

SCRAM ENERGY BULLETIN



No 28

40p



Aluminium plant closure will cost
890 Scottish jobs.....

The Chairman of British Aluminium
yesterday blamed the closure squarely
on high power costs.....

Aluminium Foiled



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Friday, February 26th, 1982.

HELP!

The weather hasn't smiled on the Smiling Sun Shop. On Thursday, January 14th, the thaw burst a water tank in the flat upstairs, and the result was that a large part of the ceiling in the shop's storeroom came down. Donations to help us get replacement stock in quickly would be much appreciated — as would a new carpet! We apologise for any delays in the mail order service over the past few weeks — we will be advising the people upstairs on proper insulation to stop it happening again!

NON-VIOLENT DIRECT ACTION day workshop

There will be a day-workshop in Edinburgh on February 20th, to look at where non-violent direct action might be useful (especially against nuclear developments such as Civil Defence exercises) and at 'training' techniques groups can use to prepare for action. It's at the Crosswinds Centre, Tollcross, from 10 a.m. - 4 p.m., details from 26 Glen St., Edinburgh. 031-229-7487.

**HELP! — PLUM! — THE
SCRAM CARTOONIST IS
STILL LOOKING FOR
WORK AT VERY REASON-
ABLE RATES — CONTACT
HIM c/o SCRAM,
30 FREDERICK ST, EDIN.**

Credits

This magazine is produced for the British Anti-Nuclear campaign by the **Scottish Campaign to Resist the Atomic Menace**, 30 Frederick Street, Edinburgh EH2 2JR. 031-225-7752. We welcome contributions.

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Comment

Energy Politics

The closure of the aluminium smelter at Invergordon shows that economics and energy policy are intimately linked. The energy policy of the current Government is based on the economics of unemployment. An energy policy which is inflationary can only lead to increased hardship for low income groups.

This issue of the Energy Bulletin is all about the worst effects of such a policy, which spreads to the Third World, creating a poverty trap in places like Namibia [see page 7].

The intransigent policies of this Government blunder onward, with the proposed Pressurised Water Reactor at Sizewell in East Anglia raising its ugly head [see pages 8 & 9]. And yet a coherent and humane energy strategy is staring us in the face. An energy conservation programme, if initiated, would immediately create thousands of jobs, save our oil reserves and eliminate the need for expensive and dangerous nuclear power stations; and give us the breathing space to develop an alternative energy strategy [see page 11].

The Combined Heat and Power feasibility study of Atkins and Partners is expected in mid February. The Government seems to be considering a feeble programme of one or two 'lead cities' in this CHP study. What the nine lead city contenders need is a total commitment, and the cancellation of the Torness, Heysham and Sizewell projects.

SUBSCRIBE TO THIS MAGAZINE

The cost of subscription to this magazine has now been increased due to increased production and distribution costs. The cover price has also gone up from 30p to 40p — a figure more in line with other similar journals and magazines. Over the past year or so we have been improving the content and layout of the Bulletin and we welcome contributions on any aspects of the nuclear industry and appropriate technology. Why not let us know what you think of our coverage?

We are always in need of funds to finance our various campaigns and to keep up our office administration. Any help, financial or active will be gratefully accepted. We need the certainty of regular income to survive so why not fill in the Standing Order Form below and help us out?

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Aluminium Foiled

The sorry history of the Invergordon aluminium smelter project charts the slide into nightmare of the "white heat of technology" dreams held by planners in the Sixties. Nuclear power would provide vast quantities of cheap and reliable electricity, government would set up large investment schemes in "remote" [ie. remote from Whitehall] areas, the economy would boom. Particularly, aluminium smelters and nuclear power were used to justify each other, as at Wylfa on Anglesey and with the deal between British Aluminium and the SSEB over the building of the Hunterston B Advanced Gas-cooled Reactor.

It was the reality of nuclear power — expensive and unreliable — which brought the dreamers down to earth with a bump, and with disastrous consequences for the Highlands. But, as Pete Roche and Mike Holderness explain below, the consequences go much further. They make the case for abandoning Torness now stronger than it's ever been.

The long-running saga involving both Scottish Electricity Boards and British Aluminium has finally ended with the closure of the aluminium smelter at Invergordon, at a cost to the taxpayer of £113 million. The loss of 890 jobs is disastrous in an area where there is little prospect of further employment. However the story is not yet completely over, and the knock-on-effect throughout the Scottish economy may cause further redundancies.

The Invergordon smelter was one of the main employers in the Highland Region and Scotland's biggest single electricity user. The smelter came into operation in 1972 and has used almost a quarter of the North of Scotland Hydro-Electric Board's entire output since 1974.

British Aluminium contributed to the establishment of Hunterston B nuclear power station. They agreed with the South of Scotland Electricity Board to pay a proportion of the station's running costs, in return for receiving electricity at a cheap rate. This complex contract, however, did not prevent the imposition of a series of crippling electricity price increases.

Delays in construction meant that Hunterston B was completed four years late at a capital cost 15 per cent higher in real terms than expected. Since then the SSEB have experienced several problems at Hunterston. In 1977, 1,800 gallons of salt water was accidentally allowed to flood the pressure vessel. The reactor eventually came back on stream two and a half years later, by which time the total cost of the accident had mounted to £57 million.

This led the NSHEB to instigate proceedings against British Aluminium to recover £47M worth of disputed charges (see Bulletin No.25). BA disputed the charges because they did not believe that they were liable to pay extra charges due to a seawater leak and the rocketing price of nuclear fuel reprocessing.

The Chairman of British Aluminium blames the closure squarely upon high power costs. The Government had offered to write off the £47M claimed by the NSHEB and to subsidise BA's fuel bill with £16M for the next three years in the hope that world demand for aluminium would pick up by 1984.

But the company held out for a similar subsidy right through to the year 2000 — which would have cost the taxpayer a further £288M, because the promise of cheap electricity from Hunterston had not been realised.

More Jobs at Risk

The SSEB has lost, at a stroke, 7.5 per cent of its sales. This will probably mean that the Board will make even less use of its coal and oil-fired power stations. Inverkip, an oil-fired station which was only opened 2 years ago at a cost of £140M and the Kincardine coal-fired station are the most vulnerable. Already two of Inverkip's three generators are mothballed and the plant's output has been as low as 5% of its capacity. At Kincardine two of the five coal-fired generators are shut down. Closure of either station would put hundreds out of work.

Another consequence of the smelter's closure will be a ten per cent reduction in the SSEB's annual coal requirement. It seems certain that this will mean a cut-back in Scottish coal production, and perhaps the closure of more pits.

The Government must act now to avoid the knock-on-effects of the smelter closure. As well as the effects on the energy industries, Highland railway lines are now under threat.

A new development policy is needed for the Highlands, based on small locally-based enterprises. In the Islands there are signs of a new determination to insist on more local control of economic affairs. Community co-operatives have proved that economic problems can begin to be solved. Small-scale renewable energy systems will fit easily into such a development strategy.

On January 6 workers at the Invergordon plant voted to occupy the plant to stop it being dismantled, but success looks unlikely.

Overcapacity

The failure of the Invergordon scheme has not only risked devastating the High-

lands, but has also left the SSEB with a lot of egg on its face.

It's already well-known that the SSEB has an embarrassing overcapacity of generating plant. In 1980/81 they had equipment installed to generate 9564 megawatts. Their all-time peak demand for electricity (in February 1979) was 5517 MW — including the 250 MW taken by the smelter. Thus without the smelter, but assuming that the Board still doesn't adopt industrial pricing policies which could curb the rare "spikes" of peak demand, they have an overcapacity of 81%. Shutting both Hunterston nukes tomorrow would leave a very comfortable 24% overcapacity.

This is bad enough — and expensive enough for the Scottish consumer — but it is perhaps not the most significant point for nuclear plans. Nuclear power stations are notoriously inflexible — it can take days to start one up from cold. So they tend to be run 24 hours a day between fuelling (or breakdowns!), contributing what is called "baseload power".

The SSEB didn't produce figures for their baseload demand — effectively the amount of electricity used at five in the morning — before we went to press. A reasonable estimate would be 40% or less of their peak demand — maybe 2200 MW in winter with Invergordon, certainly less than 2000 MW in winter without, and perhaps 1000 MW on summer nights.

But if Torness was finished the SSEB's nuclear capacity (usable only for baseload) would be 2730 MW — in other words, they'd have to keep a large part of their nuclear plant shut down even in winter, and only ever use coal-fired plant in the daytime.

We can expect them to produce a spate of advertising for night-storage heaters and the like to try to sell themselves out of this fix.



That's if they carry on their fixation with nuclear power. The consequences for Scotland would be severe — in loss of jobs in coal-mining, and in higher prices to consumers as fuel was wasted starting and stopping coal-fired plants designed for baseload, and the loans to build unnecessary plant were paid off.

Torness has already failed to live up to the expectations of local people as far as employment is concerned. With the closure of Scotland's biggest electricity user, and the effects on the Scottish energy economy, it looks set to become a major economic disaster in its own right. The Government must cancel the project before it is too late.

Australia

Last month the Executive council of the Australian Council of Trade Unions (ACTU) voted to allow the export of uranium until February 1982. This is a reversal of the stand taken in 1979.

The ACTU decision may be reversed yet again at a meeting to be held this March — but only if there's strong pressure, including support from abroad. The success of the boycott culminated in a shipload of uranium being held up at Darwin for 2 months. This ship, loaded with uranium from Ranger (a mine on Aboriginal lands), left Australia before Xmas, and is heading for Britain.

Australian activists are calling for support action from British groups when the ship arrives here, probably in early February.

For information on the uranium shipment contact: Roger Moody, 28 Liverpool Road, London N1 (01-6091258). Send telegrams of support c/o Jean Meizer, 250 George St., Fitzroy 3065, Australia.

Dutch Nuclear Debate

December saw the beginning of a long-awaited national discussion on energy in Holland. This is being co-ordinated by a non-government steering committee appointed by the Minister of Economic Affairs.

Approximately the first twelve months of this debate — of which the future of nuclear power is a central issue — will be taken up with gathering the views of various organisations and the public in general. This will be followed by a discus-

sion of the issues lasting another year. Then a report summarising the options, but containing no recommendations, will be presented to the Government for Parliamentary discussion in 1984.

