

The Anti Nuclear & Safe Energy Journal

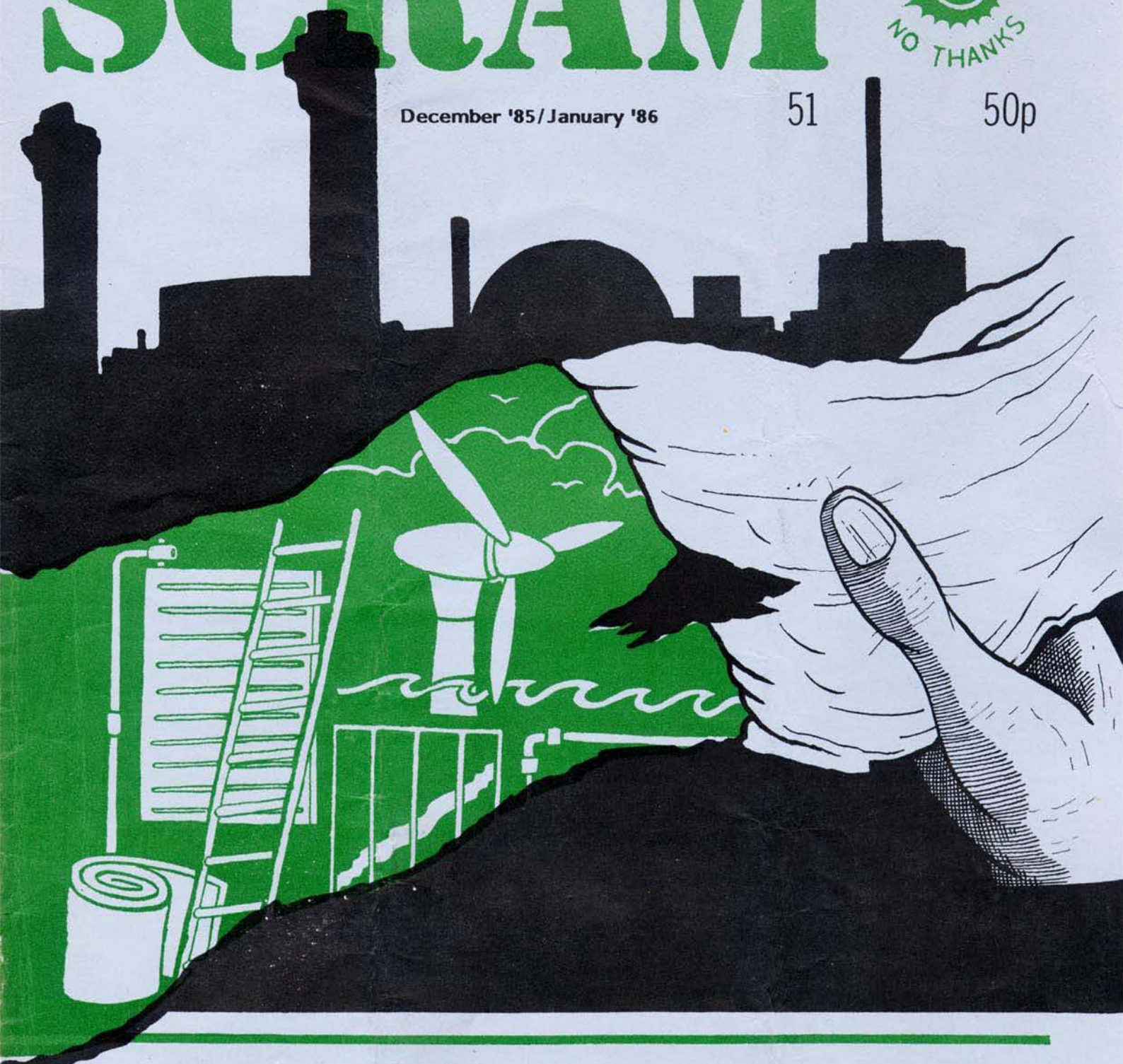
SCRAM



December '85/January '86

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This magazine is produced for the British Anti-Nuclear and Safe Energy movements by the Scottish Campaign to Resist the Atomic Menace (SCRAM).

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The timetable (and Reporter) for the public inquiry into Dounreay reprocessing plant plans has been announced, and was greeted by a storm of protest from objecting parties. With the news that objectors have to 'prepare their cases in reaction to the information' released by the UKAEA and BNFL, and that written statements of technical evidence will not be available until 17 January for the inquiry starting 17 February, it is transparently obvious that no case can be prepared. The Island Councils are demanding a postponement of the starting date. Let us hope that the Government recognises the strong feelings on this issue and gives in to pressure; otherwise democracy will be the first victim of the Dounreay reprocessing plant.

We should have been able to report which sites NIREX has chosen for nuclear waste dumps in this issue of SCRAM, but the announcement has been delayed. We will include a detailed report on the list in the next issue, assuming that it is published by then. The Sizewell report has also been delayed, probably until April. These together with the Environment Select Committee report on nuclear waste add up to a great deal of nuclear activity to be expected in the near future, which will give us a good impression of what will be in store for us running up to the next General Election.

We are sorry to have to report that Frances McGlinchey, our recently appointed second full time worker, has had to leave the collective. Although she was happy in the position, Frances found the travelling to and from Edinburgh very tiring, and she was unable to find accommodation closer to Edinburgh

In her short time with the SCRAM collective Frances achieved much. She was instrumental in making contacts with the Labour and Trade Union movement and bringing them into the Dounreay campaign. She also organised our tenth birthday party, which made about £200 for the Dounreay campaign.

Her fresh ideas and hard working attitude kept the campaign going at times when things got rough. Frances hopes to be able to continue coming in to the office on a part-time basis when she can find the time. SCRAM wishes her well in her future endeavours.

Following Frances' departure a vacancy for a full time worker at SCRAM has again arisen; if anyone would like to work in the office, or knows of anyone else, please contact us.

Labour Go Anti Nuclear

'Conference therefore calls for a halt to the nuclear power programme and a phasing out of all existing plants. . . ' With these words on October 2, the Labour Party Conference at Bournemouth took the historic step of declaring itself against nuclear power. In this article John Aberdein describes the background to the vote and suggests how we can build upon the new policy.

The good news was of course no accident. . . but the culmination of years of campaigning and education by anti-nuclear groups and environmentalists, and of determined effort by trade unionists and socialists to translate campaigning into commitment. As SCRAM celebrates its tenth birthday, readers will need no reminding of how long the task of education takes, and it is appropriate that I concentrate instead on the political groundwork that was done.

posed Dounreay Reprocessing Plant gave the Orkney & Shetland Party the opportunity to write to all Labour MP's and many trade unionists to highlight the slippery slope we could soon be stepping on.

Conference itself was a constant round of meetings and lobbying of delegations. Nobody but ourselves seemed to realise that the switch was on. Our debate was sandwiched on Wednesday morning between Kinnock/Scargill and Blunkett/Hatton. Strangely, Messrs Laird and Hammond of the pro-nuclear AUEW and EPTU seemed to shoot their bolts in the Miners Amnesty debate and did not respond to challenges from the rostrum in the Fuel Policy debate. In fact, amazingly, no-one spoke against the Composite, although the National Executive indicated they wanted the issue remitted to them. We refused, we called for a card vote and the result was 3,904,000 for and 2,408,000 against, a majority of nearly 1.5 million.

This means that the Labour Party has a new *Policy*, although having failed to quite obtain a 2/3 majority it does not become part of Labour's *Programme* nor is it necessarily included or excluded from the next Labour Manifesto. Some important questions arise from this.

Questions

Will the policy be reversed at next Labour Conference? Undoubtedly the nuclear lobby was caught napping this time, but their ability to mount a fightback before the next Election is limited by two facts: the next T&G Conference is not till mid-1987, and the T&G leadership is democratic.

Can a 2/3 majority be obtained at next Labour Conference? Quite possibly, since we know of one medium-sized union whose support for nuclear power is teetering on a knife-edge. Education on environmental risks, the unsolved nuclear waste problem and, particularly, the weapons link seem to be the most powerful ways of changing minds.

Employment Strategy

What is the key point to campaign on? It was quite clear in conversations both with John Edmonds, General Secretary-Elect of the GMBATU (the largest union

in the nuclear industry) and with Neil Kinnock that planning for Alternative Employment will have to be the crux of successful campaigning on this issue. This is as it should be for the Labour movement, and was amply recognised in our Composite.

What is the next step? We were careful not to leave the policy up in the air. The Composite calls for working groups to be set up at all levels within the Party and for discussion to begin now. We have asked the Scottish Executive of the Labour Party to constitute a fully representative Working Party to examine and report on future projects and possibilities for Dounreay workers.

Will other political parties follow suit? If we accept that the Liberals and the SDP (milk and venom) are recognised,

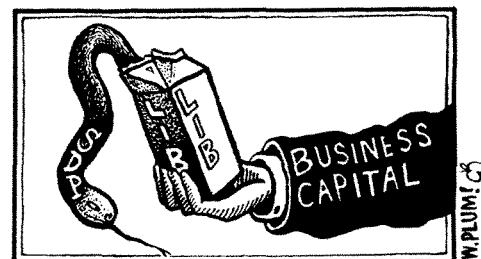


Through the eighties there has been, of course, a growth in the number of unions committed against nuclear power. . . with NUPE, the NUM and the FBU amongst the leaders. In 1983, the transport unions, led by that 'self-confessed Warrior of the Rainbow' Jim Slater, made their stand to enforce the London Dumping Convention's moratorium on nuclear waste disposal in the sea. That stand involved the NUS, the NUR, ASLEF and the T&G.

However the crucial advance was the vote taken at the T&G's Biennial Conference in June, when Colin Aherne moved a strongly-worded anti-nuclear power motion that was then passed by a 2 to 1 majority. Members of SERA (Socialist Environment & Resources Association) were to the fore at the this time. When Ron Todd was asked what effect this change of T&G policy would have on Labour Conference voting he gave an assurance that the T&G was a democratic union whose leaders would obey the instructions of their members.

Resolutions from the Grassroots

Meanwhile 7 Constituency Labour Parties had submitted anti-nuclear resolutions to Conference and excellent co-ordination work between these was begun by Mike Malina, Chair of SERA. He thus smoothed the task of assembling a coherent Composite Resolution. In addition the appalling announcement of the pro-



with increasing donations from big business, as the capitalist alternative, it is impossible for them to make the kind of anti-nuclear moves that we have seen in socialist Sweden and socialist New Zealand (though not alas in highly-centralised 'socialist' France). Only a party that recognises that the centralisation of power generation is leading to the centralisation of power itself can make the move and turn away.

A BNFL director lamented to me at their Conference reception that there didn't seem to be any middle ground in the nuclear debate. I replied that their PR has been so gleaming and their deceptions over the years so grand, that when people did rumble them, they swung immediately hard against. I firmly believe that if people are not to become victims of the nuclear industry, then the nuclear industry has to become victims of the people.

So at Bournemouth we took a step. There is a lot more work to be done. Tell people about the Labour policy. Discuss it with Labour supporters and non-supporters. Write to the papers about it.

The nuclear lobby and the right-wing would be delighted to see the new policy sink in a sea of silence.

Don't give them that delight. CAMPAIGN!

The Autumn Statement of the Economy has cast some doubt on the future of Sizewell B. Nigel Lawson announced on November 12 that the negative External Financing Limit (EFL) for the electricity industry in England and Wales has been raised to £1,420 million for 1986/7 from £1,130m in the current financial year. The EFL is the contribution the industry has to make to the Exchequer.

The increase in EFL has renewed fears that there could be a rise, above the rate of inflation, in electricity prices in the next financial year. This suggestion has been rejected by the industry as well as Whitehall. 'The industry has said that we would hope to keep any increase to the rate of inflation,' said an industry official. A Government official said that 'it has not got to the point of applying pressure to consumers.' Price levels for next year have not officially been set at this stage.

Without increasing prices another source of cash will have to be found, and the search has now shifted to the phasing of the capital investment programme. And that's where Sizewell B comes in, or rather possibly doesn't! A delay in starting construction may help the CEBG meet its EFL. Because of the lengthy inquiry a Government official regards the CEBG's original starting date as 'clearly unrealistic now' (their initial date was early 1984!)

The inquiry report is not now expected to be presented to Parliament until as late as April next year - which could be after the inquiry into Dounreay has finished. Whichever way the decision goes there is bound to be a great deal of discussion in the Press and Parliament; and a decision in favour will produce strong reactions, not only from anti-nuclear groups, but also from some unions and the Labour Party. In fact a Government official remarked: 'There are no votes in Sizewell.'

