The Ecologist Digest

Nuclear Power

Full Inquiry likely on Maralinga N-Tests, Richard Yallop, *The Guardian,* 9th June 1984.

The Australian Government is expected to shortly announce a full inquiry into the effects of British atomic tests in Australia between 1952 and 1967. The Minister for Resources and Energy, Senator Peter Walsh, recommended to the Cabinet that an inquiry should be held into "the circumstances and consequences" of the tests. Officials said it was likely to get immediate approval. Senator Walsh's recommendation follows the release of two reports on the British tests, which suggest that radioactive material is still lying at the Maralinga range, in the desert region of South Australia. The reports also said that many people involved in the tests were exposed to higher radiation doses than previously thought. Britain conducted 12 atomic tests in Australia between 1952 and 1957—three at Monte Bello, in Western Australia, two at Emu in South Australia, and seven at Maralinga. A series of minor tests, which involved some radioactive materials, also took place at Emu and Maralinga between 1953 and 1967. In May, Mr John Burke, a former RAF technician, who worked at Maralinga, said that he had seen four dead Aborigines in a bomb crater after three secret atomic blasts at Maralinga in 1963. Mr Burke has since died of stomach cancer. Health officials at Maralinga reported in 1962 that Britain has buried radioactive debris with bulldozers. The report said: "As this was often done quickly, the method tends to preclude any reliable information concerning the depth of the hole, the nature of the debris buried, and the quantity of activity included."

Scots cancer cases surprise Sellafield inquiry scientists, Andrew Veitch, *The Guardian,* 25th May 1984.

Scientists investigating cancer on the west coast of Scotland for Sir Douglas Black's Sellafield inquiry report finding significant increases in cases of leukaemia among young people. Looking only at people aged under 24, they have found nearly twice the expected number of leukaemia cases among those living within 10 miles of Hunterston nuclear power station in Ayrshire. They describe a possible "outbreak" of 19 cases of myeloid leukaemia along the whole coast from the Solway Firth north to Cape Wrath between 1971 and 1975. They have identified "significant excesses" of the same type of leukaemia in the south-west and the Clyde estuary between 1968 and 1974. The researchers, from the Scottish Health Service offices in Edinburgh and the cancer surveillance unit at Ruchill Hospital, Glasgow, stress that their findings are only preliminary and, taking all types of leukaemia together, the overall incidence of the disease was not significantly different from the rest of Scotland. However, their figures point in the same direction as those published earlier this year by Sir Douglas's cancer statistician, Dr Martin Gardner. He found that young people living near Windscale might be running nearly 10 times the risk of dying of leukaemia.

Contamination 'risk to crops', *The Guardian,* 2nd May 1984

A fifth of the UK's annual farm crops might have to be destroyed because of radioactive contamination if there were a really severe accident at the proposed Sizewell B pressurised water (PWR) nuclear power station in Suffolk, according to opponents of the project. In East Anglia, more than half the milk production might have to be poured down the drain. In some areas, land might have to be abandoned for anything from five to 50 years. The calculations have been made by Mr Peter Taylor, of the Political Ecology Research Group, for a report published by the Anti-PWR Consortium of trade unions and local authorities. The worst effects on agriculture of such an accident, which involves the reactor core melting and releasing its radioactivity into the atmosphere, would occur in easterly winds—which fortunately are less prevalent than westerlies. But the report shows that if the radioactive plume were blown out across the North Sea, some of Europe's most valuable fisheries could be contaminated and an entire year's farm production lost in countries like Holland or Denmark. If the core melted down through the base of the reactor containment building, contamination could seep into the sea over a longer period. For the most part, Mr Taylor's report is an extrapolation from calculations already made by the National Radiological Protection Board. The other accident considered, which is more likely to occur, is a core meltdown from which only a relatively small amount of radioactive gas escaped through the containment filters—"one step up", as the author put it, from the Three Mile Island accident in the United States. In that case, the one-year ban on crops would extend for only a few miles from Sizewell rather than covering a fifth of the country's arable production.

Chemicals, Drugs and Pollution

Rifkin wins interim injunction, Stephen Budiansky, *Nature,* 24th May 1984

An experiment that would have been the first to release recombinant organisms to the environment was blocked in mid-May by a federal judge. Granting a motion filed by anti-genetic engineering activist Jeremy Rifkin, Judge John Sirica ordered the University of California not to proceed with the experiment of Drs Steven Lindow and Nikolas Panapoulos until a full hearing can be held on Rifkin's lawsuit, which challenges last year's approval of the experiment by the Recombinant DNA Advisory Committee (RAC) of the National Institute of Health (NIH). The Lindow experiment was to have tested the ability of altered strains of the bacterium *Pseudomonas syringae* to protect potato plants in the field against frost damage. The altered bacteria have a deletion for the gene responsible for an ice-nucleating protein excreted by the wild bacteria on the leaves of plants. Rifkin is claiming that NIH should have filed environmental impact statements before approving the Lindow experiment. The ruling does not affect private industry, but only experiments carried out with NIH funds. Although the ruling is a victory for Rifkin, Sirica made clear that he was making no judgement on the scientific issues that Rifkin had tried to raise. Sirica's judgement says that he was deciding only "narrow legal questions" and, during the hearing, he repeatedly rebuffed attempts by Rifkin's attorney to present testimony from scientific experts.

