

The Ecologist Digest

Nuclear Power: Bombs, Accidents and the Arms Race

Rust puts American N-plants at risk, Harold Jackson, *The Guardian*, 22nd September 1981.

Reactors rusting in America, *The Times*, 23rd September 1981.

A quarter of America's nuclear generating plants may have to be closed for repairs to their steam generators, which could cost as much as \$6 billion. The pipes used to carry radioactive water from the reactor core are corroding at a far faster rate than expected, and replacing them could take as long as a year at each plant. In addition to an estimated repair bill of \$100 million for each reactor, there will be the considerable cost to the owners of replacing the generating capacity lost while the reactor is out of commission — sums that could run into further hundreds of millions. Four of the country's 45 pressurised water reactors have already been closed to allow the thousands of thin stainless steel tubes to be replaced. The pipes were supposed to last the working life of the power stations — 40 years — but have been made unusably dangerous within as little as eight years. One of the owning companies, Florida Power and Light, is now suing the builders, Westinghouse, for the cost of the repairs. All but two of the 17 plants affected were constructed by Westinghouse between 1968 and 1976. They are in California and in seven eastern states, and comprise one in four of the country's 74 working reactors. The trouble is in the primary coolant loop. The primary loop water is under high pressure to stop it boiling, and it is also highly contaminated with radioactivity. The water in the secondary loop is clean and the risk is that corrosive leaks in the primary piping will force this radioactive water into the secondary loop and then allow it to pass to the outside. Two years ago, the Nuclear Regulatory Commission issued a bulletin noting that "for pressurised water reactors, leaks and deterioration of steam generator tubing have been significant problems." Now the annual report of the Consolidated Edison Company, which supplies power to New York, has given a gloomy assessment of the magnitude of the problem. It notes that the rusting appears to be progressive, and comments that "the company is presently unable to determine the remaining service life of the steam generators." The rusting, according to a spokesman for Westinghouse, appears to stem from the use of brackish river water for cooling. "Studies indicate

that maintaining the correct water chemistry is a very important key to minimising corrosion," he said. The worst possible consequence, as the original NRC bulletin noted, is a "loss of coolant accident" — the problem that hit the Three Mile Island plant in Pennsylvania. The rust problem is an embarrassment to the British Government, which plans to build its first PWR plant at Sizewell, Suffolk, in 1983.

Plutonium found in Harwell soil, *The Guardian*, 26th August 1981.

Small traces of plutonium have been found in soil next to radioactive waste ducts at the Atomic Energy Authority's research establishment at Harwell, Oxfordshire. The traces, about nine feet below the surface, were found during soil sampling after last month's announcement that defects had been discovered in the low level liquid waste drains at the research centre.

Construction error shuts down US nuclear plant, Ivor Davis, *The Times*, 1st October 1981.

Boondoggle at Diablo: The 18-Year Saga of Greed, Deception, Ineptitude — and Opposition, Mark Evanoff, *Not Man Apart*, September 1981.

A mistake in the construction of the controversial \$2,300m (about £1,200m) Diablo Canyon nuclear power plant near Los Angeles has forced the shutdown of the power station indefinitely and cancellation of low-power tests that were to begin this week. The error was found after two weeks of what have been described as the largest anti-nuclear demonstrations in the United States. About 1,000 protestors, who tried to prevent the power plant from opening, were arrested. The demonstrations had virtually ended and the power plant was only hours from starting up when the design error was spotted. Officials of the Pacific Gas and Electric Company, which is operating the power station, admitted that a seismic diagram meant for one containment dome at the nuclear plant, perched on the edge of the Pacific Ocean, was mistakenly put in the other. "The two containment domes are a mirror image of each other from the outside, but inside there are differences," said Mr. Dick Davin, a company spokesman. Engineers discovered the wrong diagram was used in the stress analysis of some pipe auxiliary systems in one of the domes, that would help cool the reactor dome during a shutdown. However, the mistake does not involve the pipes that carry radioactive water during operation. A spokesman for the United States Government Nuclear Regulatory Commission described the error as "a fairly significant engineering goof-up". Some of the piping probably

could not withstand a major earthquake. The plant is situated 2.5 miles from an active earthquake fault.

(*Not Man Apart* has produced an excellent report of the Diablo Canyon struggle, available through Friends Of The Earth, San Francisco.)