Without being too optimistic, we could find Sizewell being delayed. However, the reason could be politically expedient: tax cuts to achieve another win for the Tories.

Financial Times 4 & 13.11.85

The Central Electricity Generating Board contributed £5000 to a research project by the University of Wales at Bangor which investigated the socio-economic effects the closure of Trawsfynydd nuclear power station would have on the local community. The research indicated that up to 1000 jobs could be lost if a replacement power station is not built.

According to the Welsh Anti Nuclear Alliance (WANA), building a replacement

station (AGR or PWR) will cost at least £1,200 million and will provide only 600 jobs - the same as presently exist at the old Magnox station. This means £2 million to maintain each job at Trawsfynydd Britain's most costly job-protection scheme ever.

WANA believes that a replacement station is likely to be more damaging for the Welsh economy than the closure of Trawsfynydd. With electricity consumption in 1984 at the same level as at the start of the decade the replacement by a power station of about three times the capacity (the proposed 1200MW plant compared with the present 500MW station) will require the closure of further coal-fired capacity, threatening the jobs of power station workers and miners in other parts of Wales.

The CEBG expects Trawsfynydd to end its working life around 1995. This means that there is still 10 years in which to work out an alternative strategy for the area. However, the CEBG has begun a £2m study into a replacement power station, which must include the enlargement of the lake from which cooling water is drawn because the Snowdonia National Park Authority is opposed to cooling towers in the Park (a nuclear power station, on the other



hand, is OK!). No decision is expected for two years which, taken with a minimum of one year for the planning process and eleven years for construction (based on large Westinghouse PWR's average), means that it will not be operating until next century, if at all.

WANA is calling for an alternative employment strategy to be pursued and has recommended that Meirionnydd District and Gwynedd County Councils set up a local enterprise group to stimulate employment growth in the area. WANA has also urged the CEBG to use Mid Wales development as agents in a £4m job creation programme for the Porthmadog and Ffestiniog area.

■ Poll

We've had a lot of letters from people pointing out that we didn't mention how many people were polled in the opinion poll which we published in SCRAM 50. We apologise for the omission, but we were terrible pushed to meet deadlines

and we forgot to include it.

The poll was carried out by System Three Scotland during their monthly Omnibus study, Scottish Opinion Survey, and a total of 1085 adults aged 15 and over were interviewed in their own homes in 41 sampling points throughout Scotland over the period 22 - 30 August 1985. The sample was weighted to represent the adult population of Scotland in terms of age, sex and class.

We hope that the omission previously did not lead readers to believe that we were covering up the true figures. We stand by the results of the poll and maintain that they show the people of Scotland are overwhelmingly against the construction of further nuclear power stations, the construction of a reprocessing plant at Dounreay and the continued operation of BNFL's Windscale reprocessing plant.

■ Druridge

The CEBG is totally subverting the democratic process with regards to the building of a nuclear power station at Druridge Bay, according to Gary Craig, the Chairman of the Druridge Bay Campaign.

At the quarterly meeting of the Druridge Bay Campaign at the end of September, Gary catalogued the activities of the CEBG in the Druridge area. Buying the land in advance of a public inquiry, and offering to buy up houses adjacent to the site, is removing opposition by local land owners. The transmission lines from Stella on Tyneside to the Blyth coal-fired power station has been upgraded; and it's not to enable another coal-fired station at Blyth to be built! The CEBG is also trying to obtain information about bridge weight carrying capacities etc from Northumberland County Council in order to ascertain routes for construction traffic, and subsequent spent fuel transports.

'All these seem reasonable acts until we realise that suddenly there could be no argument. Options are closed. Opposition is bought out. Unemployment is rife. And the public inquiry would then perhaps be a local planning matter, more concerned with whether the nuclear plant is yellow or green than whether we need it at all,' said Gary Craig. 'The CEBG is totally subverting the democratic process, as we realise that there may be no alternative to nuclear power. Therefore we must act now. People must put their money where their mouths are. However difficult the financial position is for local authorities, if we sit back and do nothing it will be too late,' he concluded.

Consumer, environmental and social action groups came together in October to re-launch the National Energy Efficiency Forum (NEEF), originally formed in 1980 by Friends of the Earth and others to promote consumer action on energy savings.

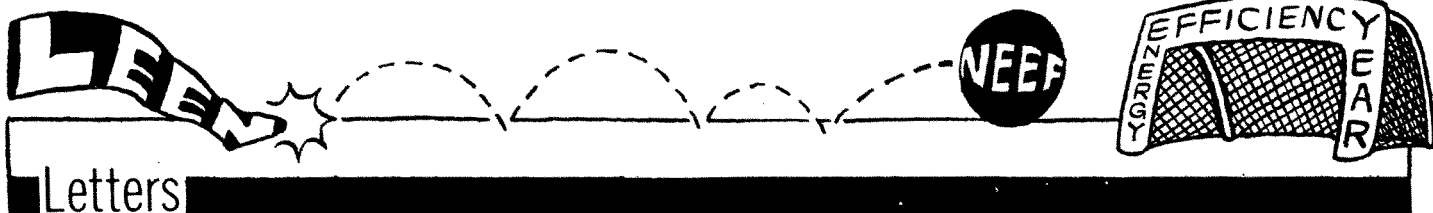
The re-launch was organised by the London Energy and Employment Network (LEEN) and was timed to match the Go-

vernment's launch of Energy Efficiency Year. NEEF will be setting out a programme of action, designed to inform and influence the debate on how more households can be enabled to become energy efficient.

David Green, the LEEN Council chair stated, 'LEEN believes that it is vital that effective action is taken by Govern-

ment to ensure that more households can gain the benefit of better heating and insulation. For too long domestic energy consumers have been the Cinderellas of Government action on energy saving.'

Contact: Susie Parsons, LEEN Development Manager on 01-387 4393.
Contact: Northumbrian Energy Workshop Ltd, Tanners Yard, Gilesgate, Hexham NE46 3NJ. Tel: (0434) 604809.



Dear SCRAM

Much as I admire your magazine, I must take issue with your Oct/Nov edition. Firstly, you need to say how many took part in your opinion poll (page 3). A far more important point concerns Tony Webb's interpretation of the paper *Mortality of employees of UKAEA (1946-79)*. To say that it confirms that ICRP risk estimates 'are seriously wrong' is untrue.

If significant data were omitted from the published version then readers should be presented, by Tony Webb, with the data to judge for themselves.

The conclusions of the paper are typical of such studies, i.e. inconclusive. We must be seen to be truthful; there is no need to invent anti-nuclear propaganda, we already have enough valid arguments.

Best Wishes,
Mike Braddick (Dr)

Tony Webb replies:

The significant fact omitted from the published report of the Study of UKAEA workers was that the best estimates for risk were 4 to 7 times greater than those of the ICRP. These can be deduced by a variety of means as follows:

1- In the abstract to the Study of UKAEA workers Dr Beral quotes a figure for excess mortality rate for all cancers of 12.5 deaths per million person years per rem.

This can readily be compared with the figure for the risk of death from all cancers of 10^{-2} per sievert quoted in ICRP 26 (1977) provided that we recognise the ICRP figure is for risk on a lifetime basis. The ICRP figure is sensitive to the number of years we chose for a 'lifetime'. In North America it is common to simply use 50 years whereas a worker is likely to work only from age 18 to age 60 or 65 i.e. 42 or 47 years. Translating the ICRP figure into deaths per million person years per rem gives risks

and comparisons with the 12.5 deaths indicated by the UKAEA worker study as follows:

ie the UKAEA study figures show the risks are 5.25 to 6.25 higher than suggested by ICRP.

2- During the press reports on the study of UKAEA workers Dr Rose was quoted as saying that the risks suggested by the study were about 4 times ICRP estimates.

3- A simple analysis using the quoted figures for the range by which the study suggests risks could differ from ICRP ie from 15 times greater than ICRP to indicating 'a slight protective effect from radiation' (interesting that the lower confidence limit is not given more accurately than this) still allows us to estimate (if we assume a normal distribution) a mean risk 7 to 9 times higher than ICRP.

Lifetime years	Risk ICRP per million person years per rem	Risk UKAEA workers
42	2.38	5.25 times ICRP
47	2.13	5.87 times ICRP
50	2.00	6.25 times ICRP



From the above the figure quoted in SCRAM 50 of risks 4 to 7 times higher than ICRP is clearly not overstating the facts. Rather it was an attempt to draw out the underlying implications of the study rather than merely parrot the official 'conclusions'.

More to the point it should be noted that it took considerable pressure from the industry to get the results presented in terms of the uncertainties rather than the usual presentation of the best estimate followed by the confidence that can be placed on the result. The main point to note is not the uncertainty (who could seriously believe that there was a protective effect from radiation?) but that the findings of this study are consistent with every major study and every major review of the data since 1960 in showing that ICRP estimates of risk are wrong by certainly a factor of 2, and probably a factor of 5 to 10. The UK limits for exposure of workers and the public are based on ICRP estimates. These dose limits therefore need to be drastically reduced.

It is worth nothing that, following the conference decision in October the Labour Party Front bench have tabled a prayer against the introduction of the new Ionising Radiation Regulations thereby opposing both the current annual dose limits for workers and the public and the relaxations referred to in the recent series of articles on the RAD HEALTH Campaign in SCRAM. A campaign initiated by G&MBATU and T&GWU and several MP's will be launched November 20th. For information on what readers can do to help contact Frank Cook MP at the House of Commons.

For an answer to Mick's point about the opinion poll see page 4.

NRPB 'Pill'

The National Radiological Protection Board (NRPB) circulated a leaflet entitled 'Advice for General Practitioners in the event of a civil nuclear emergency' in July 1985 to doctors' surgeries in the vicinity of nuclear power stations in England and Wales. **Steve Martin** reviews the leaflet and **Don Arnott** explains the scientific background to the 'anti-radiation' pill.

The NRPB leaflet has the same feel as the civil defence pamphlet *Protect and Survive*: - 'It might be necessary to advise people to stay indoors for a period and to shut their windows and doors' takes the place of 'crawl under the dining room table and stay there for at least 48 hours'. In the event of a serious release no immediate harm will be caused to people in the vicinity but a few extra cases of cancer may arise in many years' time which, fortunately for the authorities, 'would not be discernible against the normal incidence of cancer'. So what's all the fuss about?

In purporting to provide information to help GPs advise patients who may consult them the leaflet describes the 'almost universal sign' that a person has been exposed to a high dose: vomiting within two hours of exposure. However, the position becomes muddled when actual experience is considered. People living near Three Mile Island in March 1979 developed 'psychosomatic manifestations' - they vomited - without being exposed to 'any significant dose of radiation'. The leaflet concludes that 'vomiting by members of the public several hours after an accident is not therefore a sign of dangerous exposure'. So now we know!

As with civil defence the police, and if necessary, the armed forces are the intermediary between the scientific personnel and the public. The Emergency Controller (a senior member of the power station staff), the Operation Support Centre (an off-site emergency office) and the Government Technical Adviser (a civil servant) will advise and co-ordinate with the police and local authorities. Police responsibility is to warn the public to stay indoors, evacuate and assist the public to return when the emergency is over and to issue the 'pill'.

Anti-Radiation

Press reports of the leaflet focussed on the 'anti-radiation' potassium iodate pill. The British Medical Association (BMA) expressed concern over not being consulted about the emergency plans and stressed that doctors and not police should be responsible for the storage and distribution of medicines to the public. The pills should be stored at doctors' surgeries or in the homes of people living close to power stations. This is the sys-



tem in Sweden: 30,000 households within 10 miles of the country's 4 nuclear sites were given the pills and an instruction folder in 1981.

Pre-distribution of pills to the public has been ruled out in this country, with some justification; the potentially catastrophic but nevertheless rare event could mean domestic stocks of pills being mislaid, and the young members of the family could be elsewhere at the time when the 'antidote' should be administered. Therefore a combination of emergency medical, police and scientific services properly briefed and adequately equipped would be needed. They should be able to act instantly, dropping other commitments, and deliver pills when and where needed. Unfortunately, it's about as fantastic as *Protect and Survive*.

The main aim of these guidelines is to keep people in their own homes. The leaflet states 'a large-scale unsupervised evacuation... would cause major and unnecessary social disruption' so doctors are urged to 'dissuade people from leav-

ing'. How is a doctor to stop a family from leaving their home if they have decided to?

