led to the choice of Dounreay for the site of an experimental fast reactor. This choice was based on the low population density of the surrounding area. Steve Martin here describes how the choice was made.

In the summer of 1952 the Cabinet approved in principle the construction of a fast breeder reactor, and that decision was announced in January 1953 by the then Minister of Supply.

An October 1953 memorandum by the Atomic Energy Division of the Ministry of Supply sought to explain the project. The document admitted that "There is a remote possibility of an explosion" and outlined the possible effects.

Physical damage to property was expected to be restricted to the area within a one mile radius of the plant but radioactive contamination may spread in a narrow segment downwind. In "adverse conditions" this contamination may require permanent evacuation of this narrow segment for some distance from the site, and temporary evacuation over a greater distance for a few days until monitoring and decontamination were complete,

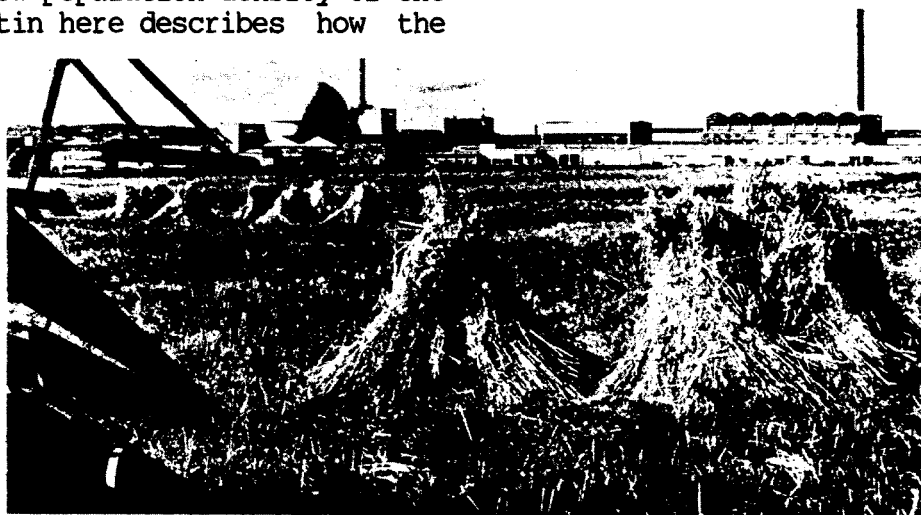
In view of this risk it was thought "undesirable" that the plant should be located within some miles of any town. Other criteria included a sea coast location to enable effluent discharges, a foundation of solid rock and the availability of up to 12 million gallons of good quality fresh water a day. The site also required sufficient area to accommodate further experimental reactors.

THREE SUITABLE SITES

The three most suitable sites were identified: Llanbedr near Harlech on the west coast of Wales, Little Ferry near Golspie in Sutherland, and Dounreay in Caithness.

Both Llanbedr and Little Ferry were dismissed on population grounds. In 1965 the Trawsfydd nuclear plant was built only 15 miles from Llanbedr and Little Ferry was declared a nature reserve by the Scottish Wildlife Trust in 1971.

Dounreay was selected as suitable because the "dispersed rural population is comparatively small and most of the land is already Government property". Although the Atomic Energy Division at Risley preferred the Little Ferry site, Dounreay was selected for "superior hazard to population considerations." It is doubtful whether they foresaw that the influx of workers would increase the population within 2 miles of the site from 150 to 550.



Dounreay in the early 60's

At a meeting of the Scottish Planning Committee on October 16 to discuss the risks, the impact of the development and its amenities, it was stressed that "If the reactor was successful they would build others in more conventional places and retain the Dounreay site for experimental purposes."

EVACUATION

But the Scottish Home Department was still anxious about the project, so their Mr Anderson wrote to Mr France at the Ministry of Supply to request confirmation of points which were discussed at the meeting and which did not appear in the draft of the paper which was to be put to Ministers.

Could evacuation really take place anything up to 48 hours from the time of the release, and would even this leave a "considerable margin for tolerance"? The reply read "in the worst possible case it might be necessary to evacuate some small number of people close to the factory at a somewhat shorter period of time."

In an attempt to further allay Mr Anderson's fears of an accident Mr France concluded that "further research and development work on the project has substantially reduced, if not eliminated, the risk of an explosion". A remarkable technological achievement in just one month!

Councillors and officials in Caithness were not so worried. They welcomed the project and according to Sir David Robinson, the local MP, "None of them are in the least concerned about the risks to the civil population."

Sir David wrote to the Scottish Office and the Ministry of Supply to urge that an announcement be made as soon as possible because

he was worried that speculators would start buying up property and land in the area.

An explanation of why there is so much institutional and trade union support for Dounreay now can be found in Sir David's letter: "I work very closely with the local labour exchange...and the Directors of Education, who can do so much in encouraging the right type of youngster to go into industry ..."

The announcement of Dounreay as the site was in March 1954. It was hoped that knowledge gained from the experimental fast reactor would allow the construction of other breeder reactors "which are just as safe" as the Harwell and Windscale reactors.

FUEL FOR WEAPONS?

There was a remote possibility of an accident but it was unlikely that radioactivity would escape from the containment sphere. If such an escape did occur the "Atomic Energy project would ensure that appropriate arrangements were made to cover any resulting disturbance and loss of livelihood."

The remoteness of Caithness was cited as the reason for the choice, this time publicly. However it went further: "If the risk was completely absent, or if the knowledge of the reactor was more advanced, it would be cheaper and more convenient to locate the project in a less remote area."

This article is based only on the documents released under the 30 year rule: others were closed for 50 years. Reference to nuclear weapons was restricted to: "fuel used in the breeder could in an emergency be removed and used for the manufacture of weapons and it might be necessary to do this." ■

Secret Transport

A number of issues will be examined at the forthcoming Dounreay public inquiry but many of the more important ones will not. A significant issue which will not be dealt with is the transport of plutonium. Pete Mutton here examines the industry's reluctance to divulge information on plutonium transports.

Little has emerged from the Applicants (BNFL and UKAEA) about plutonium dioxide transport. The glossy 117 page Environmental Impact Assessment makes no reference to the environmental impact of a spillage from one of the containers, nor is there any reference to studies carried out to demonstrate the ability of the containers to withstand aviation accidents. Such a dearth of information about such an integral part of the proposed development is quite disgraceful, but is, regrettably, true to form for the nuclear industry and follows the pattern displayed when the transport of plutonium nitrate started between Dounreay and Sellafield.

REPORTS CLASSIFIED

The shipments started in 1979 without public discussion and required no planning consent. The Government did, however, publish a safety assessment by the Nuclear Installations Inspectorate (NII) which reviewed the studies carried out without actually revealing the detail of those studies. Requests by the anti-nuclear movement for these to be made public were met with a refusal; the reports were classified.

This is clearly nonsense. International Atomic Energy Agency (IAEA) Regulations require that containers be subjected to the cumulative effects of mechanical

and thermal tests, although opportunity is given for compliance to be demonstrated by reference to previous testing, the use of models, a reasoned argument or a combination thereof.

The NII Safety Assessment revealed that in the mechanical test, the radiation shielding of the plutonium nitrate container was damaged; yet the subsequent thermal test was done on an undamaged one third-scale model. Calculations were then made to demonstrate that the damaged container would have survived the thermal test! Questions as to why a model was used and for the experimental data and calculations to be released for independent scrutiny have not been answered, again on security grounds, although the information requested cannot have any security implications.

Another example of the absurdity of the NII Report is two references to "refuge ports" for the ships. Requests for these ports to be named finally resulted in the Government announcing that "ports" was a typographical error and should have read "points"! The same typographical error twice and nobody noticed it before publication! Excuse me if I appear cynical, but even if we accept it as true it doesn't explain what hazards are felt to be so serious that no matter what problems affect the ship, it will not put into port. It doesn't say much for the authori-

ties' confidence in their safety and security measures if they feel it too risky to allow the ships into port, does it?

The safety studies have still not been made public although an updated assessment of the radiological consequences of a discharge of plutonium nitrate into the sea has been released. Details relating to security issues must remain secret to ensure their effectiveness. That does not mean a veil of secrecy should be used to withhold information about safety, but that is precisely what the nuclear industry is doing.

It is therefore not surprising that the BNFL/UKAEA's Environmental Impact Assessment says so little about the transport of plutonium. The Supplementary Information submitted with the planning application also said little but what was said was revealing. It stated:

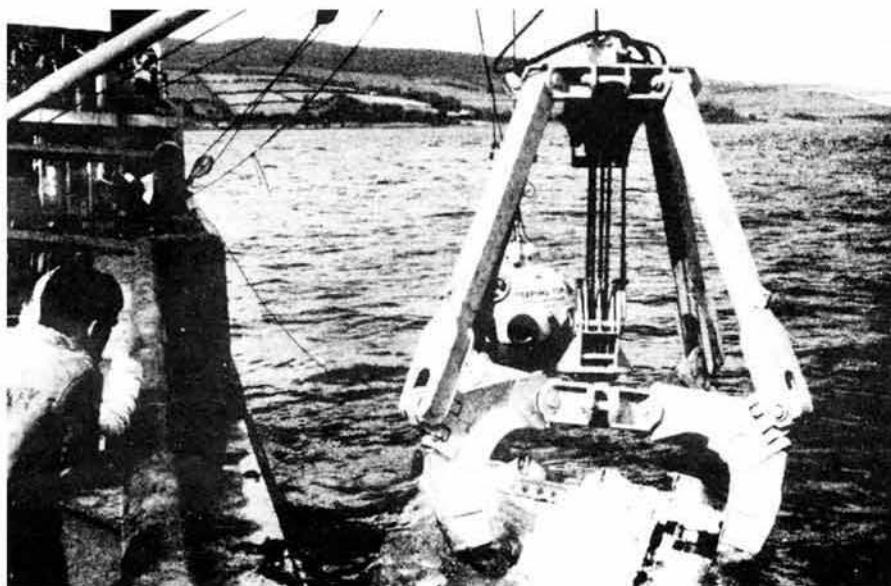
"Considerable care has to be taken to ensure the physical security of plutonium, particularly when it is being transported. In this respect, air transport offers many advantages in providing the necessary security."