Meanwhile, there is a real possibility that public pressure may force Dodewaard to close. Many politicians have already adopted a non-nuclear stance and in some cases have promised to try to close the only nuclear stations to have been built in Holland. (The 54MW demonstration Boiling Water Reactor at Dodewaard, completed in 1969; and the 450MW Pressurised Water Reactor at Borssele which came on stream in 1975).

Dutch energy policy has also given a new impetus to district heating and combined heat and power projects. The impact of such projects is likely to postpone the need for large new generating plant. At present there are 17 district heating schemes in operation or planned, and 26 more are under study.

Electrical Review, 4.12.81

EEC Whitewash?

The Energy Committee of the EEC has passed a resolution on European nuclear safety which will be considered by the advisory European Parliament in February. The recommendations involve setting up an EEC Nuclear Safety Information Service and streamlining and improving European standards of reactor safety, emergency planning etc. The nuclear lobby present were adamant to show full approval by the EEC of continued nuclear expansion within the Community.

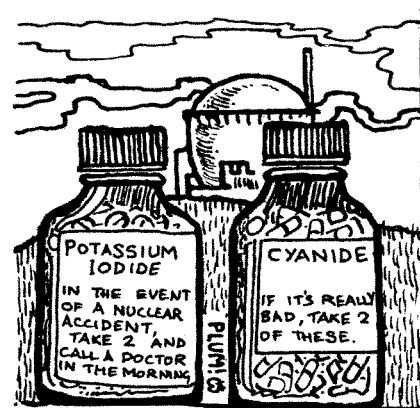
There should also be a 'broad policy review document' from the EEC Commission before the Summer.

Dose; one per accident

Potassium iodide has been distributed to 30,000 households near Sweden's 4 nuclear stations — to improve protection in case of a reactor accident. Inhabitants within a 10 mile radius will receive the tablets and an instruction folder describing course of action in the case of an accident. There will also be outside audio alarms or telephone for people living within a 6 mile radius.

The Swedish Nuclear Inspectorate has recommended that the licence for the Studsvi KR-2 test reactor should not be renewed. They believe that the embrittlement of an aluminium tank due to neutron radiation could result in cracking.

At Ringhalls-3, a Westinghouse steam generator is having problems; 45% of the generator's tubes have suffered 50% corrosion. Though their proposed solution of decreasing the velocity in the tubes has been generally greeted with scepticism, replacing the generator would be very difficult. The Swedish Nuclear Inspectorate has rejected a request by the Swedish State Power Board to plug the damaged tubes and operate by 50% power. The Inspectorate were critical of the use of computer models in arriving at designs. Almaz-1 in Spain is having the same problems.



Deadly Deals

The UK Atomic Energy Authority were marketing their nuclear services and equipment to the Yugoslavians in Belgrade recently. The team stressed that they were offering a flexible package of technology, expertise and back-up care; but one spokesman said: "If the Yugoslavians wanted a Magnox or an AGR we'd be more than happy to supply it".

France

An embarrassed French Government is keeping quiet about the origin of enriched uranium for South Africa's Koeberg nuclear power station which is turned into fuel by Eurodif at Tricastin.

The Koeberg power station was built by Framatome, the French PWR builders. The French Foreign Ministry gave an ambiguous reply to the speculation about the source of the fuel. The Ministry said: "All contracts made with foreign countries will be respected. This is also the case for the contract with South Africa for Framatome to build a nuclear power station at Koeberg."

The Ministry added:-

"To fulfil these requirements South Africa has supplied Framatome with a quantity of enriched uranium which it has obtained on the international market. France has not made any new contract with South Africa for enrichment of nuclear fuel."

Taiwan

NEI Parsons of Britain is one of the chief contenders for the supply of turbine generators to Taipower's 7th and 8th nuclear power units. Other bidders are Hitachi, General Electric, Brown-Boveri, Mitsubishi, Westinghouse and Framatome (France).

On the financing side the US Export Import Bank (EXIM) are trying to outbid France.

Romania

Romania is overdue in awarding orders to one of nine contending Canadian major component suppliers. The orders will be for steam generators, fuelling machines, moderator, heat exchangers etc.

Mexico

Mexico has stated that it will not accept bids for reactor sales from any country which demands a restrictive bilateral agreement for cooperation or cannot provide transfer of technology for the full fuel cycle. They would like an agreement 'like what we have with the French'. This is a problem for the US, which is bound by the Nuclear Non Proliferation Act and aims not to transfer certain sensitive technology for commercial use to another country.

Italy In Decision

The choosing of a site for Italy's proposed 2000 MW nuclear power station is nearing conclusion. The two areas now left in the running are Avetrana in the Gulf of Taranto and Caravigno near Brandisi on the Adriatic coast. Local unions have protested against the nature of the selection process and there was an anti-nuclear sit-in in Avetrana city hall during the summer.

The Sardinia Region have been demanding a nuclear power station for at least 5 years. The island now uses 1000 MW (800 self-generated, 200 via a power line from Italy) and it is estimated that they will need an additional 1400 MW.

This could be met by expanding the existing coal stations and building a new 600 MW coal station. The Sardinian administration feels that this would harm their tourist trade and that the power line from Italy could be subject to terrorist attack as it traverses Corsica.

Even the nuclear industry feel that it would be inappropriate and catastrophic, especially in the event of a shutdown, to make the island dependent on one nuclear unit. They might consider building 2 'micro-units' and solve the over-capacity by cooperating with an energy intensive industry, eg. aluminium. (Looks familiar?)

Power Poll

A national opinion poll carried out in October for Vale of Evesham Friends of the Earth showed that 53% of adults interviewed were opposed to the building of any more nuclear power stations, and only 33% were in favour.

Two further conclusions were that women and all people under 35 were the groups most opposed (62% and 60%) and that opposition spread across all parties (Labour 62%: 23% anti-nuclear, Libs/SDP 53%: 34% anti, Conservatives 45%: 42% pro-nuclear). These comparisons are all significant in opinion-poll terms, based on a survey of 878 people in 165 constituencies by NOP Ltd.

In the last national survey carried out, 46% said they were opposed to further nuclear expansion. There seems to be a definite swing... The nuclear industry's reaction to this has been to launch a £300,000 propaganda campaign aimed directly at the sections of the population who are most opposed — women and people under 35. They admit privately that this is not a coincidence.

Stornoway

Predictably, in December the Scottish Office finally approved the extension of the airfield at Stornoway, on Lewis, for use as a NATO base. The locally based Keep Nato Out Group promise strong opposition, e.g. by obstructing the flow of materials.

The Western Isles Council are among those that condemn the public inquiry that was held and the final decision making process. The inquiry was restricted to considering local planning issues, on which grounds the council feels it won its case. But the Scottish Office's decision was made on the grounds of 'national interest'.

The 'justification' for the base is the 'Iceland-Faroes Gap' via which Russian planes would invade... More likely, NATO is

preparing itself for a possible Icelandic decision to evict the former's base there.

There have been rumours, however, that the Stornoway base could be delayed as NATO's funding for structural projects has almost run out. American demands for more money have been resisted by some of the European members of the alliance. However, a Ministry of Defence official stated that they knew of no changes resulting from the NATO budget and that Stornoway is still of high priority.



Dounreay Hat-trick

Three 'reportable' incidents occurred at Dounreay in August '81.

Two workers carrying out maintenance work on a non-radioactive system were found to have received small amounts of radioactive contamination on their hands and overalls. The cause; a faulty valve was leading to a backfeed of radioactive liquid.

That same day another worker's radiation monitor indicated an exposure twice what it should have been and which suggested prolonged exposure to a high level of radiation. Medical tests showed no sign of significant radiation exposure. An inquiry concluded that the dose recorded on the film was received when not being worn!

There was a leakage of 'slightly' radioactive water near the irradiated fuel storage building, because of a loose coupling in a temporary structure which has now been replaced by a more substantial one, and 'no-one was contaminated'.

Sizewell Costs

Although, in an effort to reduce costs, the design of Britain's proposed Pressurised Water Reactor at Sizewell, has moved closer to that of the Westinghouse Snapps stations on which it is based, costs are still estimated to be 20 per cent more than those for a PWR of the same size and generic design.

The cost difference reflects Central Electricity Generating Board and Nuclear Installations Inspectorate safety requirements, which place special emphasis on duplication and diversity of safeguard provisions, national requirements in engineering standards and the standards for operation and maintenance set by the CEBG. But according to these latest capital cost estimates, presented recently by the National Nuclear Corporation's Director, the PWR will be around 30 per cent cheaper than an equivalent sized Advanced Gas-cooled Reactor of the Hunterston B design.

Germany

A joint venture of W. German electricity utilities (DVK) has suggested two new sites in the state of Hesse for the country's first reprocessing plant. A decision should be reached by the Hesse Government this Spring. Work on the plant would begin in 1984/85 and would not be in operation before 1993. It would handle 350 tonnes per year, cost at a minimum DM 4 billion and create 1600 jobs.

This follows the failure to push through plans for an integrated reprocessing and nuclear waste storage facility at Gorleben in 1979. W. Germany's reprocessing contracts with France are due to expire in the mid '80s but DWK are also currently discussing sharing a US reprocessing plant.

France

Opposition to the proposed Golfech (Garonne Valley, France) 1300 MW reactor continues. Over 800 police officers were called out in early December to protect the site and 'control' a demonstration there. Attacks on the site and other utility property has so far cost about £4 million.

Meanwhile Electricité de France and the regional authorities are publicising how they want to award the majority of contracts to local firms — but this is government policy anyway.

Muroroa Atoll, France's nuclear test zone in the South Pacific, is steadily sinking according to a report leaked from the French Atomic Energy Commission. Since 1975 the island has sunk 1½ m. Worse still storms have exposed buried 'radioactive and plutonium waste'.

The engineers who prepared the report are angry at the lack of action and initiative by the Mitterrand government. The testing continues... There were a further 2 underground explosions in December at the Atoll of Muroroa and it is also possible that they are testing a neutron warhead.

France has agreed to share with India its expertise on Fast-Breeder research and development. M. Chenenement, Science and Technology Minister, also said that France would be ready to set up the FBR at Kalpakkam. He would not comment on whether France would supply enriched uranium for India's Tarapur plant though it's felt that US shipments have all but ceased.