'You must stay at home. If you run away the local authority of the area into which you run will not help you with accommodation, food or any other essential - and your house may be requisitioned' (*Protect and Survive*). **SM**

In the event of an airborne radioactive release the major immediate hazard would arise from breathing radioiodine-131, half-life 8 days. Iodine is a vital element in human metabolism and is concentrated in the thyroid gland, which naturally cannot distinguish between radioactive and inactive iodine isotopes. Cattle (and indeed nearly all vertebrates) are similarly affected; so a slightly less immediate hazard, and one more easily avoided, would be drinking I-131 contaminated milk.

It is claimed that the administration of pills containing Potassium iodate to the exposed population would greatly reduce the radiation risk. Whilst this is in principle true it is time that a fuller and more practical appraisal of the idea was available to everybody.

For ten years of my research life human thyroid physiology was a central concern. Because of that experience I am able to offer the following note.

The thyroid weighs about 25 grams and is situated in the neck, adjoining the windpipe. Its function is to manufacture and store thyroid hormone, which is essentially a protein containing about 60%

by weight of iodine: the avidity with which the thyroid sucks iodine out of the bloodstream will thus be obvious. Thyroid hormone regulates general body-metabolism - it gets us working at the right rate. The release of the thyroid hormone is in turn controlled by part of the pituitary gland, which is situated near the base of the brain and itself manufactures another hormone for that purpose.

Race - and win?

Absorption of radioiodine by the body, followed by its inevitable and extremely rapid concentration in the thyroid, therefore poses a long term radiation risk to the latter, and not only of cancer. Nevertheless the adult human thyroid is relatively radioresistant. In fact for decades minute quantities of various radioiodines have been used to diagnose thyroid dysfunction with startling success all over the world. The statistics (adequate, for once, in the radiation field!) show minimal evidence of risk - if that - and certainly nothing comparable to the advantages, to such patients, of these tests.

All of which sounds horribly official. Also, I do not want to frighten people off thyroid function tests, perhaps because I helped to originate several. So I will quote Rosalie Bertell, for whom the word *complacency* does not exist: 'A small amount of I-131 would probably kill only a few cells and have little or no noticeable effect on health.' (1)

Unfortunately that was not the end of the story because, quite early on in the development of this work, it became clear that the thyroids of juveniles, until well into their teens, are significantly more sensitive to radiation. The unborn child is most at risk, not solely from eventual cancer but also from mental retardation and similar developmental arrests. (2)

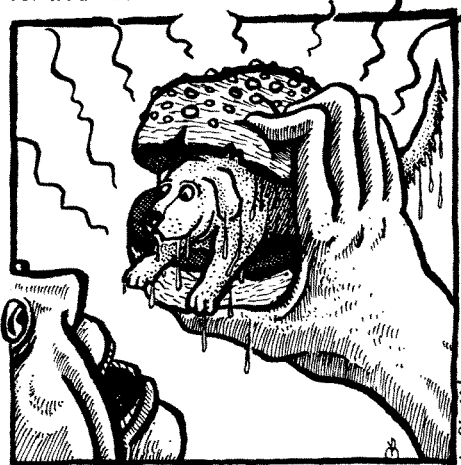
The effect of swallowing iodate tablets will be twofold: it will discharge from the gland any iodine not yet organically bound as hormone; and it will block all further uptake into the gland so long as an iodate blood-level is maintained. Unfortunately iodine absorbed by the thyroid is almost immediately bound, and it is as hormone that the gland stores nearly all its iodine. And iodate has no effect whatever on stored thyroid hormone: radioactive or not, there it will stay.

Thus, to be fully effective, the pill must be taken before exposure: it must race the gas cloud - and win. Otherwise its effect will be partial: it will indeed block further radioactive uptake - but by the time it does so the damage may well have been done unless an extremely effective and above all rapid system of distribution can be devised. DA

Food Irradiation

The government's latest attempt to boost the nuclear industry could well lead to irradiated food on the supermarket shelves in the near future. Tony Webb explains.

It will come as no surprise to SCRAM Readers to hear that a new use may soon be found for some of the more persistent and difficult radioactive wastes produced by the nuclear industry. Cobalt 60 and Caesium 167 are generated in large quantities, especially from PWR's, and because of their relatively long half lives (5 years and 30 years respectively) they present a considerable headache for disposal once released from spent fuel during reprocessing. If the government has its way they will soon be used as sources for irradiation of food.



Irradiation can inhibit the sprouting of vegetables, delay ripening of fruit, kill insect pests and reduce the bacterial load on many foods thereby extending shelf life. At extremely high doses food can be virtually sterilised and if in sealed packaging, could keep indefinitely.

The process is currently banned in Britain though permitted in a number of other countries. We are awaiting publication of the report of the government's Advisory Committee on Irradiated and Novel Foods that will almost certainly give the go ahead for irradiation here.

It is being 'sold' as a way of doing everything from saving the third world from famine to removing additives from our diet. Industry spokespeople say it is absolutely safe and that there are no problems whatsoever. Reality is a little different. It may be that, properly controlled, the irradiated food is not made radioactive - the very small amounts of residual radiation do die away very rapidly. Irradiation however does cause quite drastic chemical and biological changes in the foods. Some foods just don't irradiate well - milk products for example develop a burnt or musty smell and taste. Meats irradiated to reduce bacterial loads develop a characteristic

'wet dog smell'. To offset these changes very low temperatures (and continued refrigeration after irradiation) and extensive use of chemical additives will be needed.

More serious from the consumers' point of view are the drastic vitamin losses that occur in irradiated foods. Vitamin C, most B vitamins, and Vitamin E are seriously affected. These losses are often accentuated during subsequent storage. Vitamin E is frequently destroyed even if re-introduced as an additive after irradiation. Food that looks fresh will likely be seriously denatured.

There are also concerns from a public health standpoint. At a time when people are rightly concerned about the extent to which harmful chemical additives are still permitted, it is not reassuring to find that irradiation creates some unique 'radiolytic' chemicals and that testing for harmful effects of these is less stringent than required for additives.

Bacteria may be stimulated and mutated by irradiation. Irradiation can be used to make food that has been condemned 'safe' for public consumption. Irradiation alters the complex balance of bacteria, yeasts and moulds, not all of which are harmful, that our current system for food hygiene is adapted to. One example is irradiation of chicken to reduce the risk of salmonella. At the doses proposed the salmonella can be virtually eliminated. In the process the radiation will destroy the yeasts and moulds that are the natural competitors of botulinum that can cause the much more serious botulism food poisoning. In addition it will also destroy the bacteria that give off a warning smell when food is going off. Under some circumstances we could create more serious health hazards as a result of irradiation than those which already exist. Food irradiation is certainly no alternative to maintaining the best food hygiene standards but is likely to create a false sense of security unless very tightly regulated.

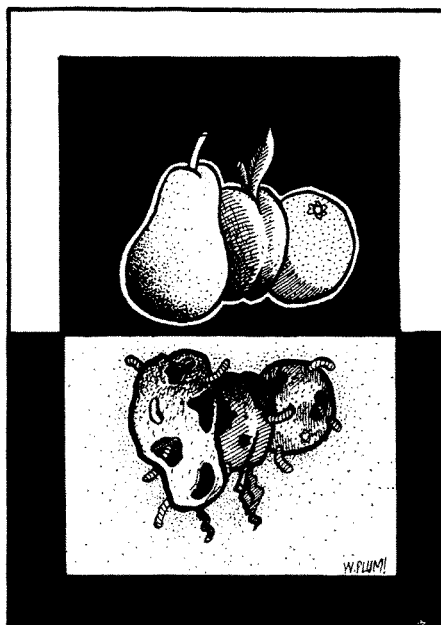
Impact

Perhaps most worrying of all is the impact the technology will have on workers in the food industry. Inevitably it will lead to further concentration of economic power in the hands of large retailers and food manufacturers. Current irradiation plants cost between £1.25 and £3.0 million. There will be centralisation of many food preparation jobs (central

meat cutting and packing rather than local butchering etc.) This will lead to losses of jobs in smaller food operations and retailing outlets.

There is also major concern over health and safety in irradiation plant. Very high doses are involved. Food will receive 100,000 to 1 million Rads (10 to 100 million times the kind of doses we receive yearly from natural sources from medical X-rays). Accidents and equipment malfunction could pose serious risks to workers. In addition such workers will be exposed to routine doses equivalent to those found in nuclear fuel handling. Such exposures will be subject to all the health and safety problems identified in my recent articles for SCRAM on Radiation and Health and in particular the inadequate standards for radiological protection of workers. It is essential that new facilities such as irradiation plant be designed to meet much tighter standards. If introduced within the present framework the investment in such plant and the jobs they provide can be used as further obstacles to improving radiation protection for all workers. The radiation risks to local communities and to people along the ever expanding transport routes from suppliers of isotopes to irradiation plants also need to be considered.

We should have no illusions about where the pressure for this latest technological fix are coming from. The idea was first seriously pushed as part of the atoms for peace programme in 1953. The first 10 years of research (now discredited) were done for the US Department of Defence. The directors of the company that took over the research in the



WAX FRUIT WOULD BE MORE WHOLESOME!

1960's were convicted of conducting fraudulent research for industry and government. The idea was promoted by the International Atomic Energy Agency (IAEA) who persuaded the World Health Organisation and the Food and Agriculture Organisation to give it legitimacy by setting up a joint expert committee. This group changed the rules for testing of chemical toxicity of irradiated foods in 1976 and relaxed the maximum and minimum dose controls in 1980. The chairman of the UK government's advisory committee is a part time director of Britain's leading isotope manufacturer, the technical advisor to this committee is director of the company that has a virtual monopoly on ir-

radiation facilities that could handle food irradiation in Britain. The isotopes of Cobalt and Caesium are a major headache for Sellafield and of course the benefits of having a 'beneficial' use of radiation to the beleaguered nuclear industry are immense in terms of its public relations. . .

While there are some instances where irradiation could be of benefit - as an alternative to some fumigation treatment of fruit which is so hazardous to workers' health for example - the overall benefits are as yet unjustified and its disadvantages and problems it may create, unless stringently regulated, are cause for concern.

If readers are interested in what can be done, a set of ideas for action are included in the report of the London Food Commission.* These include mobilising pressure on MP's, alerting the public and, particularly, pressuring the large retailers who are most vulnerable to consumer resistance to the whole idea. The issue of compulsory labelling of irradiated foods is critical as without it there is no way that consumers could know the food has been denatured. We should also be on the lookout for some imports (Dutch, South African and Israeli in particular) where traders have decided to jump the gun and slip consignments past the minimal ports and customs controls that are supposed to enforce the current ban. Time is short, however, and mobilisation of public concern is urgently needed.

**Food Irradiation in Britain, published by the London Food Commission, PO Box 291 London N5 1DU. Price £2.50. (Also leaflets: sample copy free, bulk orders 7p each.)*

Hydro Report

The latest stage in the examination of the electricity supply industry in Britain was reached in October this year with the publication of the Monopolies and Mergers Commission report of the efficiency and costs of the North of Scotland Hydro-Electric Board. **Steve Martin** has read the report and here picks out some of the comments made by the Commission.

In 1980 the Government became worried that the electricity supply industry could be exploiting its monopoly position as supplier of power to distort the market, which would run against the Government's faith in the market deciding energy policy, so it charged the Monopolies and Mergers Commission (MMC) with the task of investigating the situation. The Central Electricity Generating

Board (CEGB) was examined first, and the MMC report was published in May 1981. Since then Area Electricity Boards in England and Wales have come under the critical eye of the MMC and in October 1985 the report on the North of Scotland Hydro-Electric Board (NSHEB) was published.

The Report on the efficiency and costs of the Board gives particular at-

tention to the 'planning, appraising and supervising' procedures for evaluating projects 'in the light of the relevant plans or forecasts'. The Commission also looked at the Board's efficiency and effectiveness and related these to its structure and organisation. Finally, the 'performance aims which affect the Board' were also included in the Commission's remit. After investigating these aspects the Commission had to assess whether the NSHEB is acting against the public interest.

The MMC decided that the NSHEB 'does its job well' and has a good reputation despite the difficult operating conditions of climate and geography. The main reservation related to the decentralised management structure; a neces-

sary arrangement in the difficult territory controlled by the NSHEB.

The NSHEB's responsibility extends to over 21,000 square miles, with a population of 1½ million people, north of a line from the Tay to the Clyde. The rugged nature of the terrain and the low population density mean that the distribution network is very long and expensive to maintain; most of the network is carried by overhead lines because of the expense of undergrounding cables to scattered communities. The climate plays an important role and imposes heavy demands on maintenance crews. It is also a major factor in the uncertainty of planning generating and distribution investment. It would be a remarkable achievement if the NSHEB could deliver performances above the national average according to the Chairman of the Board.

