The Ecologist Digest

Nuclear Power: Bombs, Accidents, and the Arms Race

Doctors deride nuclear casualty plans
Andrew Veitch, *The Guardian,* March 17th, 1982

The nine hospitals chosen by Sheffield health officials as nuclear war casualty centres would be flattened by a one megaton bomb exploding above the city, according to doctors who have leaked the plans. All the hospitals are within five and a half miles of the city centre. A one megaton bomb would be enough to destroy the steel works which are the area's presumed targets. The confidential Sheffield plans name five main casualty centres and four reserves. All medical personnel would become "subject to direction" in the "pre-strike" phase, presumed to be two weeks before the attack. There are provisions to evacuate doctors, nurses and paramedics, along with most maternity cases, acute cases, sick children and all convalescents. A Trent Regional Health Authority spokesman agreed that all the hospitals were in the blast area. However, he said, if the bomb exploded on the ground rather than in the air one hospital would survive because it was in a valley. "What else do we do—build hospitals underground?", he asked. Dr. Andrew Haines, senior lecturer at Middlesex Hospital medical school, said that in an attack on London more than a million people would be killed immediately, up to three million would be seriously injured by the blast and that heat and radiation would cause more deaths and injuries.

Nuclear Warning System "Danger", Harold Jackson, *The Guardian*, March 10th, 1982

A Congressional Committee has taken sharp issue with the Pentagon about the reliability of the US Air Force's early warning system. A special report by the House Committee on Government Relations has described the Norad computer system—which gave several false indications of a Soviet attack two years ago—as "dangerously outmoded and unreliable". It called for urgent action to remedy the shortcomings. In congressional hearings in 1981, the air force described the false alarms as "isolated incidents" and said that the faults which had caused them had been corrected. The committee's report, however, was highly sceptical and claimed that "problems at Norad (have) reached a critical stage".

US Plans Help for Nuclear Industry, *Nature* Vol. 294, November 19th, 1981

The Reagan Administration has offered the US nuclear industry all of the moral—and some of the economic—support that it wants. But even this may not be enough to restore the industry to health according to the parting words of the Nuclear Safety Oversight Commission (NSOC), an independent advisory body set up by President Carter following the Three Mile Island accident. Three main options face the Reagan administration if it wants to save the civil nuclear industry, says Governor Bruce Babbit, chairman of NSOC. The first option would be to regionalize the industry and draw it into the public power grids, a form of semi-nationalisation already adopted by, for example, the Tennessee Valley Authority. The second would be to bail out the industry directly through government subsidies, although allowing it to remain largely in private hands. The third and perhaps most controversial option would be to re-establish links between the commercial uses of nuclear power and the military demands for nuclear weapons, using the expansion of the latter to sustain the former. Some critics argue that the Administration's plan to use plutonium extracted from commercial wastes to provide fuel for weapons is already a step in this direction. This drastic set of choices reflects the serious problems facing the industry. The most popular scapegoats have been the tough environmental regulations and stringent licencing review procedures: but no less important has been the reduction in the rate of growth in power demand from 7 to 3 per cent a year over the past decade, and continued public concern about safety (highlighted by the design mistakes found in the Diablo Canyon reactor). Early in November 1981, the House of Representatives passed a bill that would allow utility companies to start initial low-level operations of a new nuclear plant even before all local complaints had been fully heard. The economic and safety problems facing the industry are unlikely to be resolved as simply. Several local utilities have decided to abandon plans for new reactors. In some cases, construction delays and the need to incorporate new safety requirements have increased initial estimates of construction costs by about a factor of ten. Many industry supporters feel that, in view of the growing consumer opposition to the rapidly escalating electricity bills to finance such construction—in some cases increasing by 500 per cent within a few years—the only way for the industry to remain viable is through a massive infusion of federal funds. But this possibility is already coming under fire from both sides.

Brief on British Aluminium's Invergordon Smelter. Letter to all Members of Parliament from R.E. Utiger, British Aluminium Company, January 14th, 1982.