This raises a couple of important points. Firstly, if air transport offers such advantages, why is the plutonium currently produced at Dounreay transported by sea? And secondly, the statement is a clear admission that the plutonium has military potential. Why else would it be a security risk?

INQUIRY A FARCE

The plan is, therefore, to fly the raw material of nuclear weapons across Europe and, if Mrs Thatcher has her way, this diabolical trade could soon be put into private hands for private profit. Does this worry you? It should because it scares the shit out of me. Yet our democratically elected representatives, whether they be Highland Regional Councillors or the Secretary of State for Scotland, consider such matters to be of such little importance that they don't think it worthwhile to examine the implications at a public inquiry.

It is disgraceful that our elected representatives take such a casual and irresponsible attitude towards such an important issue. It is therefore up to the anti-nuclear movement to keep the public informed and whilst the farce of an inquiry goes on at Thurso it is up to us to emphasise that the real purpose of EDRP is to produce plutonium for military use and that the safety of the public is seen by the nuclear industry and the Government to be secondary to that purpose.



Recovery from the seabed of an empty plutonium nitrate container during tests.

Dumping Worries

The short list of four potential sites for the dumping of low level and short-lived intermediate level radioactive waste was announced by Kenneth Baker, the Environment Secretary, on February 25. Jerry Fitch looks at the sites and describes the local opposition which has grown up in the areas.

Almost two and a half years after Elstow in Bedfordshire was named as a possible site for low level nuclear waste, the Environment Secretary added three others to the list. The new sites are South Killingholme in Humberside, Bradwell in Essex and Fulbeck in Lincolnshire. Each site is in the constituency of a Conservative MP, and the first three are on land already owned by the Central Electricity Generating Board; the Fulbeck site is a government-owned disused airfield between Newark and Lincoln.

Given the media's recent pre-occupation with the nuclear indus-

Speculation is rife: which site (if any) is the best. John Baker (no relation), chairman of UK Nirex (the state-owned company which was formed by the Government to manage Britain's nuclear waste, and which grew out of the Nuclear Industry Radioactive Waste Executive) claims that all the sites start as equals, and that "if a site rules itself out during our investigations we will say so". People are seeking to identify the factors that would make for a good or a bad site (depending where you stand).

Elstow has been on the cards for two and a half years so a lot of

shallow land burial and to form a united front with groups in other threatened areas.

BROAD-BASED OPPOSITION

Bedfordshire Against Nuclear Dumping (BAND) has never adopted a parochial stance. With the naming of the other sites we have been able to make contact with other groups to offer them the benefit of our experience, and to urge them not to pursue a divide-and-rule policy. It is a broad-based, national and united opposition to shallow land burial that must surely win the day for ALL the sites.

In Bedfordshire we have done almost everything possible as a pressure group. Locally we have had considerable success against NIREX, and other groups will certainly be able to do likewise. Yet, in tackling the Government, we realise that our local campaign can best be strengthened by becoming part of a wider opposition to dumping wherever it is proposed. This must surely be the way forward for all groups concerned with this issue.

DIRECT ACTION CONSIDERED

The campaign in South Killingholme began in September last year with a steering committee being set up after a public meeting attended by over 400 people. The first chair of the committee was a Labour councillor. A Tory councillor now holds the post which demonstrates the all party nature of the campaign. Despite local media support it was difficult to break through the natural apathy of the people, that is until the announcement: interest and opposition have now mushroomed.

The campaigns in Fulbeck and Bradwell are catching up on the other two areas since the announcement. The initial feeling was that "sweet talking will convince NIREX" but now the people are beginning to entertain the possibility of non-violent direct action; in Fulbeck there is a chance that tractors will block access to the site if the Special Development Order goes through. Long petitions are being collected in all the areas and protest marches and rallies are being planned.

WIDER CONTEXT REALISED

A very encouraging sign is the way people who have never been involved in campaigns before are becoming politicised, as was seen in the miners' strike. People who began with a fear of a threat to their own community begin to see the wider context: no dumping here becomes no dumping anywhere, and develops to no Sellafield and no nuclear power.



try it may appear politically imprudent for the government to name the other sites at the time it chose. But perhaps the decision was taken precisely because nuclear issues were so much in the headlines, rather than prompt an even stronger reaction by naming them at a time of nuclear calm? So many environmental groups are busy tackling Dounreay, Sellafield, Sizewell etc that it may be in the government's interest; it may dissipate opposition energies still further.

MP TO RESIGN?

One thing the Government may not have taken into consideration is the vociferous opposition from its own MP's, the chief resistance coming from the Chief Whip, Sir John Wakeham, whose Colchester South and Maldon constituency includes Bradwell. Michael Brown MP for Brigg and Cleethorpes has promised to resign if the nuclear dump is sited in his constituency.

site-specific work must have already been carried out, which may mean that the other sites appear less favourable through default - hard luck Bedfordshire! But, if population density is a significant criterion, then hard luck Fulbeck and Bradwell! Indeed the Elstow and Bradwell MP's (Trevor Skeet and John Wakeham) have already been seen sparring with each other on television over population densities.

A coastal site may be high on the list of priorities; Kenneth Baker stated that such a site would be sought for the disposal of nuclear submarine waste. That bodes badly for Killingholme and Bradwell! There seems no politically soft option. The variables are endless and a strong case could be made as to the advantages and disadvantages of all four sites.

Yet in the midst of such idle and futile speculation one constant has emerged: the resolve of local people to oppose the method of



The politicians have also learnt a lesson, and Parliament could be in for a few late night sessions in the near future. Michael Martin has threatened to send the name of any constituency whose MP is in favour of dumping to NIREX, and he claims to have over 500 Parliamentary Questions ready to be tabled with the intention of slowing down the work of the House.

"FINANCIAL INDUCEMENTS"

The dirty tricks continue. John Baker has publicly offered "financial inducements" to any community chosen as a dump site. He suggested that "rate abatements" could be introduced for people living within one kilometre of the dump, and that rates income from the site could be retained by the local authority for the direct benefit of the local community. He also proposed that the nuclear industry should pay for improved local facilities.

This is similar to the system which exists in France. "Host communities" for nuclear power plants receive cheaper electricity, improvements in local business and employment opportunities and substantial contributions to local revenues through special taxes.

Let's not pull punches; these inducements must be recognised for what they are. They are bribes, and they are the lowest tricks in the book. Yet, by offering such bribes, the NIREX tactics have again rebounded upon them. To offer bribes must surely mean that NIREX recognises that people and the environment will be at risk, and therefore will have to be compensated. It also demonstrates that NIREX must realise that there are absolutely NO advantages for any community which has to face a nuclear waste dump in its midst. Such bribes can only strengthen our resolve still further.

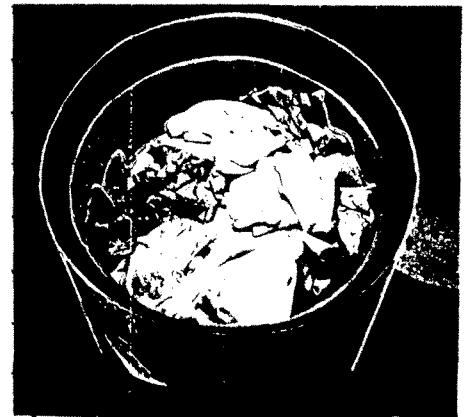
Another aspect of French nuclear

power planning is also to be imported; they don't have public inquiries. A Special Development Order will be put before Parliament in April to permit NIREX to carry out site explorations. Previous to this a public inquiry had been required before such investigations could proceed, such as at Mullwharchar in Galloway and the Cheviots in Northumberland.

The present intention is to narrow the list down to one site over the next 18 months when there will be a public inquiry into that site.

TWO YEAR INQUIRY EXPECTED

What is not clear is whether the remit of the inquiry will be restricted to site specific issues, as at the forthcoming Dounreay inquiry (and as what happened at Mullwharchar and the Cheviots), or whether dumping policy will be examined. It is thought that the inquiry could last about two years (Sizewell was expected to last only 6 months, so this could go on forever!) and then a decision will be made. It is difficult to imagine

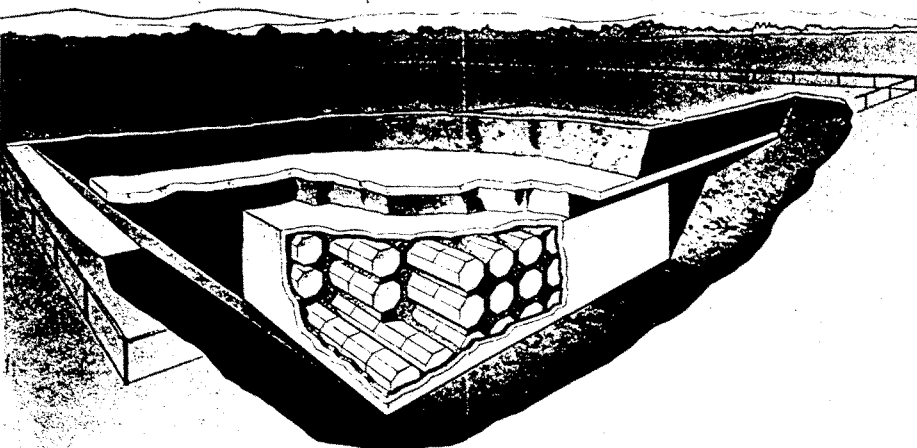


that four or five years from now an inquiry report could possibly say no when they hope to begin construction in 1990 to take the strain off the Drigg low level dump by 1993.

FORCE TO BE RECKONED WITH

Billingham BAND is an example to us all of how a group can take on NIREX and the Government and win. This time the Government will not give way on a local issue, but a national campaign is another matter. Billingham is still in there fighting; the Bedfordshire and Humberside campaigns are in contact with each other and are working towards the same goal, and the groups in Fulbeck and Bradwell will soon join the wider movement.

If we can all now link up and pull in support from other, more established groups, then we shall have a national force to be reckoned with; a force that no government will be able to ignore.



One Leak Too Many

Among the many nuclear accidents over the last couple of months, the leak at Trawsfynydd was the closest to the core of a reactor. Don Arnott here examines the implications of this alarming incident which has been waved aside by the nuclear industry.