Round Up

Government Grant!

In Manchester an experimental scheme of new, low energy council homes will be aided by a £69,000 government grant. The grant should help to monitor the performance of 15 houses which are in conventional terraces and built of brick. The roofs, floors and walls have been 'super' insulated, windows double glazed, external doors protected by draught lobbies and the central heating boiler and flues are in the centre of the house.

Lewis for wind, peat.

The North of Scotland Hydro Board are investigating the possibilities of wind and peat for the island and of course laying a submarine cable from the mainland.

In the meantime they'll probably install a mobile gas turbine generator near Stornoway. The board's earlier plan to expand the existing oil-generated station is now dead.

DOE

The Department of Energy has allocated £250,000 to fund an energy management information service for local authorities. The total cost of the latter's energy bills is estimated to exceed £1000 million a year. The aim is to show the cost effective and energy saving measures that local authorities can take.

Dungeness

Dungeness A2 went back on line just before Xmas nearly two years after being shut down because of cracked welds in its carbon dioxide cooling circuit. Dungeness A1, Berkeley and Bradwell, which have also suffered cracked welds are expected back in service by this Summer! The total cost of repairs should be between £20 and £24 million with a further £220 million having been spent so far on replacement generation costs.

No Dumping?

NUCLEAR DUMPING... DECISION?

Just before Christmas, it was announced in Parliament that the appeals for planning permission for nuclear test drilling at Mullwharchar and the Cheviots would be dismissed, and the other appeals and planning applications withdrawn.

The main reasons given by Environment Minister Tom King, were that the Radioactive Waste Management Advisory Committee (RWMAC) in its latest annual report, recommended that serious consideration should be given to the desirability of storing high level radioactive waste above ground for at least 50 years.

In view of work overseas, the feasibility of disposal of high level waste underground has been "established in principle" and "nothing has emerged to indicate that it would be unacceptable." Research would now switch to confirming that findings in the five other countries would apply to Britain.

In view of plans to build demonstration disposal facilities elsewhere, it is not now intended to build such an experimental facility in Britain.

Research would continue into the disposal of intermediate level wastes, and sea bed disposal. A White Paper is to be published setting out the position.

Undoubtedly massive public pressure has played a major part in the government's decision. Ironically, the advice to the government given by the Report/Inspector at the Mullwharchar and Cheviots inquiries, were both in favour of drilling; the supposed "national interest" was seen as more important than local needs.

The announcement about medium level wastes was no surprise, as the UKAEA had already stated a desire to seek planning permission for additional sites for dumping intermediate level waste. Permission for one site is wanted within 3 years, to be in operation by 1987, and the second by 1990. Drilling has been completed into clay at Harwell, which could be a possibility.

The government has been silent about this for too long, as intermediate wastes, many which are as lethal as high level wastes, present by far the bulk of the immediate nuclear waste problem.

Developments at sea need close scrutiny. The RWMAC also welcomes greatly increased sea dumping of medium level waste. The prospect is rather alarming as well over 90% of all radioactivity dumped at sea is

British. This amounted to around 100,000 curies last year, and there is no monitoring carried out. In spite of this, and also against international opinion, there are plans to increase dumping at sea by up to 30-40 times by the 1990s.

There is to be no test drilling, but the possibility of burial of high level (c.f. medium level) nuclear waste has just been postponed for 50 years. Most of the previous shortlist of possible sites still exists. Meanwhile, there are probably going to be more nasties in store for us with the problems of medium level wastes. Public consultation is a rather sick joke, and the public inquiry system has overwhelmingly discredited itself.



INQUIRY FARCE..... MULLWHARCHAR

Complaints that objectors to test drilling at Mullwharchar, Loch Doon, were misled by the terms of reference of the public inquiry into these proposals have been submitted to The Ombudsman. This action is being pursued in spite of the decision by Scottish Secretary George Younger, to veto drilling.

Evidence in support of the complaint has been assembled by Ayr housewife Mrs Margaret Ralley, with the help of the Scottish Conservation Society and the Campaign Opposing Nuclear Dumping. It deals with:

1) Maladministration and misrepresentation by the Scottish Development Department on the terms and

scope of the Loch Doon/Carrick Forest Public Inquiry before, during and after that inquiry.

2) Maladministration and misrepresentation by the Reporter for the Loch Doon/Carrick Forest Public Inquiry before and during that inquiry.

Objectors at this inquiry were told that the remit was restricted to only local considerations concerning the drilling of holes in rock, and wider issues were not "relevant". Government policy was not to be discussed.

Reporter (Inspector) for this inquiry recommended allowing drilling "in the national interest" — however, the Secretary of State has overturned the results of this inquiry for reasons of government policy.

It is wrong that public inquiries should be used in this way to reflect "national interests". This move by Mrs Ralley may well have implications for other public inquiries.

INQUIRY FARCE..... LOUGHBOROUGH

The Loughborough public inquiry into test drilling in Nottinghamshire/Leicestershire, started on November 24th, and lasted just 1½ weeks. This was just two weeks before the government announcement to scrap the test drilling programme.

Yet for some perverse reason the Department of the Environment rushed it through with only 7 weeks notice to local objectors. They refused to delay it and also refused to hold a pre-inquiry meeting.

Local objectors did well, despite the short notice given to them. Alternative "People's Inquiries" were also held in the area.

There was no official tape or transcript taken at the public inquiry, even though the inspector, Mr. Wood, was obviously hard of hearing. The remit was virtually unspecified, and Mr. Wood appeared to be rather flippant about the issue of nuclear waste.

This inquiry was the greatest farce of its kind yet, and a shocking waste of public time and money. The government must have had some idea before this inquiry began, that the test drilling programme would be abandoned, and yet they forged ahead with this useless inquiry.

Mary Scott

Uranium: the hidden link

The anti-nuclear movement in this country concentrates its efforts against nuclear reactors and bombs because in Britain these are the nuclear industry's most visible manifestations. However, it tends to be forgotten that the nuclear fuel cycle begins elsewhere with uranium mining, and that here too criticisms may be levelled at nuclear operations. Uranium is the primary link between weapons and power and a halt to mining would put an end to both these processes. Britain currently needs approx. 300 tons of uranium a year to maintain its civil and military nuclear programme. At the moment, its main sources of uranium are Canada, Australia and Namibia.

Perhaps its interest in Namibia best illustrates how vital uranium is to the nuclear industry, to what lengths it will stretch to procure it, and also that uranium mining involves similar economic, environmental and political considerations as the remainder of the fuel cycle.

The British Government, through British Nuclear Fuels Ltd, is currently importing over half Britain's uranium requirements from Namibia through contracts with Britain's largest mining multinational, Rio Tinto Zinc (RTZ). Namibia is occupied illegally by apartheid South Africa. The World Court and the United Nations have ruled that this trade is illegal. Namibians through their liberation movement, SWAPO, oppose the trade.

RTZ were attracted to Namibia because they could utilise Namibian labour at a lower cost than the price of labour elsewhere in the world and because they did not have to concern themselves with either the rights of the people or the protection of the environment. Nor did they have to concern themselves with the health and safety of Namibian workers.

Namibia's current production of 5000 per annum increases South African uranium production by 50%. This gives South Africa a degree of political and economic leverage with regard to the supply and price of uranium. It also compromises the formulation by the countries involved in Namibian uranium of foreign policy towards South Africa's current illegal occupation of Namibia and indeed towards the Pretoria regime itself. Western states, including Britain, are simultaneously involved in Namibian uranium and in international efforts to secure South African withdrawal from the territory. Thus the liberation of Namibia has been subjected to delays on account of this duplicity. During South Africa's invasion of Angola, Britain vetoed the UN condemnation of South Africa, probably for this reason.

South Africa uses Namibia to build military supremacy in the area, to launch acts of aggression against neighbouring countries and to serve as a military buffer against the Front Line states.

Uranium has other military implications in the area. In terms of direct co-operation, RTZ maintains a 69 man paramilitary unit which is prepared to act in conjunction with the South African military in cases of civil disturbance/labour unrest. Furthermore, the Western world's dependence on South African uranium has comprised it into providing South Africa with the technology to develop a nuclear weapons capability. Since 1950 the US, UK, West Germany and France have provided money for exploitation of uranium reserves, technology to build power plants, refining and enrichment plants, and training of personnel.

South Africa now has a complete nuclear fuel cycle and the capability therefore to construct 5 Hiroshima sized bombs every year. Off South Africa in the South Atlantic ocean, on 22nd September 1979, a United States satellite registered a quick flash of light, followed by a longer flash of light producing a double spike on the logarithmic scale. This double flash is characteristic of a nuclear explosion. More particularly, it is characteristic of a neutron bomb explosion. The neutron bomb is especially suited for use against guerrilla warfare and thus highly appropriate in South Africa's battle against liberation struggles and Front Line states.

South Africa's position regarding use of its nuclear potential was clearly stated by the South African Finance Minister who said; "If South Africa wishes to use its nuclear potential for other than peaceful purposes, it will jolly well do it according to our decisions and our judgement."

Furthermore, the military use of Namibian uranium extends to Britain. Namibian uranium is not covered by the Treaty on the Non-Proliferation of Nuclear Weapons and hence is our only substantial source for the military. The British situation regarding Namibian Uranium is confused. There is a vast stockpile at BNFL Springfields (near Preston) adequate without replenishment to fuel the British nuclear programme for 10 years. The increase in the public sector borrowing and interest charges are very large. Because of the CEBG error in agree-

ing to a price for Rossing uranium fixed in Rand multiplied by the South African rate of inflation, Britain is now buying uranium at about 50% above the world spot market price. A deal was worked out by the Treasury to relieve the financial pressure of the Rossing contract temporarily; the uranium contracted for was sold to RTZ's financial subsidiary for a year, after which it was bought back by the CEBG which also paid the interest on that instalment. Britain could be in a position where Rossing uranium is being bought at inflated prices while uranium from the stockpile is being sold at a considerable loss.



The campaign in this country.