"The Invergordon Smelter was set up in 1968, with the active encouragement of the government of the day, in the belief that power costs from the new AGR nuclear stations would enable aluminium smelters in Britain to be competitive with overseas plants based on hydro-electric power. A special power contract was concluded between the North of Scotland Hydro-Electric Board (NSHEB) and the British Aluminium Company (BACO) under which BACO contributed to the cost of constructing Hunterston B and was entitled to a tranche of power up to the year 2000 at operating cost plus escalation. With the capital element fixed and cost escalation forecast to be small in real terms, BACO expected to pay a power price which would make the smelter competitive: while the generating boards calculated they would recover all their costs over the life of the contract. To finance its share of the Hunterston B AGR, BACO was promised a government loan of up to £30 million at 7 per cent, which was slightly below the 8 per cent then being charged to nationalised industries. This loan was repayable in equal annual instalments of principal and interest from 1972 to 1999. The smelter was completed in 1971 on time and within budgeted cost. By 1973/74 Hunterston B was already several years late; it was clear that cost would exceed budget by at least one-third, and that its performance had to be down-rated to 80 per cent of specification. BACO was required to pay its share of the capital cost overrun, for which the government made a further loan of £7 million at 14½ per cent. The additional operating costs arising initially from delay in completing Hunterston B and subsequently from its lower performance could not, the government recognised, be charged to BACO. The government made arrangements through what has become known as the Smelter Deficit Account to compensate NSHEB for these failures. Since 1976 Parliament has voted a total of £113 million for this purpose; none of this of course has been paid to BACO. From 1976 onwards the power charges by then based on Hunterston B costs began to escalate at a rate far in excess of inflation. In addition, there was a dispute between BACO and NSHEB as to whether certain substantial elements were payable under the terms of the contract. Attempts to negotiate a settlement of the dispute failed and in February 1980 BACO was informed that NSHEB would bring a law suit to determine the interpretation of the contract. The problem was discussed at that time between the Secretary of State for Scotland and the Chairman of BACO. The legal proceedings were not initiated until April 1981, a year later. By the autumn of 1981 the situation had reached crisis point for BACO. Power charges had increased by a further 33 per cent in 1981, at a time when the aluminium market was worsening steadily and Invergordon looked certain to lose £20 million in the year. Such losses were insupportable for a company the size of BACO, and it was clear that the whole Group would be forced into liquidation within a few months unless the losses could be stopped. The company therefore formally approached the Department of Industry pointing out that it was now impossible for the company to await the outcome of the litigation with NSHEB which might drag on in the courts for several years. There appeared to be only three alternatives remaining:

a) To improve the power contract substantially so as to make Invergordon competitive internationally.
b) To terminate the power contract and close Invergordon.
c) To allow the whole Group to go into liquidation despite the fact that, excluding Invergordon, it was financially viable and during the period 1976-80 had the best performance record of any major European aluminium company.

After thorough examination of the whole financial position of the company, BACO was asked to put forward suggestions for a basis on which it could continue to operate the plant. The company tabled six major issues which would have to be satisfactorily resolved covering inter alia the disputed charges, price, future escalation, and flexibility of power offtake. The government added a seventh issue wishing to insert a three-year break clause. BACO argued that such a right of termination was not appropriate since the smelter could not be viable over such a short period. Negotiations proceeded with all the major issues being discussed in parallel, and both sides modified their position in an attempt to find a total package which could be submitted to Ministers and to the Board of BACO. At no stage did the government negotiators indicate that they had authority to offer any particular package either short or long term. The package discussed on the last day of negotiations on 17 December 1981 did not include a break clause. On 18 December BACO was informed that the package had been rejected as too costly and that termination was the only possibility. BACO had to act urgently. Losses at Invergordon had exceeded half-a-million pounds a week since September, and the financial resources of the company were in danger of fast running out. Government departments and the Scottish generating boards co-operated to complete the necessary arrangements as rapidly as possible so as to limit further damage to the company. Unfortunately, it was not possible in these circumstances to consult with employees and their trade union representatives in advance. The financial settlement on termination of the power contract was based on BACO's contractual rights. Having made capital payments in 1968 and later years, BACO had the right to receive 200 MW of power at operating cost until the year 2000. By giving up these rights BACO was returning a valuable asset to the generating system, and the contract provided that this "residual value" should be paid to BACO. The gross sum of £79.3 million agreed in negotiation enabled BACO to pay the disputed power charges (by then amounting to £47.0 million) and to repay £12.3

million of the government loans; the balance of £21.2 million outstanding has been waived by the government. From the remaining £20.0 million of the residual value was deducted £4.5 million due to NSHEB in the normal course of business, so that BACO received £15.5 million cash. Out of this sum BACO has to meet all closure and redundancy costs and it also has to write down its substantial investment in the smelter project. However the payment of the disputed items and the elimination of the Invergordon losses does restore the financial viability of the Group, thus removing the immediate threat to its other operations with 2,700 employees in Scotland and 4,500 elsewhere in the UK. This settlement in no way compensates BACO for the heavy losses incurred and the other opportunities foregone, particularly in Canada, by involvement in the Invergordon project. Success of the project depended on both the company and the generating boards fulfilling the estimates made in 1968. The company considers that it has carried out everything that it undertook at that time, but the unexpected evolution of the power cost destroyed the viability of the project."

Radiation Kills Atom Plant Man, *The Times,* March 5th, 1982.