Decentralised

The geographical and climate difficulties, together with the differences between areas within the Board's responsibility (cities, highlands and islands) have been determinant in developing the decentralised management structure which is based on personal contact and well-established relationships and which devolves responsibility for transmission and distribution systems maintenance to the Areas. The MMC agrees that this structure is correct because Area offices have a better understanding of their own requirements, but 'it is a concomitant of delegating responsibility that Head Office should monitor events. . . to ensure that policies are being consistently applied and targets met', the report continues. Most of the criticisms made by the MMC are related in some way to the decentralised management structure. Criticisms are also made about the Board itself. The Commission feels that Board members should play a more active role in determining strategy and setting targets.

The overall findings of the MMC are very low key; of the 57 recommendations 26 referred to central management and monitoring procedures, 13 referred to financial management and tariff setting and only 18 points covered investment appraisal and forecasting. This led the Commission to decide that the NSHEB is not 'pursuing a course of conduct against the public interest'.

The NSHEB report contrasts sharply with the MMC report on the CEGB presented to Parliament in May 1981. Under the subject of planning and appraisal of new investment, the MMC concluded that 'a large programme of investment in nuclear power stations. . . is proposed on the basis of investment appraisals which are seriously defective and liable to mislead. We conclude that the Board's course of conduct in this re-

gard operates against the public interest.'

However, one reason for the favourable report is that a fully comprehensive examination of the Hydro Board's activities was not possible because of the unique electricity supply system which exists in Scotland. There are two electricity boards, the North of Scotland Hydro-Electric Board and the South of Scotland Electricity Board (SSEB), each of which is responsible for the generation, transmission, distribution and sale of electricity in its own territory (as well as the sale and servicing of electrical appliances through their chains of showrooms). In England and Wales the CEGB generates and transmits the electricity and the area boards deal with the distribution and sale of the power and the appliance side of the industry.

Since 1966 a Joint Generating Agreement (JGA) has operated in Scotland wherein generating policy is decided jointly by the two boards; in fact the chair of each board sits on the other board as a means of facilitating this collaboration. An examination of the JGA is therefore to be undertaken when the Commission investigates the SSEB in the next stage of their look at the electricity supply industry.

Social Cause

In chapter 2 of the report the MMC gives some background information on the NSHEB which demonstrates the special role which the Board has in the north of Scotland. The NSHEB was set up under the Hydro-Electric Development (Scotland) Act 1943 which, among other things, gave it powers to use profits derived from the export of hydro power to help finance electricity distribution within its own territory. The CEGB was obliged by statute to buy whatever bulk supplies of power the Hydro Board took to provide. There is a distinctive feature of the Hydro Board's function, the so-called social cause, which requires it 'to collaborate in the carrying out of any

measures for the economic development and social improvement of the North of Scotland District or any part thereof' (section 2(3) of the 1943 Act). It was hoped that the cheap hydro power would attract electro-chemical and electro-metallurgical industries. The statute also contains a requirement in siting plant and equipment 'to have regard to the beauty of the environment'.

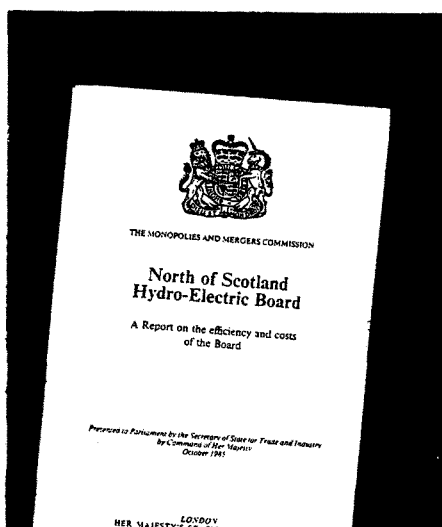
The social clause was a very well meaning idea but two examples in recent years of the policy of encouraging industrial ventures into the highlands have proved disastrous: the British Aluminium smelter at Invergordon and the Corpach Paper Mill at Fort William. Both enterprises had to close down with large job losses and a great deal of public money being wasted.

Taken together, the two Scottish Boards have an installed generating capacity 22% in excess of peak demand, using their own very conservative calculations: 8,837MW (1,926MW of oil-fired capacity at Inverkip and Peterhead is in mothballs) is installed against an estimated maximum demand of 5,651MW for 1984/5, but 1,582MW is required as a planning margin (18% of operating capacity) leaving 1,604MW as surplus capacity. If one includes all installed capacity, then surplus becomes 32% (the mothballed capacity does not need to be included in the planning margin calculation). The Hydro Board's own installed mainland capacity is 65% in excess of maximum demand on these calculations. The MMC expressed concern at 28% of the Scottish generating capacity lying in the NSHEB area where there is much less than 28% of the demand.

Breathing Space

By an inspired use of logic the MMC suggests that the NSHEB should adjust its tariffs with a view to encouraging full use of the available capacity, and they have 20 years to achieve this as that is how long the excess capacity will remain. This 'breathing space' should also be used to develop more accurate forecasting methods for generation investments. It must be said that the NSHEB sees a need to safeguard the possibility of a nuclear development at Stakeness on the north east coast and a pumped storage scheme at Craigmoyon on Loch Lomond. These two developments could add another 2000MW to the present NSHEB's capacity of 3529MW.

In all, the recommendations of the Commission's investigation of the Hydro Board call for a tightening up of financial and management structures, but do not make any real comments upon generation policy or planning because of the JGA with the SSEB. We await with interest the publication of the MMC's investigation into the SSEB.



The run up to the inquiry has accelerated considerably since the announcement by the Secretary of State that Alexander G. Bell Esq., Chief Reporter for the Scottish Office (of the 8 day wonder, 1974 Torness Inquiry) will be the Reporter. He has arranged a pre-inquiry meeting to be held on December 12 in Thurso. The nuclear industry must submit its evidence to him by 17 January and the objectors have one month from then to 'prepare their cases in reaction to the information which only the developers can release', 'the prime duty of disclosure lying' upon the latter (letter 8.11.85, p2). He has advised us that the inquiry will not need to assess the design details of the plant but that 'any assessment of the likely impact of routine and accidental discharges will require adequate evidence on the processing and safety procedures proposed'. Off-site construction work such as the spur railway line and port facilities will require separate applications, and will not be considered at the Dounreay inquiry unless they can be shown to be necessary to the proposed development. He 'does not feel justified in postponing the inquiry... by 6 months nor... [in] appointing a Counsel to the inquiry'.

Consternation and Anger

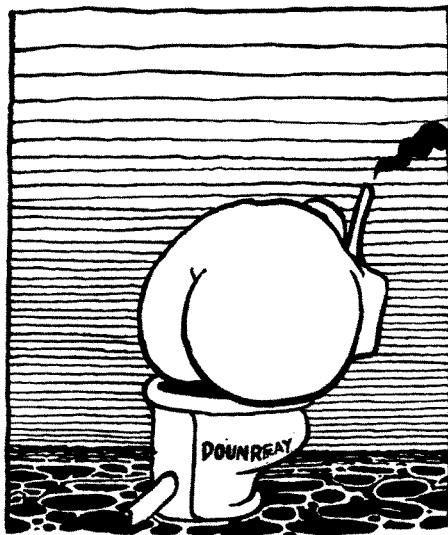
The local authorities have been shocked and angered by the speed of developments as well as by pressure which has been put on them - the Secretary of State has threatened to rate cap them if their expenditure on the Inquiry should exceed their annual budget for this financial year. Ross and Cromarty District Council Policy and Resources Committee has now come out against the Dounreay proposal, Orkney Islands Council is considering its participation in the inquiry, and the Highland Regional Council is still to decide its position. If George Younger and Michael Ancrum continue on their present course, they will succeed in making an enemy of Jim Wallace since they have refused to meet him at his request.

Railway Links

The UKAEA says that tentative talks between themselves and British Rail in spring 1985 led to British Rail conducting a feasibility study on a £50 million improvement of the Inverness-Thurso line. The improvements would involve the construction of a new 11 mile spur from Scotscladder to Dounreay, upgrading of the line to Scotscladder from Inverness, and cargo handling facilities to transfer 90 tonne flasks from ship to rail. The ports authority which runs Invergordon docks has been approached with a view

to its extending the docks and the Enterprise Zone.

However, P. G. Davies (the UKAEA EDRP Inquiry Team Leader), in a letter to the *Glasgow Herald* of 15.10.85, states that the feasibility of a rail spur to Dounreay means that a wider range of ports in Scotland and England are being considered and that 'no firm decision could be made until much more exhaustive discussions have taken place and a planning application has been made.' The Reporter confirmed this. The Environmental Impact Assessment does not mention any ports by name although it rules out Wick and Scrabster. We hope a parliamentary question will reveal what the EIA means by saying 'consideration is being given to a number of other ports in Scotland and England'.



Impact Assessment

At the beginning of September, Frances McKie of CADE-O took part in a radio debate on Radio Orkney. Mr Smedley, Dounreay's Deputy Director, who also participated, told her that an EIA had already been carried out by the UKAEA. The minutes of the 26th meeting of the Dounreay Local Liaison Committee, held on April 30 1985, state in paragraph 7 that 'A design study has been carried out on a EDRP to consider, in particular, the environmental impact which such a plant would produce if sited at Dounreay.' In reply to SCRAM's queries, Mr Blumfield, the Director at Dounreay, asserted in a letter of 23 September 1985 that an EIA is being conducted which will be ready for the Public Inquiry. SCRAM pressed the UKAEA to clarify whether there were one or two EIA's and to make all EIA's publicly available at an early date.

The UKAEA are now due to publish the EIA on November 25. From our preview copy we see that they have not added much to the 'Green Book' published

in June and we wonder therefore why the UKAEA at Risley only showed members of Orkney Island Council the chapter headings on their trip to Risley in October. The Orkney Islands Council's Director of Planning is reported as saying that the UKAEA has approached the OIC's consultants with a view to doing a deal on the EIA.

Party Politicking

Jim Wallace introduced a 10 minute bill on Wednesday 23 October 1985, seeking to obtain the right of access to information for objectors at public inquiries to information held by planning applicants and seeking to obtain funding for objectors. It received an unopposed first reading. Dennis Skinner is reported to have demanded that Robert MacLennan state his views on it. Some parliamentary questions are in the offing both at Westminster and at European Parliament.

The discharge pipeline from Dounreay, which was found to give high radiation readings when it was snared by a lobster fisherman in early September, has been lifted by the UKAEA. The pipeline was not marked on charts of the area, and while local fishermen knew its whereabouts, it may have been damaged by non-local fishermen trawling close to the shore. We are told that the dispersal points on it were damaged, possibly prior to the incident involving the lobster boat. When it was lifted, the divers brought up the pieces double-wrapped in polythene bags which were placed 'into tin cans'.

EEC legislation on transfrontier shipment of hazardous waste (including rad waste) came into operation on 1 January 1985. This requires that the Commission is informed of all such movements and of the routes taken, and that it provides the European parliament with a summary of the information gathered biannually. Britain has implemented the legislation by making all foreign trade in nuclear materials and nuclear plants a matter for a licence from the Prime Minister. As the Dounreay application necessarily involves shipments of nuclear materials, this legislation will be pertinent. Any bets we'll hear no more of this?

The Orkney Campaign Against Dounreay Expansion has been approached by the UKAEA who want a copy of the environmental group's survey of radioactivity around Orkney so that the UKAEA 'may obtain as complete a picture as possible of the environmental impact'. Who's responsibility is this?

Over 300 people attended a packed public meeting in Invergordon, all bar one voting against the proposal to land nuclear waste at Invergordon.

Reprocessing — What Future

The public rehabilitation of BNFL and Windscale received the full blessing of the Prime Minister when she visited the reprocessing plant in November. She spoke warmly of the 'absolute safety of our nuclear reprocessing plants' and the 'superior technology' at the plant which was achieving 'valuable exports'. BNFL, in their 1984/5 Annual Report, glowingly announce these 'valuable overseas contracts... now worth £2700 million'. Stewart Boyle of FoE here puts the case against reprocessing.

The sham of BNFL's safety record at Windscale has now been exposed, and controversy over high leukaemia clusters around the plant continues. Less well-known however are details of the true economic performance of reprocessing in Britain. FOE's research into reprocessing spent fuel suggests that on both economic and waste management grounds BNFL's justification does not stand up. Our conclusions were submitted to the House of Commons Environment Committee earlier this year.

Reprocessing is a ludicrously expensive waste management option which simply makes the current nuclear waste problem a great deal worse. With the Thermal Oxide Reprocessing Plant (THORP) still at an early stage of construction, these conclusions are important. Unless a major policy change occurs, the taxpayer will end up paying nearly £1 billion simply for the purpose of keeping BNFL in existence.

