

WOLVES OF WATER

A Study Constructed from Atomic Radiation, Morality,
Epidemiology,
Science, Bias, Philosophy and Death

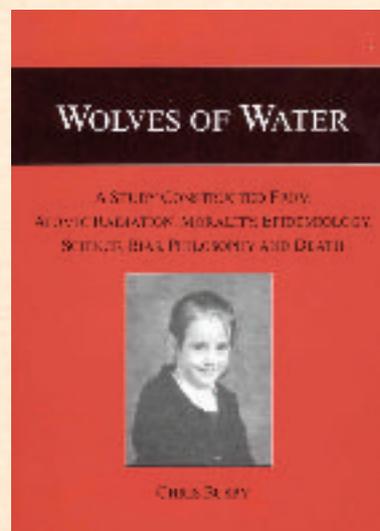
by
Chris Busby

*Come then all of you, come closer, form a circle
Join hands and make believe that joined
Hands will keep away the wolves of water
Who howl along our coast. And be it assumed
That no one hears them among the talk and laughter*

Louis MacNeice

Light and Dark. Good and Evil. Themes from the night time recesses of our folk memories. They recur in literature, poetry, film: they are as old as time itself. In the scientific daylight of 2006, with the planet in danger, with massive expansion of industry, of pollution, of war, terrorism, threats of the effects of global warming, species loss, new diseases, even in this rationalist western world, illuminated by the stark light of scientific rationalism, no one can quite bring themselves to laugh about these deep ancient fears and pass them off as fantasy, or the stuff of dreams and cinema. There has always been an underlying public suspicion that the superficial events that influence their lives and the explanations of these events, which are common currency, do not address the underlying political truths. They suspect there is a real story that they are not being told. They are right. And, from time to time, stories emerge that demonstrate this. This is one such story. The message of this book is that the developments and advances of science have brought in their train devastating illnesses, and an even more devastating change in the way in which we now see the world.

Since 1992 Chris Busby, scientific maverick and green activist, has single-mindedly pursued a lengthy investigation into the health effects of radioactive pollution and in doing so has slowly uncovered the elements of an extraordinary high level cover-up of the environmental causes of cancer. And worse: the discovery of a new phenomenon. Science induced blindness. This book is the culmination and conclusion of the author's research over the last fifteen years into the health consequences of exposure to planetary radioactive contamination of the food, the air and the water. By 2001 Busby had become a member of two UK government committees set up to examine the issue and, in 2002, had become policy leader of a large EU funded committee examining and advising on the translation of scientific research into policy. The discoveries he



had made on the bias, secrecy and near criminal activities of policy makers and their advisors, operating at the highest level, showed that these problems of secrecy and cover-up were not restricted to the area of radiation and health. They were institutional and arose from a simple tension. The tension was between industrial expansion and competitiveness in the global economic market on the one hand and, on the other, millions of deaths from exposures to the poisons released into the environment from these same processes. This tension is at the heart of all the discussions that presently direct the course of life on this planet: and if they are not properly resolved, resolved on the basis of the truth, then the future is bleak. This is the main message the author has for the planet: beware of the claims of scientific thinking. Beware of the claims of science to objectivity. There are bad people and good people. There is light and dark. The folk tales were right and are still right. In this book the author introduces you to some of the real actors on both the dark side and the light in this real story of the real world in 2006, naming names, demonstrating cover-ups, and whistle blowing on the health protection system of the developed world.

Those who are alive now, on this spaceship Earth, are living in the most important time in human history. The decisions we make now, to allow this specific technological development, to ban the releases of that particular substance, will decide whether we survive: perhaps whether life itself survives. I am by nature an optimist, but I am horrified at the cavalier use that is being made of science for making money, making reputations and just having a bit of fun. The children are in the armoury and are playing with loaded guns. . . .

It is impossible to do justice to this extraordinary book in this introductory leaflet. In the pages that follow he provides an executive summary of the main discoveries and most important messages.

Part I Introduction: in which I give an account of my life and how the book came about

We are in the middle of a cancer epidemic. Victims are told it is because of an ageing population. They are told that it is because they lived the wrong sort of life, ate too few green vegetables, smoked too many cigarettes. They are told they have inherited it in their genes. This is untrue. The true cause is environmental pollution. I have spent the last 15 years of my life investigating the scientific description and beliefs about radiation and cancer and this book is the account of my progress and my discoveries in this area. But in this search I have also been led to examine the ways in which we now think: in particular I have examined closely the common idea that science provides the best and safest way of describing the world. What I have discovered is that it is not. Despite its successes and attraction as a philosophy, in its reductionist approach and mathematically constrained simplicity, science presents serious dangers, which people should be aware of.