At 8 a.m. on February 21st a pressure release valve opened on top of one of the two heat exchangers which generate steam at the No 1 reactor at Trawsfynydd power station. Thirteen tons of coolant Carbon dioxide were released to the atmosphere in 14 minutes before the valve was manually closed. Small quantities of neutron-induced radioactivity - not fission products - escaped in the gas.

Such are the bare outlines of an event instantly dismissed as a fleabite by the CEBG and subsequently described as "a minor incident" by Mr Goodlad in the House (Hansard, 27th February).

LOSS OF COOLANT ACCIDENT

Before examining the details any further we need to look at the fundamental science. For what happened at Trawsfynydd was a Loss of Coolant Accident, known to the trade as a LOCA; and a LOCA is usually regarded (probably even by CEBG engineers in private) as one of the more alarming things that can go wrong.

Broadly, the assembly consists of two parts: the reactor and the heat exchanger. The fuel in the reactor consists of natural uranium clad in an alloy called Magnox which, if unruptured, also contains the fission products generated by the process. Carbon dioxide under

pressure is forced through the reactor core in order to remove heat. The hot gas then goes to the heat exchangers where it generates steam for the turbines. The cooled gas is then recirculated to the reactor.

The reason why the gas is under pressure is that this increases the efficiency of heat removal from the core. It follows that loss of coolant, leading to depressurisation, will cause core-temperatures to rise beyond what they should be. This can lead to damage to the cladding, particularly in the case of Magnox because of its relatively low melting point; and damaged cladding can lead to fission product release. In extreme circumstances the reactor core would be a write-off; and in the event that radioactivity escaped the containment there could be human and environmental injury.

Various resources are on hand which greatly reduce any such possibilities. First, the Scram system. This operates, automatically and very swiftly, to shut down fission-heat generation if anything abnormal happens. A few parts per million of water vapour in the gas, depressurisation or above-normal temperature and other disturbances will cause a scram; one assumes that this was the first indication that anything was wrong at Trawsfynydd No 1.

Secondly, although the gas-coolant circuit is nominally leak-proof, it is in fact so large and complex in structure that all these circuits leak small quantities of carbon dioxide continuously. Consequently reserve supplies of carbon dioxide are always available to keep the pressure where it should be. Whether the injection system can cope with a circuit which is losing almost a ton a minute and go on doing so for fourteen minutes is something I do not know; but I assume that it is possible.

But if it is possible, a new factor may emerge. The gas lost represented about 20% of the entire coolant. Its sudden replacement by stone-cold carbon dioxide may well prove destabilising for the heat exchangers; and these, at Trawsfynydd, are very touchy beasts. Previous history gives a pointer which should not be ignored. In the July 1980 accident to the same reactor, when a lightning strike cut off the electrical output to the grid, the reactor scrambled faultlessly and it was the heat exchanger which, some hours later, proved unable to withstand the shock; pipes parted and water got into the core.

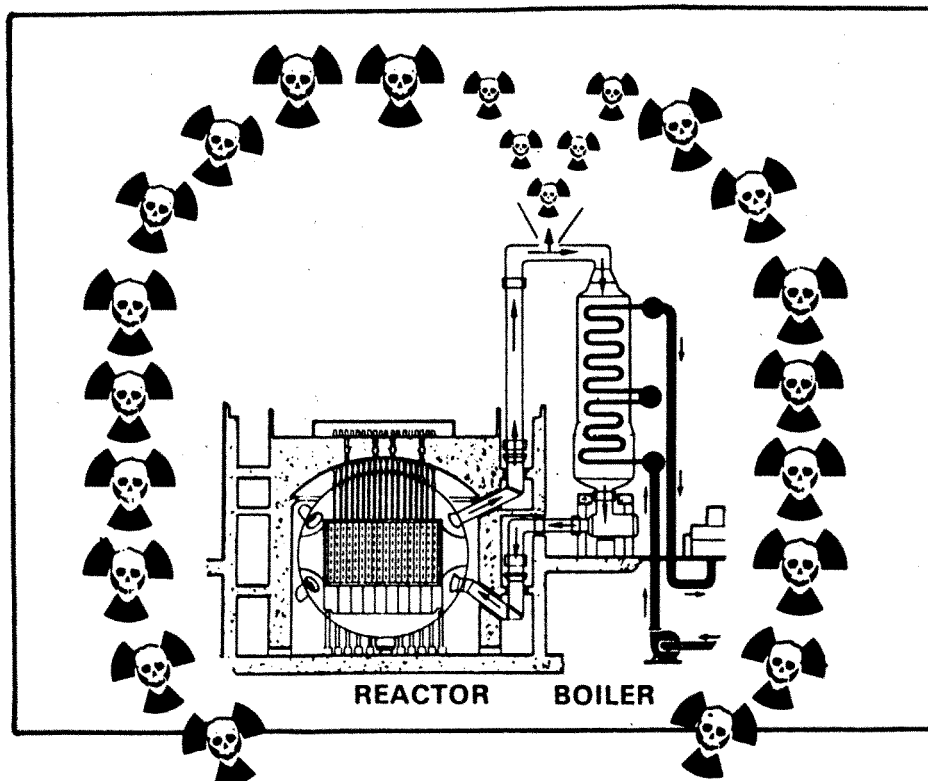
VALVE OPENED TOO SOON

Another factor must be borne in mind. One of the least attractive features of a reactor is that it is never possible to shut it down entirely. This is because there are two sources of heat. The heat generated by fission, which is most of it, is at once cut off by the scram. But the fuel rods continue to generate heat by means of the radioactive decay of the fission products they contain. This is called decay-heat. Its quantity increases with the age of the fuel and thus with the build-up of fission products within it. But it can be as much as ten percent of the total heat produced. And there is no way of shutting it off since one cannot halt radioactive decay.

In consequence, even when a reactor is shut down it must still be cooled. A single heat exchanger can cope easily - but if the other one is out of action there is no longer a safety margin. This is precisely the point at which the Trawsfynydd incident becomes worrying because the pressure release valve failed wholly in an unusual way.

This valve is programmed to open should the gas pressure rise too high and other valves are provided alongside should one fail. One thing that can go wrong is that a valve, once opened, fails to close (as happened at Three Mile Island).

But this valve did something appallingly different; it



opened at 30lb/square inch below the rated operating pressure - and, to put matters colloquially, once opened it was going to stay open until it had got the pressure down to what it thought it should be. And this is what it did for fourteen minutes until an operator (not, it seems, wearing protective clothing) managed to shut it.

This links at once to another factor. No 1 station had been shut down for the statutory two-year NII inspection and had only been going for 48 hours thereafter. Presumably these valves had been inspected and adjusted. On the face of it (nothing is certain yet) faulty inspection procedure cannot be ruled out.

Another matter supports this. The filter which should have retained the radioactivity was clearly defective. At the beginning the only activation product which the CEBG would admit had escaped to the atmosphere was Manganese-56. This has a half-life of only 2.6 hours; so they would have had to move pretty smartly to detect it at all - unless, initially, there was quite a lot of it. Since then Mr Robinson, under questioning by Dafydd Elis Thomas in the House (Hansard, 27 Feb.) has admitted to releases of Tritium, Sulphur-35 and Cobalt-60 - which are just what one would expect.

I have wondered before now whether these statutory outages might not produce their own crop of malfunctions - rather as a spanner might be left in a car after servicing. It is therefore worth noting that routine visits by the NII to Magnox stations are quite frequent - 160 - 200 a year (Hansard, 27 February).

These are not the statutory outages nor are they responses to specific incidents; and the number is surprisingly large and variable over the years 1974-85.

Another explanation might be that we are dealing with ageing equipment. If so a question-mark hangs over all the other Magnoxes. With the nuclear industry throwing almost a crisis a week it is very difficult to see how the understaffed and underpaid NII will be able to cope.

At this stage we can only await further information. At present the

POWER OF A DISASTER WAITING TO HAPPEN !

Trawsfynydd nuclear power station has just turned 21, one year older than its design life of twenty years. It, along with five other Magnox nuclear power stations (namely: Berkeley, Bradwell, Dungeness A, Hinkley A and Sizewell A) owned by the CEBG, is a shining example of an ageing has-been technology of the early 1960s, awaiting a catastrophe in-the-making.

Its ingenious and unique feature is that it is the only one to have been built inland, nestling in the heart of Cambrian mountains in the Snowdonia National Park.

On 21 February 1986, it came of age by promptly leaking 15 tonnes of reactor coolant (a radioactive gas) into the cool pristine mountain air. Of course, contamination of the atmosphere was wholly insignificant. Such incidents can be expected to become routine from now on, as the creaking technology chugs along till it finally pegs out by the end of the century. Unless, that is, it either cracks up or blows out earlier.

Come and see the power of a disaster-in-waiting in Nuclear Incident Year. An open day has been arranged at the station on

SUNDAY, JULY 20 (barring a calamity!)

or, organised groups (children over 14 years), may visit the station by appointment (preferably when no nuclear accidents are happening. Not to worry, though: if one should occur, we won't bother telling you!). Write to

The Station Manager
Trawsfynydd Power Station
Trawsfynydd
Gwynedd
or phone
076-687 331 for details,

providing no questions are asked about past incidents, on which it is our policy not to give out any detailed information to the public or publish any reports. Happily, such matters are easily glossed over.

CONTAMINATION EXPOSURE GENERATING BOARD



After CEBG advertisement, Daily Post 21 February 1986.

CEBG has loftily "not decided" whether the report will be published or not. They would be wise to do so. If they do not one casualty is certain and that is yet further erosion of the Industry's credibility.

For, as usual, they have concentrated on unrelated detail in their publicity. They have said that the environmental release of radioactivity was insignificant, which is probably true. And they have concentrated on the gas release and the closing of the valve. But what matters in the industry is what is known as the event-tree - the possibility of one event, which

in itself might be trivial, triggering others which are not trivial at all.

They might have in honesty admitted that a LOCA is one of the more worrying things that can go wrong. They might with justification have said that it has long been foreseen, that technology and methodology were available to cope and that, so far as could be known at present, these had worked. Instead we had the predictable, insulting, knee-jerk dismissal.