Atomic Energy of Canada Ltd. has acknowledged that an Ontario nuclear worker died because of radiation at his work. Another worker at the same plant had a disability award for cancer believed to have been caused or aggravated by radiation. Both workers had been long serving employees at the Atomic Energy of Canada nuclear reactor research centre at Chalk River. The company's admission of radiation related cancers among its former workers could have important implications for the industry, for standards of radiation exposure and for hundreds of nuclear workers in Canada and abroad. The two men developed typical radiation-related cancers although they never received more than the current maximum permissible dose of radiation during their years at Chalk River. One man retired in 1981 after 28 years as a radiation worker. He was diagnosed as having cancer of the skin and neck. The other retired early after 31 years service and was confirmed as suffering from leukemia. Chalk River's 2,200 workers were briefed about the cases, according to an AEC spokesman. He added: "We have always believed there was an increased risk of cancer due to radiation exposure."

Submarine Graveyard poses threat of Radiation, Roderick Sharp, *The Times,* March 19th, 1982.

Plans to dispose of up to one hundred ageing Polaris nuclear submarines in the Pacific trench have alarmed scientists who fear that the submarines will pose a considerable radiation threat. The plans to "bury" the submarines were announced by the US Navy in 1981: five old Polaris were to be towed 160 miles off the Californian coast and scuttled to settle in the Pacific at 14,000 feet. The Polaris submarines are to be replaced by Tridents. The Navy's plans have come in for heated criticism from scientists who question the Navy's figures on the amount of radioactivity each submarine may contain. The Navy contends that radioactivity would only come from cobalt-60, which would be protected by the structure of the submarine from leaking into the water and has a half-life of just over five years. But this has been disputed by Dr. Robert Pohl, a physicist at Cornell University, and Dr. Marvin Resnikoff of the New York Public Interest Research Group. Dr. Resnikoff and Dr. Pohl claim that the walls of the reactor would also contain two other isotopes with vastly longer half-lives; nickel-59, with a half-life of 80,000 years and niobium-94. Other scientists feel that the submarines have only twenty years at the most before their structures break down and start leaking radiation into the water—and so to marine life. The journal *Science* has reported that there was enough radioactivity in one submarine—50,000 curies—to equal half of the amount dumped into the sea over the last two decades.

Ministry seeks to allay radiation fears, John Ezard, *The Guardian,* February 14th, 1982.

Farmers living around the Windscale nuclear power plant in Cumbria have reportedly been told by a Government official that "the most serious emergency British Nuclear Fuels could envisage" would involve only the evacuation of everyone living within a mile of the works and a ban on the release of milk within 10 miles. This assurance was given by Mr. David Smith, a Ministry of Agriculture divisional officer, to a meeting of 65 farmers, wives and children at Santon Bridge, near Seascale, according to one of those present. The gathering, organised jointly by the Ministry of Agriculture and Cumbria branch of the National Farmers' Union, was called because of local worry over the four-day delay in publicly announcing a leak of radioactive iodine 131 from the plant in October 1981. The leak happened on October 4 but was not officially disclosed until October 8. Samples taken on one farm showed a reading of 2,100 picocuries of radioactivity in milk, compared with the national average reading of 1.5 picocuries. Another farm near the plant produced a milk reading of 1,450 picocuries. Readings of up to 40 picocuries were found at other farms. The milk was distributed to households before farmers learned of the leak.

Russia proposes dumping in space, Gabriel Ronay, *The Times,* January 30th, 1982.

Dr. Pyotr Kapitsa, the Cambridge-trained doyen of Soviet nuclear physicists, has brought into the open the mounting anxiety among younger scientists over the unsafe methods used in the Soviet Union for disposing of radioactive waste from nuclear plants and weapon tests. His recent suggestion in a *Pravda* article is that nuclear waste should be packed into rockets and dumped in outer space. Concern over

the long-term effects of the present ways of disposal of nuclear waste is particularly noticeable at the Academy of Sciences' Institute of Physical Problems in Moscow and at the Dubna Nuclear Research Institute, according to a Hungarian scientist who has recently returned from the USSR. Dr. Kapitsa broached this delicate subject within the wider framework of the world energy crisis under the innocuous heading "Following the Laws of Physics". While insisting that nuclear power offered the only long-term solution to the energy crisis, he pointed out there were unresolved technical problems. "The fact of the matter is that wastes from uranium fission are highly radioactive and their effective disposal poses great technical problems", he wrote. "Perhaps the best thing would be to dispatch them by rocket into space, but as yet this is not being considered sufficiently reliable." The problems posed by the accumulation of radioactive waste have not been publicised in the Soviet Union. One reason is that a number of grave accidents have been rumoured to have taken place. Dr. Zhores Medvedev, the exiled Russian biochemist, claims that an explosion of nuclear wastes in the Urals in 1958 led to the contamination of vast areas between Chelyabinsk and Sverdlovsk and hundreds of deaths.