Call to introduce unleaded petrol unilaterally, *Pollution,* Vol 14, No 5, May 1984

The Consumers' Association has called on the EEC to take steps to enable individual Member States to introduce unleaded petrol unilaterally. Although it was agreed in 1983 that lead in petrol should be reduced or even eliminated completely, an EEC Directive still sets a minimum requirement of 0.15g/l lead in petrol. Until this Directive is amended any country taking unilateral action to remove lead from petrol will be contravening European law, despite the pressing environmental and health reasons for doing so. Technical and economic arguments for leaded petrol no longer hold, argues the Consumers' Association. A new report, as yet unpublished, is understood to demonstrate that unleaded petrol and the cars to run on it could be introduced throughout the EEC within a relatively short time. It is also clear from this report that the cost to consumers will not be great. "There is no longer any question about the feasibility of removing lead from petrol", says Dr Lesley Yeomans of Consumers' Association, "it is simply a matter of when. Precisely how unleaded petrol might be introduced on a pan-European scale still needs further consideration in order to make such a transition as simple and practical as possible. For example, the number of grades of unleaded petrol and their octane quality will need to be agreed in order to harmonise arrangements throughout the EEC. And, in banning lead, the EEC should make it clear that any other additive which has not been fully tested for safety will not be accepted."

Dry battery alarm in Japan, Alun Anderson, *Nature,* 14th June 1984

A pair of headphones and a portable cassette player have become pretty much standard street wear for young Tokyoites, but they are creating a new problem for the Japanese Government—how to dispose safely of the batteries that power them. Alkaline-manganese batteries have been favoured because they provide a stable voltage and last a long time: the trouble is that they contain a lot of mercury which, it is feared, is finding its way into the environment from municipal rubbish tips. Japan is now manufacturing a staggering 2,850 million dry batteries each year. About two thirds of these are for domestic use and the 70 tons of mercury they contain—mainly in the alkaline-manganese batteries and "button" type mercury batteries used in cameras—end up in domestic rubbish, most of which is used in landfill in 2,500 municipally owned sites. According to calculations at the National Institute of Environmental Science, the research arm of the environment agency, these sites will have an average battery-derived mercury content of about three parts per million—a thousand times higher than the maximum mercury content permitted in water supplies—on top of a small amount of mercury from discarded fluorescent lighting tubes and other sources. As the batteries corrode, the mercuy will enter the environment and an unknown fraction of it will be converted into organic mercury by bacteria and leached away. Most sites are small and are converted to other uses within five years; being municipally owned, they are often converted to public use, including the building of schools and playgrounds. The risks are much less from the small fraction of rubbish that goes to incinerators rather than to landfill. Consumer groups are now demanding that batteries be collected and disposed of separately from other rubbish. Already about 400 of the nation's 3,300 municipalities have passed local regulations requiring citizens to deposit their used batteries at special disposal centres rather than in household rubbish, and that number is expected to grow to 800 by the end of the year.

Dirty river keeps on rolling, *New Scientist,* 10th May 1984

Ten years of negotiations between a water authority and a chemical works have failed to produce agreement on how to clean up one of Britain's dirtiest rivers, the Doe Lea in Derbyshire. New limits on the amount of ammonia, cyanide and phenols poured into the river by Coalite from its smokeless-fuel works at Bolsover were finally set by the Yorkshire

Water Authority in January. But the company has now appealed to the government against the limits. Such appeals are long-winded affairs. One case completed recently took nine years. Fish live in the Doe Lea upstream of the Coalite works. But downstream there are no fish and the river is classified by the water authority as "grossly polluted and likely to cause offence" (*New Scientist* 15 March, p.10). Because the Control of Pollution Act, passed in 1974, is not yet in force, the water authority cannot publish details of the limits it wants to set for the Coalite effluent. But, in a paper produced late on in the negotiations with Coalite, the authority's scientists said that ammonia concentrations in the effluent should be reduced to 13 milligrams per litre, phenols to 2.6 mg and cyanide to 0.065 mg, if fish were to return to the river. This would cut ammonia concentrations in the river by up to 10 times but still "is more likely to prove to be too lax rather than too stringent". Coalite refused the option of sending its effluent to the water authority's sewage works, saying that it could meet the standards by a treatment process based on activated carbon and caustic soda. Now it says that its process is not ready.