Why do we reprocess?

BNFL and the Government have justified reprocessing on both economic and environmental grounds. These can be summarised as follows:

Economic Grounds

1) It is desirable as an energy conservation measure to recover depleted ura-

anium for re-use in thermal reactors.

2) Reprocessing recovers plutonium for future use as a fuel in Fast Breeder Reactors (FBR), and is thus essential if the FBR option is to be kept open.

Environmental Grounds

1) The long-term storage of spent fuel is not a feasible option due to corrosion difficulties with both Magnox and AGR fuel.

2) Reprocessing is therefore essential in order to concentrate the fission products into a form in which they can be safely stored and finally disposed of.

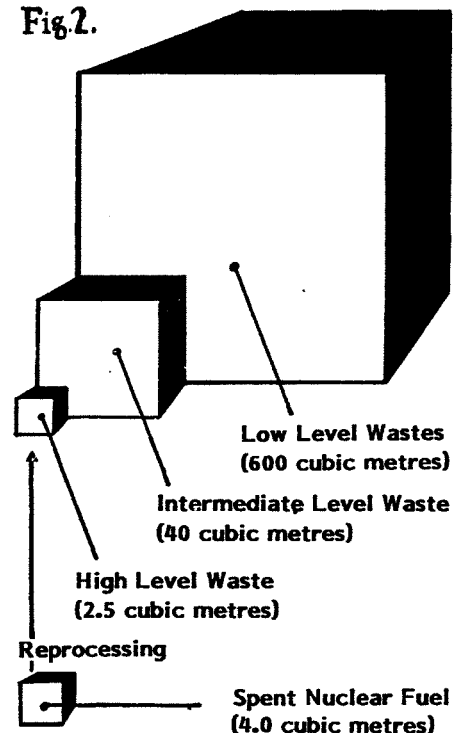
3) It concentrates 99.9% of the activity of radioactive waste into the High Level Liquid Waste (HLLW) stream.

We will now examine these arguments.

The True Cost of Reprocessing

Reprocessing contracts are commercially confidential. FOE were able to obtain costings from several publically-available assessments however, as well as information from nuclear trade journals and via informal contacts with foreign customers. If Magnox reprocessing costs are a guide, THORP will be extremely expensive. The prices charged to customers for Magnox reprocessing increased over seven-fold between 1971 and 1981. BNFL actually lost money on early fixed-cost contracts between 1976

Fig.2.



Notes: Volumes are per year per 1000 Mw(e) PWR.
Source - CEGB evidence to Sizewell 'B' Public Inquiry

and 1980, and had to renegotiate terms. By 1983, reprocessing had become the major cost component of the Magnox fuel cycle, with total fuel cycle costs equalling coal fuel cycle costs. With low fuel cycle costs often cited as a major attraction of nuclear power, this is a significant development.

THORP was the subject of the Windscale Inquiry in 1977. The Inspector, Justice Parker, accepted most of BNFL's assertions that reprocessing was more cost effective and technically proven than alternative options such as long-term storage. He also appeared to accept their projections on the economic benefits of recycled uranium and plutonium. Since 1977 however, events have proved otherwise, and the arguments of Windscale objectors such as FOE have not only been vindicated but in fact now look somewhat conservative.

Estimated THORP reprocessing costs have escalated at least 40% in real terms since 1977. In trade journals, the price reputedly charged by BNFL is now of the order of £700,000/tU (tonne of uranium). This price excludes the cost of vitrifying high level waste, the long-term storage of the vitrified blocks, and final disposal. These costs compare very unfavourably with the alternative options of long-term storage and/or direct disposal. Estimated costs for spent fuel

Percentage activity in HLW and ILW stocks from Magnox reprocessing at Sellafield in January 1984 (109)

		alpha activity %	beta and gamma %
High level liquid waste		66	94
Intermediate level wastes	Cladding	18	4.5
	Sludges, resins	10	negligible
	Miscellaneous	0.2	0.7
	Plutonium-contaminated matter (PCM)	5	negligible

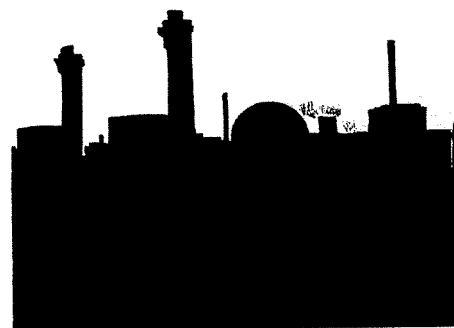
storage for 50 years in CO₂ or air-filled vaults are between £30,000 and £60,000/tU.

Dry storage is now accepted as technically proven and safe for a 50-100 year period. BNFL are themselves constructing a dry storage facility at Windscale in order to keep vitrified HLLW cool for a similar time period. Small wonder then that Baron Marshall of Goring (chairman of CEBG) told the Environment Committee 'for light water reactor fuel, that is, for the PWR, the economic argument would say at the present time - store it'. The CEBG does of course have some experience of dry storage at Wylfa. It has also co-designed, with the National Nuclear Corporation (NNC) dry stores for AGR and PWR spent fuel. Both they and GEC Energy Systems, are marketing dry storage systems aggressively worldwide.

Of great importance to the economics of reprocessing is the price of uranium. In response to a glut in supplies and rapidly falling nuclear power growth estimates, the uranium market has collapsed. The CEBG's estimate of a doubling in price by the year 2000 now looks extremely dubious. Indeed, since their evidence at the Sizewell Inquiry, the spot price has actually halved. The uranium price would have to achieve a level more than double that experienced in the last 20 years, (i.e. more than five times the current price) in order to make recycled uranium an economic proposition.

The Plutonium Connection

At 31 March 1983, BNFL held in store 17 tonnes of plutonium oxide. A small quantity of this will be utilised for the FBR at Dounreay, but apart from this, no 'civil' market for plutonium exists. Assuming the CEBG's central nuclear growth scenario at Sizewell, the continued reprocessing of Magnox fuel and reprocessing of both AGR and PWR fuel, a further 158 tonnes of plutonium will be separated. With the FBR now officially delayed until well into the next century, the storage of such large volumes of fissile material will lead to handling problems as its chemical composition changes, and a need for a further purification before it can be used as fuel.



A second HLLW stream would result. There would also be a serious problem of ensuring the safeguarding of such material from use in nuclear weapons.

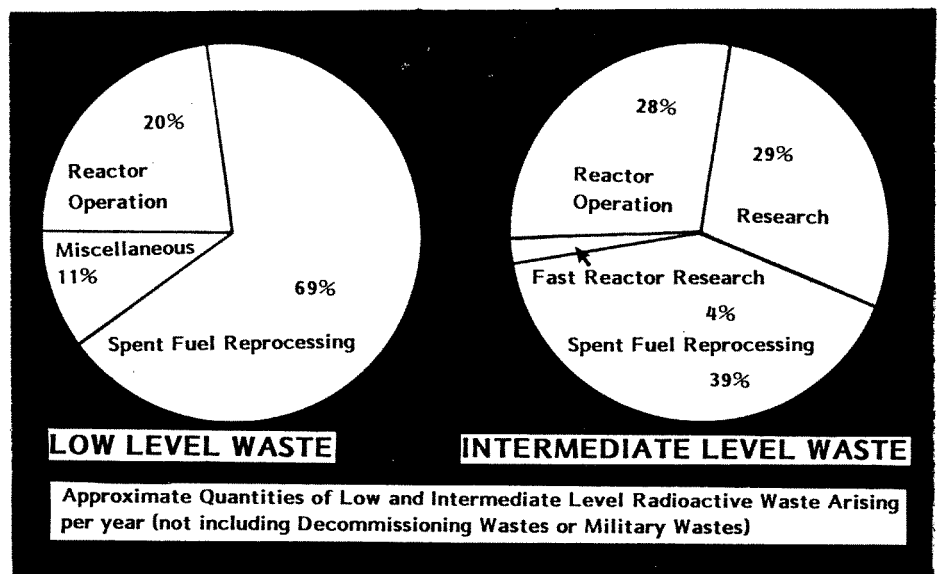
Waste Management Issues

BNFL's claim that reprocessing concentrates more than 99% of their total radioactive waste activity into the HLLW stream is, even based on their own figures, incorrect. At the Sizewell Inquiry, the figure quoted varied between 92-98%. Using the results of *actual* reprocessing to date however, (see Figure 1), it appears that only 66% of the alpha and 94% of the beta/gamma activity ends up in this stream. The remaining alpha activity ends up in spent fuel clad-

active liquid into the Irish Sea every day. All this is carried out for a process which is supposed to assist nuclear waste management and protect the environment!

Halt THORP Now

If the CEBG and SSEB take up their nominal option of 1,850 tonnes at THORP, the additional costs to the consumer that will result, when compared to the option of buying fresh uranium and storing spent fuel, will be of the order of at least £500,000/tU. The overall cost to the consumer will be nearly £1,000,000,000! THORP, and indeed Magnox reprocessing is an economic nonsense. It has no place or justification in the thermal reactor fuel cycle.



ding, sludges, resins and plutonium contaminated matter (PCM). This is called 'intermediate level' waste, which NIREX is attempting to find disposal sites for. The Billingham site was intended as a repository for such waste, particularly the spent fuel cladding. If reprocessing were to stop, the need for a deep disposal site would virtually disappear. Similarly, PCM, which the Royal Commission on Environmental Pollution regarded as having disposal problems 'comparable with that of the high level fission products' has been unnecessarily created, thus increasing waste storage/disposal problems.

In sheer volume terms, reprocessing produces the bulk of nuclear waste arising in this country (see Figure 2). The process essentially takes an intact fuel rod, chops it up and dissolves it in acid, and produces a near 160-fold increase in waste volumes as radioactivity is spread to machinery, clothing, liquids and other materials (see figure 3). In overall terms, reprocessing increases intermediate and low level waste volumes some 10 to 16-fold. Whilst managing to achieve this, Windscale also discharges over 2 million gallons of radio-

The economics of reprocessing are bad enough, but if waste management issues are considered, the picture looks even worse. Reprocessing simply spreads radioactivity to a far higher volume of solid waste, and spews out liquid effluent as a by-product on an enormous scale, contaminating oceans, beaches, homes and people. When a process has no economic justification, then no risk, however small, can be regarded as acceptable for the population living around Windscale or elsewhere in Britain and the rest of Europe. In these circumstances, the long-term storage of spent fuel on the site of nuclear reactors is the only feasible and safe alternative. Such storage facilities could be developed and licensed within a three year period.

The Environment Committee are due to submit their report on nuclear waste in January 1986. Reprocessing will then loom large in their findings. Let us hope that they have enough courage to overturn three decades of misinformation and secrecy, and place on record their rejection of reprocessing as a necessary and integral part of the British nuclear power programme.

Local Energy Initiatives

In SCRAM 50 we printed an article on the London Energy and Employment Network which described how it is contributing to significant savings in energy and providing jobs and comfortable homes. The following four pages look at other examples of energy projects in different parts of the country.

With 1986 designated Energy Efficiency Year (EEY) by the Energy Secretary, it is appropriate that we examine the way we use energy. Mr Walker's project aims to achieve £7 billion savings in the country's energy bill and is using the slogan 'Get more for your Monergy' to do so. The promotional budget is £70 million.

Peter Walker concluded the Press Launch by saying: 'In Energy Efficiency Year 1986, we want every boss in every business, every local authority chairman, every Government department, every householder in every home to find out how much energy is being wasted, and to make the decision to put a stop to that waste.'

However, EEY will be no more than a national publicity campaign calling on industry, government and the public to save energy: it will not save 'monergy' in itself. It relies on decisions being taken in many different areas with no real co-ordination.

At the same time as EEY is being launched the Fowler review of social security is suggesting that single payments for essential draughtproofing work, paid to social security claimants, should be axed. This will seriously reduce the number of poor households which



will be able to afford to have insulation installed in their homes. It could also mean job losses in the insulation projects because much of their work relies on the single payment from the DHSS to cover the cost of materials.

Instead, the EEY should concentrate on institutional changes in the energy industry. The tax and rating systems should provide incentives for energy conservation, not discourage such investments as is currently the case. There should be a comprehensive 'energy conservation grant' which would include cavity wall insulation, draughtproofing etc. Above all, the Government should develop an energy policy which places energy conservation at the top of the list and which would compel the energy supply industries to invest profits in energy conservation measures.

THIS

Tenants in local authority housing often live in damp, poorly insulated houses with expensive heating systems. Because of central government restrictions on capital expenditure local authorities are not in a position to solve these problems. To help come to grips with this problem a number of organisations, in conjunction with Hackney Borough Council, have set up the Tenant's Heating and Insulation Service (THIS). Susie Parsons explains what THIS hopes to achieve.