Row over acceptable N-plant deaths, Harold Jackson, *The Guardian,* February 13th, 1982.

A remarkable row has broken out among members of the US Nuclear Regulatory Commission over whether 13,000 possible deaths is an acceptable risk from nuclear power stations. One member of the board has accused his fellows of trying to mask the figure in jargon and the commission chairman has in turn accused his colleague of being an alarmist. The dispute seems likely to dominate the public hearings on nuclear safety due over the next three months. The commission's new regulations, were drawn up to take account of the lessons of the Three Mile Island accident. They propose safety standards for the industry to ensure that "the risk of a nuclear power plant accident should not be a significant contributor to a person's risk of accidental death or injury." In an effort to make this vague concept more specific, the commission devised what it calls "numerical guidelines"—now the core of the dispute. They lay down that immediate deaths from an accident and subsequent deaths from radiation "should not exceed one tenth of 1 per cent of the sum of fatality risks from other accidents or cancer fatality risks from all other causes." Because this bureaucratic formulation is meaningless to most people, one Commissioner, Mr. Peter Bradford, dissented from the commission's "refusal to put forth any clear 'bottom line' for comment." The figure of 0.1 per cent, he pointed out, implied "some 13,000 deaths over the life of the 150 plants now in operation or under licensing review." This drew a riposte from the chairman, Mr. Nunzio Palladino, that "this ratio is 1 to 1,000. Thus the estimate of 13,000 fatalities from nuclear power plants accidents . . . should be viewed in relation to the 13 million fatalities from accidents and cancer not stemming from nuclear power plant accidents."

Nuclear Firms are Facing Tough Times, John R. Emshwiller, *New York Times.*

The past few years were hard for the commercial nuclear power business, but the next few look worse. No US utility has ordered a nuclear plant since 1978, and no orders are expected until near the end of the decade at the earliest. At the same time, business already booked is evaporating. So far this year, utilities have cancelled seven reactor orders, one more than all those cancelled in 1981. Some industry officials believe that several major projects will be dropped in the next year or so and that as many as half of the 80 reactors still on order won't be completed. Several factors are to blame, including the soaring cost of building nuclear plants, a sharp drop in the growth of electrical demand and stiffer—and more expensive—safety requirements after the accident at Three Mile Island. Preparing for the worst, General Electric Co. one of the largest reactor suppliers, has restructured its nuclear business to emphasise servicing existing reactors. Suppliers aren't the only ones being hurt. Utilities have had to cancel projects in which they had made huge investments. Two partially completed nuclear plants in Washington were cancelled earlier this year after the Washington Public Power Supply System had spent £2.25 billion on them. The Tennessee Valley Authority is considering scrapping up to eight nuclear reactors in which it has invested about $4 billion. But after a decade of bitter experience, utility executives are dubious that nuclear power will return to favour someday. "I'm 49 years old, and I doubt I'll be making a decision on ordering a nuclear plant in the remainder of my career," says Martin Fate Jr., president of Public Service Co. of Oklahoma, a subsidiary of Central & South West Corp. Regulators also fear that nuclear projects will endanger the financial solvency of the utilities that are building them. New Hampshire regulators recently ordered Public Service Co. of New Hampshire to sell part of its 35 per cent share in the Seabrook nuclear project because of concern the utility couldn't handle the financial burden. In some cases, utilities are postponing decisions to cancel, but halting work in the meantime. Houston Lighting & Power Co., a subisidary of Houston Industries Inc., recently decided to reassess building the Allens Creek nuclear plant, in which it has invested $262 million. "We see little on the horizon that gets us enthusiastic," a spokesman says. But just stopping work is costly, too. The Tennessee Valley Authority is holding up eight plants indefinitely. Just maintaining each site, though, costs about $20 million a year, a TVA spokesman says. At a meeting of securities analysts last December, General Electric's chairman John F. Welch announced that GE had "a plan which, very candidly, doesn't anticipate any further new orders for equipment." But GE could come out ahead. Its

nuclear operation used to be a chronic money loser, but Mr. Welch says he expects consistent earnings in the future based on the fuel and service businesses.

Britain asked to fill the plutonium gap, Shyam Bhatia, *The Observer,* March 7th, 1982.