God help us all if Mr Goodlad is ever driven to admit that something is serious. We would be wise to flee the country.

Sellafield Saga

The recent media concern over Sellafield was heralded by a story on the devastated population of the Ravenglass bird reserve. Jean Emery outlines the events of the past couple of months.

Research by CORE and Greenpeace shows that the black headed gull colonies at the Eskmeals Reserve (to the South of Ravenglass) and the Ravenglass reserve itself have virtually disappeared.

Tony Warburton, a warden at the reserve, claims that black headed gulls landed for only one hour in April 1985 and then disappeared. Five other species of birds have also drastically declined in numbers. In the case of the Eskmeals Reserve the bird numbers have declined in line with the increase in Windscale's sea discharges.

SINCE ROMAN TIMES

Tony was told, by the National Environmental Research Council (NERC) that the birds had failed to nest in 1985 due to the dry summer of 1984 killing off the birds' sea-food. However, the birds have nested there since Roman times and have survived different weather conditions over those years.

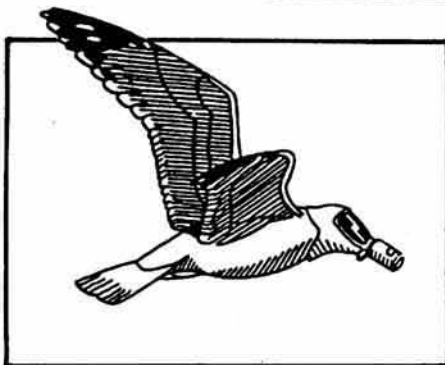
Equally important is that black headed gulls are not "sea-gulls", that is they do not live at sea but live all over the country. In fact two colonies of black headed gulls inland in Cumbria, at Wastwater and Eskdale, are thriving. Oyster catcher chicks from the reserves have genetic defects and geese raised near Ravenglass have shown genetic malformations, impaired mental ability or were blind.

HALF TONNE DISCHARGED

Then the accidents began. The first information came in a BNFL press release on January 27 which admitted that a "couple of kilogrammes of uranium nitrate" had been "accidentally" discharged into the Irish Sea the previous Friday. BNFL stated that the uranium accumulated in the sea tanks could have been returned to the processing plant but, after talks with the Department of the Environment, they decided to discharge it into the sea due to its low radioactivity content.

The Nuclear Installation Inspectorate (NII) demanded a report on the incident. Local people were suspicious; why had BNFL waited two days to issue a press release? BNFL said the press release was purely a courtesy and the public was in no danger.

The following day BNFL admitted that it was actually 440 kilogrammes of uranium nitrate which were discharged and MP's asked



questions in the House of Commons. The cost of the dumped material is estimated at £24,000.

A week later CORE released evidence which showed that Pond 5, the brand new spent fuel receipt, storage and decanning facility, was leaking. Pond 5 is built on stilts to allow any radioactive leaks to be contained in the basement where they can be pumped out, because earlier buildings had leaked highly radioactive water into the surrounding ground, leaving BNFL powerless to prevent the spread of contamination.

"DAMP PATCHES"

BNFL issued a press release, to say there were "damp patches" in the floor of Pond 5. They denied there was any leak and said that spent fuel was being stored, in flasks, in Pond 5.

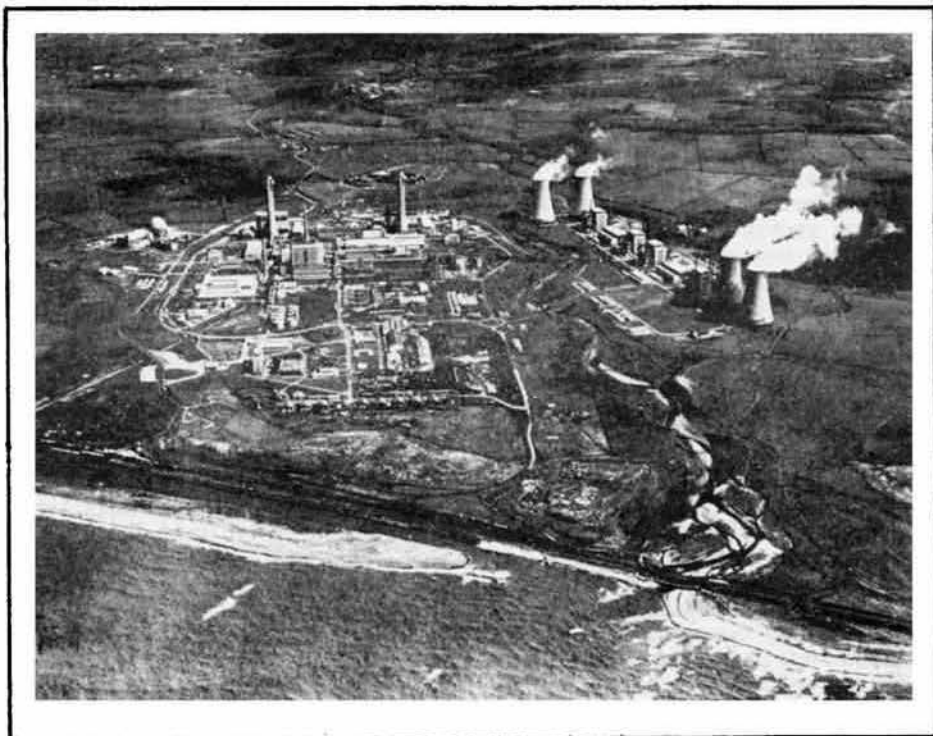
However BNFL had experienced problems with Pond 5 because it was difficult to make concrete pure enough to withstand the stress and radioactivity; tonnes of impure concrete had been dumped by workers during construction (one worker dumped 11 tonnes at £65 per tonne). CORE also heard that the transfer of operations from the old B30 decanning plant to Pond 5 was likely to take seven years compared with one year as workers had originally been told.

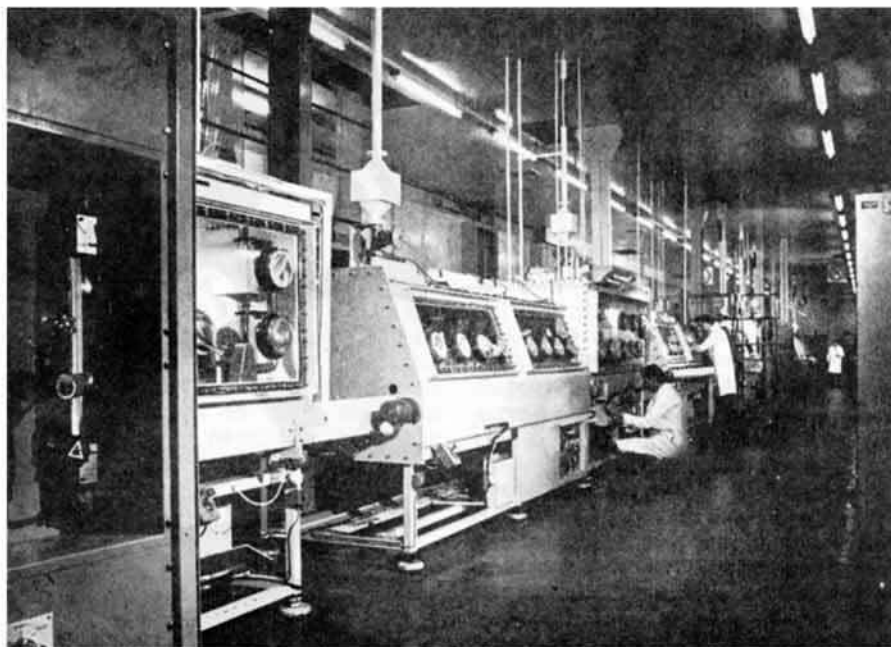
The NII confirmed two weeks later that Pond 5 was indeed leaking and had been for 4 months: it must have been leaking when Mrs Thatcher officially opened the Pond 5 and SIXEP buildings on November 1 1985, and poured great praise on BNFL's safety record.

STATEMENTS CONTRADICTED

The next day Windscale's potentially most serious emergency for 13 years occurred. CORE received a call at 12.30 that there has been an amber alert in B205, the chemical separation plant. An hour later we were told all essential personnel had been evacuated off site; a plutonium nitrate mist has been released into the building. BNFL claimed that nobody had been contaminated, there had been no release to the atmosphere and there was nothing to worry about.

That evening construction workers (from Pond 5) rang CORE and said that when they had heard the alarms they had gone to their cabins to await further instructions, only to be told that they were to "get back on the job or else".





The plutonium fuel element factory where the Dounreay PFR fuel is made.

The next morning BNFL admitted that 50 microcuries of plutonium may have been released into the building although other reports indicated that some plutonium may have leaked from the building. At this time many of BNFL's press statements were contradictory.

PLUTONIUM RELEASED

A pump used for extracting plutonium from the production line was undergoing maintenance at the time and a valve in the pump failed causing plutonium nitrate to be spurted out into the building. Even though they knew the pump was faulty, it took BNFL two hours to find the cause of the alert, and they gave no explanation as to why production was not stopped when maintenance was in progress. Construction workers went on strike because of company secrecy.

BNFL was eventually forced to admit that two men were contaminated in the accident, but said they were only slightly affected. They also confirmed that 50 microcuries of plutonium were released to the atmosphere (BNFL discharged 160 times that amount in their 1984 aerial discharges). They also admitted that they knew the pump was faulty and were considering "modifications" to another nine pumps of the same design. They did not say if the pumps would be replaced.

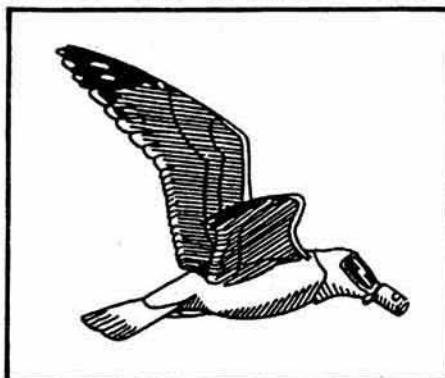
The Health and Safety Executive (HSE) created embarrassment for BNFL by announcing that 15 men had been contaminated in the accident and that the company had known this all the time; in fact one man had received one year's dose. This embarrassment was compounded when a letter from BNFL's Chairman Con Allday was published in The Guardian the day the HSE made its announcement: he wrote that "out of

71 examined, two showed results at the limits of detection".