Hackney Council agreed in July 1984 to collaborate with the London Energy and Employment Network, Earth Resources Research and the Corporate Institute of Public and Finance Accountants Services Limited, in the setting up of the Tenant's Heating and Insulation Service (THIS).

The Service is a new initiative developed to attract additional private sector investment into domestic energy conservation and heating in the public sector. Currently the restrictions on local authorities resources do not allow the twin problems of high fuel bills and poor living conditions to be adequately addressed.

Many tenants live in poorly insulated council houses with heating systems that are often very expensive to run. As a consequence they are spending a great deal more on heating than they need to, and still live in cold, damp, and draughty houses.

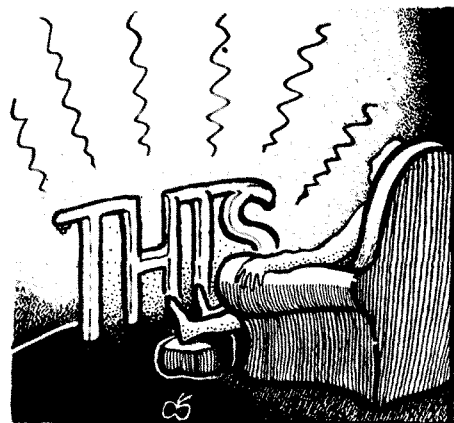
As a result there is enormous scope for cost-effective investment in energy conservation and improved heating sys-

tems in existing council housing stock. Many investments are so cost-effective that it is possible to save tenants significant amounts of money, even if the tenants themselves pay for the installation. The installation would, in addition to saving money, result in substantial improvements in tenants' comfort (warmer, less damp, and less draughty homes) and create new jobs in the construction industry.

Capital expenditure restrictions are preventing local authorities from realising all but a small percentage of this cost-effective investment potential. If local authority investment of energy conservation is to significantly increase over the next few years, new sources of funding must be found which do not draw on scarce existing Housing Investment Programme resources.

The Scheme

THIS aims initially to operate a scheme to install a package of energy conservation and/or heating measures



in homes which are not presently part of the thermal upgrading programme of housing investment. The package is designed to reduce fuel bills and/or improve standards of comfort.

The essential elements of the scheme are:

- i) That it is additional to and not a replacement for the Council's own HIP investments in heating and insulation;
- ii) That it is optional - individual estates are free to choose whether or not to participate in the scheme;
- iii) That it is primarily a self-financed scheme. The improvements are financed by way of low interest long-term loans, which are repaid by the tenant through a weekly charge less than the resulting savings in fuel bills;
- iv) That despite (iii), the Council may choose to subsidise the scheme to any degree it wishes; and

- v) That it is proposed to install a package of measures which fully address the heating problems of a household, rather than individual measures (e.g. draughtstripping) which may reduce but not eliminate the problems.

Estates

Estates which wish to participate in the scheme have two options: they may either choose to hire purchase the equipment or to rent it as an additional amenity in the home. These options have different financing and tenancy implications:

- i) Hire Purchase: The tenant pays a weekly charge which is collected along with the rent. This charge will pay the cost of financing a 10 year low-interest loan taken out by THIS to pay for the installation of the measures. These loans are guaranteed by the local authority. Tenants who move during the course of the 10 year repayment period may, under the new tenant's charter, apply to the Council for a reimbursement to cover the equity they have accrued in the equipment by way of their payments. The Hire Purchase charge will not classify as 'eligible rent' for Housing Benefit purposes, though tenants who are claimants could apply for single payments to cover a part of

the cost of materials installed.

- ii) Leasing: The Council leases the equipment to be installed over a 10 year period. The increase in rent charged covers the cost of leasing. As with the hire purchase scheme, the rental increase should generally be less than the savings in fuel achieved by the measures. Claimants choosing the leasing option are able to recoup the rental increase in increased Housing Benefit. Under the leasing option tenants will not, however, accrue an equity in the equipment. A leasing scheme of this sort has operated in Stevenage for the last 17 years and resulted in the installation of central heating in 80 per cent of the council stock.

The Package

Often heating problems arise from a combination of factors which, amongst others, might include some or all of the following:

- * lack of insulation
- * lack of an effective and cheap to run heating system
- * the disrepair of the housing fabric
- * poor constructional detailing
- * inadequate income to pay for sufficient fuel to keep warm.

To be successful THIS attempts to ensure that it provides a service of real benefit to tenants in financial and/or comfort terms. In order to achieve this great care must be paid to addressing all of the social and technical elements of the heating problems faced by a household in any particular dwelling.

Thus it will not be adequate to install merely insulation in a dwelling which contains an inadequate heating system. Nor would it be advisable to fit draughtstripping to inadequately maintained windows and doors.

The package of measures which will be installed by THIS will be designed to fully address the heating problems of households. However, it will not always be possible to do this through an entirely self-financed scheme. In many cases work financed through the above schemes may have to be subsidised or supplemented by work financed directly by the Council (e.g. repair and maintenance of the dwelling fabric). In many cases the company will therefore need to closely coordinate its activities with the Housing Investment Programmes of the Council if it is to be successfully tackle tenants' heating problems.

The company has now been registered. Work has begun on a pilot project on an estate in Hackney. Once this is successfully completed, work will begin in marketing the concept of THIS more widely within Hackney to other local authorities.

Authorities who are interested should contact Patricia Bradbury, Development Manager, at 99 Midland Road, London NW1 or telephone (01) 387 8906.



Local initiatives on energy conservation are on the increase with insulation projects starting up in most major cities and towns. Neighbourhood Energy Action in Newcastle has been a driving force in this development but other projects have begun quite independently. The Urban Centre for Appropriate Technology (UCAT) is one such project. In this article Martin Howard outlines the origins of UCAT and shows what can be achieved by a small number of enthusiastic and committed individuals.

If it's possible to specify a date of conception for the Urban Centre for Appropriate Technology (UCAT) it is 1979, and, yes, it was inspired by the Centre for Alternative Technology near Machyn-

lleth. Some visitors to Machynlleth had been excited by its practical message of living gently on the Earth - and wanted to extend these ideas, and adapt them for city living.

The ideas and the people wandered around Britain, eventually focussing on an urban A.T. exhibition in Bristol. After negotiations for various sites floundered, we were offered a 10 year lease from the City Council on a derelict terrace in South Bristol. At the time some thought this was an interim 'second-best', but, four years on, it feels very much our Urban Home.

The row of six Victorian houses were the only remaining houses in what was once a busy street. Our neighbours were new factories, with the only green relief being the City Farm opposite us. In four years we have completely renovated one

house in the terrace - the Low Energy House. Two others have been restored to short-term housing and a further house is rapidly being transformed into our Community Energy Workshop.

Conservation Message

The Low Energy House was a roofless shell, and the initial work of clearing the site was done by volunteers. The following basic building work was completed by a Youth Opportunities Programme training team of six school-leavers and a hard pressed instructor.

The Low Energy House has changed from an ordinary two-up two-down to a comfortable demonstration home open to the public, using about half the energy of a similar house. Although we do have solar panels, and even a windmill, which is just for fun, the main message of the house is conservation rather than the harnessing of natural energy. Not many city dwellers can have water wheels or substantial windmills in their back-yards, but they can insulate their homes, improve the efficiency of their heating systems and change their habits. A visitor looking around the house, peering

lems. This has been operating for 2 years, and we've attracted the complete spectrum of enquiries, from windpower to people whose houses need rebuilding, not insulating.

Draught-Proofing Teams

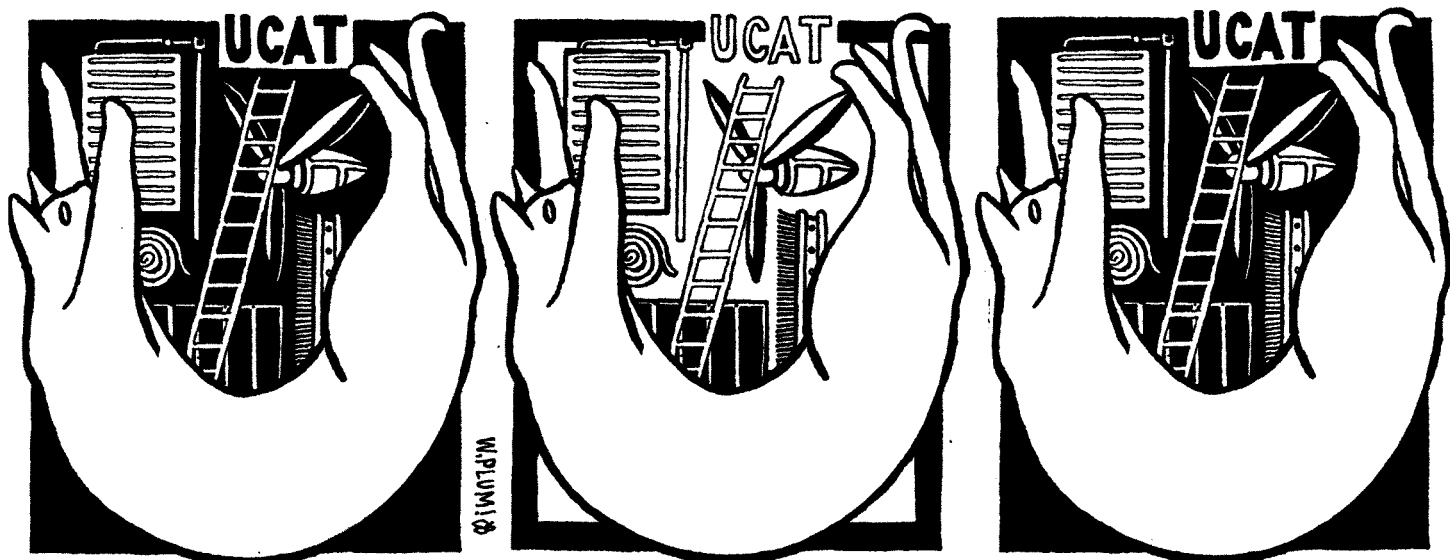
We are willing to spend time with A.T. enthusiasts, but our main work is directed towards the general public. We are shifting away from the technical aspects of energy conservation towards the social and personal issues. We've recently joined with other groups to push for improvements in Bristol housing conditions, particularly Council housing. Energy conservation is only a small part of the problem, but one in which we have developed expertise.

One of the first things which many houses need is draught-proofing. In the last year we have set up two teams who install draught-proofing material in Bristol, and a third team in Bath, called Bristol/Bath Energy Action Team. They have attracted plenty of publicity, and the demand for work is steadily growing. The teams concentrate on low-income households, and charge only for materials.

It has since broadened into women's literature, health, politics and food. Most recently, an ex-UCAT worker has started LESS - Low Energy Supply Systems - marketing small windmills, solar cells and water turbines. Another two of our workers are now running the successful Green Leaf Builders, doing general building work but keeping an eye open for energy conservation design-and-build jobs.

UCAT directly employs about 40 people, all but six of these being funded by the MSC. The changes and strains on a voluntary organisation which has expanded from six people meeting in a pub to a large paid workforce in four years have been hard. The initial team of workers had an essential commitment to non-hierarchical consensus decision making, and we have tried to continue this as the team has grown.

With all this activity, what are our aims? As individuals our aims are disparate; to learn practical skills, to be involved with like-minded people, to earn a living. . . As a group our aims have been formally described as 'to promote the conservation of non-renewable re-



through the deliberate holes in the building, will find that there are ways of insulating walls, floors, windows and roof - the entire shell of the building. Some of the features in the house are only practical if it is being renovated, others such as loft insulation, can be done at any time. A first impression on walking through the door may be that everything looks too smart - anything that saves energy must be expensive. However, many an eager solar panel enthusiast has been first directed towards the draught-proofing, the lined curtains and the insulated hot-water tanks.

Inevitably visitors want to know more, and we've developed an energy advice service to give free help on heating and insulation. We also offer to make home visits to help on particular prob-

The Community Energy Workshop, opening this Autumn, will cover the practical side of our educational work. We will be running a range of courses, mostly on home maintenance and energy saving, for Community Programme workers, the unemployed and the general public. Salary-funding for the first year has been given by the local Council.

Independent Businesses

UCAT has also given rise to four other independent businesses. The 'Green Leaf' building in central Bristol houses three of these and our office. In the basement the Green Leaf cafe has grown within two years from a volunteer coffee corner to a busy vegetarian cafe employing four people. The Green Leaf bookshop was opened in 1982 to provide an outlet for books on ecological issues.

sources' and 'to help change attitudes towards pollution and waste'. Behind these statements is the underlying and much wider challenge, that is to re-examine our relationship to technology. We need to re-affirm that technology is our tool, and that for a sane world we need to make it so.