I was educated as a scientist and have degrees in Physical Chemistry and Chemical Physics. I worked at first for the Wellcome Foundation examining the effects of drugs at the molecular level, but became bored with the limitations of the work and *at the age of 29 I ran away from a well paid job to a life of adventure, a life that combined hardship with a quality of immediacy, brightness and contact with reality* . . . I took my family to a life on boats, barges and yachts. After 10 years of this, we moved to Wales to build up a ruin by a river in the mountains. It was there, in 1986, that the Chernobyl fallout caused me to begin looking at the effects of ionising radiation on health and to think deeply about the philosophical descriptions of phenomena, particularly the scientific model. With Pontius Pilate I asked, 'What is Truth?'

Cancer causation has received more scientific research effort than almost any other area of science, yet in 1993 the link between cancer near nuclear sites and ionising radiation, a known cause of cancer, was being routinely dismissed by science. The argument centred on the childhood leukaemia

cluster near Sellafield, where the disparity between the number of cases observed and those predicted on the basis of the theoretical model was more than 300-fold. But was the model itself at fault? My investigation of the science soon showed its simplicity and scientific bankruptcy. We know the cause of cancer and leukaemia. All the evidence is clear. Cancer is an environmental disease caused by substances that mutate the DNA in cells.



Science has known this since the 1960s. Primitive peoples, living in unpolluted areas of the world and studied by explorers and anthropologists, rarely developed cancer. Rates for different cancer types in different parts of the world vary widely, but if there is migration from one part of the world to another the migrants develop increased rates for the cancer associated with the area they move to and lose the cancer associated with the area they move from. Japanese migrants to Hawaii lose their high stomach cancer rates but acquire the high local breast cancer rates. For certain cancers, causative agents are known, e.g. radiation and leukaemia. Such substances are always mutagens, causing mutations in DNA. Increases in cancer rates over time follow releases of mutagens to the environment. The final confirming evidence is provided by a huge study of twins that showed that the non-heritable component of cancer was generally greater than 80%. So cancer is an environmental disease caused by DNA damage. Initial mutations in the cellular DNA are slowly amplified over a long period of time as cells

divide in the body and exponentially increase the chance of any individual cell acquiring the genetic mutations leading to the condition.

Radiation is the largest single mutagen. So why was radiation not the cause of the nuclear site childhood cancer clusters? The answer was that there was an institutional cover-up driven in the Cold War period by nuclear military secrecy and now driven by the nuclear lobby and fears of litigation over the largest public health scandal in history. Cover up began in the period of the Cold War with an agreement in 1959 whereby the World Health Organisation was not to examine the effects of radiation on health, a matter which was to be left to the International Atomic Energy Agency. The agreement is still in force and has been used to deny the terrible effects of the Chernobyl accident. I provide evidence of this cover-up at the highest levels in the United Kingdom government and its agencies and committees. I begin by examining the health effects of the Sellafield pollution on populations living near the Irish Sea.

Part 2 Discoveries: in which I am funded by Ireland and spend five years examining leaked cancer data and find that Sellafield pollution is killing people on the coast of the Irish Sea. I look at other nuclear sites and find similar cancer effects. I discover the cause. I describe the cover-ups.

I have presented complex and difficult science in this book, but I have tried to make it accessible to all. Since my main presentation is about epidemiology, the science of connecting illness with cause, I spend some time explaining how this is done. I provide simple instructions to those who have to investigate pollution sources and health. Since the Sellafield leukaemia discovery in 1983, epidemiology has become surrounded by complications due to the effort put in by government scientists to find ways of denying causal links between illness and pollution. But we can use simple methods to look at the data and see if more people are developing cancer in some area than should by the normal play of chance. In 1996 I was leaked

the whole small area data set of Wales Cancer Registry. In 1998 I was funded by the Irish State, in connection with a court case Short and Others vs BNFL. With the help of single parents, students and drop-outs, and initially no money, I looked at cancer risk in Wales by distance from the Irish Sea coast.