BLACK MISLED

One aspect of the accident which is particularly worrying is that if plutonium was released then some of it would be plutonium-241 because the isotopes are inseparable in the production process: Pu-241 is a low energy beta emitter with a half life of 14.4 years, but it decays to americium-241 which is an extremely toxic alpha emitter with a half life of 458 years.

Another question is, if a concentrated stream of plutonium nitrate was released under pressure for 2 hours, how were only 50 microcuries released? BNFL claims that the building was "cleaned up" within 18 hours and that reprocessing restarted the following day. CORE has learnt that all the radioactive mist was vented to the atmosphere to prevent a total plant closure, such as happened in 1973



after the blow-back accident during oxide reprocessing.

BNFL was accused of another cover-up that same week when Derek Jakeman, who worked at Windscale in the 1950's, described how discharges between 1952 and 1955 had been

40 times the level notified to the Black Committee.

John Dunster, the head of Health Physics for Windscale at the time, must have been notified about Jakeman's monitoring in 1955. Also he must have been one of the people responsible for putting pressure on Jakeman to resign. As head of the NRPB in 1984 he must have known that Sir Douglas Black did not have the full figures. He has not answered these allegations to many people's satisfaction.

THE DOUNREAY LINK

There were two other events of note during this period. The first was a leak of 250 gallons of "mildly" radioactive water from a magnox cooling pond. BNFL claimed that the leak was due to the cold weather: a hi-tech modern industry subject to frozen pipes, come off it! Corrosion of magnox fuel in storage ponds is offered by BNFL as a reason for reprocessing because severe contamination of the cooling water results. You can't have it both ways BNFL: either it was mildly radioactive or it was severely contaminated.

The other accident happened in the plant which fabricates fuel for the Dounreay fast reactor. Five men were contaminated in the incident after a seal was punctured which allowed radiation from mixed plutonium-uranium oxide fuel to be released into the working area. Some Windscale workers have said that this is the most serious accident of the recent spate, and may account for the lack of any more information at present. One thing is sure, this accident brings the Windscale and Dounreay plants closer than the public hitherto realised and may have a bearing on the Dounreay inquiry.

SAFETY AUDIT

The HSE's fifth cavalry has now been sent in to the plant to discover the "truth" and to report back. The 15-strong team from the NII have the power to "require BNFL to make improvements to any plant" and can also order the shut-down if necessary. The investigation is expected to take 3 months, with a further 3 months to write up the report which will be published.

The European Parliament called for the closure of Windscale until the results of the Environment Committee's report had been published. The motion received the support of Ian Paisley and John Hume, perhaps the only issue on which they agree!

What is certain is that, with the Environment Committee's criticisms of the plant, and the public opposition to reprocessing and waste dumping Windscale's days are numbered.

Druridge Check-Up

A key tool in the campaign against proposed nuclear power stations is the Baseline Health Survey. Here we look at two such surveys, one in Northumberland focussing on Druridge Bay by Bridget Gubbins, and the other in East Lothian centred on Torness.

A £600 environmental radiation meter has been presented by AUEW-TASS (the technical and supervisory union) of NEI Parsons to the Druridge Bay Baseline Study Group.

Terry Rodgers, Secretary of the Union explained why, when they have been involved in turbines for nuclear stations, they should support this project.

"We support the extension of Blyth coal fired power station, which will provide work for the mining industry, as well as the local service and manufacturing industries.

"There will be no work for Parsons with the proposed nuclear power programme of PWR's. Arnold Weinstock, Managing Director of GEC, has a close personal relationship with Lord Marshall of the CEGB. Weinstock is far more influential than the NEI management.

"We support coal fired development, particularly Combined Heat and Power. This company stands a better chance of getting such contracts as these, as it has built the CEGB's most efficient coal fired turbine generators at Drax and other places. It has also built CHP equipment very successfully

operating in Finland. This is how jobs would be safeguarded in the North East, not by going nuclear."

HEALTH SURVEY

Dr Rosemary Lumb, co-ordinator of the group, explained why the instrument is needed: "The radiation meter is to enable us to measure existing levels of background radiation that we are daily exposed to now. This is mainly natural background. We will also be checking health statistics, particularly leukaemia and childhood cancers.

"These figures will be our Baseline. If over the years no significant changes in these levels occur, the check will have proved its usefulness. However if these rates increase, we would have a powerful basis for demanding appropriate action."

As part of the group's publicity launch, five North East MP's have had radiation readings taken in their gardens for a donation of £2.00. Study group members visited their homes on Saturday 15th February and Saturday 22nd February. Local papers loved it, and it made several front pages as well as a



W. PLUM

local radio interview, and a reply interview by the CEGB two weeks later.

All local libraries in Northumberland, North Tyneside and Newcastle are circulating leaflets inviting the public to follow the lead of their MP's and have readings taken in their gardens, for a £2.00 fee.

TORNESS

The East Lothian survey is different in one important respect; it is being financed by East Lothian District Council at a cost of £4,000 a year. Historically, the campaign against Torness and the continuing pressure being exerted by local groups in the Lothians and Borders have influenced the Council's action.

Like Druridge, the East Lothian scheme started out as a study of background radiation levels. The project began 3 years ago and involves sampling of sea water, sand, seaweed and soil. The monitoring is being carried out for the Council by Dr Wheaton's Edinburgh Radiation Consultants. Dr Wheaton carried out a survey in Wigtownshire last year.

East Lothian District Council's Environmental Health Officer, Jimmy Dalglish, told SCRAM that the second part of the survey - a study of cancer statistics in the area - is primarily a matter for the Health Board who are co-operating fully.

As well as support from the local MP, John Home Robertson, community councils and other Councils the scheme has received support from a surprising source; the South of Scotland Electricity Board issued a press release which stated that they "will naturally be happy to provide (the survey) with what assistance we can". The Council interprets this as support.



Testing for radiation at the home of Wansbeck MP Jack Thompson are (from left to right): Dr Nigel Connor (group member); Bridget Gubbins (campaign press officer); John Urquhart (statistician); Dr Rosemary Lumb (group coordinator); Jack Thompson MP; John Richardson (group member); three year old Damien Thompson and six year old Joey Connor. Photo: Margaret Eagle of Tynephoto.

Renewable Energy Bill

The public's awareness of energy issues has begun to permeate the inner reaches of our political system and the renewables' time may be about to arrive. This is how David Ross sees the three-party supported renewable energy Bill.

A Bill providing for the development of "clean renewable alternative sources of energy" has for the first time been published as a House of Commons document and has received a First Reading. It spells out the case for some of the world's newest technologies in the stilted, legalistic language of an older age:

"And whereas nations other than the United Kingdom are already making gainful application of British research and technological developments in the field of inquiry into renewable sources to add to their total energy supply; and whereas the potential benefits to the national economy issuing from the successful development of renewable sources are enormous in terms of job creation and training needed to provide adequately for such new employment. . . . Be it therefore enacted. . . ."

The Bill was moved under the Ten Minute Rule by Frank Cook, Labour MP for Stockton North with three-party support. Two Liberals (James Wallace and Paddy Ashdown), two Labour Front Bench speakers (Alex Eadie, Energy and Dr David Clark, Environment) as well as Michael Foot are among the signatories promoting it, along with two Tories, Dr Michael Clark and Mr Tony Speller.

The Bill seeks an independent Commission responsible directly to Parliament for the renewables, instead of the present arrangement in

which ETSU, the Energy Technology Support Unit based at Harwell and maintained by the United Kingdom Atomic Energy Authority reports to ACORD, the Advisory Council on Research and Development, which is composed mainly of representatives of the existing energy suppliers.

It reiterates the arguments that

Renewable Energy Sources (Promotion)

A

B I L L

To establish an independent commission responsible directly to Parliament for the research, development and demonstration of clean renewable alternative sources of energy.

*Ordered to be brought in by
Mr. Frank Cook, Mr. Don Dixon,
Mr. Alex Eadie, Mr. Michael Foot,
Mr. Jack Dormand, Mr. Peter Hardy,
Mr. Ernie Ross, Dr. David Clark,
Dr. Michael Clark, Mr. Tony Speller,
Mr. James Wallace and Mr. Paddy Ashdown*

*Ordered, by The House of Commons,
to be Printed, 25 February 1986*

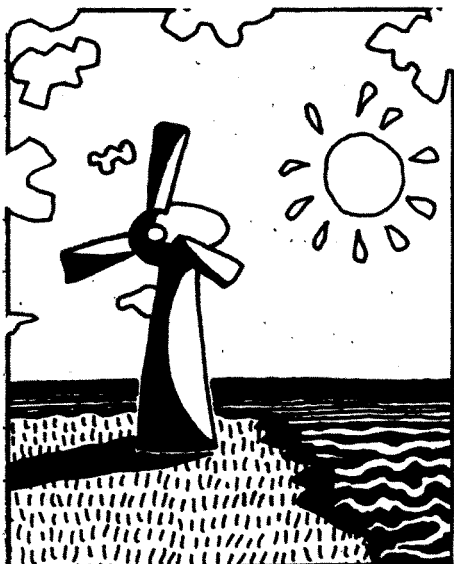
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[Bill 93]

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have been part of the environmentalist argument for the past 20 or so years.

It refers to the finite nature, "with a point of exhaustion in time," of fossil fuels and hydrocarbons, and urges that they should be used as feed stock rather than for combustion.

It complains of "the blight known as 'acid rain'" something which is sometimes missing from Labour Party documents. It refers to worries over nuclear energy and nuclear waste and contrasts these with the potential benefits, particularly for the Third World, of the renewables.

It denounces "vested interests" but it is doubtful whether they



have ever been scorned in such formal language:

"And whereas previous efforts to further progress in the research and development of renewables has been deprived of impetus and starved of incentive by the attitudes of parties with interests vested in already established and more traditional fuel sources. . . ."

The Bill is due for a Second Reading on March 21 and no-one expects it to proceed very far along the Parliamentary road at the present time. Its significance is that it is a marker, a Parliamentary document in a form that has been accepted by the Clerks as suitable for a Bill and eventually for an Act. It may go down at the Second Reading but there is no longer any risk that the issue may go by default.