For further information and membership details contact: UCAT, 82 Colston St, Bristol BS1 3BB

UCAT

There has been increased activity over recent years on the commercial side of renewable energy technologies. The large companies, such as Glasgow-based James Howden, have been concentrating on large-scale machines for export. However, there are other small-scale companies. Here **Bill Grainger** describes the work of the Northumbrian Energy Workshop in Hexham, who concentrate their development efforts on the Third World and aim to design equipment which can be produced in those countries using local skills and resources.

Wind power plants for Mongolian nomads and Scottish fish farms, dataloggers for Indian Ocean Islands, photovoltaic power plants for scientific expeditions - some of the work of a small Northumbrian Company, Northumbrian Energy Workshop Ltd. (NEW) in Hexham has been supplying remote power systems based on renewable sources - hydro, wind and solar - for 7 years and now employs 14 people.

NEW employees have similar views on 'moral' issues. NEW is a workers' co-operative, each member has an equal responsibility for the company and receives the same pay. The company will not supply equipment for military use, or to racist governments. Company Policy is to promote the use of alternative energy sources to show that there are real alternatives to dangerous conventional power sources. Sales to Third World countries are high for a company of its size and are encouraged.

Typical Project

The company's activities are loosely described as energy systems engineering. This is a typical sales story. A vague enquiry from a customer is answered by a letter backed by basic information on renewable power sources and a simple questionnaire on power requirements. If the customer proceeds, one of the engineers will outline a system, visit the site and examine local meteorological data. If, as often is the case, little reliable wind or solar data is available, one of the NEW designed dataloggers is installed on site for a period to sample

the resource available. These dataloggers have very low power consumption and are powered by a solar panel or rechargeable cells. They process the data in real time into the form required for energy system costing, saving memory and analysis time later. Based on this data a more accurate costing of the system is produced.



Unlike the 'big boys' in the wind energy business, all our systems have to be economic as we cannot afford loss leaders. Hence our systems are usually quite small. To utilise what are often expensive power sources effectively, the whole system is designed to meet the customer's needs. High efficiency lights and freezers and other equipment, often specially made, cut the power demand and give a lower system cost. Smart controllers, sometimes using programmable controllers, optimise the use of power available and reduce maintenance by protecting the plant from abuse. Finally NEW's own installation team lays foundations and installs the system.

In the past couple of years, windpower plants in particular have been in the news. California has thousands of wind turbines with 700 megawatts of total installed capacity. NEW has benefited from this. Many large companies

have decided to investigate wind systems as possible money spinners. Large megawatt machines had little to do with the Californian boom, since many of the turbines have a rating of 55kw. NEW has been hired as Consultants, having a good reputation in the field, to design demonstration systems and to carry out feasibility studies and site surveys.

The market in the UK may appear in the next few years, but the overcapacity of the electricity supply industry, the unhelpful Energy Act and the subsidised price of energy make it an uphill battle. Worldwide, however, the market is enormous. With the experience gained in California, machines are becoming more reliable and cheaper. Hopefully NEW soon will be supplying systems which will compete with mains electricity supplies and not just with diesel generated electricity as at present.

Design and Build Section

The special design and build section of NEW has recently supplied another power system for the Arctic. The wind powered system will power radio transmitters, lighting and audio equipment for a scientific expedition. The picture shows a previous Arctic system.

Earlier this year one of the co-op engineers spent a month installing specialist, solar-powered NEW dataloggers in the Seychelles. These will provide an assessment of the solar and wind resources in this dispersed island group in the Indian ocean. As a result two more engineers are now in Mauritius advising on the utilisation of wind power there.

Recently photovoltaic (pV) power plants using solar cells have been coming into the limelight. The CEBG has a 20kw pV plant in the South of England. NEW too has been supplying pV systems. Vaccine fridges and telecommunications equipment are now being powered in this way. PV power has the advantage of no moving parts, but at the moment is still expensive. But times are changing.



The world's first wave power station was formally 'launched' on the Norwegian coast at 12 noon on November 13 - just four months after Britain decided that nine years of research should be ended because wave-electricity was too expensive. Norway is already feeding electricity into the grid from her wave power which is generating electricity already for around 4p a unit - less than we would have to pay for power from a new coal-fired station.

Norway's power station was initiated near Bergen by the Energy Minister at precisely the hour when Peter Walker, for Britain, was opening his Monergy campaign in Birmingham, designed to save money, save energy (and save nuclear power by avoiding any commitment to alternative sources). The Norwegian stations cost roughly between £1 million between them; the publicity campaign designed to tell us all to stop wasting money has a budget of £8 million, much of it for Saatchi and Saatchi who are handling the publicity.

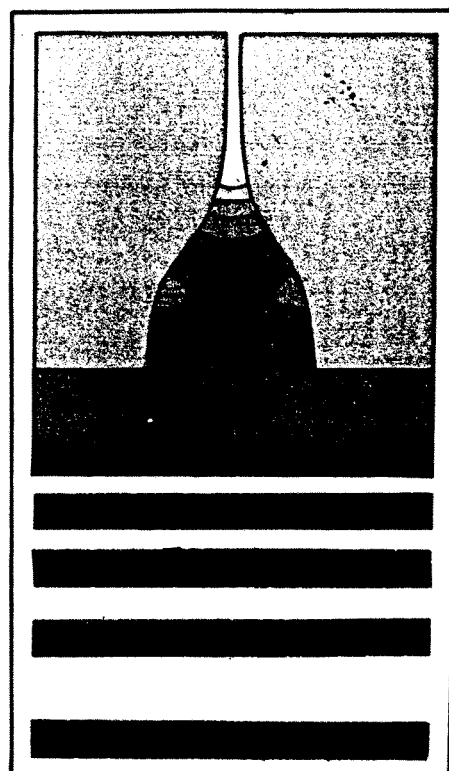
Why did Britain pull back just at the point when we were ready to go to sea and demonstrate to the world that we knew how to capture and deliver the elusive power of the waves? One answer was given to me, as we stood in the piercing cold of a Norwegian headland, by Stephen Salter, inventor of Salter's Duck and one of the earliest pioneers of wave power. 'It did not help us to have our principal customer hostile to the idea,' he said. He meant the Central Electricity Generating Board. The South of Scotland Electricity Board was scarcely better.

What the Norwegians have done is to build two very different types of wavepower plant with a combined output of 850 kilowatts or more in good, rough seas. Already, in unseasonably poor (meaning calm) conditions, they have produced 450 kilowatts and it has been accepted (free) by the small local grid which has a capacity of only 50 megawatts. This is important for developing countries with limited electricity plant which might find it difficult to integrate a variable source like the waves. Norway is demonstrating that it can be done. As the managing director of one of the companies behind the scheme, Mr Per Andersson of Norwave, put it: 'We realised that we could not sell new technology until we had demonstrated it.' The scheme, he added, was conventional except that 'instead of letting God rain down water on the reservoir, we lift the water from the sea ourselves.'

He was talking about the Tapchan, a TAPered CHANnel of concrete, 90 metres long, which carries the waves up from the sea into a reservoir. As the channel narrows, the water is squeezed

and you can see it apparently raging furiously at its confinement. It reaches the end of the channel and surges over in a splash, or shoots upwards like a geyser if the wave propelling it is strong enough. The water falls into a reservoir and then streams back into the sea, passing through a turbine house on its way. A Kaplan turbine is sent spinning and a generator linked to it produces electricity.

TAPCHAN



The Norwegians estimate the cost of a unit of electricity from such a plant as less than 4p, which is cheaper than coal (the CEBG's figure for electricity from a new coal-fired power station is 4.3p). But the Norwegians, who are scrupulously self-critical on such matters and do not wish to give an exaggerated picture of their success, add that the pilot plant is costing between 5p and 6p a unit because it has been designed only for demonstration and emphasis has been on low investment to show that it can work, at a site conveniently near to Bergen airport but in no way ideal for a power station.

The big advantage of the Tapchan is that the lagoon into which the sea is decanted serves as pumped storage and can hold water for release when the waves are calm, to ensure that there is continuous supply of electricity.

The Tapchan is remarkably similar to an idea first conceived for Mauritius by a British civil engineer, A N Walton Bott, who had learned about water power

while working on hydro-electricity in Scotland. His plan could have been built at any time in the last 25 years. . .

The other scheme, stationed nearby, is an Oscillating Water Column. It is a canister looking like a large boiler, and open at the base to the sea. As a wave rises, a bubble of air is pushed up and out of the device, then as the wave falls air is sucked back in from the atmosphere, to fill the vacuum. The stream of air drives an air turbine which, in turn, spins a generator. This is similar to the invention of a Japanese pioneer, Yoshio Masuda, which was developed in Britain by the National Engineering Laboratory at East Kilbride, outside Glasgow. They were ready to build a similar scheme on the island of Lewis when funding failed to appear. These parallels are mentioned not to belittle the Norwegians who made important contributions to the technology during their research but to show that we could have led the world into wave energy, if the political will had existed.

The OWC is producing electricity at 'roughly 4p a unit,' says the head of the project, Dr Knut Bønke. This is calculated on the basis that the plant will last for 25 years although most of the structure should stand much longer, and a 7% interest rate. In Britain, the CEBG, the SSEB and the UKAEA all work on 5%, which would bring down the cost to 3p. On maintenance, the Norwegians have been ultra-cautious, assuming that it is going to be 10 times as high as for hydro-electric power. 'There is no apparent reason why it should be but that is the assumption because it is a new technology,' Dr Bønke said.

It is difficult not to conclude that wave-electricity is going to cost considerably less than the stated figures. As such, it will be cheap even for a country like Britain with plenty of coal; for countries depending on imported oil, it will be a prospect of well-being beyond their dreams.

Flying out from Gatwick, my plane went over the Suffolk coast and I could see the site of the Sizewell B nuclear power station. If it is ever built, it will draw the same water as the Norwegians are using from the North Sea for their non-polluting power station. But the Energy Technology Support Unit (ETSU) based at Harwell, which supervised the British wave energy programme, has raised the spectre that the noise of a wave power station might frighten the fish. I asked Dr Bønke about this. Local fishermen, he said, had not complained. They were happy about his power station. What was threatening the fish, he said, was acid rain. But that, as Lord Marshall Goring of the CEBG would say, is another story.

David Ross

Energy: Crisis or Opportunity by Diana Schumacher (Macmillan, £12.00, 335pp), **Energy Around the World** by J. C. McVeigh (Pergamon, £6.95, 253pp), **The Economics of Energy Self-Sufficiency** by E. Marshall and C. Robinson (Heinemann, £16.50, 147pp)

Diana Schumacher's book is subtitled 'An introduction to Energy Studies', and is a well balanced look at all energy sources, emphasising the intimate relationship between energy policy and every other kind of policy rather than looking at it in isolation:-

formulating energy policy involves a very large number of moral, environmental, social and political choices.

Schumacher argues that energy policies should be compatible with freedom, equality, consensus, full employment, preservation of the environment and responsibility for Third World Countries. It is from this point of view that energy is analysed and not simply the need for economic growth.

It is an ideal book for someone new to energy studies or indeed for policy makers trying to formulate an energy policy more compatible with our democratic traditions than those we have seen to date. It is written in an untechnical way so as to make it readable by university and school students without a scientific background.

Energy Around the World is more technical, but aimed at the same audience. If you do feel it is time you knew about the Laws of Thermodynamics or Entropy, perhaps this is the book for you. The emphasis is still on the availability of energy resources and how future patterns of world supply and demand could develop, but there are more tables, graphs and equations than in Schumacher's book. It should be particularly useful for teachers, because at the end of each chapter there are suggestions for more detailed studies and exercises.

It is particularly pleasing to see, not

one, but two books published aimed at sixth-form and university students, which don't ram nuclear power down the reader's throat. Both books take full account of the environmental effects of the energy sources discussed and give energy conservation and renewable sources a fair hearing.

In contrast the final book takes such a narrow look at the energy issue that it is difficult to see who might read it other than a few economics students. The book sets out to discover what might happen to our self-sufficiency in energy up to 2020 in the absence of any government policy change, and to contribute to the debate on the advantages and disadvantages of self-sufficiency as a policy objective. It has a very narrow definition of the word 'economics'; the environment and employment, for example, hardly crop up at all. There is only a very cursory look at the role of energy conservation or renewable energy. There is one paragraph, which perhaps best sums up the attitude of the book, so I will reproduce it here to save anyone the bother of reading the book:-

There is a case for government support for some basic research in the energy industries on 'public good' grounds, and for indigenous energy sources which offer the prospect of being environmentally benign and low-cost in the long term. But such assistance for energy resources which may become important in the long run is not to be justified on self-sufficiency grounds per se. It is much more a matter of promoting a judicious mix of supplies so as to keep down prices by maintaining competition between fuels.