We found that there was a significant and extraordinary local sea coast effect on nearly all the cancers we examined. It was driven by living near coasts that had high levels of plutonium from Sellafield, washed up in the intertidal sediment. I provided a 200 page report on my findings, but this was the property of the lawyers and I was asked not to publicise any results. The case has now (2006) collapsed and so the truth can now be told. I present these results in their totality, with maps and graphs and numbers. Between 1974 and 1989, the main period of radiation releases to the Irish Sea, more than 5000 people developed cancer in the 1 km deep Welsh Coastal strip. These include children dying of leukaemia and brain tumours. It includes women with breast cancer living near the contaminated north Wales coast. The trend of excess cancer was exactly the same as the trend of seaspray-driven plutonium, as measured by Harwell scientists in the 1980s.

We went on to look at Ireland, using Irish Cancer Registry data. We designed and carried out a questionnaire study in Carlingford in Ireland. We looked at English nuclear sites - Hinkley Point in Somerset and Bradwell in Essex. Everywhere we made a study we found the same result. Radioactive material, believed to be safely diluted in the sea, was being resuspended and driven back on land where it was inhaled and incorporated into the body. The authorities knew this. They had measured it in children's teeth, in autopsy specimens, in grassland and in soil.

Some of our results leaked out and TV documentaries were made. The official responses were savage and dismissive. The Wales Cancer Registry was closed down and its personnel dispersed. The files were wiped from the Welsh Office mainframe computer. A new Cancer Intelligence Unit took 15% of the

children with cancer off the database and denied there was any effect. The government committees underwrote this airbrush. Meanwhile, a Welsh TV company had been searching for the children and had found them. A new documentary was made. The fight went on. I asked myself how it was that such a system of defence, lies and institutional chicanery could come about. I developed a political analysis and began figuring out ways of getting my message across. For it rapidly became clear that the radiation story was just one aspect of a much bigger problem: the tension between industrial development, pollution and profit on the one hand, and the ill health of citizens on the other.

Part 3 Denials: in which I describe how the effects I have discovered and reported are attacked and dismissed; I discover evidence of high-level cover ups;

The cover-up of these Irish sea effects was only one of many in the area of radiation risk. Everywhere I looked there were lies, alterations of data, bogus reports, insecure conclusions and desperate attempts to obfuscate the issue. I describe these and illustrate them with stories, data, calculations, intercepted e-mails and photocopies of official documents. For example:

- How the eminent epidemiologist Sir Richard Doll and colleagues wrote an influential scientific paper which wrongly combined inappropriate databases and omitted critical information. How Doll and others restructured studies on A-Bomb Test veterans to lose conclusions that they had suffered excess leukaemia, thus saving the government money in veteran's pensions .
- How the wind direction at the time of the Windscale reactor fire was retrospectively altered and the official reports were altered to suggest that no radiation reached Ireland.
- How the A-Bomb studies, which underpin radiation risk, were retrospectively altered to lose data that showed genetic effects.
- How the official reports of cancer



incidence from the Office for National Statistics were tampered with to suggest that the cancer rate increase which followed Chernobyl actually began before Chernobyl and that, now, the trend data is no longer tabulated.

- How an official epidemiological study of breast cancer near the Bradwell nuclear site in Essex made serious mistakes and then, when the error was pointed out, altered the method used so as to obtain the same conclusion, i.e. that there was no excess risk.
- How Wales Cancer intelligence Unit made serious epidemiological errors in analysing childhood cancer near the polluted Welsh coast and how their erroneous conclusion was underwritten by official government radiation risk committees.

Part 4. Explanations and Resolutions: in which I discover and publish proof, in Chernobyl effects in Europe, that the thesis of this book is correct. I join government and EU committees; cracks appear in the fabric of the official science; I develop a political strategy; I suggest a solution to the problem; I warn humanity about science as religion.