Death by Atomic Overdose ruled out, *The Guardian*, 19th August 1981.

A retired engineer killed by a heart attack nearly 30 years after accidentally swallowing an overdose of liquid plutonium died from natural causes according to a coroner. Peter Nugent, aged 56, was working at the Windscale nuclear plant in Cumbria in 1952 when he swallowed 80 times the safe annual dose. The plutonium had poured into his mouth as he sucked a blocked tube in an effort to clear it. He was isolated, treated for exposure to radiation and later transferred to Capenhurst research laboratories in Cheshire. Mr. Nugent, a widower, who retired on a pension in 1966 received substantial compensation from his employers, but his case was not revealed because of the Official Secrets Act. He died after collapsing with a heart attack. An inquest was ordered to examine the possibility of a connection between his death and the plutonium overdose. But a pathologist and two other experts agreed that the plutonium overdose could not have caused the heart attack. The coroner recorded a verdict of death from natural causes.

Hearings planned on NASA Role in unorthodox Radiation Therapy, Joanne Omang, *International Herald Tribune*.

Washington — Congressional hearings will be held next month on a published allegation that the U.S. government scientists kept giving leukemia patients experimental high-dose radiation therapy between 1964 and 1974 in a "substandard" project at Oak Ridge, Tenn. so that the U.S. space programme could learn how much radiation a person could absorb without becoming ill. According to an article by Howard L. Rosenberg in *Mother Jones*, the patients were not told of the National Aeronautics and Space Administration's interest, which concerned protecting astronauts, so that they would not become nauseated from radiation in space while wearing oxygen masks. Dr. Clarence Lushbaugh, who monitored the radiation patients for NASA, responded in an interview that the decade of experiments was conducted only for therapeutic purposes and only when medically appropriate, and that NASA funding was not essential to the programme. The article said that all of the cancer patients who passed through the laboratory between 1964 and 1974 were referred by outside doctors and were considered terminal cases. Some of the patients received up to 500 rads of radiation over varying periods of time. (A sudden dose of 450 rads causes quick death in half the people exposed). Documents obtained by Mr. Rosenberg under the Freedom of

Information Act show that when the project began in 1957, seven years before NASA's participation, scientists at the Institute of Nuclear Studies did not expect high radiation to help the patients much and made no plans to investigate the technique thoroughly. They said in a report to the Atomic Energy Commission, which provided their main funding of about \$1.8 million a year, that they hoped instead that the patients' responses to the radiation would "provide a yardstick for comparisons" with future experiments. "It was not our plan to evaluate the long-range effectiveness of these relatively large individual doses," wrote Dr. D.A. Andrews, who headed the team that included Dr. Lushbaugh. "One should not infer from this study that we expected these individual or infrequently given exposures to produce better clinical results (than partial-body doses). At present we feel that some pattern of fractional exposure . . . probably offers a preferable approach." Mr. Rosenberg interpreted this to mean that the scientists knew that patients might have benefited more from some other treatment, and that they administered high-dose radiation anyway.

Little Black Rabbit, *Scram*, August/September 1981.

How and why did the UKAEA choose Dounreay as a site for Britain's first fast breeder reactor? A speech given by Lord Hinton at Strathclyde University a few years ago gives an indication. The following is an extract from the speech: "But why, if we were giving the reactor containment, were we putting it on a remote site? This could only be logical if we assumed that the sphere was not absolutely free from leaks. So we assumed, generously, that there would be 1% leakage from the sphere, and dividing the country around the site into sectors, we counted the number of houses in each sector and calculated the number of inhabitants. To our dismay, this showed that the site did not comply with the safety distances specified by the health physicists. That was easily put right; with the assumption of a 99% containment the site was unsatisfactory, so we assumed, more realistically, a 99.9% containment, and by doing this we established the fact that the site was perfect . . . we knew that we had found the right site for the reactor and were quite prepared to adjust what were only guessed figures to support a choice that we knew from experienced judgement was right." Lord Hinton was Chief Engineer in the Production Division of UKAEA.

Belgian Nuclear Energy Safety in Question, Jasper Becker, *Nature*, Vol 293 September 1981.