Britain's nuclear exporting policies have come under renewed parliamentary scrutiny this week after the Reagan Administration's decision to expand home production of nuclear warheads by more than two-thirds. Unlike Britain, the United States faces an acute shortage of plutonium. Current stocks are not thought to be big enough to meet the combined needs of the expanded weapons programme and the fast-breeder reactor under construction at Clinch River, Tennessee, funding for which was partially suspended by President Carter. US officials have approached London to see if any surplus British plutonium can be exported to America. Their approach has been made on the basis of needing extra plutonium for civil purposes, in other words the fast-breeder reactor. Labour MP Mr. Robin Cook, who has been monitoring Britain's nuclear links with the United States, said he had written to the Prime Minister outlining his concern. "The proposal under negotiation is that Britain should supply the plutonium needed for President Reagan's fast reactor programme and thus substitute for American plutonium, which would be freed for weapons use. The net effect is that President Reagan will be able to build more bombs than he otherwise would."

Torness reactor "not needed", Tony Hodges, *The Times,* January 11th, 1982.

There is no need for the £1,300m advanced gas-cooled nuclear power station already being built at Torness, East Lothian, according to Dr. Norman Dombey, former adviser to the Commons Select Committee on Energy. The 73 per cent capacity over maximum peak demand produced by the South of Scotland Electricity Board rendered Torness unnecessary, Dr. Dombey said. Torness would force up electricity prices in Scotland, while producing still more power which was not needed. Figures submitted to the committee by the board on Torness AGR suggested that £400m would be "saved" by its completion several years in advance of the need for its supply. But the board acknowledged the figures were based on a hypothetical increase in oil and coal prices of 5 per cent a year above the rate of inflation in the years 2000 to 2012. Such a calculation was unrealistic, Dr. Dombey said. He suggested the board should make new calculations on the cost of Scottish electricity over the next 10 years based firstly on Torness being completed as planned and then on the project being halted now and "mothballed" until required.

Chemicals, Drugs, Health and Pollution

One Man's Meat is Another Man's Water, Richard Milner, *The Sunday Times,* March 7th, 1982.
After fresh protests about the adulteration of processed foods, the government is to take further action to limit the amount of water that may be injected secretly into meat products such as bacon, ham and even "tenderised" steak. Last week the National Consumer Council said that new regulations due to take effect next year were still far too slack. They would allow manufacturers to inject an extra five per cent of water into steak, 10 per cent into ham and 15 per cent into bacon, for example, without any disclosure. Now these amounts may be reduced or eliminated. "Trading standards officers are only now beginning to unfold a horrifying tale of commercial malpractice and deceit", reports Tim Elliott of the Cheshire Trading Standards Office in the NCC magazine *Omnibus.* "It seems from ever more sophisticated techniques of food processing which allow for debasement without it being detected . . . It is high time that shoppers woke up to how they are being cheated." Elliott's attack centred on a brash advertisement used in Meat Trades Journal by an equipment supplier. "The Golden Water Tap Technique!", announced Holroyd Food Machinery. "Why sell meat when you can sell water!" Meat trade men point out that the advertisement appeared only once—in April 1978—and was promptly withdrawn. "We all make mistakes," the firm's boss, Fred Holroyd, said at the time. "I regret the use of that particular wording." But the technique still works. Ham is particularly suitable for the Golden Water Tap treatment as the meat has to be injected with between 5 and 10 per cent brine in the curing process. But the tap is not always turned off at this point. Some producers have injected more than 40 per cent extra water into "pumped" hams, together with polysulphates to cut down moisture loss in cooking.

Cancer Safeguards "Blocked", Angela Singer, *The Guardian,* March 17th, 1982.
The main chemical unions have accused the Chemical Industries Association of deliberately blocking a policy for the control of carcinogens in the workplace. The Association was to have discussed its own policy on carcinogens with health and safety officers of the General and Municipal Workers' Union, the Transport and General Workers' Union and the Association of Scientific, Technical and Managerial Staffs. However, it postponed the meeting without setting another date. An association spokesman said yesterday that the policy could be discussed only with qualified medical personnel. But Mr. David Gee and Mr. David Warburton, national officers of the G & MWU, said it was a "stalling device" which

had previously blocked attempts by the union to gather information. In 1980, the union asked employers to disclose information about cancer hazards to its health and safety representatives in accordance with the Health and Safety at Work Act. The association had intervened to forestall any response. It says that answering the G & MWU questions would lead to "unnecessary alarm". Ms. Sheila McKechnie, national health and safety officer of ASTMS, said: "The association has taken its usual stand of hiding behind its medical advisers. It has failed to respond openly to various trades union initiatives. We can only conclude the association does not wish to discuss matters with unions.