With an election approaching, and with indications that the Government is uneasy at being seen as bleakly hostile to alternative energy, the Bill may well be seen in the future as an important landmark. There are uneasy small movements discernible on the Government side which indicate an awareness of public feeling on this issue.

Some of the environmentalists are convinced that, just as the public has shifted its attitude to health foods, so there is an awareness about energy that is not yet mirrored in politics or the media. Parliament, which had a full day devoted to alternative energy in a debate last October 25, may have drifted almost by accident into a leading role on the renewables.

AT Centre

The Centre for Alternative Technology in mid-Wales is the shop window for renewable energy systems. Over 50,000 visitors every year came to see "alternative technology" in action. But it costs a lot to run the Centre, so Tim Brown here is appealing for donations to keep the show on the road.

How does your vision of a future community look? Well-insulated houses? Solar, wind, water power? Organic growing? Collective organisation, co-operative working? Over the last ten years, the Centre for Alternative Technology has gradually grown into a sort of eco-futuristic Disneyland with all these elements on display to the public. Perched atop an old slate waste tip on the edge of Snowdonia, the 'Quarry' has become something of a mecca for safe energy enthusiasts. From a brown rice + hippy image in the seventies, the Centre has attained a sort of respectability in the way it promotes

and interprets environmental issues, and in its practical demonstration of working alternative technology. It is many things to many people.

Over 50,000 visitors a year come to look round. Some are committed to "AT", others are simply tourists passing by - the Centre is the biggest attraction in mid-Wales! Many schools and other groups come for day-visits, or for residential courses, and special public courses are run on subjects from passive solar design to wholefood cookery.

Does it work? One of the things which seems to fascinate people about the Quarry is the fact that

it is also a living community. Electricity for the site housing comes from water turbines and from a number of wind turbines. Staff housing is fitted with solar water heating with woodstove back-up, and a number of novel solar designs are incorporated into the buildings round the site. For those who live on site, it can be a little bit like living in a zoo, but the message to visitors is clear - these technologies do work.

DIY PLANS

It is often less clear what visitors should do about their own energy problems. Not everyone can fit a 20m tall windturbine in their back garden. Some of the displays are relevant to the ordinary household. DIY plans for solar panels are available. Draughtproofing and low-energy appliances are on display. A super-insulated house with quadruple glazing, highly efficient heating system and over a foot of insulation in the walls shows just how far we could go in making housing more energy-efficient. The broader aspects of energy policy and the environmental crisis are displayed too. If someone has seen a big windmill working, they are more likely to be sympathetic to windpower as a future option for the UK.

Alternative Technology has a slightly dodgy image. "Alternative" has associations of radicalism, counter-culture, opposition: "Technology" of faceless, impersonal, mechanical systems. AT is saddled with a sort of getting-it-together-in-the-country, back-to-the-stone-age tag. Basically alternative technologies are designed to be benign - to be kind to the ecology of our planet. They are sustainable - using renewable resources which won't run out. And they are human scale - approachable, controllable, understandable to ordinary people.

FOCUS ON RENEWABLES

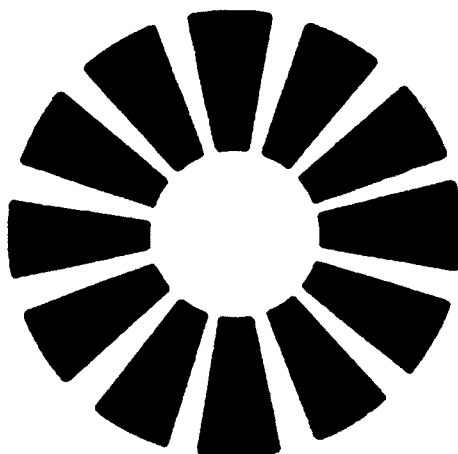
Within that ethos there are extremes, and the Centre demonstrates them. A do-it-yourself Cretan windmill made out of wood, sailcloth and old car parts (200 watts) stands alongside a computer-controlled 15kW machine costing about £20,000. Are they both alternative? "Appropriate" is probably a better word. A do-it-yourself solar heating system made from central heating radiators, and costing just a few pounds stands next to the latest hi-tech evacuated tube collectors - super-efficient and rather expensive. It is a mistake to see the Quarry as a single view of Utopia. Rather it displays a whole range of ideas - some are technological, others political or social - which could lead to a better future.

The diversity of information is



reflected in the response of visitors. Some feel that the anti-nuclear (and by implication anti-government) stance of the interpretation material is biased: it is. Others, especially peace and energy activists, feel that the message isn't hard-hitting enough. It is a difficult compromise to achieve. What is certain is that the Quarry remains a focus for information about renewable energy. The courses, the bookshop and mail-order service, the specialist electronics workshop, are all useful resources to those with an interest in renewables.

There's a slight problem. Much of the Centre's work in spreading information about renewables costs money, and although it raises much



of its income through visitors' admissions, trading, and running courses, there is a deficit to be

made up. For the first time it is launching a national appeal to support its work - over £20,000 a year is needed to keep the show on the road. The financial situation is serious and the Centre is appealing to all its supporters to dig into their pockets and donate a few pounds.

If you would like more information about the work of the Centre, or if you can afford a donation, please write to: Centre for Alternative Technology Machynlleth Powys SY20 9AZ enclosing a sae. The Centre runs courses on all aspects of AT, has a comprehensive mail order booklist (40p + sae) and has a support organisation - the Quarry Association - which produces a newsletter. Membership is £5 a year.

■ Solar ■ Appropriate Technology ■

A Department of Energy report into active solar heating has concluded that "in national terms, the economic potential is now seen to be less than that of many other forms of renewable energy."

The report states that solar heating is technically capable of supplying 45mtce (million tonnes coal equivalent) a year or 15% of our total energy demand, but that high installation costs would reduce the likely contribution to less than 1mtce; and even this would require a greater installation rate than has been achieved in recent years.

The report pointed out that its conclusions do not "preclude the continuation of commercially useful business in the manufacture and installation" of solar systems.

Following the recent demise of wave power research the reports' references to "other forms of renewable energy" seem particularly inept.

BSSE March '86

■ COAL ■

A \$25m programme sponsored by the US Electrical Power Research Institute could improve coal-fired power station efficiency by as much as 6%. The two main areas of research are the development of advanced boilers and turbines.

Mitsubishi will be working with Combustion Engineering and Sulzer to develop a high efficiency boiler designed to burn pulverised coal. The steam turbine and pressure valve research will be carried out by Toshiba and GE(US) and is expected to result in annual fuel savings for a 700MW station of about £3.4m.

Another aspect of the work is the comparison and evaluation of different types of coal and different steel alloys.

Electrical Review, 7.3.86

A controversial plan by the Czechoslovak and Hungarian governments to dam the Danube near Austria looks likely to go ahead, despite the opposition from Hungarian environmentalists.

Until recently the Hungarians contribution to the scheme seemed in doubt, as the Government thought it too expensive. The Czechs have already embarked on their side of the project. But the Austrian government have stepped in with a £350 million loan, two thirds of which will be repayable in electricity produced by the power station at Nagymoros.

A year ago the Austrians dropped a similar scheme at Hainburg because of public opposition. The Austrian firm of Donan Kraftwerk, who had the contract for the Hainburg scheme, have signed a contract with the Hungarian government to build the new dam.

Opposition to the scheme has prompted the largest independent demonstrations in Hungary since the abortive revolution in 1956. The protesters believe that it will cause the waters of the Danube to stagnate, polluting drinking water. It will also have serious effects in the water table which will fall by between 1.5 and 6 metres. This will drastically cut back the productivity of much forest and arable land.

New Scientist 13.2.86

■ Fuel Cell ■

An American/Japanese consortium hopes to be generating pollution-free electricity at only two to three times the cost of conventional power by the turn of the decade using a "Fuel Cell".

The Fuel Cell is an idea which has existed since 1839. It combines Hydrogen and Oxygen chemically in the presence of a catalyst to give heat and electricity, with water

being the only waste product. The Japanese have just dismantled a 4.5Mw demonstration fuel cell which has been running successfully for the last two years. Previously the only successful cells have been small 12.5 Kw affairs for the American space programme which requires compact pollution-free sources of power.

But the fuel cell programme has not been without setbacks; a pilot plant in Manhattan, New York, did not manage to produce any electricity because the City Fire Department would not give the plants' operators, Consolidated Edison & United Technologies, permission to start generating until they had carried out an exhaustive series of safety tests. By the time the checks had been finished and the plant was ready to run, the stacks of cells were obsolete and had exceeded their shelf life.

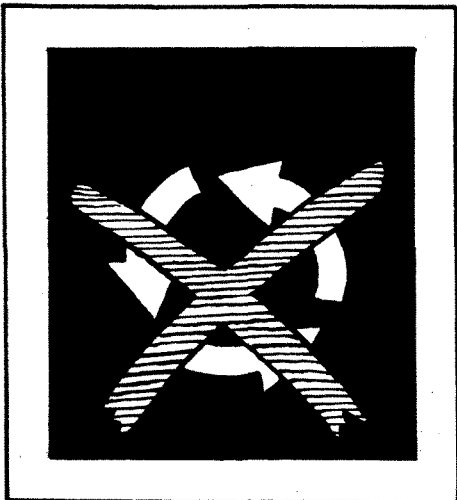
The problems associated with fuel cells are the high temperatures they need to operate at (200°C) and their high cost which is mainly taken up by development costs. It is envisaged that the heat problem will disappear by using them in CHP schemes. Their small size makes them ideal sources of both heat and power for buildings such as small factories.

Unfortunately the centralised nature of Britain's Grid and the Electricity Boards' commitment to nuclear power mean that it is unlikely that fuel cells will be developed in this country. This time their small size works against them. By the standards of conventional power stations the fuel cell's output is miniscule.

New Scientist 27.2.86

Electrical Review 7.2.86

Following the abolition of the Metropolitan Councils on April Fools Day, a £3,250,000 refuse derived fuel plant in Doncaster will have to cease generation. The plant makes fuel pellets from recycled waste, which are sold to local companies.