Serious failings in Belgium's nuclear safety policy have been brought to light in a new report. Commissioned by the Belgian government from the European Commission pool of nuclear experts, the report describes as "unhealthy" the manner in which the new plants Doel 3 and Tihange 2 are being constructed. The report points out that in Belgium no safety survey is carried out on a nuclear power

station until shortly before the plant goes active. By this time any outside expert advice is virtually useless, for either the plant cannot be altered, or at best only an uneasy compromise can be reached. Ironically, the Belgian government had promised to tighten up nuclear power security following the Three Mile Island accident, but little has happened since then. The nuclear power industry's problems do not stop there. The International Atomic Energy Authority has already reprimanded Belgium for not engaging the 50 personnel it considers necessary to deal with matters of nuclear safety. The environmental group, Greenpeace, has been trying to stop vessels leaving Zeebrugge harbour with nuclear waste. And the 17 technicians at present working in Belgian plants are now threatening to go on strike because of a dispute over how the power stations are being run.

New Snag for Nuclear Plants, Harold Jackson, *The Guardian*, 28th September 1981.

More problems have arisen for America's troubled nuclear power industry. The Director of Safety Technology for the Nuclear Regulatory Commission, Dr. Thomas Murley, has said that irradiation is rapidly turning the steel, surrounding many reactors, brittle and potentially unsafe. "On the information available today," Dr. Murley said at the week-end, "I would say we'd get very nervous after another year or so." As with the recent discovery of severe rusting (see above) the deterioration of the steel has come more rapidly than predicted. The eight-inch thick shell surrounding reactor cores was designed to last the life-time of the plants. Normally it is heated to an operating temperature of 550 degrees Fahrenheit and is designed to withstand a working pressure of 2,200 lbs a square inch. There are, however, circumstances when the temperature can drop suddenly — if the emergency core cooling system comes into play, for example. Scientists are now worried that the containment vessel would rupture under such conditions. The NRC has called urgently for more information from the owners of the 46 pressurised water reactors potentially at risk. The power companies are disputing the commission's assessment of the problem and NRC scientists have agreed that none of the plants face an immediate shutdown. But they have given a warning that some may have to close within a year. If the official assessment is borne out by further studies, it could be an unprecedented disaster for the American power industry. The containment vessel is an integral part of a nuclear power plant to the extent that replacing it would mean rebuilding the whole installation. Faced with such a choice it seems likely that operators of pressurised water plants would simply abandon nuclear power generation. There are interim measures which could be taken to retard the deterioration of the steel, but no one is sure how effective they might be. As it is, the climate created by the accident at Three Mile Island and by these constant alarms about other nuclear power stations

has led a number of power companies to announce that they are abandoning planned developments.

Chemicals, Drugs, Health and Pollution

Scientists find warming Trend in Atmosphere for last Century, Walter Sullivan, *International Herald Tribune*, 25th August 1981.

A team of U.S. scientists says it has detected an overall warming trend in the Earth's atmosphere extending back to the year 1880. They regard this as evidence of the validity of the "greenhouse" effect, in which increasing amounts of carbon dioxide cause steady temperature increases. The seven atmospheric scientists predict a global warming of "almost unprecedented magnitude" in the next century. It might even be sufficient to melt and dislodge the ice cover of West Antarctica, they say, eventually leading to a worldwide rise of 15 to 20 feet in the sea level. In that case, they say, it would "flood 25 per cent of Louisiana and Florida, 10 per cent of New Jersey, and many other lowlands throughout the world" within a century or less. The forecast, which also envisions widespread disruption of agriculture, is the fruit of analyses and computer simulations conducted by the Institute for Space Studies of the National Aeronautics and Space Administration. A century ago the amount of carbon dioxide in the air was 280 to 300 parts per million. It is now 335 to 340 parts per million and the figure is expected to reach at least 600 parts per million in the next century. If fuel burning increases at a slow rate with emphasis on other energy sources, the study predicts a global temperature rise in the next century of about 5 degrees Fahrenheit (minus 15 degrees Celsius). If fuel use rises rapidly, the predicted rise is from 6 to 9 degrees. Even the more moderate rise of 5 degrees, the authors say, would result in higher average temperatures than were reached in the period between the last two ice ages. At that time sea levels were 30 feet higher than they are today, probably because West Antarctica was ice free. The climate "would approach the warmth of the Mesozoic, the age of dinosaurs," the report says.