Supportive actions are being taken in this country. Actions have been taken to publicise the situation. Meetings, films, trade union seminars have been held. A campaign against the Namibian Uranium Contract (CANUC) exists as does a campaign against Rio Tinto Zinc and its subsidiaries. Actions have been taken to persuade investors to disinvest their shares in RTZ. RTZ's shareholders' meeting was disrupted in 1981 and a counter tribunal held. Various RTZ shareholders such as the Salvation Army and Tyne and Wear County Council have now disinvested, and other local authorities are being urged to follow. The United Nations are taking legal action to seize cargoes of Namibian uranium. UN Decree No.1 on Namibia states that the uranium is the property of the people of Namibia and therefore anyone may seize it on their behalf.

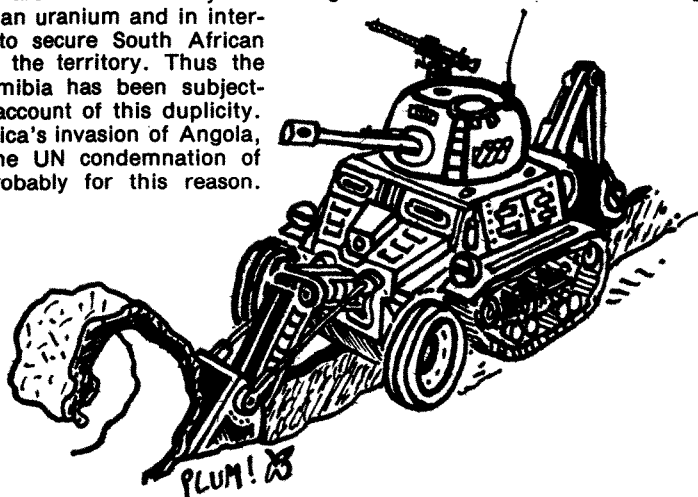
So, there are actions which we in Britain can and must take to support the rights of oppressed peoples and to stop the nuclear menace at its beginning.

RTZ Desires

The long saga of Rio Tinto Zinc bid to take-over the TW Ward Co. continues, with RTZ having been forced again to make yet another (higher) final offer.

Why is RTZ so interested? Ward owns 42% of Tunnel Holdings, the cement company (as well as having many construction subsidiaries). RTZ owns the other portion of Tunnel. Tunnel controls 20% of the country's cement production. Not only would owning all this prove useful, but also RTZ's overseas trading taxation would decrease — as a reward for their increased domestic productivity.

Ward are resisting despite the finger wagging that they'll rue the day and only 8% of their shareholders have so far taken the bait.



PWR— Problems Will Recur !

In recent months there has been a great deal of coverage in the Press, straight and alternative, for the proposed development of a Pressurised Water Reactor at Sizewell in Suffolk. The watchful observer will also have noticed several reports describing fundamental faults in PWR's in the United States and on the Continent. In this article Roy Thompson of the East Anglian Alliance Against Nuclear Power, explains the workings of the PWR and some of the design weaknesses which are now beginning to show themselves. He also links this to the Sizewell proposal and describes the implications of an incident on the local population.

Following the general awareness around the country and the lobbying of local authorities, several councils have submitted objections to the enquiry, including South Yorkshire County Council. The two local Councils, Suffolk County and Suffolk Coastal District, have both lodged 'technical, holding' objections to the proposal. Anti-nuclear groups too, have put in objections and a series of meetings are being undertaken to decide on what tactics to take for the enquiry.

What is a PWR?

The basic structure of a Pressurised Water Reactor is a large pressure vessel made from welded steel with a lid bolted to the top. Inside the pressure vessel is the reactor core and other internal mechanisms such as the control rods. Around all of these is ordinary, 'light', water at a pressure of around 150 atmospheres. Without this pressurisation the water would boil and turn to steam since, under normal operating conditions, its temperature is about 300°C.

The reactor core consists of 193 fuel assemblies. These are made up of a 17 x 17 square array of fuel pins, which contain pellets of uranium oxide fuel. The fuel pin is cylindrical, about 1 cm in diameter and clad in a zirconium alloy called zircaloy. Altogether the pins contain 98 tonnes of uranium oxide enriched to 3 per cent Uranium 235. This level of enrichment is necessary because the water acts as a moderator and absorbs neutrons, unlike the British Magnox reactors which use natural uranium (0.7% U-235).

Since the volume of the core is only about 30 cubic metres, very high power densities can be achieved — up to 130 times greater than those reached in a Magnox reactor. This can lead to peak power densities of 250kW/litre in parts of the core. (For comparison, a cylinder of fuel assemblies the size of a milk bottle could produce heat equivalent to 140 single bar electric fires.)

To remove this much heat, extremely high rates of coolant flow must be maintained. In the type of PWR proposed for Sizewell this would amount to water passing through the core at 18 tonnes per second.

Water leaving the core passes through pipes, the 'hot leg', which are welded to the top of the pressure vessel. It then passes into the steam generator, a device which has been in the news recently since it is one of the PWR's weaknesses (see below). It consists of thousands of tubes through which the hot water passes, each surrounded by cold water passing in the opposite direction. This water turns to steam which is collected at the top of the steam generator and used to turn the turbines thereby producing electricity. The water, now cooled, returns to the core through the 'cold leg' pipes at the base of the pressure vessel.

Each coolant loop (there may be two or more) also contains a pressuriser, in which water is evaporated or condensed to maintain coolant pressure and to compensate for the effects of thermal expansion and contraction as the output of the plant varies.

Above the core are the control rods. These are raised or lowered in order to control the nuclear fission within the core. Nevertheless, after lowering the control rods, to shut down the reactor, considerable heat is still given off by the fuel assemblies. This 'decay heat' can account for up to seven per cent of the heat produced during operation. One minute after shut down a 12 MW reactor, such as the one proposed for Sizewell, would be generating 240MW of heat. After one day this would fall to around 20MW. It is therefore essential that the core is cooled for some time after shut down.

The whole reactor is surrounded by shielding — usually two metres of concrete. It is usual for the entire 'primary' cooling circuit — steam gen-

erators, primary pumps, pressurisers and piping — to be shielded, since the primary coolant is highly radioactive. The reactor building, itself, is normally designed to serve as a secondary containment.

Fundamental Weaknesses

Because the core must be cooled constantly, it is essential that a flow of water over it is maintained. Should a break occur anywhere within the primary coolant system — for example, the fracture of one of the pipes carrying the water into the reactor vessel — some form of emergency cooling must be provided. Emergency Core-Cooling Systems (ECCS) are designed to pump water into the core automatically in the event of a loss of primary coolant. The National Nuclear Corporation's design for Sizewell B included an increase in the number of ECCS's to four, instead of the two or three found in an American system. This report was rejected by the Central Electricity Generating Board because it was described as too costly. The reason for having more than one ECCS is that each system is designed to deal with a different level of emergency. However, a number of problems exist in this theory:-

1. The loss of coolant, or 'blowdown' can send violent shockwaves through the primary circuit. These can damage the 'reactor internals' and hinder the removal of heat.
2. 'Steam binding' may occur. This is when steam generated in the core by the loss of coolant stops the flow of emergency cooling water.
3. Several components or systems can fail, or be made inoperable by human intervention, as happened at Three Mile Island, leading to the ECCS not functioning.
4. The mixture of steam and hot water within the core after a loss of coolant is a much less effective remover of heat. This 'two-phase' flow is very difficult to examine and to predict its effects.

Should the core temperature continue to rise the fuel pins will begin to swell and distort, thus blocking the flow of any coolant water around. At about 1200°C the zircaloy cladding will begin to react chemically with the steam, releasing hydrogen gas. At

Three Mile Island, the gas formed a bubble inside the pressure vessel and exploded. A pressure spike of 28 pounds per square inch was recorded.

If the temperature reaches 2900°C the ceramic fuel pins would melt and the entire core and its supporting structures would collapse. The molten mass could melt its way through the reactor base and into the earth below — the 'China Syndrome' — releasing vast amounts of radioactivity to the environment. At this stage evacuation of the surrounding area should have taken place in order to avoid large scale fatalities and injuries. Around Sizewell, within a ten mile radius, there are approximately 50 settlements. These must all be evacuated quickly, safely and with a minimum of fuss. The evacuation may have to be maintained for several decades.

Unresolved Safety Problems.

There are, according to the United States' Nuclear Regulatory Commission, some 17 unresolved safety issues known to exist in PWR's. The list

Also, should the tubes distort, the coolant flow will be hindered.

There have been numerous examples of both distortion and cracking in American PWR steam generator tubes. The causes are not always fully understood.

The 'solution' which has been applied to the American reactors is to 'plug' defective tubes to prevent the primary coolant flowing through them. This has led to reactors having up to 25% of their tubes plugged and, in some cases, having the entire steam generator replaced. The plugging procedure is highly dangerous, involving as it does workers entering the highly radioactive steam generator and manually firing explosive plugs into the tubes. Sometimes the charges fail to explode, or the plugs leak, or in a few instances the wrong tubes have been plugged.

It is essential, however, that no more than 30% of the tubes are sealed since the ECCS cannot be relied upon above this point. Should any tubes, not known to be defective rupture during an accident, there is a real

Energy Authority recommended the use of certain steels in the construction of pressure vessels. However, in 1979, cracks were detected in French PWRs.

Recent US discoveries of brittleness in the steel of some PWRs, caused by the nuclear reaction inside the vessel, has led to the possible shut-down of a number of power stations. In all, 46 American reactors are affected; some after only six years of service. The US NRC's director of Safety Technology is reported as saying "On the information available today I would say we'd start to get very nervous after a year or so".