Doncaster Metropolitan Borough Council have refused to take over the plant from South Yorkshire County Council on its demise, so the plant will have to be "moth-balled" until a subsidiary body can

An exhibition of more than 50 low-energy homes will form the largest single event of Energy Efficiency Year. The event is being staged by Milton Keynes Development Corporation at the Energy Park which was opened by Peter Walker last year.

The exhibition will run from August 18 to September 14 and will feature housing systems from Denmark, Sweden, Germany and Finland as well as Britain. A feature of all the homes is an annual energy cost of 30% less than houses conforming to current Building Regulations.

BSEE, March '86

sell it to the private sector.

As Councillor Ken Willers, chairman of SYCC's Environment Committee points out: "The plant is now able to achieve consistently high production levels. What is obvious is that the Government, while professing support for recycling and even appointing a so-called Minister for Waste, has contemptuously turned its back on materials recovery."

Warmer March 1986

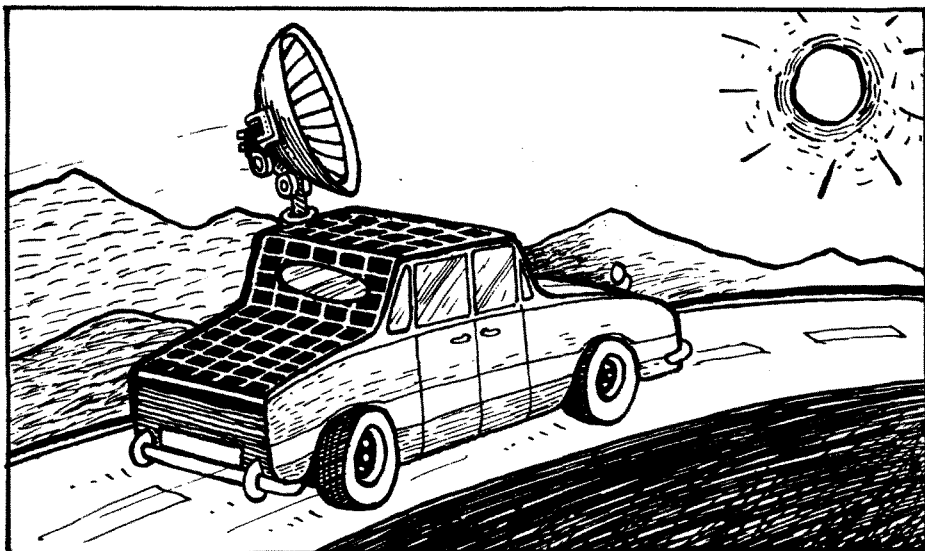
CHP

Distillers expect savings of £500,000 to £550,000 a year from a £2.3 million Combined Heat and Power plant installed in their Glasgow animal feeds recovery plant. Excess electricity is being sold to the SSEB.

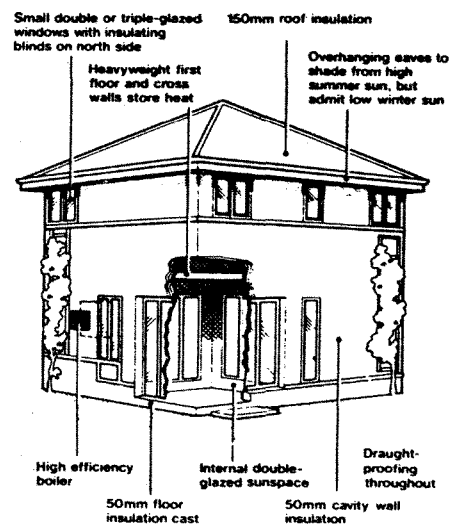
Roger Forrester, Distillers' project manager, told SCRAM that they are "fairly happy" with the new scheme, although its installation was quite complicated as it coincided with that of a new feeds recovery unit. The scheme consists of a 6.2 MW gas turbine, a 7.2 MW generator and a gas compressor, as well as a waste-heat boiler, steam

accumulator and turbine exhaust gas ducting. Distillers hope to install further CHP schemes, but are "unwilling to disclose their nature due to the takeover bid situation."

Because of the plants' novelty, 25% of the installation costs will be paid for by a governmental "demonstration" grant. The plant will be operating close to the minimum 4,658 hours a year needed to gain this grant, which is supplemented by a further 22% grant as the plant is in a special development zone. The Government's beneficence will save Distillers close to a million pounds.



MEASURES THAT COULD BE INCLUDED IN A LOW ENERGY HOUSE



R&D

Lord Ezra, the former Coal Board chair, has questioned the level of the Government's energy research and development and has called for an annual review of the programme.

Lord Stoddart of Swindon has also accused the Government and the electricity supply industry of trying to persuade the public that without nuclear power we will be back in the stone age. He said that withdrawing support from the wave power programme was "skulduggery" and insisted that the Government was still not doing enough for the renewables.

Electrical Review 14.2.86



Solar

A team of scientists from University College Cardiff plan to drive a solar powered car from Athens to Madrid this summer.

The "Sunrider" which weighs a mere 200lbs is powered by 260 solar cells glued all over its body, with auxiliary storage batteries as back-up.

The planned trip will start on Midsummer's Day and is the toughest test yet for this form of alternative energy. A previous test involved driving a solar power car across Australia, where constant sun and a flat route aided the ride considerably.

The team of mechanical engineers from UCC aims to "prove that alternative energy can produce useful power and to demonstrate the technology behind it."

Scotsman 24.3.86

The Department of the Environment have found a novel way of getting more for their Monergy by slashing 20% of the budget for the Homes Insulation Scheme. This could mean that 60,000 eligible households will be unable to claim the grant over the next financial year, according to the Association for the Conservation of Energy (ACE).

Despite protests from several dozen Tory MP's and representations

from ACE to transfer the scheme to the Department of Energy after last year's 15% cut to £28 million, the Department of the Environment went ahead and removed another £4.5 million this year. The budget currently stands at £23.5 million, including a £2.5 million reserve, which councils can only claim when their allocation has run out. ACE director Andrew Warren has said: "Unless reversed, this decision

will mean more cold homes. It will mean more fuel wasted. It could reduce jobs further in the insulation industry. It could increase the dangers of hypothermia."

A recent DoEn evaluation of Energy efficiency in low income households estimated that an average saving of 5% was made after insulation projects. Savings of 2% were estimated for those having loft insulation alone.

Tidal

A plan to build a £440 million barrage across the Mersey looks set to go ahead after 5 years consideration. Sluices in the mile wide dam would be opened as the tide rises, then closed to force the trapped water through generators as the tide ebbs.

The scheme has received support in a report commissioned by the Merseyside County Council, after new construction methods representing a 40% saving of capital costs were proposed.

The report was partly funded by Tarmach, who hope to be building the barrage. As we go to press it is unsure whether a company set up to carry out a second £500,000 feasibility study has been formed in time for the MCC's demise on April 1.

Depending on the number of turbines and sluices and also the positioning of the barrage, the generating costs per kWh could be as low as 2.7lp. This is only slightly more expensive than the

CEGB's cheapest coal fired station, Drax. As much as £1 million worth of electricity per week would be sold direct to the national grid.

It is claimed that the scheme would create 5000 jobs for five or six years, as well as providing the private backers with virtually 100% profits after the barrage has paid for itself in the first 25 years. If the Mersey barrage goes ahead it will create a conducive political climate for a similar Severn barrage.

Geothermal

A successful pilot project into geothermal energy will be wound up in September because of a lack of government funds.

The project is producing 5MW of electricity at the Rosemanoes quarry near Penryn in Cornwall. Cold water is poured into a 2800m borehole and hot water is got out at 70 to 90 degrees centigrade. Ultimately a 5000 metre borehole would produce water at 180 degrees, which is ideal for large scale production of electricity.

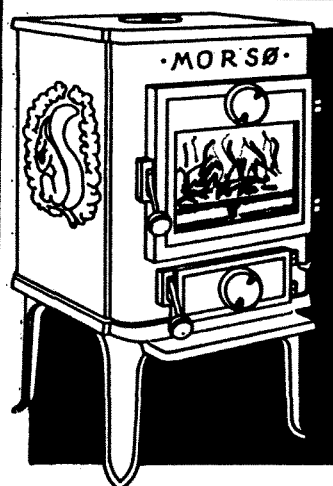
Because the Government has not been forthcoming about continuing funding after the current grant runs out in September, the team of 60 scientists is considering taking its expertise elsewhere. It is reported that the Americans are particularly interested as the heat is produced by radiation and not by volcanic activity.

The Americans are not the only people interested in this project. The EEC are particularly impressed by the district heating aspect of the scheme and have planned to grant the project £1.5 million. Unfortunately this grant is dependent on the British government granting a further £2.5 million.

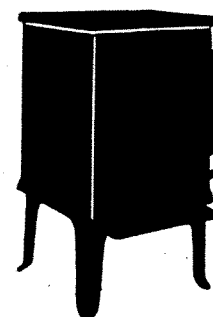
Mr Tony Batchelor, who is director of the project, has complained that it has to compete with nuclear power in terms of cost. Whereas the cost of geothermal projects includes research and development, the cost of nuclear power does not.

Guardian 10.2.86

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Clouds of Deceit: The Deadly Legacy of Britain's Bomb Tests by Joan Smith (Faber and Faber, £8.95)

What the bloody hell is going on?

Thus - no doubt in code - a message from the acting Australian Prime Minister, Sir Arthur Fadden to the British Prime Minister, Sir Anthony Eden on 19th June 1956. The occasion: a 98-kiloton British nuclear explosion on the Monte Bello Islands, 50 miles off the west coast of Australia. Things had gone wrong. "The cloud," exploded Fadden, "is drifting over the mainland."

Joan Smith chooses Fadden's language as a first chapter heading in this excellent book. I choose it because I'm certain that anybody who sees it is going to read what follows.

From 1952-58 Britain carried out 21 nuclear and thermonuclear explosions, the latter on South Pacific islands. Of the 12 explosions carried out either at Monte Bello or at two sites on the Australian mainland five were as large as the 1945 Japanese explosions, three of them very much larger.