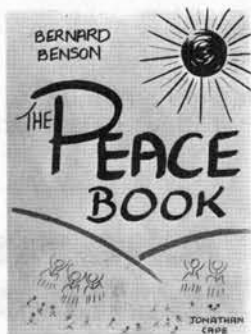
U.S. knows Names of endangered Workers, but nobody will tell them, Joanne Omang, *International Herald Tribune*, 25th August 1981.

U.S. Federal agencies know the names of hundreds of thousands of people who have been exposed to cancer-causing chemicals on their jobs, but the government has made no effort to tell them. Nor has any effort been made to name or notify 21-million workers — one in every four — known to have been exposed to hazardous materials regulated by the Occupational Safety and Health Administration. The

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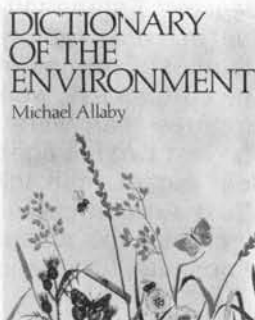
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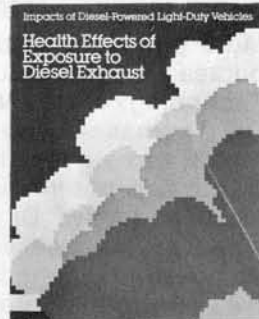
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Health Effects of Exposure to Diesel Exhaust. The Report of the Health Effects Panel of the Diesel Impacts Study Committee.

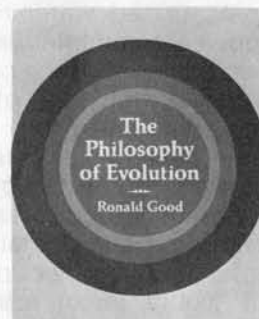
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In the next twenty years a markedly increased number of automobiles and light-duty trucks in the United States will be powered by diesel engines. The effect of this increase is likely to contribute to the burden of air pollution, giving rise to concern about the human health hazards from exposure to potentially harmful chemical constituents. Some of the components of diesel exhaust have been shown to be toxic, mutagenic or carcinogenic. This report by the National Research Council considers the implications.

The Philosophy of Evolution

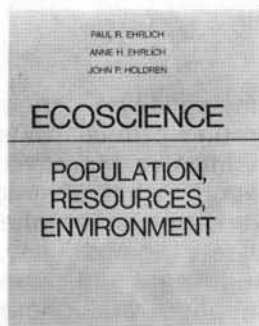
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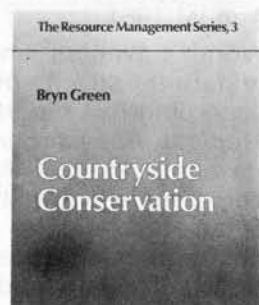
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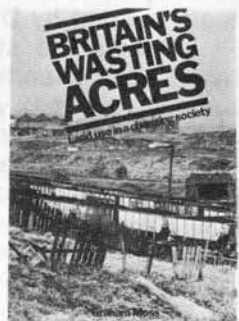
By Bryn Green
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Modern agriculture and forestry are viewed by some as the main threats to conservation of the countryside. Many people think that farmers and foresters need only make small compromises to provide a countryside rich in wildlife — an idea Bryn Green disputes. Most of the legislative and organisational framework of today's farming and forestry was established at a time when rural circumstances were very different, and herein lies one of the roots of the conservation problem. Another is the incompatibility of agricultural objectives and environmental protection.

Britain's Wasting Acres: Land Use in a Changing Society

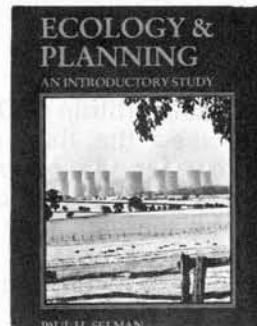
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Britain's Wasting Acres shows how the relentless demands of a consumer society combined with the pace of industrial change has created land wastage on a terrifying scale. Graham Moss has a practical message for the future, showing how land wastage can be reduced, how polluted lands can be reclaimed and, perhaps most important of all, how a greater sense of environmental responsibility can be developed by education at all levels.