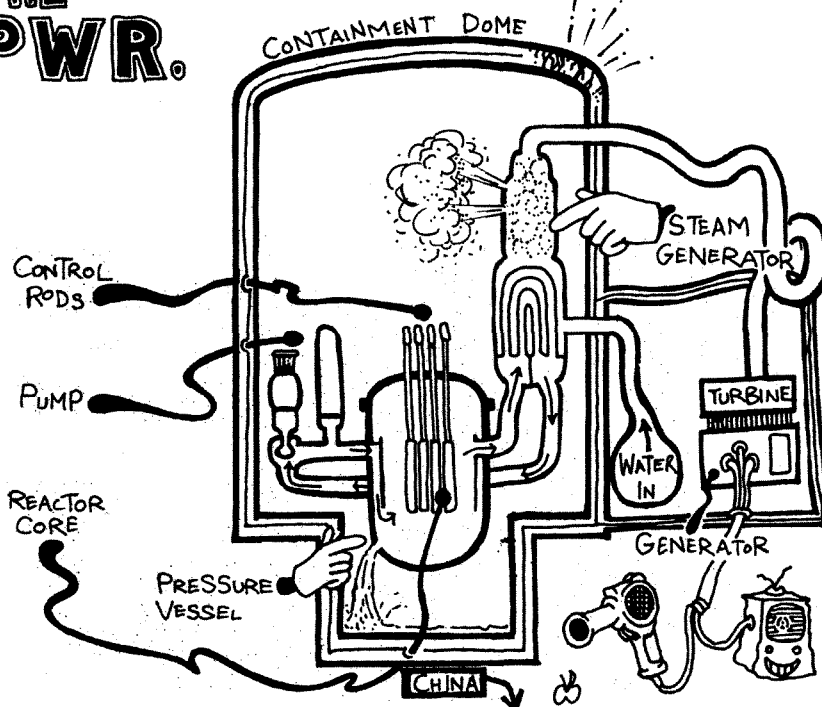
Other areas of concern for the UK include the fact that the levels of exposure received by workers in PWRs are higher than the low doses experienced by staff at UK gas-cooled stations. Occupational exposures reported from operating facilities in the US have averaged nearly 500 man-rem per reactor year — a disturbingly high level. Since access to the designs, both those rejected by the CEBG and those accepted, has been denied it is impossible to judge what efforts have been made for the proposed Sizewell B PWR, to reduce these levels.

Further reading: The Pressurised Water Reactor: A Critique of the Government's Nuclear Power Programme by Michael Flood, Renée Chudleigh and Czech Conroy. FoE Energy Paper No.4. Price £1.50.

PWR News; FoE Ltd., 9 Poland Street, London W1. 15p.

SCRAM Energy Bulletin Nos. 26 & 27.

THE PWR.



makes depressing reading and is constantly being added to as experience with PWR's increases. Amongst the most important problems are the following:-

1. Steam Generator Tube integrity. This has been featured in press reports recently, as more problems are discovered with American PWRs. The tubes inside the steam generator, as mentioned above, carry the two flows of water and act as a heat exchanger. The primary coolant, is highly radioactive and must not be allowed to come into contact with the secondary coolant. Should the tubes fracture, the primary coolant, being under greater pressure, can pour into the secondary system and contaminate the coolant.

possibility that the copious flow of steam in the steam generator would stall the reflooding of the reactor vessel.

2. Reactor Pressure Vessel integrity. This is another problem which has been around for some time, but on which new evidence has come to light recently.

The ability of the steel pressure vessel to operate without cracking open is a point which is worrying several eminent metallurgists, notably Sir Alan Cottrell. He has expressed grave doubts as to whether cracks in the pressure vessel can be detected in time for remedial action to be taken. In 1976, the United Kingdom Atomic

Swedes Shut PWR

Just one month after commissioning, the number three Pressurised Water Reactor unit at the Swedish Ringhals nuclear power station has been shut down following indications of radioactivity in the water circuit feeding the turbine.

Laboratory investigations now underway are likely to have wide significance, as the type of reactor involved is one of 15 either already, or soon to be, commissioned all over the world. It is of the Westinghouse design with a thermal output of 2,783 MW. A fourth unit at Ringhals has yet to be commissioned.

Excessive vibration of the pipes carrying hot water from the reactor to the pre-heater section of the steam generator had caused them to fracture.

The Ringhals station has two reactors already in operation, following commissioning in 1974/5. Unit number one is a Boiling Water Reactor, and the second is a PWR. The third and fourth units differ from the first two in that they operate at higher pressures and flow rates. The first two units have a 1,550 MW capacity between them, while the third and fourth are rated at 912 MW each.

Electrical Review, 4.12.81

SOUTH OF SCOTLAND ELECTRICITY BOARD

ARREARS BILL

Please read notes overleaf carefully.

Any enquiry regarding this Bill should be made IMMEDIATELY to your District Office

DEWAR PLACE, EDINBURGH EH3 8ED. TEL 229 1171

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18732	18732	DOMESTIC (ZERO)	
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		BALANCE FROM PREVIOUS ACCOUNT	26.19
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LAST PAYMENT		£12.13 30/11/81	SEE NOTE OVERLEAF

The Consumer Campaign Court Case

On Monday 23rd November 1981 Consumer Campaigners Nigel and Sally Griffiths were granted an **Interim Interdict** against the SSEB at the Edinburgh Sheriff Court. The Griffiths' had received a disconnection notice for Thursday 26th November because they had over £10 in the Consumer Campaign Trust Fund, into which they had been regularly paying 20% (the 'nuclear portion') of their electricity bill. The interim interdict meant that the SSEB were prohibited by law from carrying through this disconnection. It got good coverage in the Press, with newspaper hordings round Edinburgh proclaiming "Law Upholds Torness Protesters". A further hearing was set for the following Monday (30th Nov.). Unfortunately, and not entirely surprisingly, the law upheld the SSEB this time, and the Griffiths' were given 14 days to pay up or be disconnected. They paid up. According to Roger Askam,

the Consumer Campaign lawyer, the SSEB were taking the case very seriously, and had brought along big legal guns at the very outset.

The money claimed by the SSEB had in fact already been paid to them, as the money in the Trust Fund belongs to them. This was part of the argument for granting an interim interdict, but the central plank of the case which the lawyer used was as follows:

The Case Itself

According to the Electricity Lighting Act 1909 the electricity board is not entitled to disconnect a consumer if what they claim to be this consumer's arrears are the subject of a **bona fide** dispute. There is, the lawyer argued, a **bona fide** dispute about these 'arrears' because the electricity board itself is in breach of its statutory obligation as set out in the 1979 Electricity Act (Scotland), which states that it must 'plan and carry out an efficient and economic distribution of supplies of electricity to persons in their district.' There is now in fact overwhelming evidence that nuclear power is both **uneconomic** and **inefficient** compared with other forms of electricity generation. Furthermore, the SSEB's nuclear programme poses a grave potential risk to all their consumers, including those taking out the interdict.

It was hoped that the case would lead to the SSEB's having to **prove** in court that nuclear power was cheap and efficient — a claim that they have long made but which they constantly refuse to back up with hard detailed facts and figures. However, it never got that far because it was shot down on the issue of **bona fide** dispute. The SSEB legal counsel proved to the satisfaction of the presiding sheriff, Martin Mitchell, that such a dispute referred only to the **metering** of electricity, not to any wider issues of electricity supply. He said that the question of whether nuclear power was

wrong economically was a political decision. He added: "We all think the electricity board's charges are monstrous — I certainly do."

The Way Ahead in Law

If the SSEB are to be forced by law to divulge facts and figures about their nuclear programme, then this will have to be done in the Court of Session by means of a **Declarator**. This is a legal action which can be taken out against any public body which an individual or group thinks is in breach of its statutory obligations. This would be a very expensive — but very worth-while — exercise. It would mean a lot of work for a group or individual, starting with the launching of a Fund-Raising Campaign. If anyone is at all interested in this, please contact the SCRAM Office.

Three-Point Plan

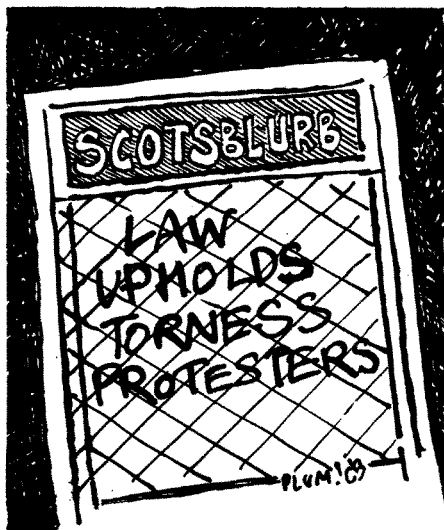
At the time of the first hearing Nigel Griffiths, who is District Councillor (Lab.) for South Hailes, Edinburgh, wrote to the Secretary of State for Scotland making three main demands; which form the basis of the Consumer Campaign:

1. An Independent investigation into the SSEB: "The SSEB have misled the public at every stage and their estimates of future electricity consumption, future plant costs, and future fuel and generation costs have been wrong at every turn." (The latest spectacular and tragic example of this is the Invergordon smelter fiasco). Along with George Foulkes, MP for S. Ayrshire, he suggests that the SSEB be investigated by the Monopolies and Mergers Commission.
2. A Massive Loft - Insulation Scheme to save 750 million barrels of oil a decade and create 100,000 jobs.
3. Committing the SSEB to dropping all nuclear developments and switching to schemes which utilise waste heat from conventional power stations (known as CHP or Combined Heat and Power). In fact, another of the SSEB's statutory obligations in the 1979 Act is to make the most of CHP.

Consumer Campaign AGM

On December 4th, 1981 the (South) Scottish Consumer Campaign Against Nuclear Power held its AGM in the Netherbow in Edinburgh. About 25 people from all over the SSEB area attended. The most important decision was that the Consumer Campaign should be integrated more into the major Scottish campaigns for a safe, sane energy policy and a nuclear-free Scotland, such as SCRAM, FoE, CND, HOPE, etc.. NAG, the small group that set up the Consumer Campaign, feels it has done enough, and will remain responsible only for the every-day management of the Trust Fund. Responsibility for publicity, future expansion, legal action etc. will rest with the above-mentioned groups, as well as with all SSEB consumers concerned about the board's dangerous and expensive commitment to nuclear power. Meetings of the Consumer Campaign will be on the third Monday of every month at 8 p.m. in the FoE & SCRAM office, 30 Frederick St., Edinburgh, as part of the regular SCRAM Monday Meetings.

The address for the Consumer Campaign remains c/o 37 West Nicolson Street. In emergencies regarding Trust Fund phone 031-667-6488 or 031-557-3493.



Conservation

Everyone accepts that insulation is a good thing, but the idea of a national insulation programme is still only slowly moving up the political agenda. Why should this be so when a massive programme of insulation could not only save energy, but also create jobs and help solve fuel poverty? In this article David Green of the Energy Advice Unit in Newcastle examines why effective action has not taken place, and suggests a new approach.