As it became apparent that government policies, underpinned by official science, were resulting in cancer and death, the question was how to stop this happening. I had to think about belief, media, credibility, politics and psychology. Out of this came action. With Richard Bramhall and Molly Scott Cato, I started the

Euratom Directive Campaign which opposed the proposal to recycle radioactive waste into consumer goods. We organised a Europe-wide petition. We printed leaflets and literature, which was distributed through Green Parties. We spoke on TV and sent material to the media. This led to meetings with politicians and, eventually, with Michael Meacher, who was persuaded by our arguments to refuse to implement the recycling directive. Because of this your saucepans are not now radioactive from incorporated parts of some decommissioned nuclear reactor. At the same time, I organised the founding of the independent European Committee on Radiation Risk (ECRR) and, with Dr Rosalie Bertell, Prof Alexey Yablokov, Prof Inge Schmitz Feuerhake and Molly, put together and produced the ECRR 2003 *Health Effects of Exposure to Low Doses of Ionising Radiation*. This has been translated and published in Spanish, French, Russian and Japanese, and the model is being increasingly used as an alternative (and more accurate) method of predicting health effects. This project has become very successful and, in 2006, Prof Yablokov and I produced ECRR 2006, *Chernobyl 20 Years On*, which reviews the true consequences of the exposures from the releases at Chernobyl as reported in the Russian language literature. I went to Kiev in 2001 to give a paper on the childhood

leukaemias, and I report the cover-ups by the United Nations committees of the health meltdown in the affected ex-Soviet territories.

Our examination of official science advice committees led us to the conclusion that the only way to overcome the cultural bias of scientists was to have oppositional committee structures where both sides of any proposed policy involving uncertainty about health effects are researched and reported separately in the same document. We persuaded Michael Meacher to set up a prototype of this in the Committee Examining Radiation Risk from Internal Emitters (CERRIE). But the danger to the nuclear lobby in CERRIE was too great and the powerful moved swiftly. Meacher was sacked and legal threats were made to individual members. Thus the oppositional report was never written. Anticipating such a move, I organised the publication of a *Minority Report* and took it to the media in 2004.

CERRIE failed and the Kiev conference was biased because the committees were not being run honestly. In the case of CERRIE, one member of the secretariat, Marion Hill resigned and wrote a letter to the effect that the Chair and secretary were biasing the work. The book describes the antics at the Kiev conference (captured on video): the conference conclusions were altered and we



ended up dosing on a KGB boat on the Dnieper.

The oppositional model is not wrong because it failed in CERRIE. In 2004, I presented it to the EU Policy Information Network on Child Health and Environment (PINCHE), which offered it to the European Commission as a preferred model for science advice. It also worked well in the Ministry of Defence Depleted Uranium Board, which I serve on.

If Science has failed us because we have been encouraged to believe it is The Truth, there is an answer. We must search for the truth in the same way as in Court, or in Parliament - with both sides arguing the case out. We have to pre-empt any more *science assisted collisions with reality*, like radiation and health.

Wolves of Water is about corporate responsibility as it is applied to national governments. Part biography, part textbook, part warning, part entertainment and part celebration of life, it is an account of one man's decision to take on the might of the nuclear/ military lobby using the methods of science and epidemiology. Most of all it contains a message to the planet and its inhabitants to take control of the science/ policy interface before the products of science and scientific ways of thinking destroy us all. The book charts developments in Dr Busby's researches on the subject of radioactive pollution from the nuclear industry since his Wings of Death (1995) introduced the thesis that the releases to the environment of novel radioactive substances like Caesium-137, Plutonium-239 and Strontium-90 were the cause of the present cancer epidemic. Presenting his research on the health effects of Sellafield and cancer near the Irish Sea as a hook, Busby dissects the workings of the government advisory establishment, the biased science and the institutional cover-ups of the causes of cancer and other illnesses.

From cancer near nuclear sites and contaminated coasts, he moves on to radioactive dust in middle England, plutonium in your children's teeth, buried nuclear reactors under housing estates and the effects of Uranium weapons on people living thousands of miles from battlefields. Packed with anecdotes, asides, poems, photographs, songs, quotations, graphs and tables of data, this colourful, informative and empowering work is recommended reading for epidemiologists, environmental activists, scientists, philosophers, politicians, regulators, lawyers and, perhaps, criminologists.

After reading this book, the world will not seem the same place.

Wolves of Water, ISBN 1897761-26-0 is a large book, roughly the size of a dictionary. It has 528 pages, 32 colour plates, 78 diagrams, 105 tables, 750 references and 3 Appendices. It took 5 years to write. The author acknowledges his deep debt to the Joseph Rowntree Charitable Trust for support during the preparation of the book. It is available direct from Green Audit, Castle Cottage, Sea View Place, Aberystwyth SY231DZ, or by emailing admin@greenuaudit.org, and by order from any bookseller. Price £12.00 plus £5.00 postage.

Cover of book shows Gemma D'Arcy who lived near Sellafield and died of leukaemia (used with permission).