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National Institute of Occupational Safety and Health has used the lists of names only for research, waiting for the people on them to die. Then the names are followed up, and if the causes of death can be learned, they become part of the tally the government uses to set up control standards for dangerous substances. The federal institute estimated at a 1977 Senate hearing, that it would cost up to \$40 million to find and notify all of the estimated 21-million workers who have been exposed to a hazardous substance. Giving them medical surveillance — not treatment, but just to spot developing illness — would cost \$54 billion. "We see our role as research, not as a public health agency," said Dr Ron Coene, executive officer of the National Institute of Occupational Safety and Health. "We publish our results in technical reports not geared to workers, but for our peers and the regulators. The worker is not our primary audience." When the lists of dead are obtained, the institute then tries to find the cause of death, from which it gets statistics. Once it is decided that those statistics show an increased risk of some illness for exposed workers, it proposes to the Department of Labor that worker exposure be regulated. The National Institute of Occupational Safety and Health has sent in 105 such recommendations since it was set up in 1970, but the Occupational Safety and Health Administration has only established regulations for 10 of those. More than 500 substances, including 22 carcinogens, are regulated as hazardous by the Occupational Safety and Health Administration, the Environmental Protection Agency and other agencies, but workers may not know they are being exposed to them. Legislation requiring labels of industrial products to carry health warnings has repeatedly failed to make it through Congress.

Chemicals that keep their deadly Secrets, *New Scientist*, 17th September 1981.

Workers are exposed unnecessarily to dangerous chemicals because the companies that supply the chemicals often do not pass on information about their dangers. So says a report published by Social Audit, a public interest group. The author of the report, Maurice Frankel, looked at the safety information about 500 chemicals contained in "data sheets" that 200 suppliers give to their customers. He says that many suppliers give inadequate warnings in their data sheets, which may "dangerously mislead people who use chemicals at work". For most workers — and many employers — data sheets are their only source of information about the hazards of the chemicals they use. And Social Audit's investigation — backed up by a questionnaire sent to suppliers (not many of whom bothered to reply) — reveals disturbing shortcomings. In the first place, some suppliers won't even give their data sheets to safety representatives in their customers' factories; only 24 out of 55 suppliers who replied to the questionnaire said they would. But perhaps more dangerous, many data sheets mislead workers by

playing down dangers, ignoring hazards, misinterpreting official "safety" levels, and being vaguely dismissive. Moreover, few suppliers will tell workers exactly what chemicals are in their products, so workers cannot check the reliability of the data sheets against, say, standard text books. Social Audit says data sheets are so bad because many suppliers are ignorant about the hazards of their products, and they fear that revealing dangers will make customers switch to other suppliers, and because the Health and Safety Executive has been lax in enforcing the law about disclosure of hazards and done little to guide suppliers. Its report calls on the executive to supervise data sheets much more closely.

New Type of Malaria foils Drugs, *The Times*, 29th August 1981.

World travellers should beware of a new drug-resistant strain of potentially lethal malaria, according to a report in the *Journal of the American Medical Association*. It says that two American travellers in East Africa were stricken with falciparum malaria even though they had conscientiously taken the widely prescribed anti-malarial drug, chloroquine, as a precaution. It was the first time the resistant strain had been found in Tanzania and Kenya, the journal says. The chloroquine-resistant strain has already been identified in 20 countries in Africa, Latin America, India and South-East Asia.

Lead Poison effects on Intelligence disclosed, *The Times*, 1st October 1981.

A report in *Development Medicine and Child Neurology* claims "significant associations" between blood/lead levels and children's scores in tests of reading, spelling, and intelligence. Those results were known at the Department of Health before the Government took its decision in June. The report is the result of the work of a research team headed by Dr William Yule, of the Institute of Psychiatry. The study was based on 166 children living near a leadworks in outer London and aged between 6 and 12 years. Their blood/lead levels averaged 13 micrograms per 100 millilitres; well below the level usually accepted as harmful. The tests of reading, spelling, and intelligence, however, showed that the children with the lowest lead levels scored consistently better than those with highest lead levels.

Another Potential Problem in Drinking Water, Thomas H. Maugh II *Science*, vol. 212, 24 April 1981.