9 in 10 say "Ban lead in petrol", Geoffrey Lean, *The Observer,* March 7th, 1982.
Nine out of 10 people in Britain want lead banned from petrol, according to a public opinion poll. Only 6 per cent of those questioned supported the Government's view that a ban is unnecessary. Ninety-one per cent of those questioned said that they believed lead was a potential health hazard and only 4 per cent said it was not. A detailed breakdown shows that 46 per cent rated it a "very serious hazard", 33 per cent "a fairly serious hazard" and only 12 per cent "a slight hazard". Eighty-nine per cent said lead should be banned, 55 per cent adding this was "urgent". Three-quarters of those questioned said they would be prepared to pay more for lead-free petrol. Asked "Do you think the Government should introduce a law to ensure that all petrol sold in Britain is lead-free, even if this would put up petrol prices by a few pence per gallon?" 77 per cent said "yes", 15 per cent "no", and 8 per cent didn't know.

Lead not to be banned, Paul Brown, *The Guardian,* March 8th 1982.
Mr. Giles Shaw, Under Secretary in the Department of the Environment, said on March 7th that the Government was doing enough in reducing the lead level by two-thirds by 1985.

Oil industry supported ban on lead in petrol, George Brock, *The Times,* March 9th, 1982.
Oil companies secretly recommended to the Government in 1981 that lead-free petrol should be introduced as soon as possible if it was determined to act on the health dangers of lead in car exhausts. The offer is revealed in an internal briefing document that British Petroleum sent to its staff to help them to explain the company's position to customers and the public. It is the first time the oil industry has disclosed that it would rather see Britain go lead-free than reduce lead levels in petrol. The companies have previously maintained a discreet silence about their advice to the Government. The advice to go lead-free was given to civil servants during negotiations last year which ended with the Government deciding to reduce, and not eliminate, petrol lead. It was, says the briefing, more expensive for oil companies than the lead-free option and was now being implemented "at considerable cost". The briefing deals with the accusation that the oil industry is "involved in a conspiracy" to keep lead in petrol and says: "Far from conspiring to retain lead in petrol, the oil industry recommended to Government last year that, if it was decided that lead levels should be further reduced, the best way of doing so was to introduce unleaded petrol (2-star) as soon as possible". Mr. Douglas Harvey, director general of the Petroleum Industry Association confirmed that the BP document was accurate.

Legal aid fund to pay costs for Shell and BP, Paul Brown, *The Guardian,* March 3rd, 1982.
Shell and British Petroleum are to receive £33,000 from the legal aid fund to pay the costs of defending an action brought by parents who said that the lead in petrol was causing brain damage to their children. The companies had originally claimed costs of £50,000, but this figure was contested and reduced. When the case came before the Appeal Court in 1980 a claim for damages was dismissed and the court refused an injunction to force the companies to reduce lead levels in petrol. The companies claimed that the action was frivolous and vexatious. Since then, the parents have been exonerated by a Government order that lead levels will have to be cut by the amount that the parents wanted—0.15 grams per litre to 0.04 grams. Mr. Kim Speller, a solicitor who acted for one of the parents, said: "The parents can now be seen to have won a moral victory. Events over the last two years have proved their case completely. It is absolutely outrageous that the petrol companies are now claiming that the taxpayer should pay their costs."

Weedkiller may be cause of Spanish oil deaths, Harry Debelius, *The Times,* December 10th, 1981.
According to Dr. Jose Baguena Candela, a senator from Valencia who is also the director of a hospital research centre, weedkiller may be responsible for the hundreds of "toxic syndrome" deaths which have resulted from the sale of poisoned olive oil in Spain. Director of the research centre at the La Fe Sanatorium, Valencia, Dr. Baguena believes paraquat, a highly toxic weedkiller, may be the mysterious poison, or at least a factor involved in the toxicity of the killer oil which has already claimed 218 lives and made thousands more ill.

ELF Radiation Rouses Opposition in Wisconsin, *Not Man Apart,* November 1981.
Project ELF, formerly called "Sanguine" and "Seafarer", consists of 28 miles of antenna, 14 of which are strung overhead on poles, the other 14 buried in the ground. Built as a test facility by the Navy in the Chequamegon National Forest in 1969, the system is intended to allow the Navy to send

emergency messages to submarines carrying nuclear-missiles deep beneath the ocean surface. Last summer, President Reagan requested $34.9 million be spent on developing ELF and upgrading the Wisconsin facility so that it will transmit 24 hours a day. Studies of ELF radiation done by the Navy indicate that exposure causes genetic mutation in fruit flies, disrupts bird migration, and changes human blood triglyceride levels. Other studies have shown ELF to cause changes in the Earth's ionosphere, stunt growth in mice, and lead to behavioural changes in humans. In addition to these threats, the presence of ELF makes the area a primary target in a nuclear attack. A local citizens group states that although the Navy has been researching the possibilities of ELF for many years, it is still in the experimental stage. Only three successful communications with submarines have been verified and it takes 20-30 minutes to send a three-letter message. In order to transmit to a submarine anywhere in the world, the Navy estimates 1,200 miles of cable would be needed to build an ELF grid over a 2,400 square-mile area.