Try reading that paragraph over and over again to the damp patch on your wall, and it may disappear from sheer boredom. By the way, this book is one of a series on the UK's prospects for self-sufficiency in energy. I started to read the one on electricity, but fell asleep.

Pete Roche

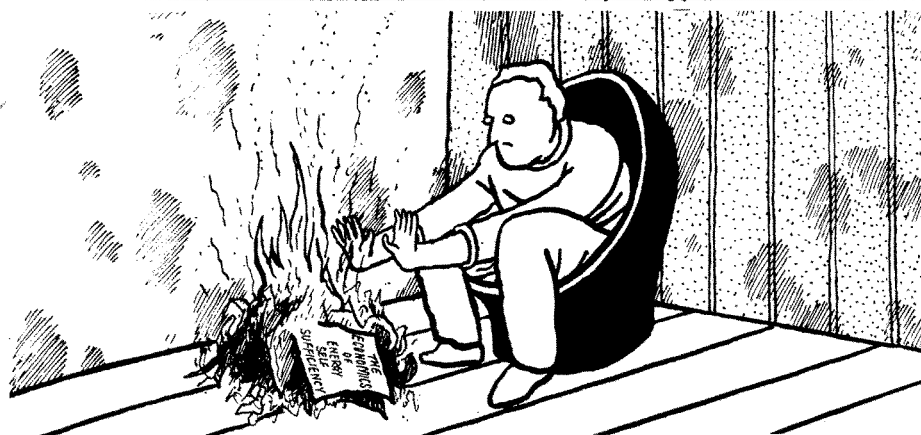


The Heavy Dancers by E P Thompson (Merlin Press, £5.50, 340pp), **Double Exposure** by E P Thompson (Merlin Press, £2.50, 155pp), **The Politics of Euromissiles** by Diana Johnstone (Verso, £4.95, 218pp)

'The most dangerous people of all are those who would believe that everything is normal - that we need only to go on as we are and trust them to manage things - the people who would rock us to sleep in a cradle called "deterrence".' (*The Heavy Dancers* p10). The Cold War seems always to have been with us, a great dominant fact like the Roman Empire and the Catholic Church in their days. It's hard to imagine the processes by which it could go except through a great cataclysm. The historians can, however, show that it is not solid and static; that it came in at one time and must pass away.

Diana Johnstone is a journalist and not an historian and that affects the perspective of *The Politics of Euromissiles*. She can't tell the woods from the trees - she does not grasp the sheer size and newness of nuclear weapons. It's all capitalist Big Business as usual for her. But what she does describe in detail is a continent undergoing change - old nationalistic Germany with its internationalistic young; revolutionary and critical France acquiescing in the force de frappe and going along with NATO; old imperialist Britain the USA's most sycophantic ally; old macho Spain whose peace movement has a strong feminist bias. From this new data she draws the same old conclusions. 'The peace movement needs to be more than a single-issue movement. The peace issue has the potential of providing a point for the recomposition of the Left.' Peace movement members are suspicious of being picked up by the old parties and philosophies in search of a mass following, and if they were they may end with their energies dissipated.

E P Thompson is an historian of dissent and this is the theme of *The Heavy Dancers*, dissent from being on one side or the other of the cold war. 'It is very easy for the Western intellectual to applaud those Soviet intellectuals who have the courage to challenge their own statist orthodoxy. But since Western intellectuals... have been unable to detach decisively one single Western society from the military and diplomatic defini-



tions of the Cold War era, the applause has an empty sound to it.' This is a collection of pieces, some in quite good verse, others in his declamatory prose, on effective dissent and what personal incidents, friends and historical and present day events have inspired him and through him, the reader.

Double Exposure is an account of the fragile contacts made between unofficial groups in the East and West. You want very much to believe that future historians will one day see these were an effective strand in ultimate nuclear disarmament, along with many other movements and motivations. But they seem to be talking in whispers against a loud noise of derision and apathy on one side, threats of loss of liberty on the other. On the intricate connection between liberty and peace, Thompson says this: (p135)

There are still those in the Western peace movement who advise keeping all these considerations (which they describe as 'human rights') in a 'pending' file. Yes, they would like to see all these 'human rights.' But realism dictates a two-stage programme, like the lift-off of a space rocket. First comes disarmament (where the onus lies with the West). Second, there will follow, as night follows day, a period of detente, in which ideological hostilities will soften and some democratisation will ensue on the other side. . .

The two stage lift-off theory will not work in that form. It is wrong to say that 'human rights' must be a precondition of disarmament; that way we will get neither. It is wrong to say that 'human rights' will be the consequence of disarmament: our friends on the other side have not given us power-of-attorney to make that decision. Both must take place together, as part of one single process, the making of a democratic peace.

R M Bell

Atomic Crossroads - Before and After Sizewell by John Valentine (Merlin Press, £5.95, 263pp)

Atomic Crossroads is the first book on the history of the British nuclear industry to have been published since the Sizewell Inquiry and thus it is the first to reassess that history in the light of evidence presented to the inquiry. Making extensive use of official histories of the electricity boards and of the UKAEA, the first two chapters are one of the most concise accounts of the early history of the nuclear industry which I have read.

National prestige is emphasised as the most important factor which



NUCLEAR POWER!
I'D STAKE MY
EYE ON IT!

fostered the nuclear industry during its initial period of military activity up to the mid-1960's. Compared to other histories which emphasise international pressures and constraints, John Valentine overplays the prestige factor. The third chapter indicts the generating boards for their failure to achieve the design capacity of nuclear power stations, drawing attention particularly to the loss of available capacity during construction delays and to the downrating of plants after commissioning: neither of these factors is taken into account in official figures.

The book's second part sets out the unequal treatment of objectors which hindered the presentation of their case at the Sizewell Inquiry. It then concentrates on the generic issues, discussing economics, the safety case, and the controversy which arose over whether the AGR is an option which compares favourably with the PWR when only the most successful AGR stations are used as the basis of comparison. The author examined closely the arguments used in favour of immediate construction of a programme of PWR's in order to obtain 'system savings'. He did not substitute the best figures for AGR's to extend this 'system saving' analysis to AGR's. I was disappointed that he did not do so as, objectively, this is an assessment which we may need to face - a crash programme of AGR construction which might be justified in narrow economic terms by such an analysis.

The third section of the book rehearses the arguments concerning the military plutonium link, discharge levels, low level radiation, and radioactive waste management. Although the exposition of these issues is very clear, this section is the weakest in the book. It lacks the international perspective, just as the first section does, and so it misses the significance of the introduction of PWR's. With France and West Germany now moving decisively towards the recycling of plutonium in PWR's, as a means of maintaining the condition of the plutonium stock for use in Fast Reactors, plutonium recycling might also be introduced to Britain in conjunction with the PWR's. Both the PWR and the Fast Reactor programmes would tie Britain into the European nuclear fuel cycle industry far more closely than in the past. Too little attention is given to either of these matters for the last chap-

ter concerning 'Choices' to have much depth of insight into current policy options.

I would not hesitate to recommend *Atomic Crossroads* as the best introductory book available on the British nuclear industry. It makes the technical literature accessible to an interested lay-person who has a basic grasp of nuclear power issues. It is a pity that John Valentine's conclusions are not a little more forward looking.

Ian Leveson

Lessons from America: Comparisons of Investment Programmes: Energy Demand vs Supply. A.C.E., £5, 28pp

In this fourth report in the series, the Association for the Conservation of Energy describe evidence from America which shows that investment programmes in energy conservation can be a cost-effective alternative to new energy supply capacity.

In the words of the Tennessee Valley Authority:-

Conservation programmes are treated as a power supply option, since the impacts of conservation programmes can be controlled by TVA in the process of planning the power supply system.

ACE believe that, bearing in mind the high cost of new energy supply systems, to achieve the most cost-effective use of resources, energy conservation should be thoroughly evaluated in comparison with energy supply investments.

The report includes an analysis of the Resource Strategy of the Bonneville Power Administration - BPA are continually striving to refine the analytical process of comparing conservation and supply. They have concluded that:

cost-effective conservation is the first priority resource for meeting future loads.

Let's hope that the Department of Energy in the UK pays some attention to this report and changes its contention that:

The question of whether conservation investment saves capacity or primary energy and in what amounts, cannot be answered quantitatively in ways useful to planning.

Pete Roche

Druridge Bay Campaign Audio-visual material

The Cairn at Druridge video or tape/slide show presents reasoned arguments for opposing Nuclear Druridge; available from Ian Barkley, 0670 760680.

The Druridge Bay Campaign is a confederation of local and county councils, trades unions, environmental pressure groups, political parties and individuals. Individual membership £3 waged, £1 unwaged.

Contact: Ron Major, 5 Burnside, Bedlington, Northumberland.

Centre for Energy Studies South Bank Poly

16 January. 'Biogas from Industrial Waste' seminar; £50 including coffee, lunch and tea.

Also: MSc in Energy Resource Management; designed to meet the growing importance of energy in our society.

Contact: Ms Chris Richards, South Bank Poly, Borough Road, London, SE1. Tel: 01 928 8989 xt 2596.

NATTA

The Network for Alternative Technology and Technology Assessment is an independent national coalition of AT activists set up to lobby for and support local level AT projects. Individual members pay £6 pa and receive the 30 page newsletter. The occasional NATTA Job Watch provides information of vacancies in AT fields.

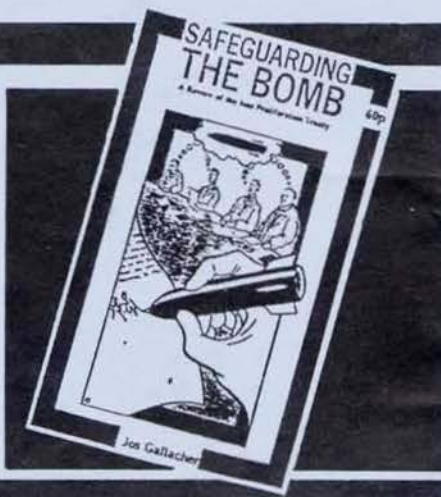
Contact: NATTA, Alternative Technology Group, Faculty of Technology, Open University, Walton Hall, Milton Keynes, Bucks.

The Handbook for Estimating HEALTH EFFECTS from Exposure to IONIZING RADIATION by Rosalie Bertell. A technical work giving tables which can be used to estimate deaths, cancers and genetic effects as a result of exposure to ionizing radiations.

Available from the Radiation Health Information Service, PO Box 805, London SE15 4LP; price £13.

A compilation of a series of articles appearing in SCRAM over the past year, the pamphlet examines the record of the NPT since it came into force in 1970. It particularly looks at the NPT's contradiction of limiting nuclear weapons whilst promoting nuclear power. The failure of the NPT to deliver on nuclear disarmament is also strongly criticised.

Safeguarding the Bomb: A Review of the NPT by Jos Gallacher. A new pamphlet published by SCRAM and available for 60p (+ 18p) from Scram, 11 Forth Street, Edinburgh.



Little Black Rabbit.



On 1 November Mrs Thatcher performed the opening ceremony for the Site Ion-Exchange Effluent Plant (SIXEP) at Windscale and demonstrated her 'complete faith in and enthusiasm for Britain's nuclear power industry'. She stated in an interview with BNFL news that she is 'supremely confident' that the nuclear scientists can 'maintain the industry's frankly enviable safety record'.

However, the day before Mrs Thatcher's visit there was a 'red alert' at the plant. During a visit to cousins in Cumbria during the same week, Little Black Rabbit heard a story about a mystery trawler which appeared off the end of the discharge pipeline. For some reason BNFL was very worried about the trawler, perhaps because the management remembered the slick which was released in October 1983 when Greenpeace divers were off the end of the pipeline.

There were lots of stories circulating, suggesting that another slick was about to be released or that a spill had occurred in a building. These rumours were apparently backed up by the sight of some workers in radiation gear.

Little Black Rabbit is happy to report that there wasn't any leak or unauthorised discharge; the Department of the Environment investigated and discovered that an exercise had taken place at the time, which explains the radiation suits. But what about the mystery trawler? Was it Greenpeace trying to block the pipeline? Or a foreign power about to land Special Forces in Cumbria? No, it was a MAFF trawler carrying out its routine monitoring.

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