It is far easier to buy an appliance that consumes energy than it is to get advice on how to use energy more efficiently. This state of affairs occurs because the energy corporations' primary role is to sell their products, and they have built up an effective network of outlets to enable them to do so. This suggests constraints upon the ability of these corporations to promote an effective energy conservation programme. A new structure to take such an initiative is needed.

An effective insulation programme also requires an injection of capital. This money, however, should be seen as an investment. It will save the Exchequer on the national fuel bill, as well as help reduce expenditure in other areas. For instance, the Department of Health and Social Security spends over £250 million each year on special assistance with heating. At the same time local authorities are forced to increase their borrowing to cover rate/rent arrears created by the high fuel bills suffered by those on lower incomes. Elements of a national insulation programme could therefore be financed out of savings on existing expenditure.

In essence, a conservation programme is about more effective use of existing expenditure, not just an over-

all increase in public spending.

Debate continues about how much energy can be saved by a national insulation programme. For example, it is argued that as many people live in cold houses, the benefits of insulation will be soaked up in producing warmer homes, and not in reducing energy consumption. Whilst this is in part true, studies by Government research establishments show that even taking this into account, there is considerable potential for energy saving. To illustrate this point, David Mellor the new minister responsible for energy conservation said recently: "Even when we contemplate what is technically feasible now, the reductions that should be possible range from some 30% in industry to perhaps as much as 50% in domestic terms."

An effective programme of energy conservation needs to take into account the different groups affected — poorer households, more affluent areas, shops, offices, industry, and so on. A useful way to approach this might be for the Conservation Division of the Department of Energy to request a local energy conservation action plan to be drawn up. This would

be a joint venture between local authorities, private sector and community interests. The plan would be drawn into an action programme along similar lines to the Inner City Programme in England. Appropriate finance would be directed to the local consortia once each plan was agreed.

The central role of the Department of Energy would, in this scheme, be to provide guidelines for action, monitor progress, encourage the replication of good practice and provide the finance required in conjunction with other public and private sector interests.

It is not necessary to wait for government action to set up such a scheme. Local consortia could be brought together at any stage, pointing the way for further action. Indeed, on Tyneside the new Tyne and Wear Energy Forum is already examining how such schemes could be developed. The clear message is — do not just campaign for action in Whitehall, plan your action locally. Now is the time to organise what work you could be doing in your area.

Contacts: David Baillie, Tyne and Wear Energy Forum, Mea House, Ellison Place, Newcastle-upon-Tyne NE1 8XS and Gill Owen, Neighbourhood Energy Action, 81 Jesmond Road, Newcastle-upon-Tyne, NE2 1NH (0632-818297).

Energy Returns for Investment in Conservation and Nuclear Power

	KWh/annum/£
Draught Proofing	8.2 - 15.6
Loft Insulation	15.8 - 20.3
Cavity Wall Fill	5.6 - 7.3
* Full Heating Controls	7.1 - 10.8
Nuclear Power Generation	3.5 - 5.5

For the above conservation measures there can be significant improvement in these figures by economies of scale. From ACE Report - see page 12.

Neighbourhood Energy Action (NEA) was officially launched in May 1981, by the National Council for Voluntary Organisations. NEA aims to help "local communities conserve energy and create jobs". It provides advice and information to voluntary organisations, community groups and local authorities wishing to set up and run energy projects — especially those aimed at low income households.

NEA has already run a series of workshops around the country. Their **Home Insulation Project Pack** was launched on 5 November by David Mellor, Under Secretary of State at the Department of Energy. "This project provides an important focus for voluntary work in domestic energy conservation" said Mr. Mellor. "The Government sees the Programme (NEA) as an important pump-priming operation, bringing together voluntary resources and a section of the



unemployed to help those most in need to save fuel."

The pack contains information of all aspects of setting up and running a project — funding, project planning, insulation work, grants, health and safety etc. It is available free to voluntary groups and individuals running or setting up insulation projects. Otherwise £3 to voluntary groups and individuals, and £6 to other organisations.

NEA has also launched **Energy Action Bulletin**. This quarterly Bulletin contains a wide range of information and news. Included in the first issue is an International Supplement. It is available at £3 to voluntary organisations and individuals and £7 to other organisations.

Both the Home Insulation Project Pack and Energy Action Bulletin are available from Neighbourhood Energy Action, Information Centre, 81 Jesmond Road, Newcastle-upon-Tyne.

Conservation Makes Sense

Britain's energy conservation policy has come under attack (again) in two recent reports. The UK conservation effort is found to lag behind that of many other countries. This is the fault of the Government, who are providing inadequate financial backing. Both reports emphasise that conservation measures, especially insulation, are far more cost-effective than virtually any investment in new supplies.

"Domestic Energy Conservation and the UK Economy", produced by the Economists Advisory Group for the newly formed Association for the Conservation of Energy (ACE), argues that the UK's present self sufficiency in energy is inducing an attitude of complacency. It also criticises the government for relying upon pricing to induce conservation. The report calculates that a 3% reduction would require energy prices to rise by 10% in real terms, whilst petrol would have to rise by 38p a gallon. This would add 2½% to the cost of living index, as well as affect industrial output and unemployment.

Economic Benefits

The ACE report provides a detailed analysis of the economic benefits of energy conservation. The rate of return on investing in insulation in housing is found to be significant by any standards. A comparison is also made between the energy saved per £1 invested in conservation measures and the energy produced per £1 invested in nuclear power generation. Some conservation measures work out six or seven times more cost effective than nuclear electricity (see table on page 11). This is despite being generous to nuclear electricity in the calculations.

Present government policies are making only small in-roads into the task of insulating existing houses. Around 9 million dwellings have inadequately insulated lofts, whilst half of the 10 million homes with central heating have inadequate controls or none at all. Yet insulation grants are running at below 300,000 a year, and they only go part of the way.

A Modest Proposal

The ACE report suggests a "modest programme", involving insulation of 1 million lofts and 500,000 cavity walls annually. This is well within the capacity of the industry and would produce 27,500 extra jobs. The programme would have to rely upon subsidies. The sums involved, however,

are insignificant compared with the £10-15 billion nuclear programme the government favours.

The second report, "Improving Insulation in Existing Dwellings" published jointly by the Electricity Consumers Council and the National Consumers Council, reaches broadly similar conclusions. However, the report goes further in its recommendations. A programme costing £4-5 billion is envisaged, which would save the country £1 billion each year. Such a programme would be "cost effective both for the nation as a whole and also for the individual consumer".

Two ways to implement such a programme are suggested. The first requires a major package of measures including:

- More and better publicity about insulation and grants.
- A nationwide energy advice network.
- More help for local insulation projects run by voluntary organisations (Neighbourhood Energy Action is seen as a start, see p.11 of this **Energy Bulletin**).
- Local Council sponsored insulation projects.
- A home energy audit service.

It is stressed that all these measures would have to be implemented as "none of them would be adequate if adopted in isolation".

Insulation for All?

The second approach would be a comprehensive direct insulation programme to bring all homes in the UK up to appropriate insulation standards. This would be done on a street by street, district by district basis. Such a phased programme would be cheaper to carry out than the present more random approach.

Both these reports throw open a challenge to the government. How will they respond? On past experience the call for a serious insulation programme will quietly be ignored, whilst the government will push ahead with its far more "glamorous", though less cost effective, nuclear power programme.

"Domestic Energy Conservation and the UK Economy" available from Association for Conservation and Energy, 3 Pleydell St., London EC4, £20.

"Improving Insulation in Existing Dwellings" available from Electricity Consumers Council, 119 Marylebone Rd., London NW1, £2.50.



Insulation Dole-out

Are you claiming or eligible for Supplementary Benefit? If so then read on. You are now entitled to a Single Payment to cover the cost of a hot water tank jacket. The new rules even cover replacement of a very old or worn jacket. This new concession is in addition to existing Single Payments for draught proofing materials — plastic or metal strips or plastic sheeting. So warm up a little and put your claim in now.

Scrooge Speaks

Liberal M.P., David Penhaligon has been pressing the Government to increase the funds available for research into alternative forms of energy. David Mellor, Under Secretary of State for Energy, said that there were no plans for any substantial change. Expenditure on research and development into renewable energy sources would be about £15.4 million in the current financial year compared with £3.7m in 1978-79.

Mr. Mellor said that his Department was preparing a report on Research and Development on alternative sources of energy, including work on new and renewable forms of energy. This would be published as soon as was practicable. The Department is also awaiting public response to the report of the Severn Barrage Committee.

He said it was important to develop the renewable sources of energy available but equally important that we were not deluded into thinking that this would in any way replace the need for new power stations, whether coal-fired or nuclear.

Appropriate Technology

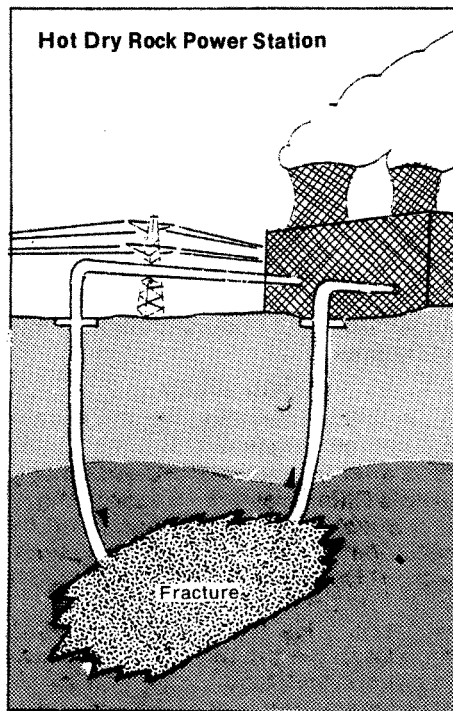
Rock On!

The drilling of what will hopefully be Britain's first commercial geothermal well, in the middle of Southampton, was due to be completed in December. The hot water will then be tested to see if it is suitable to heat a new shopping and office complex in the city centre.

The Energy Technology Support Unit (ETSU) of the Department of Energy has found water at 70-73°C at a depth of 1,600 meters. The project follows the successful geothermal bore at Marchwood power station on the other side of Southampton water. Originally hot water at Marchwood was to be used for boiler feedwater, but since the project started, the Central Electricity Generating Board station there had been put so low down in the merit order that it is hardly ever operational. But some 12 acres of greenhouses could be built on the site instead.