Anger at British "snub" to acid rain talks, Tony Samstag, *The Times,* February 5th, 1982.
European environmentalists are angry at the refusal of Mr. Michael Heseltine, the Secretary of State for the Environment, to attend a ministerial conference on acid rain in Stockholm in June this year. Of 15 European countries that have so far responded to the invitation, only the British are sending an official of less than ministerial rank. Collective European anger at the British, who are held responsible for much of the long-range airborne pollution that affects a large area of central and northern Europe, was evident at a seminar on the subject in Brussels. Members of the European Environmental Bureau, which represents about 70 national conservation agencies and pressure groups, have criticized what they see as a lack of urgency in controlling emissions of sulphur dioxide, in particular. Such emissions tend to concentrate over Scandinavia because of an unfortunate coincidence of airstream patterns and the use of very high smokestacks intended to disperse the pollutants as widely as possible. Mr. Mats Segnestam, executive director of the Swedish Society for the Conservation of Nature, said Mr. Heseltine's refusal of the Stockholm invitation was "a scandal". A recent visit to Britain by Mr. Anders Dahlgren, the Swedish Ministery of Agriculture, had confirmed Scandinavian suspicions that the British were "trying to duck the issue", he added.

Breast v bottle: Pamphlets break health code,. by Annabel Ferriman, *The Times,* February 4th, 1982.
War on Want has accused British baby food manufacturers of violating a voluntary international code approved by the World Health Assembly in May 1981, designed to encourage mothers to breast rather than bottle feed. War on Want has been campaigning since 1974 to increase the number of mothers breast feeding after the dangers of bottle feeding in the Third World, where water is frequently polluted, were highlighted by its report *The Baby Killer.* Now it has carried out a survey of health workers and mothers in 72 British towns to see whether the code is being followed. It received 150 replies and 1,675 documented incidents of practices in direct contravention of the international code were reported. Although the code says that there should be no posters, calendars or clinic cards advertising baby milks in health care facilities, Britain's hospitals and clinics were full of such materials. Most of the promotion was in leaflets, pamphlets and advertisements in baby care booklets. In all, 1,174 items in 98 different places totally contravened the code. Cow and Gate, for example, prepared "feeding your baby at home" leaflets, which were distributed to mothers as they left hospital. One dietician said: "I am very pro-breast feeding. I always encourage that in my talks. However, it is extremely embarrassing when I know that the 'baby books' given out contain adverts for baby milks. The snag is, these books with their adverts are free; whereas we have to pay for other literature."

New risk for the smoker and his friends, by Andrew Veitch, *The Guardian,* February 13th, 1982.
Scientists searching for the causes of lung cancer have found a new suspect: radioactive cigarettes. It seems that the 30-a-day man exposes certain bits of the lining of his bronchial tubes to 8,000 millirems of radiation a year—equal to 300 chest X-rays. The source of the radiation is the polonium in the phosphate fertiliser used in growing tobacco. This is concentrated in the leaves of the plants, survives the drying-out process, and is wafted upon insoluble particles in cigarette smoke into the lungs of the smoker. The particles accumulate in particular parts of the bronchial tubes which also happen to be common sites for lung cancer, and dose the surrounding cells with alpha radiation. It has previously been assumed that the radiation is dispersed throughout the tissues. But alpha particles are bad travellers. Cells close to the source receive high doses. A single alpha particle doses one cell nucleus with 1,000 rems of radiation. "Alpha activity in cigarette smoke may be a very effective carcinogen," report Dr. Thomas Winters and Dr. Joseph DiFranza, of the University of Massachusetts Medical Centre, who describe the process in the *New England Journal of Medicine.* It is less likely than people think that chemicals alone are responsible for the high incidence of lung cancer among smokers, they say. Only one definite carcinogen, benzopyrene, has been found. And, they add, only 25 per cent of the radiation is inhaled by the smoker. The rest is wafted round the room.

New Bill Threatens Food Safety, *Not Man Apart,* November 1981.
A coalition of 36 nationwide consumer groups and labour unions have labelled Senator Orrin Hatch's

bill 1442—the Food Safety Amendments of 1981—a "wish list" of the food industry, "giving all it could possibly want", while stripping the consumer of 75 years of protective legislation. In his introduction of the bill to Congress, Senator Hatch said that S.B. 1442 would make the present laws more "flexible" by relaxing safety standards that have become too rigid to provide an "economic and available food supply". The bill would also provide a "more appropriate framework for rational decision-making". Bill 1442 would change the Food, Drug and Cosmetic Act by redefining "safe" to "absence of significant risk under the intended conditions of use". According to Senator Hatch, the present policy of zero-cancer risk in food is impractical when certain additives, such as nitrites and saccharine, are important to the food supply. He stated that "decisions should thus be directed at identifying and limiting those risks that are significant rather than trivial."