After two decades of secrecy and lies the appalling story finally surfaced in last year's Royal Commission. Beset, like the rest of us, with Dounreay, Sellafield, nuclear waste and so on, I have realised that my only hope of coming to grips with the matter would be if somebody wrote a short summary.



Joan Smith has written exactly that book; it is only 175 pages, conscientiously and beautifully written. Her credentials are excellent, for she has long been concerned with the plight of the victims.

Her book is yet one more illustration of the fact that the other name for secrecy is criminal irresponsibility. I have no space for examples; I can only say that even case-hardened anti-Bomb campaigners are going to be sickened page by page - and sometimes paragraph by paragraph - by the data she gives (such as an irradiated aircraftman being refused a body scan at Harwell because the result might be used against the government.)

But one detail I must give because of its critical importance to our campaign for survival. It refers to the two Totem tests of 1953. It had become clear that Britain did not have the capacity to produce military-grade plutonium in the time and quantity demanded by the Defence Ministry. The first of these tests was designed to see how well we could get along with impure plutonium (i.e. containing Pu-240) instead. It was wonderfully successful, the explosive force being twice what was predicted. How splendid to know that we were able to use civil reactor plutonium for bombs before even the first of them was built! Lots of us have always known this deep down - but it is useful to be able to put a date to it.

Whatever other books you cannot afford, get this one; if not, get it into your library. And having read it, ponder the question: What the bloody hell else is going on?

Don Arnott

Can Coal Be Saved? by Colin Robertson and Eileen Marshall, (Hobart Paper 105, £2.50, 61pp)

This book is an attempt by two right-wing economists to persuade us that Coal should not be privatised in the same way as British Gas. Instead the Government should aim for a type of privatisation called "liberalisation".

In other words, coal imports should be freed from restrictions and private investment attracted to new and existing mines in a variety of ways. Some mines would be sold outright, others would be run as joint ventures with the NCB, others would be bought by management or turned into workers' co-operatives. In this way competition would be introduced into the British Coal-field.

Existing deep mines would also have to compete with privatised opencast mines. Some unsaleable pits might need to be kept open for social reasons. These could be privatised by asking private management to tender for subsidies. Groups of pits and associated power stations could also be sold off to the highest bidder, as a way of introducing private capital into

electricity generation.

This really is the "economics of the madhouse". It would be laughable if it wasn't for the fact that



WHAT AM I BID? ONE SLIGHTLY SOILED COAL INDUSTRY...

Thatcher is likely to treat it seriously. The idea that a country can achieve its social and political objectives by selling off its energy resources to the highest bidder is a joke.

Imports of coal from countries with huge reserves of opencast coal, or cheap labour which is kept passive by repressive regimes, would make our deep mines uncompetitive. They can't be opened again once they have been shut. There would be a rush to open up more opencast mines in areas like South Wales, and with the present Government local authorities would be powerless to stop them.

In short this plan would be a disaster for the environment, the miners and the country. What we need is more democratic control of our energy resources, not a plan to flog them off to the multinationals and various home grown money grabbers.

Anyone with an interest in coal had better take the bit between their teeth and read this book, so that they are prepared to stand up against a new wave of privatisation in the energy industries.

Pete Roche

Sink the Rainbow! by John Dyson
(Gollancz, £8.95, 192pp)

When the news broke that someone had blown up the Rainbow Warrior, the obvious solution - that the French government had done it - seemed to be too simple. It had to be a more Machiavellian plot, carried out by ex-Algerian colons settled in New Caledonia or (suggested by French newspapers) by British intelligence to cast discredit on France.

However the likeliest solution was in fact true and the French saboteurs had left a trail like a motorway. They had exploited the openness of Greenpeace; and also the political innocence of New Zealand, not taking into account that such yokels would remember what foreign strangers did and said. They may have been as indifferent to this as to the fate of the dozen or so people on board the ship. Certainly it was more by good luck than planning that only one person was killed. There were two minutes between explosions, and the first, in the engine room, let in water by the ton.

John Dyson traces how the operation was carried out in a chatty, readable style. The why of it is more speculative. Charles Hernu,



the Minister of Defence who later resigned, is supposed to have thought that Greenpeace was manipulated through the peace movement by the Soviet Union. Other theories

were that it had been infiltrated by Soviet or communist spies, or was financed by British Petroleum to stir up trouble for the French nuclear electricity generating programme. Now, as the French found it easy to place a mole in a Greenpeace office with a disguise so thin that she would hold forth on the need for the French bomb, you would think that they could have verified or disproved these theories. However they were not interested in the fact that Greenpeace is what it seems - a group of non-aligned activists supported by donations from concerned citizens. Greenpeace was a nuisance whose 417 ton ship could have transported protesting Tahitians in outrigger canoes to occupy Mururoa atoll while the tests were going on which would receive international publicity.

So the motive was a nebulous "reason of state". This was acceptable to the other French political parties who patriotically did not make electoral capital out of the cock-up. The tax-financed military structure versus the strenuously egalitarian, non-violent, international Greenpeace. A real morality thriller.

R M Bell

Nuclear Politics by Tony Hall,
Penguin, 1986, 187pp., £2.95

Nuclear Politics is the third overview of nuclear development in Britain to have appeared in the course of a year. Published by Penguin, this book will probably reach the largest audience of the three: its relative merits are therefore important. Like the other two books by Valentine and by Patterson (see page 23 of each of *SCRAM* Journal nos. 51 & 52), **Nuclear Politics** describes the initiation of the military and then the civil nuclear programmes during the 1940's and 1950's. It then documents the various twists and turns in the choice of reactor types up to the present. The wider issues of the nuclear programme are summarised in chapters 8 & 9, forming asides which are taken from the perspective of examining the context within which opposition to nuclear power has grown up.

The overall tone of the book is non-partisan, and fairly sober, contrasting with the verve of Patterson's account. At a number of points Hall is not as critical as he might have been, for example accepting the Black Report on Leukaemias around Sellafield without acknowledging the criticisms of this report. He does not mention the change in the PWR design six months prior to the Sizewell In-

quiry which prevented the NII safety report from being completed in time for the inquiry, nor does he pay much attention to the poor



operating record of British nuclear power stations. On matters of technical detail, the statement on p. 68 "that plutonium could only be used in fast reactors" is now seen to be false.

The book, by simply recounting the history of decisions, reinforces the focus on reactor design as the only choice facing us: the overview is less wide than either the more selective, technically detailed approach taken by Valentine or Patterson's concern with plutonium recycling and fast reactors. Paying more attention to the influence of institutions outside Government, Tony Hall provides evidence of an early recognition by the coal industry of the threat which nuclear power posed to it. Although the civil liberties implications of a "plutonium economy" are given reasonable coverage, the recent deterioration in civil liberties and the possible link between this and the Government's determination to enforce a stronger nuclear industry are not examined.

Although the overlap between all three books is considerable, Tony Hall has written the best introduction; Valentine has examined aspects of the same material in more detail, and Patterson has extended his account to emphasise plutonium fuel cycles.

Ian Leveson

NEW JOURNAL

Green Teacher is aimed at teachers, parents and education advisors; it will be produced twice a term beginning this autumn. It will:

- relate the green debate to ideas of environmental education;
- act as a network for teachers and curriculum developers;
- provide regular surveys on resources in the field;
- provide a digest of environmental events elsewhere;
- provide materials for use in the classroom.

The project needs money, subscriptions, advertisers and contributions.

Contact: Damian Randle, Centre for Alternative Technology, Llyngwern Quarry, Machynlleth, Powys (0654 2400).

EMPLOYMENT AGENCY

Electronics for Peace will launch a radical new jobs agency at the All Electronics Week Exhibition at Olympia from April 29 to May 30.

The aim is to place prospective employees with selected client companies. The companies must:

- have no military work;
- want to reduce their military work;
- won't put pressure on employees to do military work.

Interested?

Contact: Tony Wilson, Townsend House, Green Lane, Marshfield, Chippenham, Wilts (0225 891710).

NEW GROUP

Ayrshire Radiation Monitoring Group (ARM) was set up in December as an umbrella group of anti-nuclear and environmental groups in order to commission independent monitoring of radiation levels on the Ayrshire coast. ARM needs volunteers to help with fundraising in different parts of Ayrshire.

Contact: Dr Norman Clark (0292 263534) or Margaret Crankshaw (0292 316008).

PUBLIC MEETING

Friday May 9

Trident and the Nuclear State

Speakers: Duncan Campbell and others.

Place: Queen's Hall, South Clerk St, Edinburgh

Time: 7.30

Contact: Graham Spinardi, 031 229 9038

CONFERENCE

Weekend May 10-11

Make the Links, Break the Chain

Topics include the Coal Mining Industry; the Economics of Energy; the Politics of Nuclear Power.

Format will be speakers and workshops.

Place: Durham University Maths Dept, Stockton Rd.

Cost: FREE

Contact: Pat (0385 40361) or Andrew (0385 782639)

CONFERENCES

Saturday, April 12

The End of the Nuclear Road: Building the Alternative Path.

Organised by SERA and NATTA.

Debate on the Labour Party's motion on nuclear power, and the need for the Trade Union and Labour Movement to produce alternative energy strategies.

Place: Red Rose Labour Club, 129 Seven Sisters Rd, London N7

Time: 10.30 am - 5.30 pm

Cost: £2 on door, £1 SERA or NATTA members or unwaged.

Programme from: SERA, 1 Poland St, London W1.

April 24-25

Radioactive Waste Management - UK Policy Examined

Speakers will deal with technical, legislative, environmental and public relations issues, covering current government policy for storage, reprocessing and disposal.

Place: Royal Lancaster Hotel, Lancaster Terrace, London W2.

Cost: £260 plus vat.

Contact: Fiona Spindlove 01-236 4080.



Little Black Rabbit heard an interesting story from a friendly mole in Somerset concerning the series of accidents at the Hinkley Point nuke.

After the first accident Greenpeace asked John Large, their consultant engineer, to investigate. Paddy Ashdown, the Liberal MP for the area was also concerned so John and Paddy arranged a visit to the site to find out from the horse's mouth.

After a tour of the plant the two investigators questioned staff in the station manager's office. During the course of the discussions John opened the door of a cupboard and found an embarrassed man sitting there with headphones on and a tape recorder: the entire discussion was being taped.



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