Meanwhile, the ETSU geothermal project at Rosemanowes Quarry in Cornwall is six months ahead of schedule. Twin 2,000 meter deep wells have been sunk into the Cornish granite to demonstrate the feasibility of power generation from geothermal heat brought up in water previously pumped down to deliberately fractured

hot rock lying underground. By the end of 1982, it should be possible to know if the system works in Cornwall. If it does, then the whole of the land surface of Britain becomes a practical zone for geothermal power exploitation.



FINESS?

Three companies with expertise in different forms of renewable energy have formed a consortium for the design and supply of complete systems which will generate electricity from the wind and/or the sun with back-up power from batteries or other secondary sources. The integrated system will be controlled by microprocessors and designed for minimal maintenance. It could be used to provide power for telecommunications, pumping, desalination, railway signalling, navigational aids and so on.

The three companies involved are:-

- * Northumbrian Energy Workshop, which has been designing and installing wind energy systems rated up to 10kW for six years.

- * Power International, a Portsmouth company which designs and manufactures voltage regulators, battery chargers and power supplies.

- * Independent Telecommunications and Electronics Management, a Scottish telecommunications and systems engineering firm.

The Fully Integrated Natural Energy Supply Systems (FINESS) will cater for every possible climatic condition by integrating wind and sun with secondary sources such as gas, and with batteries for energy storage. Exports are expected to form the bulk of the consortium's business.

CHP go-ahead... and delay

Following the success of the Midlands Electricity Board Combined Heat and Power Station in Hereford, the Government has given its approval for a second station at Fort Dunlop in Birmingham.

Earlier in December there were worries that the Fort Dunlop Scheme would have to be cancelled, because the Department of Energy have spent the last 19 months considering the project.

The M.E.B. have 12 other possible schemes under examination which would have been cancelled if the Fort Dunlop scheme had not been given the go-ahead.

The plant with its two 12 megawatt generators powered by diesel or coal will provide steam and hot water for Fort Dunlop, a large rubber products factory, and electricity for the M.E.B. distribution system.

The Midlands Region of the CEBG is also looking at the possibility of using Nechells power station for district heating in Birmingham.

The report being prepared by Atkins and Partners, as main consultants into the feasibility of large combined heat and power/district heating schemes in nine British cities, is now expected to be finalised by mid-February instead of by Christmas (1981) as was previously hoped.

The task of gathering detailed information about the commercial viability potential of lead city schemes has proved more complicated than was first thought. As well as identifying the lead city or cities, Atkins has also been looking at the wider national potential for C.H.P.

Meanwhile Lothian Regional Council have sought planning permission from Edinburgh District Council for the construction of a C.H.P. station at Seafield in Edinburgh. This is in anticipation of Edinburgh becoming one of the "lead cities". One of the bonuses of being selected would be that large grants for development would be available from both Government and the EEC. Both Lothian Region and Edinburgh District councils are "very excited" about the scheme.



Sunflower Power

A 25-foot motor cruiser belonging to Mr. Ian Kerr, is operating from Littleport, near Ely, powered by sunflower oil. Mr. Kerr, a company director, is thinking of extending the idea to the other 120 cruisers his Derby-based holiday company owns. The project is being supervised by the Peterborough-based Perkins diesel engine company.

(F.T., Jan. 6th, 1982)



Politics of... ...Uranium

THE POLITICS OF URANIUM - Norman Moss, Published Andre Deutsch, 1981, price £4.95.

This book contains a great deal of interesting and useful information on uranium and the links between civil and military nuclear power, both past and present, most of it damning. However, Moss seems more concerned with supporting the status quo and appeasing the nuclear establishment than with taking the substance of his research to its logical conclusion and proposing viable alternatives to uranium-based energy and 'defence' policies.

One of his weakest chapters is the one entitled 'The Uranium Cycle', in which he blatantly disregards or glosses over vital evidence concerning the unique and deadly hazards of uranium extraction including radiation. A good antidote to this chapter is the ANC leaflet *Uranium - The Plain Facts*.

In his last chapter he finally comes out in favour of nuclear energy, with facile argumentation cribbed straight out of the nuclear industry's propaganda sheets; he is also in favour of an extension of nuclear safeguards to prevent unbridled proliferation, having devoted much space to proving that such safeguards are impossible to apply without the co-operation of the authorities concerned. Moss himself is obviously very confused about the issues and he leaves his reader equally confused.

You can't have your yellowcake and eat it, too, Norman.

Simon Taylor

...Disarmament

The Politics of Nuclear Disarmament: Martin Ryle. Pluto Press, 1981, £2.50.

For readers of this book the goal is clear; to unite people, not only in Britain but across Western, then Eastern Europe, against the nuclear strategy of the superpowers; with the aim of disarming the nuclear menace. To achieve such unity, the author looks at the horizontal divide, common to East and West, between the civilian population and the military apparatus which controls the nuclear arsenals. For Britain in particular, he concludes that nuclear weapons systems are, by their nature, incompatible with democratic decision making. The role of disarmament movements is viewed as the mass voice of public opinion, used to reverse the flow of power back to the populace at large.

The author looks at the global aspects of the nuclear debate, especially Russia's perception of the picture. The aim of European Nuclear Disarmament is seen as opening up new political possibilities between East and West. The book examines how END's message might spread and evolve in the Eastern Bloc and how it can be used to modify the political context of decision making in the West.

For Britain, Martin Ryle argues for unilateral disarmament, as a step towards

disarmament by the superpowers. American response to refusing US missiles, the reshaping of NATO, British security and alternative defence strategies for a non-nuclear Britain are briefly mentioned.

On the political front, he looks at the 'consensus of silence', by which, in the past, nuclear defence strategy was imposed on the public. Absence of debate in Parliament, deliberate suppression of information and the Chevaline modernisation programme are cited as evidence of how this consensus was implemented. The political means for ensuring that, in future, such a 'consensus' does not exist, lies in supporting Parties which have more accountability to the public. As such, the author sees the Labour Party as a focus for such democracy and, hand in hand with it, unilateral disarmament. However the reader is warned that CND should not identify solely with one political party. Contingency plans via civil disobedience, and Union activity are thrown up as possibilities should the Parliamentary path to disarmament prove unfruitful.

The book brings together a wide range of perspectives and arguments. In doing so, it has posed many interesting questions, and only investigated them rather too briefly in my view, considering the cost of the book.

Alan Chow

... Music

Life in the European Theatre. An Album by Various Artists on W.E.A.

The royalties from this album are all going to the anti-nuclear movement. Half the royalties are to go into a project fund and the other half of the royalties are to be split between C.N.D., FoE, the European Nuclear Disarmament Campaign, and the Anti-Nuclear Campaign.

Reviews of albums are always very personal, for example, as far as I am concerned any album with a track by The Jam is worth having. The Jam have helped the anti-nuclear movement on several occasions, and in a recent interview in 'Sanity', Paul Weller said that he hoped to see a C.N.D. stall at all their concerts. The Beat too, have helped by donating money from a single, and several members have been to Torness. Other bands who have donated tracks include The Clash, The Specials, XTC, Madness and Bad Manners.

Despite being a raving Jam fanatic, I think the best track on the album is 'All that Jazz' by Echo and the Bunnymen. After years of frustrating work in SCRAM, this track appeals to me, because of the chorus which begins "See you on the barricades babe."

The famous names on this album should attract many people to buy it. The album has extensive sleeve notes with an article written by E.P. Thompson on Nuclear Weapons and another by Roger Deakin of FoE on Nuclear Power.

We need to do some work if this album is to make some money for anti-nuclear groups. Please help by making sure that your local record shop has it in stock. The A.N.C. have posters available to advertise it.

Pete Roche



Race to the Finish

Race to the Finish, Dervla Murphy. John Murray pubs., 1981. £5.95, available from SCRAM mail order + 30p p&p.

Dervla Murphy is a novelist. You might initially or sceptically ask, "how can she give any revelations on nuclear power to fill 231 pages?" Whilst preparing to write another travelogue, this time on Peru, she realised that the whole nuclear power issue was immediately more urgent, a matter of survival (or not). Her journalistic approach is that of a lay-person, undertaking an inquiring study into the nuclear matrix. The fact that she customarily wrote about countries and the people she met there is advantageous in that 'Race to the Finish' is woven with encounters with CEGB officials, ex-Gurkha officers, housewives, scientists and anti-nukers. She can explain how these people think and how the technological industrial complex ticks on.

She was in Harrisburg when it all happened. Using the various reports and studies that were produced after the accident, she gives a clear run-down of the events. Looking back, she is disgusted at the NRC's public relations; how could they appear on telly hour after hour and tell the anxious Pennsylvanian population that "everything is fine" whilst backstage they were tearing their hair out? It illustrates well how the emergency systems might not, after all, be capable of dealing with a multiplicity of mishaps. By her account, the authorities' handling of the event has left people with a nasty taste in their mouths.

Her analysis of the health and safety practices confirmed my doubts about their inadequacies. If workers are not aware of the possible effects of radioactive materials, naturally they will be apathetic about being scrupulously cautious. Long-term risks are too abstract and the pay is too attractive to forsake; one would rather fiddle one's meter-reading!

IMP is the rather clever abbreviation of the industrial-military-political machine. Dervla Murphy refuses to make any generalisations about scientists; they're people who are doing what they think best, ie. advancing in the only way they know. The next step in technology is always an attractive, prestigious challenge to scientists. After they make their 'discovery/breakthrough' however, control passes out of their hands and becomes another tool of power for IMP.

Though the writer had intended to avoid the subject of nuclear weapons, she found the latter too interdependent with the 'civil'/nuclear programme to omit. There is plenty of historic detail on the beginnings and progressions of the 'Atomic Bomb' including the proliferation or 'the runaway reactor trade'. The latter she concisely describes as cynical economic imperialism. And so the IMP is beyond control of anybody, be he moral or not.

As for us individuals, what has IMP done? Succeeded in doling us out with varying shares of 'psychic numbing' so that we remain reluctant to face up to the possibility of such government immorality affecting our own countries.

There is an urgency in this book "how will the transition to the next era shape itself?". Dervla Murphy is no eccentric or prestige chaser. Perhaps you should have bought this for your mum for Christmas.