Aquifer Polluted, *Environment* (Spectrum Section), vol.23, no.9, November 1981.
The Brunswick Aquifer, New Jersey's second largest source of drinking water, will have to be cleaned up by American Cyanamid, whose chemical plant located in Bridgwater Township is responsible for polluting the aquifer with a variety of toxic chemicals. The several trillion gallon-sized reservoir serves 650,000 people and has been found to contain solid and liquid wastes, dyes, and suspected carcinogens such as benzene, triclorethylene, and chloroform, based on data collected by American Cyanamid and the New Jersey Department of Environmental Protection (DEP). The administrative order requiring removal of pollutants from this groundwater is the most far-reaching directive which the DEP has ever issued. It requires American Cyanamid to continue sampling in order to further clarify the contamination problem, to provide plans for preventing future groundwater pollution problems and to continue pumping water from the site.

Dangerous poison spill Kept Quiet, David Leigh, *The Observer,* March 14th, 1982.
More than 150 gallons of PCB, a highly toxic chemical blamed for a number of worldwide poisoning and environmental disasters, was spilled in Belfast in 1981, when an IRA bomb burst open a large electricity transformer. Some was washed down the city drains. The Northern Ireland Electricity Service admitted to *The Observer* that a near-disaster had taken place and had been hushed up, partly for security reasons. It is possible that firemen and workmen may have been contaminated in the incident, which remained secret for more than seven months. Mr. R. J. Thompson, the service's commercial director, said: "We took the view that the amount which had gone down the drains had been so small, we had been lucky. We could see no advantage in telling the public of the faint possibilities." PCBs, poly-chlorinated biphenyls, can be absorbed through the human skin, do not break down harmlessly, and accumulate in the food chain. PCB and accompanying trace contaminants in complex PCB compounds have been linked with liver cancer, deformed babies and disfiguring skin diseases. In 1968 a transformer leaking into a rice oil factory in Japan poisoned 15,000 people. They vomited, their limbs swelled, and some died of cancer. Another transformer leaked into an animal feed plant in Michigan in 1979. It took three months, during which the feed was distributed to 19 states, before the leak was discovered. Now in the United Kingdom a steady trickle of transformer leaks and spills is beginning to occur, little publicised until recently and little understood by owners and users. Until Monsanto Chemicals voluntarily stopped manufacture in 1977, PCB compounds were highly popular in the British electricity industry. The Northern Ireland factory inspectorate said last week that their routine investigation showed no cause to fear a health hazard. But they refuse to release their report. "We are not at liberty to divulge it," a spokesman said. Dr. Irving Selikoff, of Mount Sinai Hospital in New York, a world expert on the ravages of PCB, said: "We do not know what effect exposure to PCB has on people so there is no dose that can be considered 'safe' ".

Gas Danger exposes flaws in code for Foam Insulation of Homes, Andrew Veitch, *The Guardian,* March 15th, 1982.
A large gap has appeared in the safeguards covering the insulation of homes with formaldehyde foam, the material banned by the US consumer safety commission because of health hazards. Experts at the Department of Environment's Building Research Establishment are advising elderly people with respiratory problems not to have the foam installed. Called UF (urea-formaldehyde) foam, it is the most effective insulating material for cavity walls. British firms insulate more than 150,000 houses a year with it. The business is worth around £30 million. The firms have maintained that the code of practice, which is policed by the British Standards Institute, is strict enough to safeguard consumers. It covers the manufacture and installation of the foam. But it does not specify action to be taken when the process goes wrong and poisonous gas is given off by the foam. It was the hazard posed by this leaking gas that prompted the US commission's ban. Symptoms attributed to formaldehyde in homes, according to a leading article in *The Lancet*, include breathlessness, headache, rhinitis, eye irritation, cough, colds, rash, malaise, vomiting (in children), drowsiness and memory lapses. People are unlikely to smell the gas at concentrations lower than 0.5 ppm. A BSI survey of 150,000 homes found that in more than 300 cases, customers complained of a smell. "There is mounting evidence", *The Lancet* reports, "that adverse effects of formaldehyde can arise at levels well below 1 ppm." The limit to which workers can be exposed in factories is 2 ppm. Neither the BSI nor the Cavity Foam Bureau accepts the evidence that the foam might cause cancer.