More toxic waste to be burned at sea, Catherine Caufield, *New Scientist,* 12th April1984

The incineration of hazardous wastes at sea, which releases hundreds of tonnes of heavy metals and toxic chemicals over the North Sea each year, looks set for a dramatic expansion. The United States is poised to allow burning in the Gulf of Mexico, although critics claim that the "cheap and dirty" methods of burning that are allowed on ships can be dangerous to aquatic life. Most burning at sea takes place in the North Sea, under the rules of the Oslo Convention, which includes a commitment to eventually ban the process altogether. The wastes burned are highly toxic organochlorine compounds, such as DDT and PCBs, whose reputations arouse opposition to land-based disposal. Two incineration ships, the Vesta and the Vulcanus I, service the European market. Now, however, American firms want to join in. In 1981 a Chicago company, Chem-Waste, built the Vulcanus II to handle American waste. The US government has loaned another company, At-Sea Incineration, $56 million to build two new ships. The US Environmental Protection Agency (EPA) is eager to licence burning in American waters. The US government is also considering allowing burning radioactive and solid wastes at sea. This would contravene the guidelines adopted by the London Dumping Convention, to which the US is a signatory. European countries burned almost 200,000 tonnes of waste at sea in 1980. Half of it was unlicensed. Belgium is the only country bordering the North Sea not to have implemented the Oslo Convention. The big attraction of incineration at sea is that it is cheap. A study in 1978 found that it cost an average of $85 tonne, compared with $196 for incineration on land. Unlike land-based plants, the ships need not have chimney "scrubbers" to capture hazardous emissions, such as unburnt chlorinated hydrocarbons. Nor need they burn as efficiently as land incinerators. Burning 100,000 tonnes of organochlorines at sea releases 100 tonnes of toxic solids and 30,000 tonnes of hydrochloric acid into the air and the ocean. An efficient land plant should release one-tenth of a tonne of organochlorines and no hydrochloric acid. Waste has to stay only 1 second in the burn chamber of a sea-based incinerator compared with up to 4 seconds on land. Some scientists fear that the chemicals that are hardest to destroy, such as dioxin may survive and disappear intact up the chimney. Inefficient combustion in municipal incinerators on land has been known to create dioxins, which have been released into the atmosphere. Heavy metals are not destroyed by incineration. They are vaporised and emitted. Some 66 tonnes of arsenic entered the North Sea in this way from incinerator ships in 1981. There is no doubt that the US government is committed to incineration. The EPA's director, William Ruckelshaus, told At-Sea Incineration: "My staff has already identified some waste sources for the company . . . we will continue to work actively with (Chem-Waste) and At-Sea Incineration".

Survey reveals poisoning of tap water, Anne Charnock, *New Scientist,* 19th April 1984

More than 40 per cent of people who drank water contaminated with phenol after it was released into the River Dee last January claim to have suffered from at least one symptom of phenol poisoning. The symptoms include vomiting, diarrhoea, abdominal pains and headaches, according to a sample survey. Two million people in North Wales and North West England were supplied with the contaminated water. At least five days after the water authorities knew of the phenol contamination, they had still not informed local health officials. And the two authorities, the North West and Welsh Water authorities, were reassuring people, who complained of the antiseptic taste of their water, that there was no risk to health. The Communicable Diseases Surveillance Centre (CDSC), which carried out the survey for the Clwyd Area Health Authority, sent out questionnaires to 594 households. Of these 250 were in areas which received uncontaminated supplies of water, another 250 received water contaminated with phenol, and 94 received supplies of "low-level" polluted water. In the high-exposure group, 44.2 per cent of people said they suffered from at least one of the symptoms of phenol poisoning, compared with 42.3 per cent in the "low" exposure group. In the control group of unexposed people, 18.8 per cent complained of these ailments. The CDSC says the results are highly significant, and is confident that the illnesses were not psychosomatic. Dr Lynn Williams, the community physician for Clwyd Area Health Authority, says he has "no doubt" that the illnesses in Clwyd were caused by phenol. It is evident from the survey, he says, that people continued to drink water supplies because the taste was partly masked by taking it as, for instance, tea or coffee. Both water authorities believed that people would not drink water that tasted objectionable, which is one reason they said there is no risk to health. The Welsh Water Authority has announced that it intends to prosecute a local chemicals firm, Ferro (GB), over the release of phenol.