A new class of potentially hazardous compounds, dihaloacetonitriles (DHAN's), appears to be present in drinking water throughout the United States. The DHAN's are apparently produced by the action of chlorine on amino acids and other naturally occurring materials in water during disinfection. Dichloroacetonitrile, the most prevalent member of

this class of compounds, has been found to be a mutagen by the Ames test. Other members of the class are under study in the National Toxicology Program. Dichloroacetonitrile and trichloroacetonitrile can also break down into chloroform, which is known to be carcinogenic. EPA has been cautious in assessing the potential risks associated with DHAN's, primarily because so little is known about them yet. It now seems likely that the agency will fund further studies to see how widespread the chemicals are and what biological effects they produce. According to one EPA scientist, however, it will probably be at least a year before the agency will know whether there is really a problem.

Wildlife, Agriculture and Resources

Rodale Report, *Environment* (Spectrum Section), July/August 1981.

Growing food closer to where it is eaten is essential if consumers are to save on energy costs and avoid dependence on a few far-away sources of supply. A new Rodale Press study of Pennsylvania's food supply emphasizes the current highly specialized, regional nature of U.S. agriculture. Despite the fact that Pennsylvania is the most productive agricultural state in the Northeast, in 1980 it imported almost 70 per cent of its total food needs, some \$8.4 billion worth of food; the transportation costs alone amounted to \$400 million. Although the imports included 80 per cent of the fresh vegetables consumed in the state, the Rodale study indicates that Pennsylvania could become essentially self-sufficient in vegetables by cultivating only 4.5 per cent of its total farmland, less than half the amount of land currently in under-utilized hay fields. Noting that 164 square miles of land in Pennsylvania are lost to erosion and development every year, the Rodale study warns that unless something is changed "the system will crash". An area the size of Pittsburgh is consumed by development every eight months, and every year enough topsoil is lost through erosion to bury the capital city of Harrisburg under a blanket of dirt five and half feet deep. In an interview with the *New York Times*, Robert Rodale of the Rodale Press stated, "The whole Northeast is really in a critical position, in terms of its food dependency". This dependency, he said makes the region highly vulnerable to transportation strikes and rising energy prices, and to drought and labor disputes in California. The Rodale report recommends that Pennsylvania inventory its farmland, institute an emergency food plan for use in the event of supply disruption, and offer tax incentives to encourage the growing and marketing of crops for local consumption.

Water, Will we have enough to go around?, Kenneth R. Sheets, *U.S. News & World Report*, June 29, 1981.

Nearly every part of the U.S. faces serious water troubles — either lack of supply or doubtful purity. Experts warn that time for remedies is rapidly running out. "Water is the most serious long-range problem now confronting the nation — potentially more serious than the energy crisis", declares Gerald D. Seinwill, acting director of the Water Resources Council, a federal agency that recently completed a study of the nation's water supplies. "By the turn of the century, almost every section of the country faces water shortages unless the nation recognizes that we cannot continue to waste and mistreat a precious, finite resource." Some parts of the U.S. suffer longer-range water problems. Excessive pumping of underground water pools in arid Western states is forcing a return to marginal dryland farming after decades of spectacular crop yields made possible by flooding fields with cheap water. Many farmers may be forced out of business because they cannot afford to bid for water supplies against cash-rich energy companies. Water systems in many of the nation's older cities leak as much water as they deliver. The government warns that fewer than half the 3,700 largest U.S. cities can meet federal sewage standards. The cost of improving these systems means consumers face steadily rising water and sewage bills. Irrigated-crop acreage in the U.S. has almost tripled in the last three decades, now consuming more than 80 per cent of all the water used in the nation. About 40 per cent of that irrigation comes from underground formations of porous, water-bearing rock known as aquifers. In many areas, farmers are pumping water from aquifers faster than nature can replenish it. Says Charles McGinnis of St. Louis, who headed a recent study on water problems for the National Society of Professional Engineers: "We are overdrafting underground water tables by 26 per cent. This means that for every 100 gallons taken out, only 74 are being returned. Americans living in areas that enjoy ample rain and snow have found that they too, face serious water problems. Surveys show that water supplies in hundreds of communities are so contaminated that they are not safe to drink. Eckardt C. Beck, a former official of the Environmental Protection Agency, points out that "industrial discharges, agricultural and urban runoff and accidental spills combined to make many of our rivers and streams a lethal soup of organic chemicals." Chemical contamination has forced the closure of more than 600 ground-water wells in the New York City area over the past three years. Health officials fear that potential cancer-causing chemicals may jeopardize thousands of other water wells in coming years. And nearly 300 families around Fonda Lake in southeast Michigan have been using bottled water for three years, ever since their water supply had become contaminated by road salt stored by the State Highway Department. Officials have identified nearly 800 sites with ground water either contaminated or suspected of contamination.