Berni Graham



Since the last Bulletin went to press we at SCRAM have had a meeting to decide on our strategy for 1982. An appraisal of our present position showed that, following the rather quiet period during the Summer, we now have a strong team of workers, including two people working virtually full-time cataloguing our extensive Library and newspaper cuttings collection. Our financial position has improved dramatically, largely as a result of increased activity on the fund raising front. Our street barrow was taken out nearly every Saturday during the Summer and on a couple of occasions took as much as £170 over the day! Jumble Sales, sponsored walks and discos also helped to boost the bank account.

As for the future, Torness figured prominently in the discussions. We decided not to call a demonstration at Torness this May as there seems little point when we have been proved right time and again yet it is still being built. We felt that this form of action was having no effect on the Electricity Board or the powers that be. We plan to compile a document, tentatively titled 'The Case for Mothballing Torness NOW!' which will point out all the 'we told you so' facts. It was stressed that regular discussions on Torness should be held during our meetings as the campaign intensifies.

During the Summer the SCRAM caravan was sited near the gates of the site as an information centre and attracted a lot of attention from local people, site workers and tourists passing along the busy A1 trunk road. When it was removed for much-needed repairs and general protection from the inclement East Lothian Winter, many local people were disappointed as it seemed that SCRAM had 'given up the fight'. Because of this we felt some permanent, visible presence was required to show that we are still fighting. Also, interestingly enough, there is no indication outside the site as to exactly what is being built!

The other development on the Torness scene is the forthcoming enquiry into the pylon routes, possibly in March of this year. SCRAM lodged an objection based on the health hazards of high voltage cables, visual and agricultural intrusion and the fact that Torness is unnecessary. It seems the remit of the enquiry is restricted to which of the two routes is preferable and hence we feel that to be represented would be prejudicial to the anti-Torness campaign. To this end we are planning a series of events during the enquiry to draw attention to the great opposition to the construction of a nuclear power station at Torness.

It was recognised that our Monday meetings are becoming a wee bit boring to new-

comers because so much time is taken up with tedious business matters. To remedy this we are planning to involve other groups in meetings on a regular basis. For example, members of the Scottish Consumer Campaign will come along about once a month to discuss tactics and to help share the work load. Other groups considered include SANE and the Anti Apartheid Group. Another useful tool for co-ordination is the Edinburgh Anti Nuclear Newsletter which we intend to restart soon — probably with a summary of the 'mothballing' document. A leaflet is also intended which will have a pilot run in Lothian Region. It will be partly anti-Torness and partly pro-alternatives and the aim is to eventually distribute it throughout Scotland.

On the subject of Alternatives, we ran a series of seminars during the Summer which served a dual purpose of educating ourselves and publicising the viability of different alternative energy systems. Following the seminars we have started a campaign involving the production of an alternatives slide show and a book setting out an alternative energy strategy for Scotland.

There are two other important events on the cards for 1982. The first is the appointment by Friends of the Earth Scotland of a Nuclear Free Zone campaigner for Scotland. As part of this campaign, SCRAM will be offering use of our library and contact lists as well as office space as required. The campaign will involve lobbying Local Authorities to declare themselves nuclear free zones, and disinvest from RTZ, showing videos and films as widely as possible and getting the links message to as many groups and individuals as possible.

Finally, a Peace March has been planned for the Summer of this year along the lines of the Peace March from Copenhagen to Paris last Summer. It is expected to start from Inverness in July and will end in Edinburgh in August just before the Festival. To coincide with its arrival in Edinburgh, SCRAM is organising a conference on the links, hopefully with some 'big names'. If anyone is interested in helping with the organisation please contact SCRAM.

All in all the coming year will see a renewed activity on all aspects of the anti-nuclear campaign. We are looking forward to a very busy yet hopefully exciting year.

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The annual round of Hogmanay duty visits to far-flung relatives may be a pain in some ways, but Little Black Rabbit finds it useful for catching up on the gossip.

Eccentrically (for a Scot) spending part of the festive season in London, she was interested to hear of the state of mind of the nuclear industry's public relations people. They seemed to be quite unusually affected by the news of increasing opposition to nuclear power. Maybe hangovers explained this dropping of their normal confident face... or maybe it was their bosses' hangovers they were worried about. Mutterings of 'just the sort of thing to encourage the chairman at this season' were heard. One high-up in the Atomic Energy Authority seemed especially affected: 'I do think there's a tide of anti-nuclear feeling...' Little Black Rabbit almost felt sorry for him, and poured another drink (rabbits don't suffer from hangovers).

She needed that drink when she heard this same person's next reaction to the

encouraging news... 'I think the best thing that could happen would be a really bad nuclear accident, so people know what they have to live with'. That's a bit different from saying that 'the industry has to accept that there will be accidents... and pull its socks up'.

On her way back up for a proper Hogmanay, Little Black Rabbit passed through Cumbria. There she heard of the sayings of one David Simister (sic) of the Sellafield (whoops, Windscale) works. Asked by her relatives why his employers (BNFL) weren't looking at alternatives when a nuclear accident could kill thousands, he had replied 'A few thousand deaths is not much of a price to pay for nuclear power'. Old-fashioned pig-headed arrogance still seemed to have a foothold in the nuclear establishment...

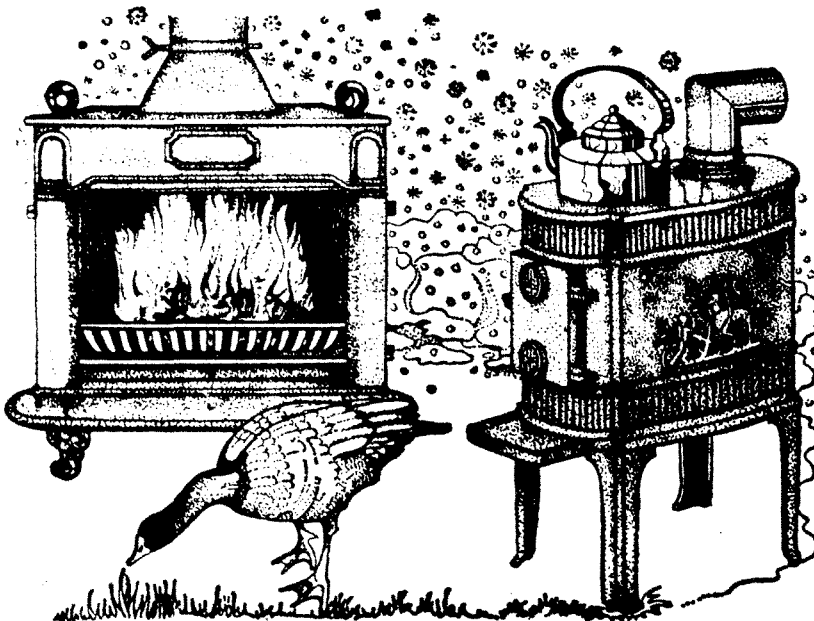
Wanting to know why BNFL didn't listen to them, her relatives were told to join the Labour Party or a trade union. Asking what they were supposed to do if they didn't want to go about things that way, they'd been told: 'then I suggest you leave the country if you don't like it, but don't quote me'.

Little Black Rabbit thought about this, and left the country. But this doesn't seem to have solved the problem — the SSEB can hardly be described as being a lot better...

Six months ago Little Black Rabbit mentioned the UKAEA's curious procedure for choosing a site for Fast Breeder experiments. ... Readers have asked where that quote came from. The answer is from a speech at Strathclyde University on March 29th, 1977, proceedings published by Scottish Academic Press.

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Cracking Up?

General Public Utilities (GPU) and its three subsidiary utilities are pressing a £2,010 M court action against the US Nuclear Regulatory Commission, arising from the Three Mile Island-2 accident in March '79. GPU is arguing that the NRC is responsible for supplying vital information to its licensees, and has failed to do so.

GPU subsidiary Metropolitan Edison has paid NRC for safety reviews and GPU claim that the NRC should have warned them of the possibility of a TMI-2 type accident, using information gathered following a 1977 incident at Davis-Besse (Ohio). They also complain that the NRC did not apprise them adequately of the 1977 Michelson report on 'small-break loss-of-coolant accidents'. Met. Ed. say that if they had been warned of substantial safety hazards they would have taken prompt action.

All this does look a bit like Met. Ed. trying to pass the buck.

Especially since they have problems with the TMI-1 reactor. This was closed for fuelling at the time of the TMI-2 accident (otherwise known as the Harrisburg disaster!) and is now ready for re-start. But Met. Ed's nuclear operating licence from the NRC is under threat, because of suspected cheating on an operator's examination — and the Atomic Safety and Licensing Board is also investigating Met. Ed's plant design and emergency planning. Furthermore, there is a case before the Court of Appeal on the psychological impact of restarting TMI.

The NRC was criticised from within when its new chairman, Nunzio Palladino, told a Congressional committee that his confidence in the nuclear establishment's 'quality assurance' had been 'clouded' by his four and a half months' experience. This was largely due to the cock-up at Diablo Canyon, where earthquake protection components had been built back to front and the NRC had suspended the operator's licence (see last Energy Bulletin). But Palladino said that 'a significant number' of other stations have problems. NRC Director of Operations, William Dicks listed four of these: Pressurised Water Reactors at Marble Hill in Indiana, in South Texas and at Midland (Michigan), and the Zimmerman Boiling Water Reactors in Ohio.

Meanwhile, the NRC told Congress that it is no longer confident that the International Atomic Energy Authority could spot the mis-use of nuclear material. If the NRC is not satisfied with IAEA inspections it may not issue export licences — which could prove embarrassing to the government.

Neither will any of this please the American Nuclear Society, whose winter '81 meeting laid into the US Government for its 'misguided' emphasis on the Fast Breeder and 'neglect' of the Light Water Reactor (ie. PWRs and BWRs). They welcomed the Reagan regime's unambiguous support for nukes in general (after the Carter policies...) but felt that 'laissez-faire' policies (like Reagan's) would not 'safeguard' the industry's interests — and that 'Those who most clearly see the nuclear benefits of nuclear energy should be willing to pay the costs of ensuring its survival'. In other words, they want the kind of handout to build unnecessary and unwanted stations that the British nuclear industry gets...