Digest

Home detergents 'clue to stomach disorders', Anthony Tucker, *The Guardian,* 12th June 1984

Household detergents may be harmful even in the small amounts left as residues on utensils, according to a pilot study carried out at the University College Hospital, London School of Medicine. The study has shown that liquid detergent ingested at a daily dose of about 100 milligrams per kilogram of body weight virtually destroys the gut lining of experimental rats. This dose level, however, is at least 10 to 100 times that to which people may be accidentally exposed from the kitchen or in pubs. In its paper, published in the British Journal of Industrial Medicine, the University College group—led by Professor Charles Clark—is careful to emphasise that the results are tentative and could be misleading. Although most baby bottles are rinsed and sterilised after detergent washing, the group calculate that unrised bottles could result in the accidental daily dose of around 10 milligrams per kilogram to babies—a level which might well cause damage to the immature gut. The Soap and Detergent Industry Association said in a statement that the results of the experiment—which involved only six rats—"are not consistent with the findings of detergent manufacturers who, over many years, carried out large scale studies without any evidence of adverse effects". The association says that the industry's studies had shown that the amounts of detergent left as residues on utensils are extremely small and harmless to adults and infants. But confidentiality surrounds toxicity tests and many products which have been on the market for decades pre-date standardised testing. The details of the industry's large scale studies are not available to the public or to research workers, and may not now be regarded as adequate. Detergents were originally developed as bactericides and are therefore highly toxic to other living cells. But they may be rendered harmless by digestive processes.

Britain blames cars for death of trees, Nigel Hawkes, *The Observer,* 17th June 1984

Britain has prepared a new defence against charges that it is responsible for killing trees in Europe by 'exporting' acid rain. It claims that trees dying in German forests are being killed, not by sulphur dioxide from British power stations, but by exhaust fumes from German cars. It does not deny that sulphur dioxide plays some role but claims that Britain's contribution to the sulphur falling on Europe has been greatly exaggerated. The British defence is based in part on a paper due to be presented by the German Government at a forthcoming conference on the environment. The German paper says that while acid precipitation was initially believed to be the main cause of die-back in forest trees, recently opinion has been changing. Now, it acknowledges, 'photochemical oxidants' derived from nitrogen oxides under the impact of sunlight and ozone also play a significant part. The main source of nitrogen oxides is the exhaust from cars, and such pollution is not carried far. This means, according to British officials, that the primary pollutants causing German forest problems are car exhausts, local pollution, and sulphur dioxide from Eastern Europe. Britain is not trying to fudge the issue, officials insist, but has been alarmed at demands from Europe, and particularly Scandanavia, to take action against sulphur dioxide emissions before it is even clear that they are the principal causes of damage.

Agent Orange firms offer victims $180m, Jane Rosen, *The Guardian,* 8th May 1984

Several American chemical companies which produced agent orange, the herbicide used in the Vietnam war, have agreed to set up a fund of $180 million to compensate Vietnam veterans suffering from cancer and other serious illnesses. The agreement was announced in federal court just before jury selection was scheduled to begin in a handful of cases representing some 50,000 claims filed by veterans from the United States, Australia and New Zealand. The veterans claim that their injuries were caused by dioxin, which was frequently present in agent orange, and that the companies and the US Government were aware of that. The defendants, including Dow Chemical, which produced most of the defoliant, deny that the herbicide could have caused any serious illness. The agreement, considered the largest legal settlement in American history, was reached with lawyers for seven manufacturers of the substance, some 17 million gallons of which was used to destroy cover and crops in Indochina during the period 1962-1971. However, a New Jersey spokeswoman for the veterans' group said the settlement was inadequate and threatened to sue the defence lawyers for "selling our dying men". In announcing the settlement Judge Jack Weinstein said a series of public hearings would be scheduled to determine whether the agreement was fair to all parties and said he would withhold his approval until after the hearings.

Danger drugs taken off market, Penny Chorlton, *The Guardian,* 16th May 1984

Two brand-name painkiller drugs are to be taken off the market immediately, the Health Minister, Mr Kenneth Clarke, has announced. Tanderil and Tandacote have been associated with 400 deaths in Britain, and the Government's drugs safety watchdog, the Committee on Safety of Medicines, recommended that they should be banned 10 weeks ago. The drugs, reckoned by independent safety assessors to be too hazardous to remain in general use, are made from oxyphenbutazone, and were described by the CSM as being twice as dangerous as the phenylbutazone painkillers which were banned from general use in March. More than 500,000 patients suffering from arthritis were prescribed one of these painkillers in 1982. In the 20 years that they were on the market, 1,500 deaths in Britain were thought attributable to them in some way. The delay in banning the oxyphenbutazone drugs which are derived from phenylbutazone, was caused by the manufacturer, Ciba Geigy, which exercised its rights of appeal under the Medicines Act.