Bird Species declining fast, despite Protection, Pearce Wright *The Times*, 8th August 1981.

More than 200 species of birds threatened with extinction have been added to the latest edition in the series of *Red Data* books, listing endangered families of wildlife and measures in hand to protect them. The few victories for conservation do little to relieve an otherwise depressing picture presented in the handbook, issued by the International Council for Bird Preservation. Among the new species are two that were recently rediscovered after being thought extinct; the Chatham Island Taiko and the White-winged Guan. The plight of two species, the Californian Condor and the Siberian White Crane, remains acute. Conservationists have had no success in attempts to protect the Condor from extinction. Hopes are also diminishing for the Siberian White Crane, which one of the council members called "exquisitely beautiful" but which has a tiny remaining population.

Killer Floods caused by Tree felling, Chinese say, *The Times*, 4th September 1981.

Disastrous floods this summer along the upper reaches of the Yangtse, which killed hundreds of people, were largely manmade. Mr Tan Qilong, the chief Communist Party official in Sichuan, the stricken south-western province, where a further 1,500,000 people lost their homes, blamed ecological disruption resulting from indiscriminate tree felling as one of the main causes. In the past few decades large areas of the once abundant forests in the Yangtse catchment area had been destroyed. The result was that this year's unusually heavy summer storms sent torrents of water washing down hillsides unchecked by the once thick covering of trees, undergrowth and tangled roots. Mr Tan concluded that the only solution was an urgent programme of planting trees to restore the environmental balance. The destruction of forests not only increases the annual flood threat to Sichuan, but poses a potentially more serious long-term threat downstream in the prosperous, fertile and heavily populated Yangtse valley. A recent survey by

Chinese scientists indicated that not only was China's biggest river now more prone to flooding, it was also in danger of gradually silting up with topsoil washed down from the denuded hill-sides. This would play havoc with the impressive system of dikes and flood fortifications. According to official reports, the great waterway could become "a second Yellow River" if nothing is done. The Yellow River, China's second longest waterway, took its name from the vast quantities of silt it carries down each year from the north-west. It used to be known as "China's Sorrow", because of the frequent disastrous floods on the north China plain. The river is said to have changed course 26 times in the past 3,000 years by breaking through dykes, claiming the lives of millions of peasants living in its shadow. It has overflowed 200 times in the past century.

British team links kwashiorkor and bad storage of Third World Food, David Hencke, *The Guardian*, 11th July 1981.

A team from Liverpool's School of Tropical Medicine has found evidence of alphatoxin poisoning in peanuts grown and stored in a huge crop irrigation project by the Blue Nile in Sudan. Alphatoxin is known to cause liver disease and cancer in animals. Professor Ralph Hendrickse who runs the school's department of tropical paediatrics, said there was a possibility of a link between alphatoxin poisoning and kwashiorkor. In the past kwashiorkor has been ascribed solely to protein deficiency. Now research suggests that aid poured in to grow protein food like nuts could, if the food is not properly stored, contribute towards death rather than save life. Professor Hendrickse said "Our investigations have confirmed market inspector's findings that ground nuts, and vegetables like peppers sold on the market contain high levels of alphatoxins. This could have implications far wider than just in the Sudan. It could affect every tropical country." Irrigation of two million acres in the Gezira region of the Sudan has changed the climate and humidity. Hot desert conditions have been replaced by humid heat which encourages the growth of mould in stored peanuts after the wet season.

Errata and Apology: **Monopolies attack on CEBG's Investment.**

In our May/June digest we inadvertently misquoted an extract from the Monopolies Commission's report. The extract should have read, "We consider that the Board has *not* been pursuing a course of conduct which operates against the public interest in respect of its internal cost control and project control systems, its management information systems or its methods of stock control."

We apologise to the CEBG for this error.

Also omitted from the Digest synopsis was another quote: "While we find that the Board's demand forecasting has improved, we consider that there are serious weaknesses in its investment appraisal. In particular a large programme of investment in nuclear power stations, which would greatly increase the capital employed for a given level of output, 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 regard operates against the public interest."